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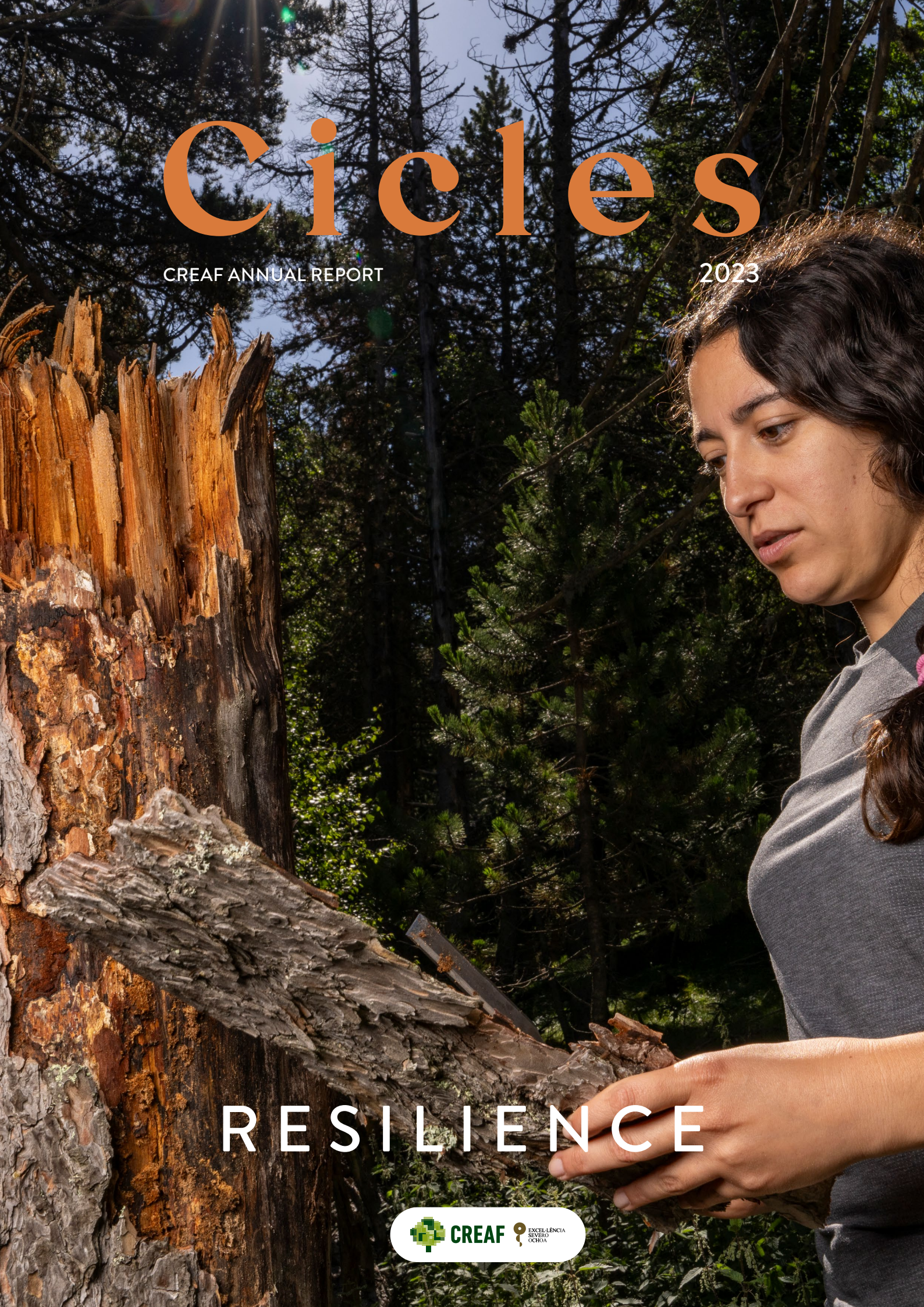
CREAF ANNUAL REPORT

2023



RESILIENCE

CREAF EXCEL·LÈNCIA SEVERO OCHOA

RESILIENCE · CREAF ANNUAL REPORT 2023

Cerdanyola del Vallès, 2024

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Luciana Jaime, CREAF post-doctoral researcher. Photo: Joan de la Malla. Santa Fe del Montseny. Photo: Galdric Mossoll

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CONTENTS

CREAF 2023: RESILIENCE AS A KEY VALUE

You are holding the CREAF report for 2023, a year in which we all decided that the tree that best represents us is the holm oak (Quercus ilex): a tree that is resilient to disturbances. It is the resilience of CREAF this year that I would like to highlight.

In 2023, the world faced challenges that put its resilience to the test. Apart from wars and their serious humanitarian, social and economic consequences, the climate emergency has been more palpable than ever. As proof of its resilience, CREAF continued to meet this challenge, building on its mission to connect high quality research and transfer with policies and society, in a complex political context.

A comparative analysis conducted by the new Severo Ochoa proposal shows that CREAF is now a leading centre of scientific excellence, which stands out for the number and quality of its publications and for the international renown of its personnel. It is one of the most active CERCA centres in the media and on social networks, and a leader in citizen science. CREAF is one of the centres to have the greatest impact on environmental policies: it attended COP28 and COP15, its presence has been requested by the Catalan and European Parliaments, and it has fostered dialogue between its research and other areas, such as education and the arts.

We also excel in research management, establishing the project management service and acting as an opportunities hub for young talent, with a record number of pre- and post-doctoral researchers. We form part of the Catalan and Spanish platforms promoting a change in the assessment of research and its impact, such as the CoARA platform and the CERCA and SOMMa working groups. Our commitment towards a fair, equal, diverse and inclusive environment was reflected in the approval of a new plan, JEDI. We have also successfully completed one Severo Ochoa programme that has opened the door to the next, which strives to foresee changes in ecosystems and develop nature-based solutions to which we can adapt.

It is now time to take a new look inwards to ensure all these changes leave nobody behind. We are therefore strengthening internal coordination and communications through two committees to support the Director's decision making, and are starting to renew the collective bargaining agreement. There is still a lot of work to do. We must improve the facilities and the organisation of an ever-growing centre that is increasingly necessary in decision making. We have a long path ahead of us.

Thank you to the CREAF community for its part in making this dream come true.

JOAN PINO VILALTA

Director of CREAF
Professor of Ecology at the Autonomous University of Barcelona

CREAF AND SCIENCE, IN SERVICE TO SOCIETY IN TIMES OF ENVIRONMENTAL CRISIS

We can sense that times are changing, we feel it might be similar to the industrial revolution, we are amidst a rift, a necessary and deep change, with the survival of the species in mind and with an impartial variation to the model of life we have followed since the last century.

Society's view of today's major change, the climate emergency and the biodiversity crisis, is distant and remote, observing what is happening yet with our minds set on the now, evading the perspective of time. Embracing changes and needs that cause the present crisis is extremely disruptive. Saying that is not financially sustainable to rebuild beaches, devastated over and over again by storms, is frowned upon. Explaining that we are reaching a limit in the use of water and that, with an economy of a Mediterranean country, we cannot afford to manufacture endlessly is impolite.

Real politics, which inform, which treat society as an adult, which truly want to transform to guarantee social and economic justice and to ensure the change does not destroy a social network, rely particularly on data, science and, therefore, research institutes.

Reality-based research, applied research, research which allows for many sides of climate change to be managed, research conducted by CREAF, and the capability of CREAF to convey knowledge make it an extremely useful tool in political decision making.

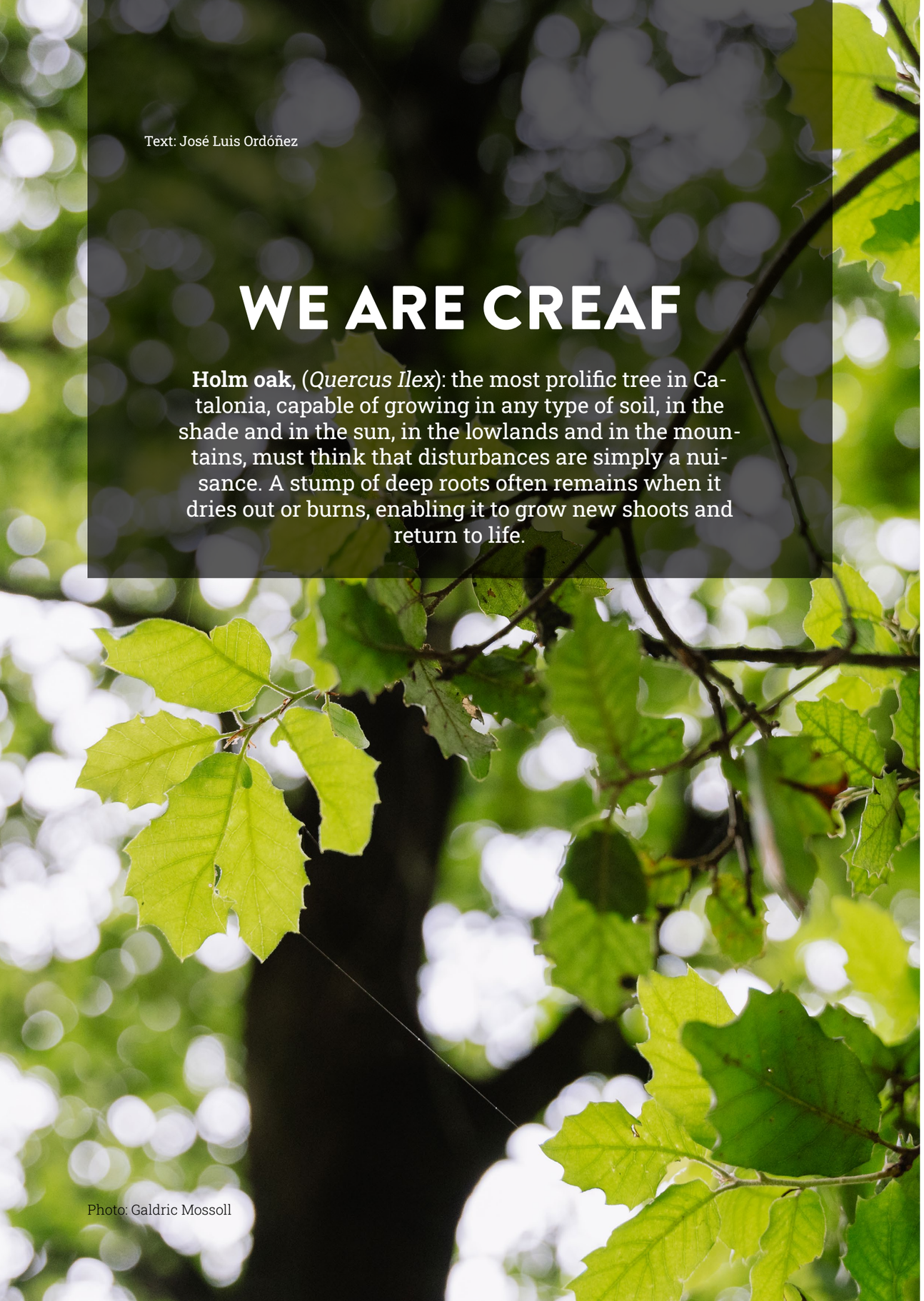
We must work so that, in decision making, the major changes focusing on resilience follow a path that is a far cry from sensationalism, partisanship and vote hunting. A form of agreement with science, with the preservation of biodiversity and human health as a cornerstone, and with an economic vision of social justice.

CREAF explains the balance required for resilience from many sides. Without diverging from the scientific vision, it has been able to apply the resilience of rural societies and ensure informational, accessible environmental communications.

At a time when science believes the clock is ticking and there is confusion about the political motivations of citizens when exercising their right to decide who governs them, the work of a scientific institution such as CREAF is key to familiarising citizens with reality and with knowledge. It is key to familiarising governments with data for decision making, and key to continuing to bring together excellent scientists in service to society.

ANNA BARNADAS I LÓPEZ

Secretary for Climate Action
Generalitat de Catalunya



Text: José Luis Ordóñez

WE ARE CREAF

Holm oak, (*Quercus Ilex*): the most prolific tree in Catalonia, capable of growing in any type of soil, in the shade and in the sun, in the lowlands and in the mountains, must think that disturbances are simply a nuisance. A stump of deep roots often remains when it dries out or burns, enabling it to grow new shoots and return to life.

Photo: Galdric Mossoll

WE ARE CREAF, SINCE 1987

CREAF is a research centre located in Cerdanyola del Vallès (Barcelona), dedicated to accurately understanding and addressing the environmental challenges facing our unique planet. It focuses on climate change, biodiversity, water management, solar protection, and the promotion of a fairer, more resilient society. An enthusiastic, interdisciplinary team of over 200 people work together to generate knowledge and practical solutions, committed to maintaining an inhabitable planet for the generations to come.

We conduct state-of-the-art research and perform practical work in the field to ensure less vulnerable forests, to recover biodiversity, to restore the land or to benefit from nature-based solutions. We work with governments, NGOs and communities around the region, promote innovative educational initiatives, and are intent on creating a healthier, fairer and more resilient world for present and future generations.

OUR VALUES

CRITICAL STANDARDS AND THOUGHT

The basis of our science and our people.

LEARNING AND EDUCATION

We share knowledge. Everyone should understand nature as we do.

COLLABORATION

Collaboration between science and scientific and administrative institutions.

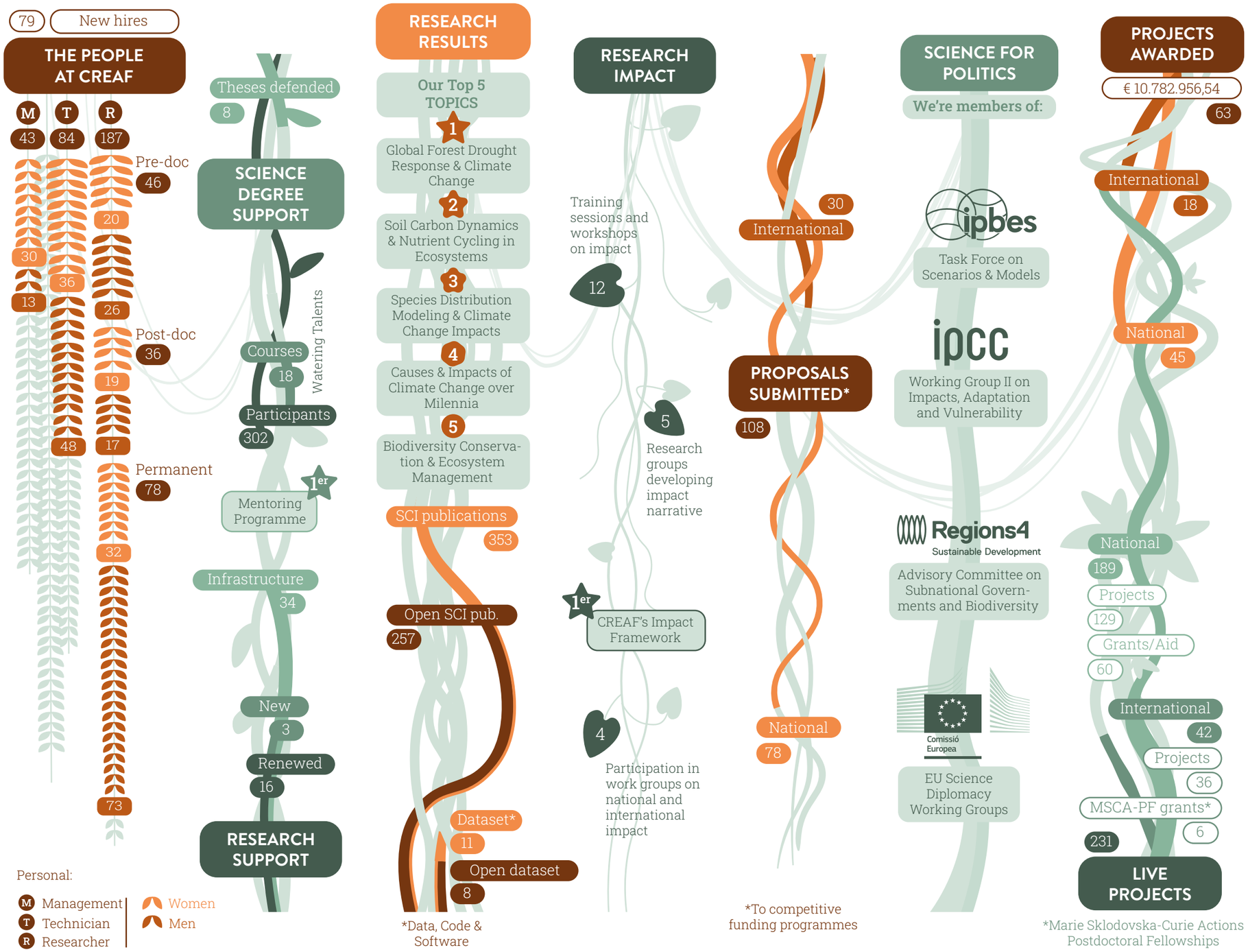
PASSION

Motivation to understand nature. We love what we do; what we do is important.

COMMITMENT

Environmental and social commitment imbues our actions and our research.

Chart: José Luis Ordoñez



Text: Anna Ramon

IN SHORT

A YEAR OF CHANGE

CREAF VISITS THE EUROPEAN PARLIAMENT

Members of CREAF took part in a seminar to defend the urgent need to manage Mediterranean forests. They presented science-based proposals for adapted, consensual management which addresses biodiversity, resilience to climate change, and the provision of services to society.

CREAF SIGNS THE COARA AGREEMENT

CoARA strives to help transform the procedures and indicators used to assess research. It proposes going beyond quantitative indicators and recognising the outcomes, practices and activities that maximise the quality and impact of research.

CREAF AND IPCC AT THE CATALAN PARLIAMENT

CREAF visited this institution twice in 2023, to present the results of the latest IPCC report - Jofre Carnicer in January - and to take part in the Committee for the Prevention and Management of Forest Fires – Mireia Banqué, Lluís Brotons, Joan Pino and Paco Lloret.

Text: Ángela Justamante

RESEARCH CENTRES ALSO HAVE A CALLING AND DREAMS!

We at CREAF like challenges, which is why we have worked together to find a single voice that reflects who we are, who we want to be, and what our dream is. It has been a real challenge but we have finally been able to find what motivates us!

All this began back in 2022. The first step was to produce a participation plan open to everyone at CREAF, so that each individual could do their bit. Finally, almost 20 people with very different profiles decided to join the adventure in a process that has lasted over a year.

Who we are and why we are different

Once the team had been formed, different meetings were held to reflect on the values, distinguishing features and mission of CREAF. We shared our initial ideas in a participatory session at the annual meeting in 2022. People voted for those they liked the most and, because there were still points on which we disagreed, we held an on-line survey to narrow them down until a consensus was reached.

WORKING GROUP IN THE MISSION, VISION AND VALUES PROCESS

JOAN PINO
Management

ALÍCIA PÉREZ-PORRO
Scientific coordinator

ANNA RAMON
Communication manager

ANNELIES BROEKMAN
Researcher

ALICIA CARDONA
Philanthropy Coordinator

ANABEL SÁNCHEZ
Impact officer

ADRIANA CLIVILLÉ
International communications

ENRIQUE DOBLAS
Transfer officer

FRANCISCO LLORET
Researcher

LLUÍS BROTONS
Researcher

TERESA ROSAS
Talent and gender manager

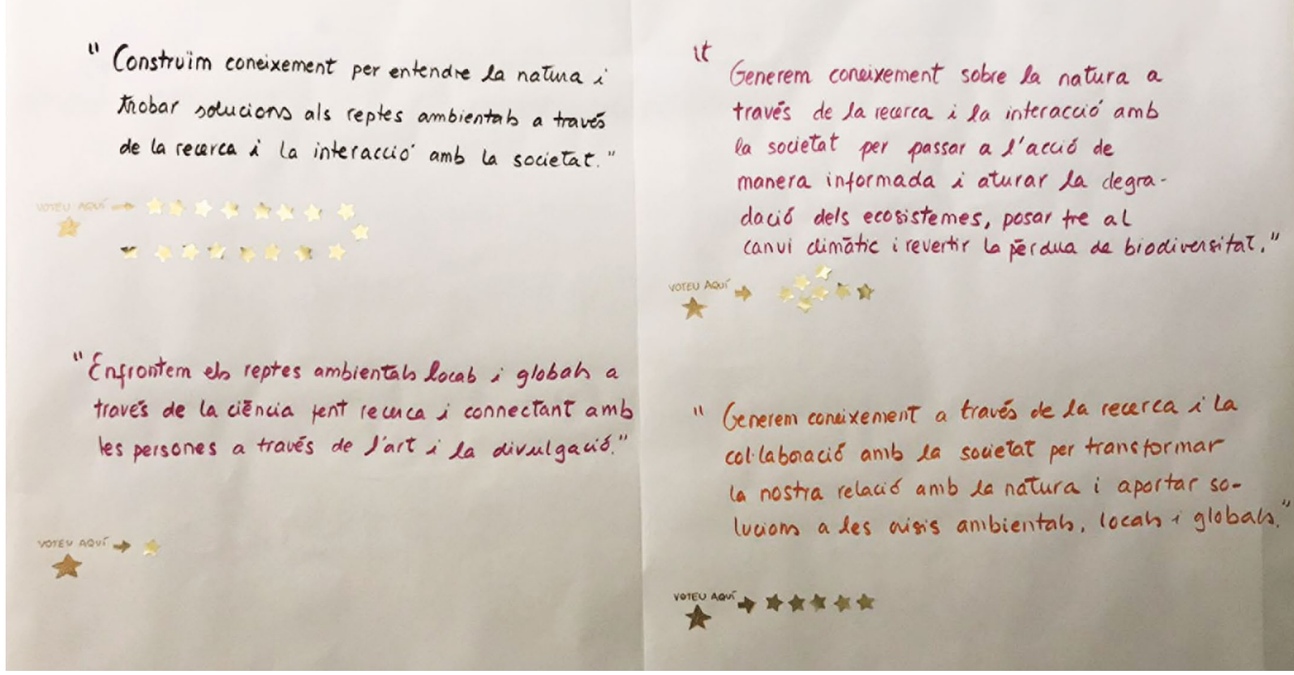
VERÓNICA COUTO
Communication and networks

JAVIER DE LA CASA
Predoctoral researcher

NORA SOLER
Graphic design

JAVIER RETANA
Researcher

JORDI MARTÍNEZ-VILALTA
Researcher



Posters were hung in the corridors of CREAF to vote for the Mission of CREAF. Photo: Nora Soler

Our mission is to generate knowledge in order to understand nature through research and to work with society on finding informed solutions to local and global environmental challenges.

Our values and distinguishing features reflect the diversity of the centre: we are motivated by collaboration, education, critical thinking... and, above all, by the passion for what we do. We are different because we work for an open science that responds to environmental challenges both locally and internationally, and we innovatively communicate our science to society.

The future we want

The last step was the most difficult. We had to leave our comfort zone and think about our vision. We had to dream. This big dream is divided into five more specific ones concerning different areas of work, which we defined alongside those responsible for them.

We have had the support of Silvia Bueso along the way, an expert coach in these types of processes. Silvia has guided and advised us throughout all the group sessions, along with the communication team and the management team, and has been essential in defining the messages using approachable language and encouraging us to imagine ourselves beyond what we do.

We want to work in science for an inhabitable planet, which means that people and nature must progress together.

SILVIA BUESO
Coach and coordinator of the participatory process

Javier Retana and Maria Josep Broncano have coordinated the Severo Ochoa strategy. Photo: Galdric Mossoll

Text: Adriana Clivillé

SEVERO OCHOA, FROM EXCELLENCE TO METAMORPHOSIS

Radical change and consolidation. Being awarded the Severo Ochoa Centre of Excellence distinction has been positive for CREAF, without wanting to avoid self-criticism. The centre received its first distinction in 2023, leading to way to growth.

Four years of receiving the Severo Ochoa Centre of Excellence distinction is a milestone. It is a real turning point, and 2023 marks the end of an initial stage for CREAF. The distinction awarded by the central government is an invitation to innovate and grow, which the centre has taken literally to foster a change, a wake-up call in some cases.

The public faces are its senior investigator, Javier Retana, and its executive coordinator, Maria Josep Broncano. Quality and evolution are the keywords in a conversation to assess the situation, in which certain weaknesses are not avoided.

Were scientific maturity and the desire to grow the reasons why CREAF decided to aim for the Severo Ochoa Centre of Excellence distinction four years ago?

Javi Retana (JR) - Yes, although it has led to a complete change rather than the objective for growth. Research management, for example, has seen a complete turnaround. The scientific team has also grown and we're close to a balance in the proportion of male and female senior investigators.

Which strengths would you highlight from these four years ending in 2023?

JR. - A fantastic research management group has been put together, and projects related with talent and new calls have been promoted, enabling us to include pre- and post-doctoral researchers and senior investigators. The balance is, without a doubt, a positive one.

Maria Josep Broncano (MJB). - The centre and its structure have been reinforced, with the strength to progress firmly.

JR. - I'd also mention innovation. We defined and developed a lot of initiatives from scratch, taking inspiration from best practices of Cambridge, Oxford and Stanford, and other colleagues now visit us to learn about the actions we have implemented.

MJB. - In fact, no other centre specialising in the environment promotes certain actions the way we do.

The so-called benchmarks also point towards a line of internationalisation.

JR. - Yes, a very clear one. We've progressed a great deal and the international context is now part of our rhetoric. It has been integrated into the centre, which is a crucial step forwards, although there is still a lot left to do.

Apart from science, being awarded the distinction means excelling in research management, transfer, impact, talent and communication, to name but a few.

What has been identified as still pending?

JR. -We were not able to properly convey the fact that Severo Ochoa was a project for everyone at CREAF. Some were left with the feeling that it was a project for the centre and, as such, irrelevant for certain people. This was a huge mistake: the centre gains nothing unless the distinction benefits all its people.

MJB. - And the pandemic made it very difficult to convey these values. It hindered involvement and close collaboration.

Is that the major weakness?

JR. - It's the most direct. Another is space. We've grown by almost 50% and space is clearly a problem.

MJB. - We're getting big but the housing is small. It's restricting us and this could be a source of tension.

Severo Ochoa Excellence. Photo: Ministry of Science, Innovation and Universities.

Text: Verónica Couto Antelo

EXPERIMENTATION INFRASTRUCTURE: HOW TO COMPLETE BUILDING WORK AND NOT DIE IN THE PROCESS

Our communications colleague José Luis Ordóñez always tells of how he read that moving house is the next most traumatic thing after a family member dying. And ahead of a divorce! Well, remodelling should be added to the list.

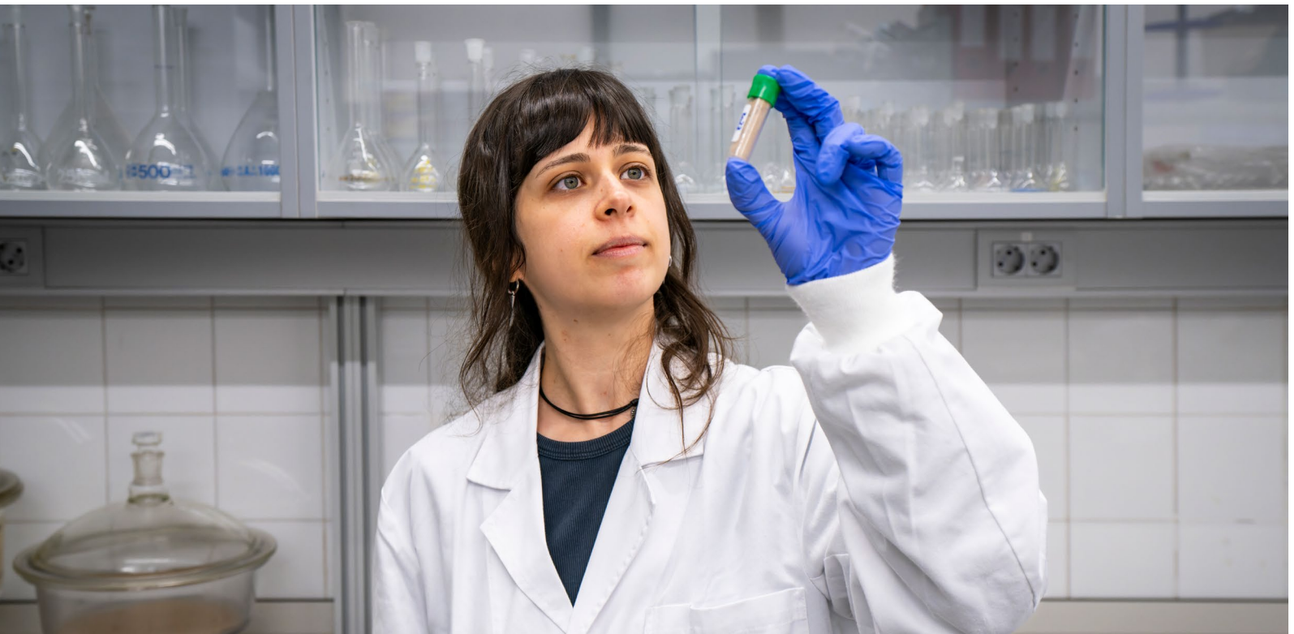
CREAF has a fantastic team responsible for the research infrastructure, who made everything seem really easy when we decided to renovate 13 of the 24 experimentation areas in the centre: Lucía Galiano, Xavier Altarriba, Meritxell Puig and Magda Pujol. We talk to Lucía and Xavi, who coordinated all the remodelling work and explain the keys to their success.

The first step in remodelling work involves, of course, defining the requirements. In the case of CREAF, this had been clear for quite some time: Functional areas were needed along with increased safety for employees. It was also a good time to re-redefine the use of each experimentation infrastructure, depending on the centre's strategic lines of research. The decision was therefore made to complete the alterations in different phases. In the first, which can now be leisurely explained, the areas that needed to be safer were prioritised, and a round of questions was posed among the research and technical staff most closely linked to the work in these experimental areas. As Lucía explains, this gave us first-hand knowledge of the centre's needs. We'll focus on the other objectives in the coming phases.

What were the keys to its success? Hiring a good project manager, as they make organising easier and they remain aware of the demands of the operations team. Good advice during the initial phases of the alterations is also essential. Personally speaking, Lucía and Xavier also insist on three necessary aspects during remodelling work: calmness, patience, and the organisational skills to establish a good schedule and timing for the work.

Furthermore, particularly if you're a woman, it is worth remembering that this is an extremely masculinised sector in which patronising attitudes and inappropriate comments are widespread.

Laura Márquez at the new laboratories. Photo: Joan de la Malla



Elena Fagín at the new laboratories. Photo: Joan de la Malla

Àngela Ribas at the new laboratories. Photo: Joan de la Malla

From left to right, Magda Pujol, Lucía Galiano, Xavier Altarriba and Meritxell Puig. Photo: Galdric Mossoll

Lucía experienced this first hand, and wants to raise awareness of it. We need major changes in this area.

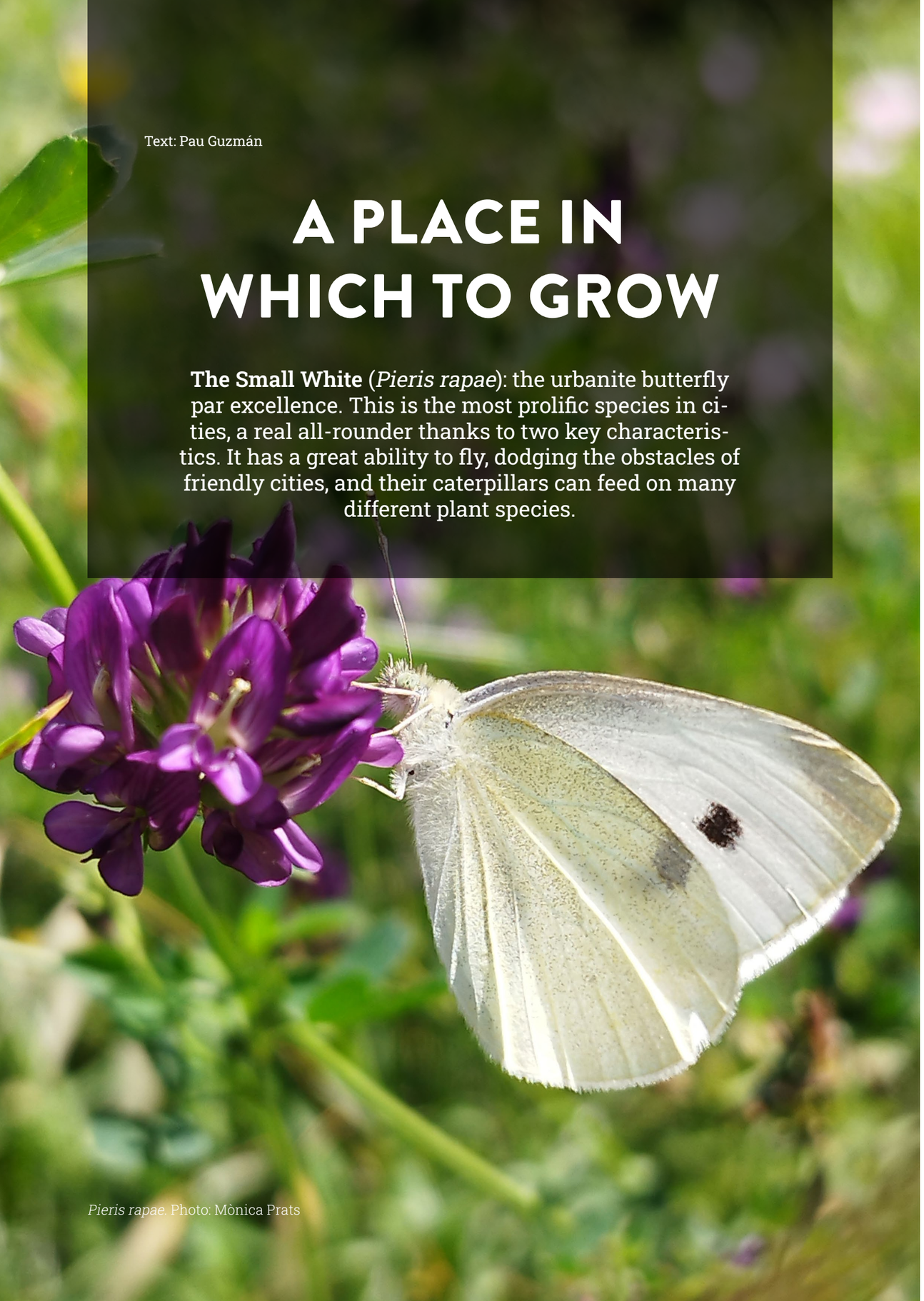
Lastly, teamwork was one of the major keys to not dying in the process with this remodel. As our experimentation infrastructure colleagues explain, the initial phase of questions and participation by personnel who use the experimental areas later became a source of active assistance and collaboration. For example, they set up their research schedules so that the experimental work would not interfere with the months of remodelling work. Knowing how to listen, cooperate and incorporate the proposals that employees need is always a guarantee of good results, even more so in remodelling work!

The initial phase of questions and participation by personnel who use the experimental areas later became a source of active assistance and collaboration.

Text: Pau Guzmán

A PLACE IN WHICH TO GROW

The Small White (*Pieris rapae*): the urbanite butterfly par excellence. This is the most prolific species in cities, a real all-rounder thanks to two key characteristics. It has a great ability to fly, dodging the obstacles of friendly cities, and their caterpillars can feed on many different plant species.



Pieris rapae. Photo: Mònica Prats

A GROWING FAMILY

79 people joined CREAF in 2023, each with a story to tell and a great deal of enthusiasm. We have made a small selection of their comments:

RODRIGO BALAGUER, POST-DOCTORAL RESEARCHER

"The scientific advances and modelling tools at CREAF are crucial for the wildE project, in which I study the forest expansion processes in the metropolitan area of Barcelona"

BURCU BERK, RESEARCH TECHNICIAN

"An incredibly rewarding experience of continuing education. The DigiMedFor project I took part in enabled me to explore new digital management solutions for Mediterranean forests"

NATALIA MARTÍNEZ, PRE-DOCTORAL RESEARCHER

"CREAF is an extremely rewarding experience: I contribute to research into biodiversity conservation, and the good atmosphere helps me grow both professionally and personally"

XIN SONG, POST-DOCTORAL RESEARCHER

"I'm happy to be part of the CREAF Elemental Diversity and Macroecology research team: its energy and enthusiasm are inspiring. I hope to achieve great things here"

ÉCIO DINIZ SOUSA, POST-DOCTORAL RESEARCHER

"CREAF is a rewarding environment which produces high-level research and has very good interpersonal relationships. I hope to have a long career here"

AIMADA SOLÉ, RESEARCH TECHNICIAN

"The work with the NEMOR mountain network which CREAF coordinates provides me with information on the management and coordination of European projects, as well as contact with scientific personnel from around Europe"

Severo Ochoa Breakfast. Photo: Verónica Couto Antelo

Text: Anna Ramon

DIGITISING WHAT IS MOST HUMAN

There is nothing more human than working with people. So talking about digitising people management almost sounds like an oxymoron.

How can we offer over two hundred people flexible attendance control systems, circuits to request holidays, and secure, automated systems for selection processes?

In a centre where telework is part of everyday life, focusing everything on paperwork or, at the very least, on spreadsheets and e-mails is out of date and, at the end of the day, leads to unease.

Under this premise: Digital yet human, the People Management Department headed by Maite Pizarrosso implemented a new system in 2023 to digitise the most critical processes of her department. The system chosen was by the company Factorial with head offices in Barcelona, which selected CREAF as a test bench.

CREAF and Factorial formed a productive relationship, and its support service ensured that the tool adapted at all times to the singularities of our research centre (its first case), remaining flexible to the implementation of new functions. Now, everyone at CREAF clocks in using a convenient, agile app from which they can consult and request holidays on line, ensure more professional selection processes, and tend to lists of candidates with flowing, modern communications. The tool also provides basic information, monthly payrolls, manuals and calendars at the click of a button.

"We're really happy not only with the way the tool has been integrated into our everyday work but also with the welcome it has received. It's so user-friendly that people have really tried to get the most out of it. We've gone from 20% of people clocking in to 90% in one month", says Maite. "What's more, our relationship with Factorial is ongoing, and one year after implementing it we still meet with them every fortnight to see how we can improve the tool and make it more and more useful, not just for CREAF but for other CERCA centres that are starting to use it", she concludes.

ATTENDANCE CONTROL

HOLIDAYS AND ABSENCES

RECRUITMENT

JOB PORTAL

Text: Adriana Clivillé

A TIMELY COLLABORATION

Research management at CREAF involves a duo driven by the mission of using management to make science possible.

The joint work of Olga Roig and Teresa Rosas —heading the CREAF Pre-award and the Talent and Gender areas, respectively— uses scientific talent as a mainstay. The essential goal they share is to provide support to scientists in preparing competitive proposals when applying for a grant from the European Research Council or a Marie Sklodowska-Curie Actions fellowship. Their contribution therefore includes supporting them throughout the process, which involves opting for two of the most demanding European grants for which having a good scientific idea is simply not enough. They therefore identify and promote the necessary training, guide the career development strategy, offer cases of best practices, and strengthen skills, among other sometimes invisible tasks.

Constant collaboration, joint goals, and understanding are the result of sharing a mindset and a strategic vision, which both Roig and Rosas underline. "Working together came naturally because of the way our expertise, knowledge and vision complement each other", says Teresa Rosas. Olga Roig, meanwhile, highlights the good results obtained from their combined research: "after doing the groundwork, it's great to look back and see how the results have improved".

Text: Adriana Clivillé

TESTIMONIALS

WELCOME ERC

Marcos Fernández Martínez is promoting research into the functioning of ecosystems with an ERC-Starting Grant.

"Obtaining a Starting Grant from the European Research Council gives me great freedom as a researcher, and allows me to build my own multi-disciplinary research team. It's also a great opportunity to promote the STOIKOS scientific research project related with how the elemental composition of organisms and ecosystems and the availability of nutrients affect the functioning of ecosystems".

Marcos Fernandez Martínez, researcher.
Photo: Galdric Mossoll

Text: José Luis Ordoñez

CREAF HAS A NEW JEDI PLAN

Recruiting someone three years ago as the Talent and Gender Manager was how CREAF showed its commitment to progressing towards equal opportunities and creating a research culture in which everyone was welcome.

In January 2022, the JEDI (Justice, Equality, Diversity and Inclusion) Committee began renewing the previous plan by holding an anonymous survey involving all CREAF personnel, in order to assess the health of the centre regarding matters concerning them. 59% of the workforce took part, and an analysis of the responses and the corresponding employment documents meant that an initial diagnosis could be made based on 9 focal points and 36 indicators. The results were perfectly clear: the most urgent focal point involved micro-aggressions and sexual or gender-based harassment.

The diagnosis led to a participatory working session in which 38 people proposed up to 79 improvement activities, which ultimately turned into 24 actions included in the first JEDI Plan (2023-2027), approved in March 2023 with the commitment of management and senior management to implement it.

The initial efforts led to the in-depth, advised renewal of the first Harassment protocol, which was presented in the autumn. The remaining actions of the JEDI Plan are aimed at training and raising awareness of diversity and non-discrimination, reducing the weight of androcentrism and encouraging inclusive rhetoric and language, encouraging the participation of women and other under-represented groups in decision making, preventing, detecting and repairing any type of discrimination regarding selection, hiring, training, promotion and pay, creating a caring culture and joint responsibility inside and outside the teams, and facilitating a work-life balance. The plan also anticipates the regular collection of data to ensure it is working correctly and to ascertain aspects where improvement is required to attend to and promote diversity at CREAF.

Teresa Rosas, talent and gender manager. Photo: Galdric Mossoll

Front cover of the Jedi plan. Photo: Nora Soler

Text: Alba Gimbert

SUCCESS STORY

ZERO TOLERANCE OR HOW CREAF SAYS NO TO HARASSMENT

Watering Talents is the CREAF training programme that combines all the courses the centre has to offer. One of its star courses for 2023 has been the one that says no to harassment and promotes a culture of prevention and zero tolerance. Today it takes centre stage.

The centre has a very clear mission: to stamp out any signs of harassment in the work environment. The diagnosis conducted as part of the 2023-2027 JEDI Plan showed the need to establish a preventive culture that takes an uncompromising stance to this type of behaviour and, therefore, in November 2023 —the international day for the elimination of violence against women—, its harassment protocol was renewed and an in-house course started to foster a culture of zero tolerance regarding situations of sexual, work-related or other types of harassment.

"The good thing is that we're leaving the reactive approach behind and prioritising prevention. We want to make it clear that the centre tolerates no kind of harassing behaviour and, should it occur, it will be severely punished. We also place the victim at the centre of everything", Teresa Rosas, CREAF Talent and Gender manager.

The response from personnel was overwhelming: over 60 people took part. The most popular course of recent years! But the work doesn't stop here. We know that continuing education is essential in overcoming our biases and deep-rooted ideas. Therefore, people of reference are to be provided with tools over the coming year so that victims know who to contact and have support inside the centre.

Fighting harassment is a long-distance race, but our mantra is: "any cultural change requires a lot of time, a lot of care and a lot of patience".

Text: Teresa Rosas

11 FEBRUARY 2023 CAMPAIGN

BEYOND 11 FEB

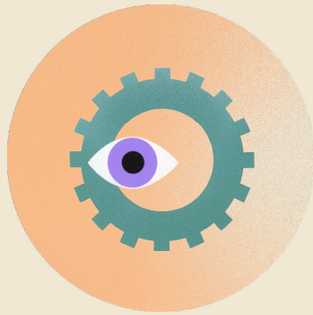
Following different annual campaigns, we at CREAF would like to share our commitment to create a diverse, inclusive organisational culture 365 days a year. We therefore dedicated our campaign precisely to the time between campaigns, highlighting different actions within our JEDI (Justice, Equality, Diversity and Inclusion) plan.

ORGANISATIONAL CULTURE

Produce awareness-raising campaigns with a gender perspective.

CONCILIATION SUPPORT

Promote a motherly/fatherly group and establish an assistance and support network.

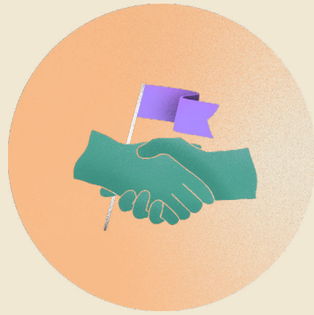


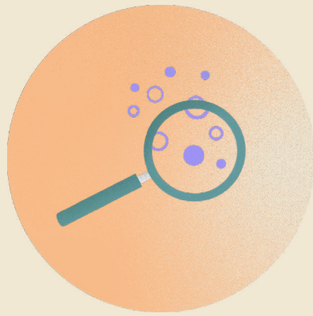
INCLUSIVE COMMUNICATION

Highlight and raise awareness of the work of research management personnel.

LEADERSHIP AND DECISION-MAKING BODIES

Implement a leadership programme for researchers and managers.





SELECTION AND PROMOTION POLICIES

Review and diversify promotion and selection criteria to bring them in line with the new approaches to research assessment (CoARA) with a wider vision.

Illustration: Laura Fraile

Text: José Luis Ordóñez

NEW HORIZONS

The Common Mallow (*Malva sylvestris*): Each year, thousands of strimmers around the country make it disappear from margins and roadways, obsessed with an antiquated idea of neatness. And each year, the common mallow reappears once the strimmers are worn out and want to return to the storeroom.

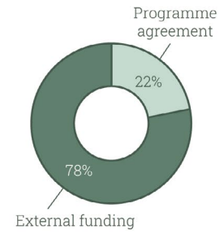
Common Mallow. Photo: Galdric Mossoll

SOLIDITY AND CONSOLIDATION

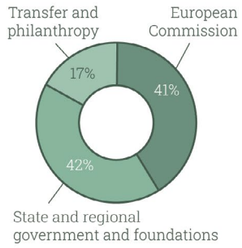
CREAF has consolidated its budget at 12 million euros over 2023, the highest figure in its history. This success is down to continued growth promoted by the programme agreement with the Government of Catalonia and an ongoing discussion regarding the attracting of competitive funds, including the prestigious Severo Ochoa. At present, CREAF obtains 32% of its funds through European projects, which is a testimony to its internationalisation. In terms of financial profitability, for every euro received from the Government of Catalonia, the centre generates approximately an additional 3.50 euros. This situation highlights the strength and capacity of CREAF to expand its influence both nationwide and internationally.

€12.06 M

Funding in 2023



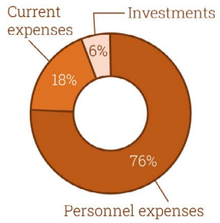
Distribution of funding



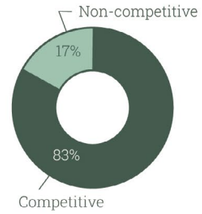
Source of external funding

€10.08 M

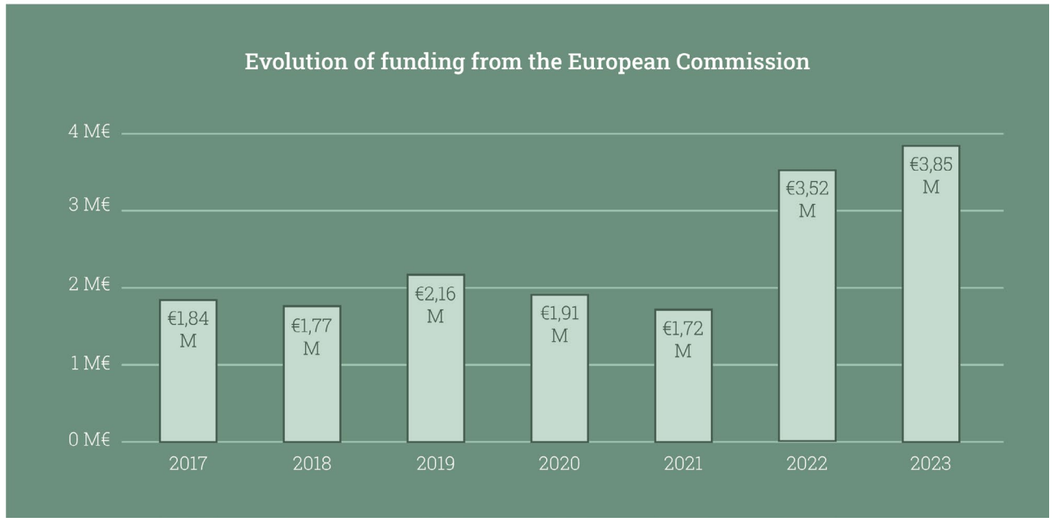
Expenses in 2023



Distribution of expenses



Competitiveness of external funding



Graphics: José Luis Ordóñez

Text: Anna Ramon

PROJECT MANAGEMENT, AN INVISIBLE PAWN MOVING SCIENCE AT CREAF

A scientific career is a real odyssey. Having the most innovative ideas, experimenting, statistics, publishing, the complexity of funding... But it doesn't end here. Project management is key, and we at CREAF are well aware of this.

Nowadays, people don't conduct research at home as they did in the 19th century. They do so in research centres where there are teams to ensure great ideas have great projects behind them, with partners with whom to work and funding with which to develop them.

These specialists in raising funds and managing these projects work behind the scenes, looking for opportunities, explaining how to make competitive proposals, managing the funds efficiently, and making research centres professional places where ambitious, international projects are carried out.

What is the vision of CREAF in this area? Since 2023, CREAF has centralised all project management in two units which operate in a coordinated and highly specialised manner. On one hand, the pre-award management unit offers all the services required to produce a competitive proposal with clear options for funding. On the other, post-award management guarantees all the management work involved in deploying a project, from the grant agreement between collaborating entities to financial management and justification of all expenditure. Leading each unit are Olga Roig and Cristina García, both of whom have been working at CREAF for over a decade. Both professionals are extremely familiar with the researchers, their needs, their preferences, their strengths and their weakness. They also have in-depth knowledge of the calls for funding, how they work, which ones we are most likely to be awarded, and which are most suitable for each idea.

Until 2022, the two departments worked together for European projects, although in 2023 the international projects department (as it was called at the time) naturally took over the administrative management of the European proposals managed by post-award, along with the services for national proposals. Hence it became the pre-award unit, leading to a closer and more adequate collaboration which was capable of evolving along with the needs of the centre.

"It was a seamless decision which led us here out of self-preservation. Project management at CREAF has boomed over the past four years, and we have seen how joining forces has enabled us to multitask and offer a 360º service to researchers", they both said.

Text: Anna Ramon

PROFILE, OLGA ROIG

THE PROPOSALS BOUTIQUE

Olga's team has been managing this entire phase for both national and international projects since 2023, and it includes the highly experienced Maribel Corral as an expert in national programmes.

"Our goal is to be able to set up a strong service which is as autonomous as possible for researchers, to offer a self-service system in which anyone can quickly find what they need, and tailor-made services with us behind them, although especially providing the added value of personalised treatment", she explains. "For example, we have a new call alert and announcement system, so we no longer have to be on the look out for this information because it is now proposed by external companies, and we can spend time adding to the proposals with more sophisticated ingredients to make them different, which could make one of them a winner", she ends.

Olga Roig, Head of the Pre-award unit, European and international programmes. Photo: Galdric Mossoll

Text: Anna Ramon

PROFILE, CRISTINA GARCÍA

THE LINK BETWEEN MANAGEMENT OFFICES

Cristina is the link at CREAF, a point of connection whose job is to adapt the entire system to meet the requirements of each project and funding entity.

"I spent a lot of my time acting as a 'consultant', offering advice and solving doubts for researchers, other departments or my own team in order to ensure the terms and regulations of the calls, as well as the regulations of the entity, are fulfilled, managing the budget intelligently and efficiently", she explains. "I head a fantastic team of six professionals, and our mission is to streamline the management of the researchers' projects, within an extremely demanding regulatory framework which they don't necessarily have to know everything about, because that's our job. In our office we try to make their work easier so that they can spend more time doing what they really love: science."

Cristina García, Head of the Project Management Office. Photo: Galdric Mossoll

Photo: Dan Carlson a Unsplash

Text: Alba Gimbert

PATRONS: EVERY DROP COUNTS

Whenever our science permeates society and the territory, it proves to us that what we do is important and this increases our commitment to save nature.

Think of CREAF as a holm oak: its roots represent our research and its branches are the knowledge we generate and share. When it rains, raindrops fall on the holm oak: they may be small, incipient even, but they are vital to continue feeding it. These drops are the community of patrons of CREAF: individuals and entities that are enthusiastically starting to share our passion and commitment for ensuring the planet remains habitable.

We have built up our social patronage programme in 2023 through contributions that are much more than a mere financial resource. They are, in themselves, a guarantee and an acknowledgement of the fact that our work is increasingly important.

Who has supported us this year? Our community of patrons includes both entities and individual donors, more specifically people who want to do their bit and move ecology with us. Two of these patrons have renewed their ties with CREAF for the second and third year running, and the other two have provided their support for the first time this year. Every drop counts, and we will continue to feed the CREAF tree of science.

A GREATER INTERNAL CULTURE OF PHILANTHROPY

We encourage philanthropy through inspiring training sessions, participative processes and personalised workshops for the centre's personnel.

VISIBILITY AND RELEVANCE

We have taken part in over ten events, and have co-organised another two and a round table with key players.

WE ARE GROWING AND BECOMING STRONGER

We are backing a consolidated corporate programme with €30000 and €4000 in donations, and have raised €1850 from private donors.

Guided tour for the participating entity the Caixa d'Enginyers Foundation to the experimental plot in Collserola. Photo: Alba Gimbert.

Text: Alba Gimbert

REACHING NEW HEIGHTS TOGETHER

Every year, we work towards bringing our passion, values and knowledge closer to society. In 2023, two entities connected with nature and science and increased their commitment, placing it at the heart of their Corporate Social Responsibility activities with us by their side. How have we moved forwards together?

Caring for the Mediterranean forests and fostering young talent are two priorities of CREAF and the Barraquer Ophthalmology Centre, which didn't hesitate in joining the campaign and provided financial support for the new Future Forests Fund. Thanks to this collaboration, researcher Gerard Codina has been able to expand his doctoral thesis to understand the resilience of Mediterranean forests to fires. Joint efforts like this one help highlight our research and talent, promote it, and raise as much awareness as possible.

Another key commitment-based area of the centre is citizen science. This is the third year running that the Caixa d'Enginyers Foundation has decided to promote its transformative capacity through us. What unites us? Among other matters, the desire to involve society in scientific processes for a first-hand insight into the condition of our natural environment and to understand the need to improve its health. We continue to work together on the promotion of our line of citizen science projects, such as Alerta Forestal, RitmeNatura and the butterfly observatories.

THE FUTURE FORESTS FUND IS BORN

This provides support for research by young and senior talent to improve the social and scientific impact of CREAF. We have explained it to various contacts and ambassadors.

RAFAEL I. BARRAQUER

Medical director at Barraquer

"The association between Barraquer and CREAF is key to taking care of our environment, just as we do our patients. This partnership makes very important milestones possible, and we're delighted to be able to help".

Javier Albarracín, consultant for the CREAF programme on the southern Mediterranean coast. Photo: MedCREAF.

Text: Adriana Clivillé

THE MEDITERRANEAN, A COMMON BOND

The deep knowledge and passion of consultant Javier Albarracín make a great travel companion in the Mediterranean to promote MedCREAF.

The regions bathed by such a small, enclosed sea as the Mediterranean share a plight regarding the climate and a loss of biodiversity. We are well aware of the generalised lack of rain and the torrential storms, the pervading of water into a land that is tending towards desertification, the necessary resilience of a forest accustomed to fires, changes in pollinator behaviour, the shifting mountain tree line and its effects on animals and plant life, and the changes in flowering patterns.

This is where MedCREAF comes into play, an initiative which covers three major areas: strengthening cooperation with other research centres, increasing the influence of science on public policies, and promoting the knowledge transfer policy. Javier Albarracín, consultant for CREAF on deploying this action in the region, explains as such.

What are the milestones of MedCREAF for 2023?

As key interlocutors, we're well aware of them. We're moving forwards in conversations for research projects, we've increased the visibility of the centre among important decision makers in the Mediterranean, we've finalised joint actions, and we've strengthened existing contacts. 2023 is a year for building on the region's strategy

Could you point out any organisation in particular?

PlanBleu, which tenders projects, the United Nations Industrial Development Organization, which has enabled us to take part in the first meeting on industry and biodiversity, and Medcités, the main cities network in the region. We've reaffirmed our relationship with the Union for the Mediterranean and with the Government of Catalonia's Ministry of Foreign Affairs, and have established a relationship with the Euroregion. The work of CREAF as a scientific collaborator in the area has been strengthened greatly, and we've made progress on the link between science and public policies.

One particular goal of research is for science to report to public policies. How has this been promoted?

Great progress has been made in this area, particularly with the regional and central governments, with the AMB (Barcelona Metropolitan Area), and with Barcelona City Council. We've therefore internationalised CREAF's 'science for policy' in the Mediterranean, not to mention 'science for science'.

Is that why your co-organisation with CIHEAM and taking on the scientific coordination of the course on forest resilience is a milestone?

Absolutely. Representatives from Albania, Germany, Algeria, Spain, Italy, Lebanon, Malta, Morocco, Portugal, Tunisia and Turkey have taken part. CREAF forestry specialists were involved, apart from the scientific coordination of Josep M Espelta and the active participation of Francisco Lloret and Joan Pino.

Text: Adriana Clivillé

IN SHORT

A FEW KEY POINTS

Among the significant agreements of the MedCREAF initiative for 2023 are those in which we have collaborated in research projects, provided training, defined and promoted scientific content, and been involved in events to raise awareness.

We have been involved in providing a valuable scientific contact for the Community4nature project of the Interreg Euro-MED programme, at the request of CREAF researcher Annelies Broekman. Within this same area, we have established valuable initial contacts with Plan Bleu in one of the initiatives to tender scientific projects.

In terms of training those holding positions of responsibility in political decision making, particularly of note is the agreement with the Mediterranean cities network MedCités and with the International Department at Barcelona City Council. In addition to this is the scientific coordination and teaching of the course co-organised with the CIHEAM network, as a result of the strategic agreement with its Secretariat. We have also strengthened ties with the Union for the Mediterranean.

In terms of communications and specialised conferences, we have played an active role in meetings called by the Government of Catalonia, IEMed and The Club of Rome. We have also established contacts with UNIDO, the European Investment Bank Institute, and Citilab.

Text: José Luis Ordóñez

RESEARCH FOR GLOBAL CHALLENGES

Wood mouse (*Apodemus sylvaticus*): a key species in maintaining the forests of Catalonia, not only because it must be the species to pass through the widest variety of digestive tracts every year but also because the way in which it eats and leaves seeds behind here and there makes our forests what they are today.

Wood mouse. Photo: Marcus Ganahl a Unsplash

FOUR INTERCONNECTED AREAS

CREAF has four areas of research: Biodiversity, Global Change, Functioning of Ecosystems, and Earth Observation. Even so, these areas are cross-cutting rather than independent, and are closely interrelated. This means that environmental challenges can be addressed from a comprehensive, multi-disciplinary perspective, encouraging a fuller understanding of ecosystems and their response to changes. This cross-cutting approach is essential in developing sustainable, effective solutions for environmental conservation.

PROJECTS STARTED IN 2023 BY PRINCIPAL AREA

This data does NOT include all service agreements but only those published on the CREAF website

The blue anole (*Anolis gorgona*). Photo: Diego Gómez on Flickr

Text: Verónica Couto Antelo

THE YEAR OF HOPE FOR BIODIVERSITY

2023 started with an international pact to conserve and restore nature: the Kunming-Montreal Global Framework, which has been a ray of hope in the fight against the loss of biodiversity.

Pessimism sometimes overwhelms us, and we end up thinking that world summits come to nothing. Nothing but hot air. Luckily, there are proposals that refute this and that give us hope, one example of which could be seen in 2023. The previous December had seen the approval of what is known as the '30x30 global pact' following the COP15 biodiversity summit, and the foundations were being laid to reverse the loss of biodiversity by 2030; specific, palpable measures. The best way in which CREAF can take part is by offering our science of excellence and rolling up our sleeves in projects that propose some of the management measures they must convey.

This is how we were able to confirm one of the roots of the problem: accelerated changes. Human impact subjects biodiversity to many rapid and sudden changes that are constantly damaging it: climate change, changes in the landscape, invasive species, and many more. For example, a study we headed found that lizards living on islands can change all the relationships of their ecosystem merely through the introduction of a new predator. To discover this, the research team introduced a foreign lizard into The Bahamas. Native anoles stopped going to the coast for fear of falling prey to this new visitor, and hunted insects in the area surrounding their burrows.

And so, all the trophic relationships of the island changed in the blink of an eye. Imagine that multiplied by the thousands of times we introduce foreign species —intentionally or unintentionally— into new habitats.

We are actually involved in ground-breaking research regarding invasive species. We have been heading the EXOCAT project for several years. This initiative by the Ministry of Climate Action provides an annual analysis of exotic life in Catalonia and its evolution. Work can therefore focus on preventing the arrival of new species, which is key to this battle. Therefore, in 2023 we presented a list of the most dangerous species that could spread throughout the country, all of which were selected because they could either reach Catalonia and cause damage (alert list) or have already been detected and must be monitored and controlled because of their great capacity to expand (black list).

Global warming could leave cities without any butterflies

Another of the major changes to the planet's biodiversity involves heat and drought, as we have found with urban butterflies. The uBMS analyses the butterflies living in Barcelona and Madrid every year and, with the help of volunteers, we select certain transects in each park and garden and count individuals and species. And 2023 was truly shocking! In the summertime we encountered a desert. Because there was a hosepipe ban due to the drought, there were barely no flowers and the butterflies were unable to find food, making it difficult for them to survive and reproduce. Furthermore, some species headed for higher altitudes or further North where it is cooler and they could find the plant life they needed. We are therefore now in a position to say that global warming could leave cities without any butterflies.

However, it is also important to know how we reached this point and whether the effects of human activity on biodiversity are something new. This is the direction taken by an international study in which were are taking part and which has used birds as a case in point. Unfortunately, its conclusions are alarming: humans have likely driven around 1430 bird species to extinction. Not in one fell swoop, of course, although there have been three major extinction events according to the study: during the 14th century in the Eastern Pacific, in the 9th century BC in the Western Pacific, and today (which began in the mid-18th century). To name but two, we have already lost the Canary Islands oystercatcher and the Ibiza rail

Asian hornet (*Vespa velutina*). Photo: Danel Solabarrieta on Wikimedia

Deadwood. Photo: Lluís Comas, Flickr

If there's one thing we're sure about at CREAF, it's that we're all in the fight to reverse biodiversity loss together.

from the Balearic Islands.

Proactive science

In addition to research on understanding the effects of changes in biodiversity and the root cause —or causes— of its decline, CREAF also heads research that is designed more towards territorial management and planning. For example, in July we presented an index to evaluate the biodiversity hosting capacity of forests in Catalonia. One of its strengths is that it is designed to be used by people with no naturalist background because, if there's one thing we're sure about, it's that we're all in the fight to reverse biodiversity loss together.

Laura Roquer, post-doctoral researcher. Photo: Galdric Mossoll

Text: Verónica Couto Antelo

FEATURED PROJECTS

AIGUAFLOR: THREATENED FLORA IN THE SPOTLIGHT FOR CONSERVATION

Research into six species of threatened and protected flora at the Aiguamolls de l'Empordà Nature Reserve. We have ascertained their distribution and abundance, along with their threats, to improve their conservation.

FORESTSOILORG: BIODIVERSITY IN THE SOIL, PROTECTION FOR THE FORESTS

Molecular analysis of the microorganisms that live in the soil for a better understanding of how they are related to the carbon-nutrient balance. Particularly within beech forests.

WILDE: CLIMATE-SMART REWILDING

Our goal is for innovative rewilding that is beneficial to the climate and meets other social and environmental needs. Natural processes are also a management tool!

RESTPOLL: YES TO AGRICULTURE, AND ALSO TO POLLINATOR CONSERVATION!

International work to reverse the decline in wild pollinators, particularly in intensive crop farming and pasture habitats. In the case of CREAFià, we're recovering apple groves.

Flowering rush (*Butomus umbellatus*). Photo: Ivar Leidus, Wikimedia | The Fageda d'en Jordà beech forest. Photo: Carlos Luna on Flickr | Highland cow, *Bò Ghàidhealach*. Photo: Jonas Vester Legarth, Wilde | Pollinator. Photo: Galdric Mossoll

Forest affected by drought in the Prades mountains. Photo: Galdric Mossoll

Text: Ángela Justamante

ADAPTING THROUGH MORE THAN JUST PLANTING TREES

An extremely important milestone in Europe cannot be forgotten as we look back on 2023: management of the essential Nature Restoration Law. But what does restoring nature mean and why is it so important?

In the case of terrestrial ecosystems, restoring means bringing back to life, recovering natural processes, fertility, and the species living there, etc. We can revive the soil, recover bogs and marshes, rewild rivers, reforest in a planned and scientific manner or ensure landscape mosaics are more resilient to fire and drought, among other things. But be careful! Each ecosystem is entirely different and, therefore, an understanding is needed of how they work and of their condition everywhere on the planet, as well as listening to the solutions proposed by science, before specific measures can be applied.

If we focus on Catalonia, the drought has had a great impact this year. We have experienced an emergency situation that has affected people as well as different ecosystems. For example, forests recorded historic drought figures in 2023 according to the DeBosCat platform promoted by the Ministry of Climate Action and coordinated by CREAF. Crop production in agriculture has also been affected, amidst a debate on how to adapt this sector to the new state of the climate. A great deal has also been said about short- and long-term solutions to the lack of water.

Experiencing these events first hand makes the need to adapt to a new situation more evident than ever. Some of the solutions we are working on include caring for the land, supporting forests to make them more resilient or protecting rivers and aquifers.

Recipes for restoring agricultural land

When you tread on the earth, it is worth remembering that soil houses 25% of the world's biodiversity, provides us with food, filters water to aquifers, and stores carbon from the atmosphere, among other functions. The problem is that years and years of overgrazing, intensive monocultures and deforestation have depleted it. Luckily, we are using science to work on solutions to reverse the situation.

We are nature, and we can't function without it.

In the case of agriculture, there are new proposals to produce food which look after the land and revive it in order to adapt it to a situation of drought and climate change. Regenerative agriculture is, for example, among those we propose. This is based on regenerating the soil by eliminating ploughing, chemicals and heavy machinery, maintaining plant covers and, in some cases, including livestock farming so that animals can feed on fresh pasture and their excrements be used to fertilise the soil. It is a proven fact that these practices encourage life, humidity and fertility in the soil, and we at CREAF have extensive experience in studying this model. In 2023, for example, we were awarded the Regenera.cat project that strives to expand regenerative agriculture, livestock farming and viticulture in Catalonia.

There is also another approach known as carbon farming, which includes a variety of agricultural and forestry techniques with one shared goal: to increase the soil's capacity to capture carbon from the atmosphere. Within this context, CREDIBLE, a project in which CREAF is one of the partners and which seeks to promote carbon farming in Europe, started in 2023.

Regenerative farm, Planeses. Photo: Galdric Mossoll

Supporting forests

The forests in Catalonia are in an extremely vulnerable situation, with periods of persistent drought, heatwaves, erosion due to torrential rain, loss of nutrients, pests and major forest fires. To tackle this situation, in 2023 CREAF compiled 10 science-based proposals to improve their management. The key message is that forest management must meet three challenges at once: maintain their biodiversity, make them more resilient to climate change, and help them provide the services we demand from them as a society.

The impact of drought on forests in general and, more particularly, how the different types of trees respond must be understood in order to plan action. We have therefore taken part in two areas of research that contribute towards this knowledge. One of them warned that forests most at risk from drought are located in the Mediterranean basin, south Australia, and the north-

The strategy to preserve ecosystems must also consider that there's no magic solution

west of the Amazon rainforest and of the United States. Another concluded that taller trees are capable of overcoming droughts (at least short term) due to a series of adaptations they develop as they grow.

What can we do to tackle this situation? One good therapy in making forests more resilient is to encourage their diversity. An example of this is the European report 'Deadwood and Fire Risk in Europe', which was published in 2023 and explains that deadwood in the forest ameliorates biodiversity and action is only required on that which is a fire risk. This document was produced as part of the BioAgora project in which CREAF is a partner.

Nature as the solution

Nature helps nature, so one of the long-term proposals for tackling drought is to restore and protect aquifers, which act as a natural sponge that fills up and withstands changes in temperature and rainfall. To do so, resources must be allocated to their decontamination and to reducing generalised over-exploitation, among other things. In terms of rivers, life must also be breathed back into areas of water flows and river-beds by no longer occupying them with cement.

The European UForest project is an extremely illustrative example of how nature and, in this case, urban forests help us design greener and more sustainable and resilient cities. With this in mind, a group of students designed a project to transform a concrete square at the Autonomous University of Barcelona into a climate shelter.

Stone pine grove in the Maresme area. Photo: José Luis Ordoñez

Josep Barba, measuring the methane emitted by trees. Photo: Galdric Mossoll

Text: Ángela Justamante

FEATURED PROJECTS

LIFE PYRENEES4CLIMA: ADAPTING THE PYRENEES TO CLIMATE CHANGE

This applies measures from the Pyrenean Climate Change Strategy regarding social, economic and environmental issues in the Pyrenees.

TRACES: PREDICTING HOW PLANTS RESPOND TO STRESS

This strives to improve the capacity to predict the response from plants to stress due to drought and warming. It involved a study of the metabolome and of the functional traits of plants.

READAPT: LOCAL ADAPTATIONS OF THE YEW IN THE IBERIAN PENINSULA

This studies the adaptive processes of Taxus baccata in populations located in different climates. More specifically, the genotype and phenotype differences among populations are analysed to determine their response capacity to climate change.

ECOFARMERS: MEASURES TO ADAPT CROPS AND FORESTS TO CLIMATE CHANGE

This compares alternative management procedures to conventional arrangements at several sites located in different parts of Catalonia: four farms, two forestry operations and one area deteriorated by mining.

Pedraforca Photo: Eduard Maluquer, Wikimedia | Moss and young shoots. Photo: Matthew Smith on Unsplash | Rhamnus alaternus. Photo: Kevin Thiele, Wikimedia | Photos of land used in regenerative agriculture. Photo: Galdric Mossoll

The little bustard *(Tetrax tetrax)*, an agricultural bird affected by climate change. Photo: Pierre Dalous, Wikimedia

Text: Ángela Justamante

THE PLANET HAS ITS BOUNDARIES AND WE HAVE CROSSED THEM

Life on the planet is possible thanks to the combination of different climate and environmental conditions. But what happens if we change them?

To answer this question, the *Stockholm Resilience Centre* determined the key processes in ensuring Earth's environment remains habitable, dubbing them the '9 planetary boundaries'. Crossing them means endangering life on the planet. To evaluate its status, an international team of scientists is conducting an analysis of the situation every few years, the number of which currently stands at three: one in 2009, another in 2015, and the last one in 2023. The latter, led by the University of Copenhagen, alerted to the fact that we have already crossed six of the nine boundaries: climate change, deforestation, biodiversity loss, synthetic chemical products including plastics, the depletion of freshwater, and the use of nitrogen.

How did we get here? There are several causes, which can be included under the umbrella of global change, a cocktail of environmental changes caused by human activity: years of greenhouse gas emissions, global warming, the change in land use such as intensive farming or urban development, and others.

These concepts might seem distant and abstract, but many specific examples can provide an understanding of these changes, how they are connected, and the impact they have on ecosystems. Studying this is one of our pillars, and in 2023 we published a series of studies that clearly show their impact.

What is happening with biodiversity

One example showing the loss of biodiversity due to human activity is the research in which we participated and that shows how the expansion of monocultures is the main reason for the decline in bird populations in Europe over the past 40 years. Results point to climate change as a second reason for the decline; urban development stands third, and changes in the forest landscape fourth. More specifically, the decline stands at an average of 25%, although it is closer to 60% in the case of farmland species.

Risk of losing carbon sinks

Global change is also affecting the capacity of forests to store carbon from the atmosphere. Among other things, this is because trees decompose when they die and release the carbon they contain, and also because, should forest cover decrease, there will be fewer trees capturing CO^2. It must be understood which areas are the most vulnerable and why it is so important, in order to predict what might happen in the future and take measures.

Along these lines, we have published a study warning that the boreal region, which extends through North America and Eurasia, is warming three times faster than the rest of the plant. This is concerning news, as the region stores approximately one third of the 450 gigatonnes of the Earth's carbon. Other research that we penned alerted to the fact that the rainfall pattern in the Amazon rainforest is being altered by climate change, deforestation and intensive agriculture and livestock farming, which interrupt the evapotranspiration process that is so essential in forming rain clouds. This change in the rainfall pattern and the rise in temperature has meant that its capacity to adapt has already reached its limits, which could cause embolisms and the death of trees in the southern and western Amazon forests and, therefore, reduce their capacity to store carbon. This would be a serious change in paradigm, as the Amazon rainforest contains between 10% and 15% of all the carbon stored by plant life worldwide!

CREAF is working on understanding the impact of global change on different ecosystems

And what is happening worldwide? To give you an idea, one line of research concluded that carbon sequestration is at risk of being destabilised in large regions of the planet. Warmer areas with fewer forests and more crops, among other things, are at most risk.

More CO2 in the atmosphere has conse-

The Amazon rainforest in Brazil. Photo: Nathalia Segato on Unsplash

Wheat fields in Oblast, Lviv Ukraine. Photo: Raimond Spekking, Wikimedia

quences that go beyond the climate. For example, a recent study found that food safety could also be at risk, as a high concentration was seen to affect soil phosphorous availability in paddy fields, which is an essential fertilising mineral for plant growth.

The earth we walk on

Soils can also emit greenhouse gases, one of the most contaminant of which is nitrous oxide (N_2O) that is produced from the nitrogen accumulated in the soil through a process known as denitrification. This percentage increases due to nitrogen from activities such as intensive farming or livestock excrements. Within this area, we are coordinating the D-NESS project, which strives to find out which soils emit most contaminant N_2O and why. Among others, we are researching into the significance of environmental factors such as the type of soil and plant life, the agricultural or forest use, the climate, and the diversity of microorganisms living in this system.

What will our future be like?

To answer this question, a study we headed highlighted that it is important to be familiar with historical collapses and transformations of civilisations caused by previous climate changes. These crises provide extremely valuable information on adverse scenarios we could experience and on possible solutions.

Estela Romero, CREAF researcher, analyses the water quality of a spring in Catalonia. Photo: Galdric Mossoll

Text: Ángela Justamante

FEATURED PROJECTS

SOCRATES: STUDYING THE IMPACT OF CLIMATE CHANGE ON SUBARCTIC SOIL

A study into why the soil loses carbon and nitrogen in response to global warming, conducted at an outdoor laboratory in Iceland where the soil is subjected to different temperatures due to geothermal activity.

SOILDEEPCHANGE: UNCOVERING THE ROLE OF THE DEEPEST SOIL LAYERS

This seeks to understand the role of soil layers at depths of over 30 cm in order to ascertain how nutrient and organic carbon storage is controlled and the impact of global change.

BIOGEOMONT: ANALYSING HOW BIOGEOCHEMICAL CYCLES CHANGE IN HIGH MOUNTAIN AREAS

This investigates the accumulated sediments at the bottom of three lakes in Aigüestortes National Park. The objective is to observe the biogeochemical changes in an area away from human activity.

KALORET: ASSESSING CHANGES IN THE WATER CYCLE AND NUTRIENTS

This quantifies the stocks and flows of nitrogen, phosphorous and potassium in different river basins, from the Arctic to the Mediterranean. It also assesses how changes in hydrology and various human activities affect the transporting of these elements from land to sea, and the impact this has on aquatic systems.

An island in Iceland. Photo: Kristleifsson, Wikimedia. | Aigüestortes National Park. Photo: Sprok, Wikimedia. | Llobregat River from the path to the Font del Balç spring. Photo: Ramon Campos, Wikimedia. | Exposed soil. Photo: Rivadavia.vila, Wikimedia.

A satellite view of the Ebre Delta, containing modified data from the Copernicus Sentinel (2024) processed by the ESA.

Text: Diego de la Vega

MAJOR CHALLENGES, A LOT OF DATA, AND ONE EARTH

2023 has been the hottest year since records began according to Copernicus, the European Earth observation programme. Remote sensing is essential in addresses global challenges, so how does CREAF do it?

Observing the Earth involves measuring the land to extract data in order to create maps and analyse what is happening in our environment, among others. For example, it is a huge help in making decisions on how to manage and restore natural ecosystems and assess the effectiveness of measures to focalise efforts. Earth observation helps us monitor the changes in biodiversity, watch how the global temperature varies, adapt farming techniques or assess the quality of the water we drink. The latter has been the focus of the WQeMs project, which started a new service in 2023 based on data from the European Sentinel satellites to monitor the water quality of lakes, reservoirs or other waterbodies. This system constantly monitors the slow changes, yet also sends instant alerts whenever an emergency occurs.

The tower of Babel

We must speak the same language in order to connect science and decision making. A good way of doing this is through visualisations to predict floods, monitor deforestation or track droughts, for example. Along these lines, the Open Earth Monitor project has launched the first version of an app that includes a series of user-friendly, innovative maps of the world and of Europe. It has also been seen over the years that geospatial information is more useful if the community uses common, agreed protocols and systems to process data. This is why researchers at CREAF develop international standards as part of the Open Geospatial Consortium. In 2023, we headed the process for approval of the standard known as "Tiles API", which compartmentalises the information as tiles so that it can be extracted more rapidly, and headed, among others, the editing process for the standard regulating how to organise GeoTIFF-type files for optimum extraction from the cloud of only the necessary data at any given time, thus speeding up the day-to-day work of scientists.

The explosion of data spaces

Some believe that innovation in Earth observation involves different satellites orbiting the globe, although tools have been developed over recent years that gauge the pulse of forests using drones or distribute automatic sensor networks in cities, sending up-to-date information on air quality to scientists and the managing authorities. In addition, the inclusion of socioeconomic information and of data created based on citizen science, and the joint design processes, on the solutions is transforming the sector. Including all this information in a cross-cutting manner over different areas is a challenge in which we have been particularly involved since we started contributing towards deployment of the Global Earth Observation System of Systems (GEOSS). This contribution has been strengthened by the European Environment Agency (EEA) and its collaboration in the InCASE project.

A scar of deforestation in Brazil, containing modified data from the Copernicus Sentinel (2023) processed by the ESA.

In fact, deployment of the European Green Deal has highlighted the need for large amounts of geographical data to help successfully meet the targets set. One task which remains outstanding in many cases falls to the party generating this data: storing it and sharing it as openly as possible and following the so-called FAIR principles. These principles maintain that data can be easily found (Findable), that it can be accessed in line with agreed requirements (Accessible), that people and machines can understand it (Interoperable) and that it can be reused (Reusable). The trend in Europe is heading towards the development of what are known as data spaces: Digital environments where data is secure-

Observing the Earth is a huge help in managing and restoring natural ecosystems and assessing the effectiveness of protection policies.

Several members of the AD4GD project at the kickoff for its pilot cases in Bonn. Photo: AD4GD.

ly and FAIRly exchanged, where the producer maintains control. This is the main focus of the AllData4GreenDeal project coordinated by CREAF: Defining some of the basic elements required of a FAIR data space in response to the priorities of the European Green Deal.

Opening up science

If we expand our focus, all scientific data benefits from FAIR strategies, yet with an added ingredient: the opening up of data. Since 2023, the Spanish scientific ecosystem has had a National Open Science Strategy (ENCA) that requires secure information management systems able to process research, industry and even personal data at the same time. Alongside this, the so-called European Open Science Cloud (EOSC) is working on creating a cloud that ensures publicly-funded scientific data and services in Europe can be found, accessed and reused with greater quality, transparency and efficiency. Through the EOSC Focus project, CREAF has taken part in building the central components of this cloud and was also part of the Spanish delegation at the tripartite meeting held in Madrid in line with the Spanish presidency of the European Council.

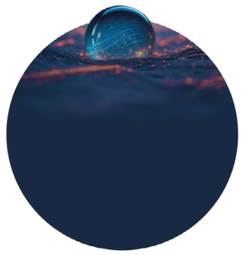
Joan Masó, principal investigator for different Earth Observation projects. Photo: Galdric Mossoll

Text: Diego de la Vega

FEATURED PROJECTS

CITIOBS, STRENGTHENING CITIZEN OBSERVATORIES

A project that strives to strengthen the role of citizen science in decision making in an urban context through air quality data standardisation and validation.



AQUAINFRA, A VIRTUAL ENVIRONMENT FOR A COMMON HYDROSPHERE

A project that aims to bring together data and services of marine and freshwater science through a virtual environment under the scope of the EOSC.

AD4GD, RESEARCHING THE GREEN DEAL DATA SPACE

A project that researches using standard components to build a FAIR data space for European Green Deal priorities in biodiversity, water pollution and air quality.

BESTMAP, TOOLS TO MODEL AGRICULTURAL POLICIES

A project to transform European Union agricultural management policies in terms of design, monitoring and promotion for a sustainable future.

A butterfly net. Photo: Leslie Seaton, Wikimedia. | AD4GD logo. Photo: AD4GD. | Front cover of the Aquainfra newsletter. Photo: Aquainfra. | Wheat. Photo: Melissa Askew on Unsplash.

OPINION

Text: Mireia Banqué and Francisco Lloret, adapted by Verónica Couto Antelo

WHAT DO YOU THINK THE FORESTS IN CATALONIA WILL BE LIKE IN 20 YEARS TIME?

Thinking about what we want forests to be like in the future is an extremely difficult task. Firstly because each type of forest is different and functions independently, and secondly because each sector in our society expects different things from the forests. In Catalonia, forests have a significant cultural side to them, from leisure to industry, and they play an important role in the country's economy, as many of their products are used, such as timber, firewood or wild mushrooms. The answer to the question "what we want the forest to be like" will be different in every case: you might choose forests with tall trees for shade if you want to relax, or you might prefer a homogeneous forest with straight, fast growing trees if you want to use the timber.

MIREIA BANQUÉ
Technician

FRANCISCO LLORET
Researcher

The conservation of forests is determined by this social and economic context. We need strong, healthy forests with a great deal of biodiversity, as they control the water cycle, protect the soil from erosion, and help regulate fires. Mature forests, which have gone decades without suffering major disturbances, retain a lot of humidity, even during periods of drought, and are home to some unique, incomparable animals and plants, such as certain native species, which are endangered in the country.

If we ask researchers at CREAF "what do you want the forest to be like?", the answer always involves the same word; multifunctionality. Just like we call a tool with a lot of uses multifunctional, forests are also multifunctional because they have many functions and provide a huge number of benefits as a result. Each sector in society is interested in one or a few specific functions, although we cannot do away with the others because, if we only priorities one of the functions and intensify it, we could end up losing the rest. Therefore, in 2023 we published our scientific recommendations for forest management in which we emphasised the fact that we must maintain all the functions of the forest so that we can select some or others, depending on social and ecological needs at that time.

We were able to take this defence of forest multifunctionality to the Parliament of Catalonia, where Mireia Banqué, Paco Lloret and Joan Pino explained it to its members. They were called before the Forest Fire Prevention and Management Committee, and explained that forests must be managed in line with all the functions they offer, beyond fire control. In 20 years time, our forests will be those that have been able to maintain their complexity and multifunctionality. In some cases, this will have involved free evolution, and in others it will be the result of well planned interventions.

Text: Anna Ramon

3D TREE SCANNER

We'll study three Mediterranean species with scanners and monitor the use of water over two years.

The rise in temperatures and vapour pressure increases the risk of plant desiccation. Plants respond by coordinating the transport and storage of water, although we don't yet know how. This is where the terrestrial laser scanner (TLS) comes into play, which rebuilds the 3D architecture of trees to study their hydraulic properties. This project combines global data with new field data to investigate how hydraulic properties vary according to the climate and how trees respond to drought.

Kvar, Croatia. Photo: Lawrence Chismorie on Unsplash

OPINION

Text: Annelies Broekman, Diana Pascual and Eduard Pla, adapted by Anna Ramon

A CRY OF ALARM IN THE MEDITERRANEAN

The Mediterranean is an exceptional region. Rightly so, it is the second biodiversity hotspot in the world. Warm forests, semi-arid and humid zones, and marine ecosystems; a unique, singular region that is, however, one of the most vulnerable to climate change and the pressure of mankind. In 2020, the network of Mediterranean Experts on Climate and Environmental Change warned that it is warming 20% faster than the global average, where the average temperature has risen by 1.5°C since the pre-industrial age. This is particularly noticeable in coastal areas and during the summer, with more intense and frequent heatwaves. Rainfall in the Mediterranean region also changes its time pattern and spatial distribution, highlighting the irregularity of a climate that is already, by definition, irregular. In addition to this is a rise in sea temperature and in evaporation and transpiration processes, which significantly alter the region's water cycle. All in all, it affects terrestrial, aquatic and marine systems, and the human communities that live in them. That's why such an important place as this in the history of civilisation is where the magnitude of the pressure of mankind is poignantly seen: Urban expansion, agricultural intensification, fishing, pollution and the deterioration of ecosystems.

You don't have to look too far: Over the past three years, we've seen how these processes have intensified, as have the challenges we face as a society, not only to deal with a new climatic context but also to interact differently with the ecosystems supporting us. Drought, agricultural crisis, forest deterioration or loss of biodiversity. It's clear that this is not a cosmetic, technical or fleeting problem but a structural change in functioning and values.

ANNELIES BROEKMAN
Researcher

DIANA PASCUAL
Technician

EDUARD PLA
Technician

We are well aware of the fact that gaining adaptive capacity requires resistance and resilience, and the correct functioning of ecosystems must be ensured. We cannot deal with droughts without ensuring the health of the rivers, recovering aquifers and coming together to reconsider the social uses and priorities of water. Or facing the challenge of agriculture and livestock farming if no new models and practices are proposed that focus on the basis of natural systems: good soil health. We cannot tackle the forest transition without reconsidering and planning the territory, recovering processes, reversing biodiversity loss, gaining resilience and providing new models for the use and management of natural resources. New models that highlight the social and ecological value of what often has no great financial value. Our research provides knowledge and tools that we share with many other parts of the Mediterranean.

Let this space, commended as the birthplace of cultures, be the birthplace of new ways of living on Earth.

Text: Anna Ramon

THE RESILIENT HIGHLAND

A European project to revive Mediterranean highlands and make them less vulnerable to climate change.

The Mediterranean mountain areas in southern Europe are extremely sensitive to climate change. There is less water available, as droughts last longer and are more severe, and the frequency of forest fires is on the rise. These areas also suffer from progressive depopulation due to a lack of opportunities.

Along these lines, CREAF is heading LIFE MIDMACC, a project to stimulate local development in these areas and to manage these landscapes to make them more resistant to climate change.

Highland fields in Aragon. Photo: Midmacc.

OPINION

PREDICTING THE FUTURE OF THE FORESTS

Given the accelerated rate of climate change, the capacity of forests to recover from disturbances such as fires and droughts is critical. The CREAF Ecosystem Modeling Facility (EMF) uses advanced mathematical models to predict how future conditions will affect the resilience of forest ecosystems, offering tools for more effective and sustainable forest management.

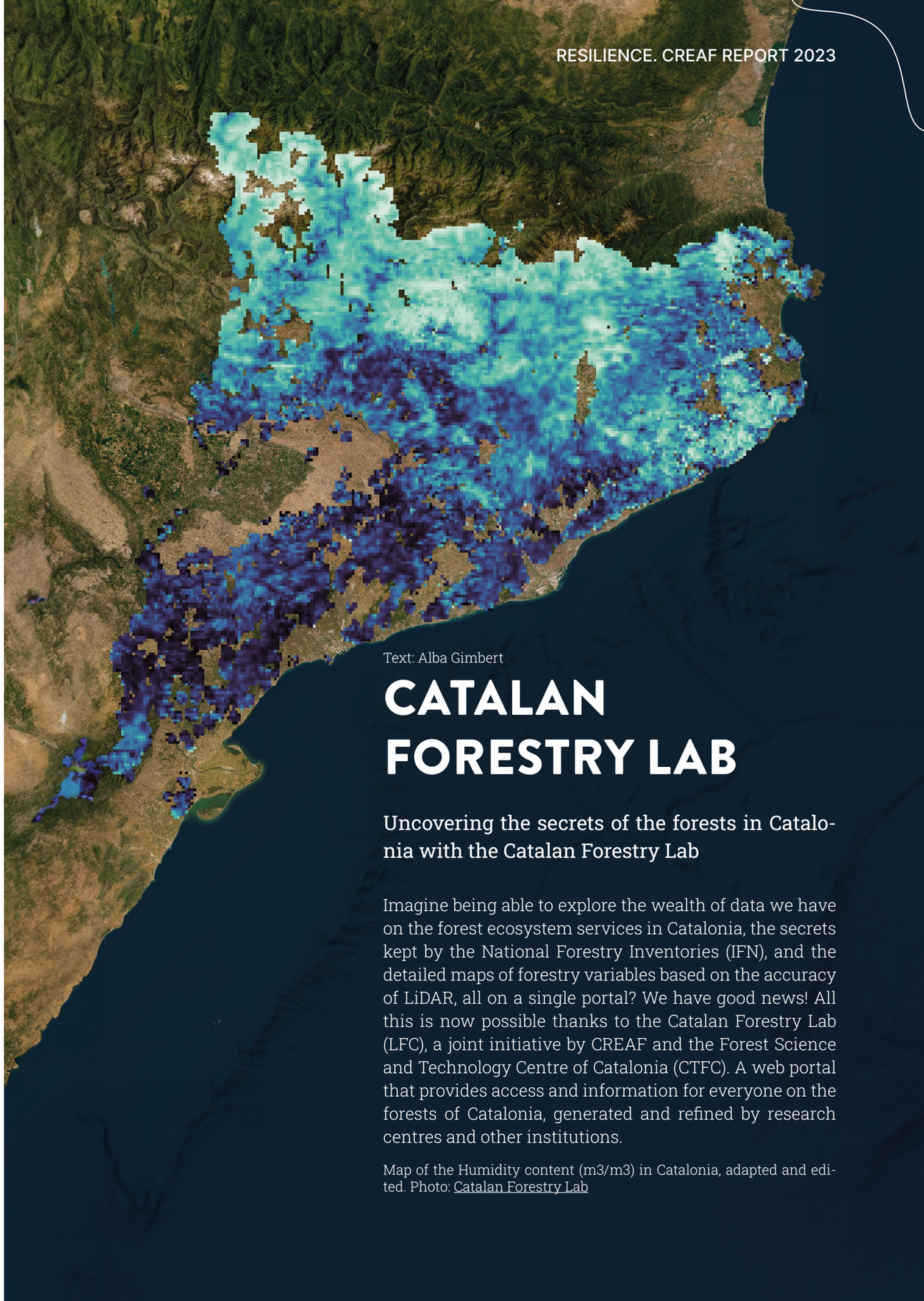
Forest resilience is a key term when considering their future in terms of global change, despite the challenges posed in quantifying it. This concept expresses the capacity of forests to recover both functionally and structurally from the impact of disturbances such as fires or severe droughts, which are becoming more frequent and intense. Resilience is, therefore, linked to uncertainty regarding the future of the forests and, as a result, uncertainty regarding the services they provide for our societies.

MIQUEL DE CÁCERES AINSA
Researcher

An effective way of mitigating this uncertainty of the future is to assimilate accumulated knowledge of the functioning and dynamics of forest ecosystems to predict how they will respond to expected climate conditions. Process-based numerical simulation models are a valuable tool in quantitatively addressing this task. By using equations that represent a wide range of processes (biophysical, ecological, hydrological, etc.), these models can be assimilated to predict the dynamics and functioning of the forest. They also provide an evaluation of how forest management decisions can affect this response.

Therefore, a few years ago CREAF decided to set up a unit dedicated to terrestrial system modelling, known as the Ecosystem Modeling Facility (EMF). One of its main goals is to use the knowledge acquired in terrestrial ecosystems to develop models that predict how global change will affect the forests, evaluate their resilience and investigate how current decisions can strengthen their capacity to recover in the future.

This task must be based on the knowledge acquired over the years by CREAF and by research institutions in the same field. As with weather forecasting, the uncertainty in predicting the future of the forests increases as the time frame becomes greater, and large volumes of data from observing terrestrial systems are required to refine the models and update the portrayal of the state of the forest at present. All in all, this is a huge collective effort to foresee the future of our forests in the short-, medium- or long-term.



Text: Alba Gimbert

CATALAN FORESTRY LAB

Uncovering the secrets of the forests in Catalonia with the Catalan Forestry Lab

Imagine being able to explore the wealth of data we have on the forest ecosystem services in Catalonia, the secrets kept by the National Forestry Inventories (IFN), and the detailed maps of forestry variables based on the accuracy of LiDAR, all on a single portal? We have good news! All this is now possible thanks to the Catalan Forestry Lab (LFC), a joint initiative by CREAF and the Forest Science and Technology Centre of Catalonia (CTFC). A web portal that provides access and information for everyone on the forests of Catalonia, generated and refined by research centres and other institutions.

Map of the Humidity content (m3/m3) in Catalonia, adapted and edited. Photo: Catalan Forestry Lab

Text: José Luis Ordóñez

SCIENCE IN ACTION

Rosemary (*Rosmarinus officinalis*): one of the longest-flowering, most fragrant, most all-terrain and most common plants in the most badly burned and scorched places of Catalonia. Its secret weapon: Tiny seeds capable of germinating after a fire, when the land is full of ash and there is very little competition.

Rosemary. Photo by Alba Mas Bassas

FROM KNOWLEDGE TO SOCIAL TRANSFORMATION

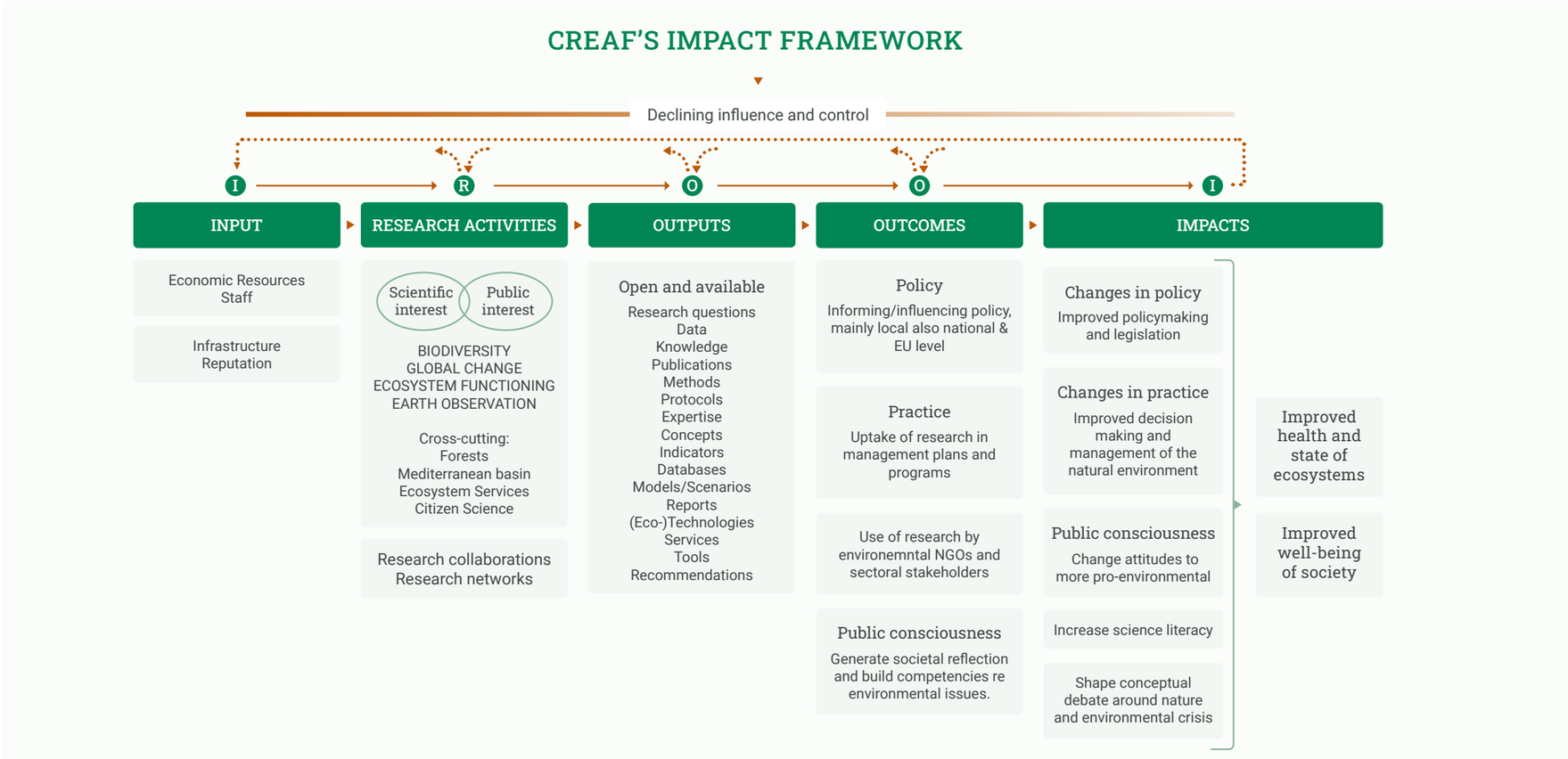
From the private sector to public policies, CREAF is working towards integrating science into solving the most urgent social challenges.

At CREAF, science steps into action by connecting our knowledge with different layers of society. The private sector, public policies, education or natural heritage management are some of the areas that require scientific evidence to feed from, to make decisions, to update concepts, to break down clichés or to change the way things are done.

CREAF is able to reach all these audiences thanks to the long road it has travelled: a road towards the impact we must be able to show and be valued for the usefulness of our research, at academic and social levels.

CREAF has made great progress in 2023 in moving towards this goal: with a new framework on the impact of our research, a new knowledge transfer department and growing activity at international summits on subjects such as the climate or biodiversity, where science must be consulted in order to advance.

Photo: Joan de la Malla



Text: Ángela Justamante

THE ROAD TOWARDS IMPACT

Over the past 35 years, CREAF has produced thousands of scientific articles on the climate and nature. But have we transformed anything in society?

The challenge of answering this question was met by Anabel Sánchez, responsible for highlighting the path taken by the knowledge generated by the centre in the complex fabric of environmental problems, and the role it plays in terms of solutions.

Anabel first became excited about setting off on this adventure while she was coordinating a European project, Bewater. This initiative sat citizens, political players and experts and science around the same table with one common goal: to adapt the Mediterranean basin to climate change and the water shortage. It was then that she realised that science could inspire real transformations in people's lives.

Only a few years later, and thanks to her leadership, the centre has designed a path to take a step-by-step snapshot of the impact that research has on society. This tool has become an initial catalogue of narratives to explain, for example, how science at CREAF was considered in the recommendations to stop the decline of wild pollinators, in measures that can be taken to recover degraded soil using compost, or in a change of mindset in planning and managing the territory based on landscape ecology.

This milestone has been possible thanks to close collaboration with researchers, who have attended different workshops and sessions to rethink their research from a new perspective. Two of these narratives break the ice and are being submitted for the first impact assessment by CERCA in 2024.

TESTIMONIALS

ANABEL SÁNCHEZ
CREAF Impact officer

"Science is moving forwards, and the way of evaluating and planning it must evolve with it. We must look beyond articles and highlight the benefits we generate for society, as well as the associations we establish with it"

PAULA ADAM
Director of AQuAS

"CREAF has been ground-breaking in creating and promoting a new job title in a research centre, the impact officer. This task is headed by Anabel Sánchez and is already starting to produce results"

JORDI VAYREDA
CREAF Researcher

"Taking part in impact narratives and the sessions organised by Anabel has helped me discover the potential of my research in transforming forest management"

Text: Alba Gimbert

BIODIVERSITY, CAMERA, ACTION!

The curtain rises. People from CREAF being filmed measuring biodiversity. What's the name of the film? On the path to sustainable entertainment.

Imagine measuring biodiversity on a film set? It seems strange to think of this in terms of entertainment, but what would you think if I told you it's part of a project to reduce the environmental impact of an industry that's on a par with the textile sector in terms of emissions? Alongside CREAST, we've developed an initiative to mitigate the huge ecological footprint, and we're really excited because this partnership is the result of our joint efforts with Ship2B as environmental advisors for future startups and spin-offs.

We joined forces with CREAST to measure and understand how our productions affect biodiversity and to change the way of work of this demanding sector. We want to put on our hiking boots, join the filming work, and not only analyse the impact and best practices to which the areas of nature behind the cameras are exposed but also work on creating a method that can be digitised and scaled for future projects that want to include this new environmental indicator in their productions: the ecosystem footprint.

Entering the audiovisual and entertainment world is not easy, but we've got good news! Movistar is lending us its film sets and all we need now are promoters for the project. Who said that there wouldn't be a green revolution in film and television?

Photo: "The ecosystem footprint of film" dossier by CREAST

OPINION

Text: Enrique Doblas, CREAF Transfer officer.

A NEW ROAD FOR SCIENCE, HIDDEN IN ITS ORIGINS

As a researcher, I've always appreciated knowledge transfer, particularly after an experience that radically changed my understanding of science. Right after I finished my thesis, I decided to return to the place where I had done my first scientific studies, a pretty area of Mediterranean forest in the place where I was born, Cordoba. I was surprised to find that a significant number of the places I'd studied had succumbed to urban development.

ENRIQUE DOBLAS MIRANDA
Transfer officer

We can generate joint knowledge, offer specific services or even set off on our own adventures to take our message further.

I took this disconnect between the importance of science and the lack of protection of this environment with me on my post-doctoral studies in Canada, funded by projects that were as interesting as they were practical. The lumber industry there had gone from relentless devastation to investing in better forest management in order to adapt to imminent changes.

With this mindset I joined CREAF and the famous Montes Consolider project, where the slogan "conserve through use" already clearly defined the philosophy of many at the centre: sharing scientific advances with owners, governments, and the community. But we should still transform our patronising approach into a permanent partnership.

Global change is putting the pressure on! We must take another step forwards to make sure scientific discoveries reach more people, more places and more quickly, to guarantee a real impact. Even though CREAF is already working with the authorities and with citizens, one sector is still crying out loudly: Businesses must be part of the change.

We can generate joint knowledge, offer specific services or even set off on our own adventures to take our message further. It all adds up. My goal is to awaken an enterprising spirit in researchers, train them, encourage the transfer of knowledge, whether it already exists or hasn't yet been explored, and build bridges between what we do and what is needed.

This could result in an accessible digital tool that is not forgotten in some dark corner of the internet, a young researcher whose future options include heading her own company, or a project with agroforestry owners seeking specific, sustainable solutions to their problems.

And if you have to go back to the place where you started your studies, I'm here to come along.

CREAF advises the network of subnational governments, Regions4, on aspects involving biodiversity, and produced a specific video that was presented at COP28. Illustration: Alba Mas

Text: Ángela Justamante

TALKING ABOUT BIODIVERSITY AT THE CLIMATE SUMMIT

The story of how CREAF was able to talk about animals, plants and nature-based solutions at the global climate summit!

If you ask anyone about the COP21 Paris Agreement, they will probably remember (or think they remember) that historic moment almost a decade ago when almost every country in the world decided on the common goal of reducing greenhouse gas emissions. At that time, however, the word biodiversity or climate-associated nature was not yet heard. It's also a challenge today, although things are changing. In the case of CREAF, its scientific coordinator and specialist in scientific diplomacy Alícia Pérez-Porro remains steadfast: "climate crisis and biodiversity crisis are two sides to the same coin, and we can't address one without addressing the other".

A great many examples describe these ties. Whenever there's an extreme heatwave, living in a city surrounded by trees, flowers and bushes helps lower our temperature and protects us. Another example is the soil. If we keep it fertile and full of life, it will be able to store more atmospheric carbon and will be more resilient to drought because it will retain more humidity. In terms of forests, we know that the greater their diversity of species of trees, of fauna and of flora, the more likely it is that they will survive a drought and a major forest fire. Yet we also know that climate change is one of the main driving forces behind the loss of biodiversity.

> The climate crisis and the biodiversity crisis are two sides to the same coin, and we can't address one without addressing the other

To give you a specific idea, some studies show that droughts cause a decline in butterfly populations and that climate change increases the effect of pesticides that kill bees.

A global view and local impact

With this premise, the centre attended the last biodiversity summit, COP 15, and the climate summit, COP28. COP 15 took place in Montreal in December 2022 where the long-awaited Kunming-Montreal Global Biodiversity Framework was signed that, like the Paris Agreement and climate change, is to be the roadmap for stopping and reversing the loss of biodiversity through transformative and urgent actions, including the legendary 30x30 agreement that strives to restore 30% of nature by 2030. COP28 was held in the United Arab Emirates in November 2023. Here, we were given the chance to take part in the presentation of a video and a report that includes a series of activities to help solve the double global climate and biodiversity crisis. The report was headed by Regions4, a global network of subnational governments and associated regional entities from around the world, including CREAF as an advisor on subjects regarding biodiversity.

Beyond the international arena, here at home the meeting point between natural science and government is structured through the Natural Heritage and Biodiversity Observatory (OPNB). The Government of Catalonia's Ministry of Climate Action heads this major project, which is coordinated by CREAF and CTFC.

TESTIMONIALS

ALICIA PÉREZ-PORRO
CREAF Scientific coordinator

"Science must be present at international summits such as the COPs because of the scientific factor of the issues discussed and to inform of the possible solutions debated"

LLUÍS BROTONS
Author of IPBES, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, and CREAF researcher

"It's important to remember that we must maintain and increase biodiversity protection, yet we must also recover nature wherever it has been lost"

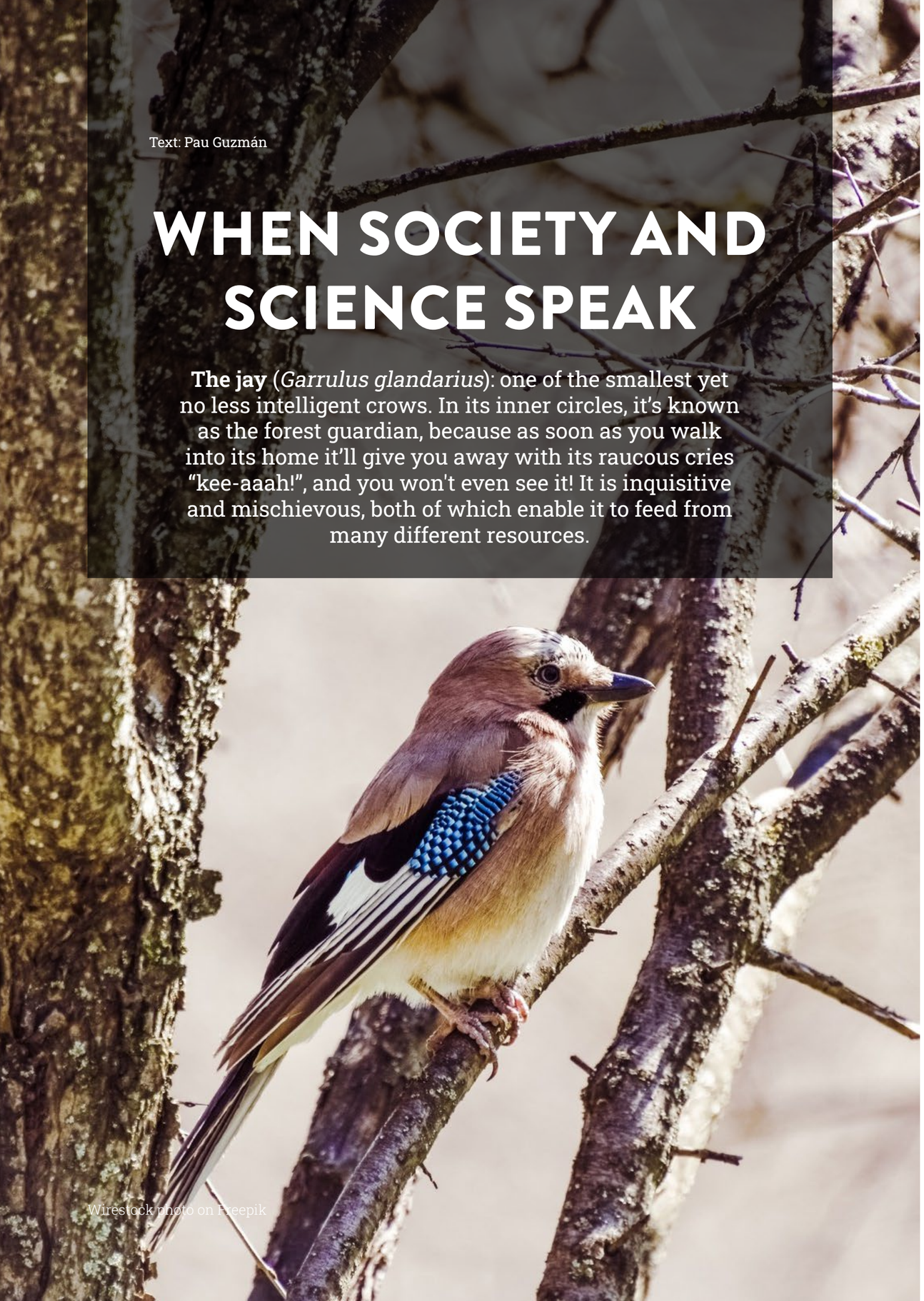
ADRIANA CLIVILLÉ
CREAF international communications

"Defining and creating the Regions4 video on the conservation of biodiversity places CREAF in the context of subnational governments around the world"

Text: Pau Guzmán

WHEN SOCIETY AND SCIENCE SPEAK

The jay (*Garrulus glandarius*): one of the smallest yet no less intelligent crows. In its inner circles, it's known as the forest guardian, because as soon as you walk into its home it'll give you away with its raucous cries "kee-aaah!", and you won't even see it! It is inquisitive and mischievous, both of which enable it to feed from many different resources.



Wirestock photo on Freepik

SCIENCE THAT CONNECTS

Communication is part of CREAF's essence. A science-based ecological transition would be impossible without effective communication, which is why connecting with people is crucial. To do so, we promote a communications strategy that, after 13 years, is now a benchmark for many other research centres.

Among other activities, CREAF works side by side with the media, dealing with the trends of the media agenda and providing expert opinions and knowledge. CREAF is also present on social media, where almost 60,000 people follow its contents, which have reached 4 million views.

11thou

FOLLOWERS ON INSTAGRAM

26thou

FOLLOWERS ON X/TWITTER

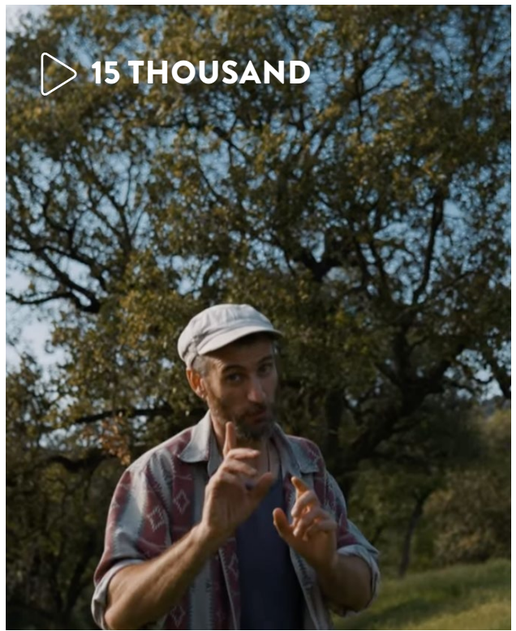
>300

APPEARANCES IN THE MEDIA

128

NEWS ARTICLES IN THE BLOG

THE HOLM OAKS
GODAI GARCIA



FOREST MANAGEMENT AN INTERVIEW WITH JOAN PINO

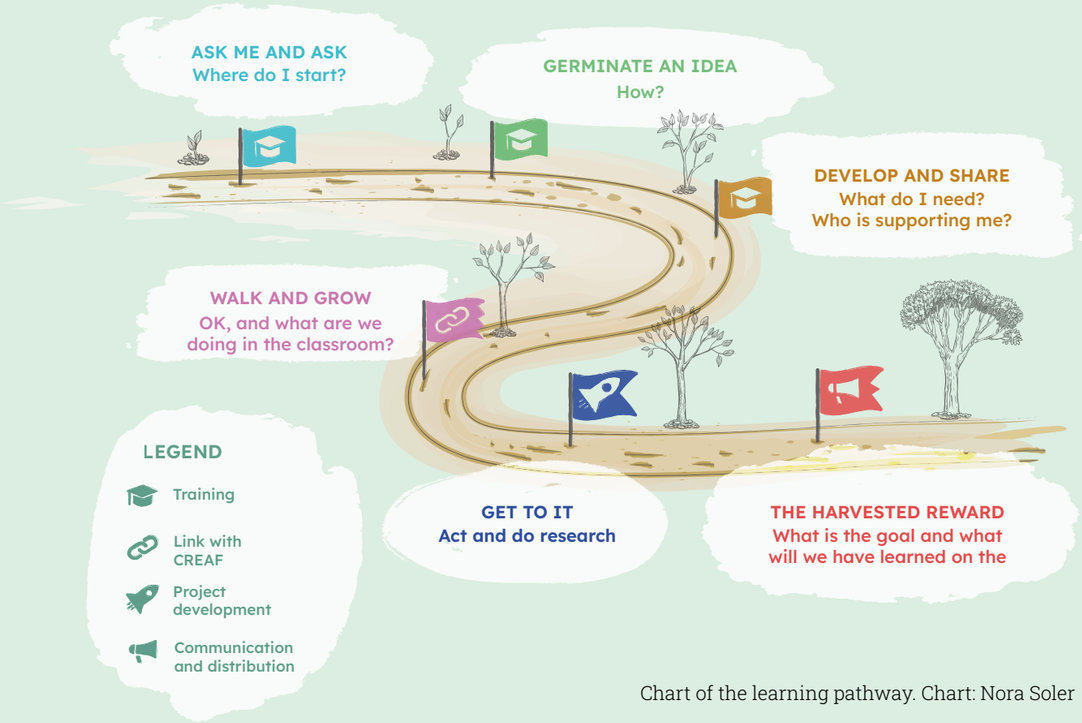


Chart of the learning pathway. Chart: Nora Soler

Text: Verónica Couto Antelo

'RESEARCH' GOGGLES REACH SCHOOLS

Stone by stone, step by step. They say that changes are difficult, and at CREAF we're considering a really big one: helping change the outlook of schools in Catalonia. Help them observe their natural environment, make them ask themselves questions, convey the values of nature, help them understand the effects of the loss of biodiversity, climate change, drought or changes in the rhythms of nature, to mention but a few. In short, we want to bring nature into the classroom. Not just that. Students with access to it will understand the environmental challenges to be faced and the future to be built among us all.

With this goal in mind, in 2023 CREAF strengthened its partnership, headed by Laura Force (citizen science and education technician) and Anabel Sánchez (impact officer), with the Ministry of Climate Action, Rural Agenda and Food to assist and support schools in the Network of Green Schools during the school year. The first step involved understanding and designing the pathway that schools should take to transform their everyday lives in order to become closer to nature and understand the role of research. We've found a true ally in citizen science.

CREAF has been leading projects involving general society and citizens in scientific research for years. This is what is known as citizen science and it has a wide variety of formats, ranging from the local from Sant Feliu de Llobregat who walks butterfly transects every week to the passionate naturalist who sends us photos of forest deterioration when he leaves the mountains. Despite this diversity, what they have in common is that they provide extremely valuable data for the scientific community. Why not involve students? Why not turn them into scientific citizens from any early age? This will let them learn about nature while taking part in their own research! So we have designed the pathway, with the clear goal of conveying our knowledge and how vital citizen science is, and the time frame for laying each stone, step by step, over the coming years.

Text: Verónica Couto Antelo

OUR CITIZEN SCIENCE IN DATA

uBMS – URBAN BUTTERFLY MONITORING SCHEME

Urbanite 'butterfly spotters', garden-loving naturalists or people excited about learning. They are all volunteers in the uBMS network with the same goal: to count butterflies. We coordinate this monitoring in Barcelona and Madrid, which enables us to study how nature and cities are connected.

uBMS

38
PARTICIPANTS

ALERTAFORESTAL

422
PARTICIPANTS

ALERTA FORESTAL

The forests are undergoing a great many changes that are disrupting their health, such as defoliation due to pests or the lack of water. Assisted by citizens, Alerta Forestal takes a snapshot of these forests, and we currently have five active alerts: the pine processionary, the box tree moth, drought, wind and snow.

mBMS – METROPOLITAN BUTTERFLY MONITORING SCHEME

Metropolitan areas are usually grey and very busy, and it's hard to stop and watch nature. But if we take a closer look at their parks and gardens, the diversity of some species is surprising. This is the case of butterflies, and we coordinate their monitoring with volunteers.

mBMS
Observatori Metropolità de Papallones

43
PARTICIPANTS

RitmeNatura

528
PARTICIPANTS

RITMENATURA

Swallows characterise Bécquer's poems just like cranes characterise the sowing season. Nature has always been society's calendar. Unfortunately, this is changing and the rhythms of nature are increasingly unstable. We are therefore leading a citizen project to monitor this.

Scottish Residence 2022–2023 Forest time. Photo: Diego de la Vega

Text: Diego de la Vega

ART CHANGES THE PERSPECTIVE

Research requires care, precision and good technique. But what would science be without diverse, creative perspectives? At CREAF, art is combined with ecology in a fertile land with its own name, Ecotons.

For over three years, an extremely diverse team at CREAF, driven by the desire to break certain rules - and by the conviction of being able to do just that - is exploring how art and science can benefit from each other.

These exceptional people call themselves Ecotons, a word that in ecology defines the meeting places between different ecological communities. Despite or perhaps thanks to certain tension in these areas, biodiversity is overflowing and the soil often becomes more fertile. Likewise, attractive opportunities arise from the cooperation between artists and scientists that can, with a lot of effort, become an extremely beneficial symbiosis.

In 2023, the group worked on supporting artists from the two residences that have hosted those involved in the Can Balasc biological station, one in association with the La Escocesa artistic production centre and another with the Carulla Foundation and the Museum of Rural Life. The experiences were extremely enlightening and great lessons were learned. Art-based work changes your perspective and enables you to acknowledge the fact that the forest is partly surviving thanks to its slow, parsimonious tempo. The lesson here is that close, unhurried support allows for us to see more things, for roots to grow stronger and for flowers to smell sweeter. Bringing together art and science also offers a look back on the idyllic nature we imagine and an understanding of how our perspective affects research. We learn that we cannot take anything for granted and must think more freely.

An initiative like this one works thanks to the people who have given it a surge of energy at a give time, and each one of them is vital for the survival of the ecosystem. The Ecotons have set off on other adventures, such as flamenco dancing to the rhythm of tree embolisms with the project "Embolism, soleà style" and have dressed up as holm oaks to ask themselves what being a tree means, in a guest performance with Max Azemar. This unexpected fertility drives the Ecotons to move forwards in search of new horizons.

JORDI MARTÍNEZ VILALTA

"Discovering art has enabled me to put my research into a wider context and appreciate nuances and connections I hadn't seen before"

Embolism, soleá style. Photo: Sara @framemechanics

Bucolic presentation. Photo: Última

IDIL·LI

Text: Diego de la Vega

Última, a research and stage creation company, proposes a historical and political review of the idea of nature. Based on the texts of classical romance, they explore forms of nostalgia that lean towards an idea of nature in which mankind plays no role faced with the challenges of global change. The exploration involved different artistic disciplines, such as plastic arts and theatrical performance.

ALEJANDRO SANTAFLORENTINA

NOEMÍ COSTA

CLÀUDIA BARBERÀ

Scottish Residence 2022–2023 Forest time. Photo: Diego de la Vega

TEMPS AL BOSC

Text: Diego de la Vega

Artists Rosa Llop and Gemma Paris question fast-moving time and compare it with the extensive, cyclical experience of time in the landscape, where nothing is urgent or forever. They seek evidence in the seasonal nature of forest biodiversity of how to survive the passing of time in a more sustainable, imprecise and connected way. The result is an atlas of biodiverse and imprecise instants in which to experience the forest.

ROSA LLOP

GEMMA PARIS

ANNEXES

CONTENTS AND ANNEXES

ALLIANCES & MEMBERSHIPS

NEW ALLIANCES & ENDORSEMENTS

CREAF. (2023). *Member organization of Regions4.*

CREAF. (2023). *Member organization of the Coalition for Advancing Research Assessment (CoARA) & signatory of the CoARA Agreement.*

CREAF. (2023). *Member organization of AEFr (Asociación Española de Fundraising).*

Roig, O. (2023). *Signatory of the Botswana Statement "Global challenges, research, innovation, and impact: A research management perspective."* https://zenodo.org/records/10696970

NEW POSITIONS ON WORK & REVIEW TEAMS

Cardona, A. (2023). *Founding member of Fundraising.cat, a professional fundraisers' network based in Catalonia.*

Cardona, A. (2023). *Member of Fundraising.cat's Events, Strategy and Advocacy working groups.*

Florido, F. (2023, March). *Member of SOMMa's Open Science working group.*

Herrando, S. (2023, April). *Vice-president of the European Bird Census Council (EBCC).*

Pérez-Porro, A. (2023, February). *Jury member of Premis Ciutat de Barcelona 2023: Ciències Ambientals i de la Terra.*

Pérez-Porro, A. (2023, November). *Member of EU's Science Diplomacy working groups.*

Ramon, A. (2023, March). *Member of the OPNB technical office.*

Roig, O. (2023, September). *Member of AGAUR's Professionalising Research Management working group.*

Roig, O. (2023, September). *Member of EARMA's ECDI (Equity, Cultures, Diversity, Inclusion in Research Management) thematic group.*

Romero, E. (2023, June). Member of Daniel and Nina Carasso Foundation's Experts evaluation Committee for the second 'Daniel Carasso Fellowship para ayudas postdoctorales'

Rosas, T. (2023, November). *Member of SOMMa's EDI (Equality, Diversity, and Inclusion) working group's executive commission.*

Sánchez, A. (2023, September). *Member of ANECA's Commission for the evaluation and monitoring of the national accreditation system.*

Sánchez, A. (2023, November). *Jury member of Premi Natura i Societat 2023.*

EVENTS & TRAINING

ACADEMIC EVENTS

EVENT ORGANIZATION & PARTICIPATION IN SCIENTIFIC COMMITTEES

Marañón-Jiménez, S. (Scientific committee member) (2023, April 23). T*he future of high latitude ecosystems: Integrating our understanding of changes from cryobiomes to functioning of terrestrial ecosystems in a warming world.* EGU General Assembly 2023, Vienna (Austria).

Marañón-Jiménez, S., Peguero, G., & Margalef, O. (Scientific committee members) (2023, October 16). *El Sistema Suelo ante el Cambio Global: Biodiversidad, funcionamiento e interacciones planta-suelo.* XVI Congreso Nacional AEET, Almeria (Spain).

Marcer, A. (Org.) (2023, January 12). *How to digitise a Natural History Collection at the Natural History Museum.*

Pla-Rabes, S. (Org.) (2023, February 17). *The AGORA workshop.* Arctic Science Summit Week 2023, Vienna (Austria).

Serral, I., Brobia, A., & Masó, J. (Conveners) (2023, April 23). *In-situ Earth observation and geospatial data sharing and management as key basis for the climate emergency understanding.* EGU General Assembly 2023, Vienna (Austria).

POSTERS

Brobia, A., Masó, J., & Serral, I. (2023). *G-reqs: How a user requirements system in GEO can improve the in-situ data availability?* EGU23-6359.

Cardells, J., Torres-Blas, I., Lavin, S., López-Olvera, J. R., Lizana, V., Català-Tetuan, C., Perea, R., Martí, A., Serrano, E., & INCREMENTO consortium. (2023, September 21). *Desparasitación natural en rebaños de ciervo.* XL Groupe d'Étude sur l'Ecopathologie de la Faune Sauvage de Montagne, Saluzzo (Italy).

Cardells, J., Torres-Blas, I., Vilalta, C., Lavín, S., Lizana, V., Català-Tetuan, C., López Ramon, J., Marti, A., Perea, R., & Serrano, E. (2023, September 21). *Efectos de la densidad de ciervos sobre la abundancia de Rhipicephalus bursa en un ambiente mediterráneo: Una aproximación experimental.* XL Groupe d'Étude sur l'Ecopathologie de la Faune Sauvage de Montagne, Saluzzo (Italy).

Domene, X., Olmo-Gilabert, R., Fernández-Martínez, M., & Comas, L. (2023, April 23). *Soil properties, habitat structure, climate, and topography as drivers of soil biodiversity.* EGU General Assembly 2023, Vienna (Austria).

Otsu, K., & Masó, J. (2023). *Open Science as the new normal, Citizen Science as the new component of research infrastructure.* EGU-172. h

Otsu, K., Prat, E., Pascual, D., & Pesquer, L. (2023, October 4). *AqualNFRA for blue research interlinking EOSC ecosystem with Green Deal data space.* Open-Earth-Monitor Global Workshop 2023, Bolzano (Italy).

Pons-Andreu, M., Olmo-Gilabert, R., Domene, X., Fernández-Martínez, M., & Comas, L. (2023, September 12). *Sistema de seguimiento de la biodiversidad terrestre en Cataluña: Proyecto SISEBIO.* XXXIII Reunión Nacion-

al de Suelos (RENS 2023), Pamplona-Iruña (Spain).

Rao, M. P. (2023, November 5). *Approaching a thermal tipping point in the Eurasian boreal forest at its southern margin.* Addressing Key Uncertainties in Modelling Physical and Ecological Tipping Dynamics in the Earth System (towards TIPMIP), Templin (Germany).

Rao, M. P., Pacheco-Solana, A., Griffin, K., Jensen, J. E., Pederson, N., Oryan, B., Nixon, T., Rodriguez-Caton, M., Andreu-Hayles, L., Hise, J., Peñuelas, J., & Magney, T. S. (2023, April 23). *Temporal decoupling between carbon assimilation and tree growth in temperate oaks.* EGU General Assembly 2023, Vienna (Austria).

Raya-Moreno, I., Domene, X., Marañón-Jiménez, S., Carabassa, V., Navarro-Segarra, M., & Esquivel, J. P. (2023, September 12). *Evaluación de la descomposición y ecotoxocidad de baterías primarias biodegradables: Proyecto BIDEKO.* XXXIII Reunión Nacional de Suelos (RENS 2023), Pamplona-Iruña (Spain).

Voidrot, M.-F., Lijla Bye, B., De Salvo, P., Franziskakis, F., Benedict, K., Masó, J., Schubert, C., Rubio, J. M., & Downs, R. R. (2023). *New Resources promoting the GEO Data Sharing and Management, FAIR, and CARE principles.* EGU23-11480.

Zhang, Y., Piao, S., Sun, Y., Rogers, B., Li, X., Lian, X., Liu, Z., Chen, A., & Peñuelas, J. (2023, April 23). *Future reversal of warming-enhanced vegetation productivity in the Northern Hemisphere.* EGU General Assembly 2023, Vienna (Austria).

ORALS

Anderegg, W. R. L., Mencuccini, M., Martínez-Vilalta, J., & Poyatos, R. (2023, December 11). *Scaling of plant economic spectra and life history trade-offs from species to ecosystems.* AGU 2023, San Francisco (USA).

Berk, B. (2023, November 20). *The DigiMedFor project.* SUPERB Restoration Project Festival, Milan (Italy).

Bourtsoukidis, E., Pozzer, A., Williams, J., Makowski, D., Peñuelas, J., Matthaios, V., Economou, T., Lazoglou, G., Yañez-Serrano, A. M., Nölscher, A., Lelieveld, J., Ciais, P., Vrekoussis, P., Daskalakis, N., & Sciare, J. (2023, April 23). *The temperature sensitivity of mono- and sesquiterpene emissions from terrestrial vegetation: Insights from a meta-analysis.* EGU General Assembly 2023, Vienna (Austria).

Carabassa, V., Oliva, S., Domene, X., González, F., Regalado, C., Ritter, A., Arencibia, M. T., Ortegón, A., Pereira, P., Mota, A., & Viera, G. (2023, October 1). *Short term results of different planting technologies applied in the restoration of European habitats.* Closed Cycles and the Circular Society 2023: The Power of Ecological Engineering, Chania (Greece).

De Càceres, M., Molowny-Horas, R., Granda, V., Tovar, A., Cabon, A., Martínez-Vilalta, J., Mencuccini, M., García-Valdés, R., Nadal-Sala, D., Sabaté, S., Martin-StPaul, N., Morin, X., D'Adamo, F., Batllori, E., Améztegui, A., Espelta, J. M., Lloret, F., & Valor, T. (2023, October 16). *MEDFATE 3.0.0: A trait-enabled model to simulate Mediterranean forest function and dynamics at regional scales.* XVI Congreso Nacional AEET, Almeria (Spain).

Espelta, J. M. (2023, October 3). *Land abandonment & biodiversity.* EFI Young Leadership Programme Mediterranean 2023: Land abandonment and cultural landscapes, Barcelona (Spain).

Fatecha, B., Poyatos, R., Martínez-Vilalta, J., & Mencuccini, M. (2023, October 16). *Global patterns of tree water use resilience to drought from sap flow data.* XVI Congreso Nacional AEET, Almeria (Spain).

Fernández-De-Uña, L., Martínez-Vilalta, J., McDowell, N. G., & Poyatos, R. (2023, October 16). *Efecto de la altura en el flujo de savia y su respuesta a la sequía.* XVI Congreso Nacional AEET, Almeria (Spain).

Fernández-Martínez, M., Peñuelas, J., Chevallier, F., Ciais, P., Obersteiner, M., Rödenbeck, C., Sardans, J., Vicca, S., Yang, H., Sitch, S., Friedlingstein, P., Arora, V., Goll, D., Jain, A. K., Lombardozzi, D., & McGuire, P. (2023, April 23). *Is destabilisation risk increasing in land carbon sinks?* EGU General Assembly 2023, Vienna (Austria).

Fernández-Martínez, M., Peñuelas, J., Chevallier, F., Ciais, P., Obersteiner, M., Rödenbeck, C., Sardans, J., Vicca, S., Yang, H., Sitch, S., Friedlingenstein, P., Arora, V., Goll, D., Jain, A. K., Lombardozzi, D. L., McGuire, P., & Janssens, I. A. (2023, December 11). *Climate change is increasing destabilisation risk in land carbon sinks.* AGU 2023, San Francisco (USA).

Gambra, D., Capó, M., Cárdenas, D., Galiano, R., Solano, C., Krummings, J., Perea, R., Baraza, E., & INCREMENTO consortium. (2023, September 29). *Efecto de los ungulados en Ulmus minor y Agrostis stolonifera a través del suelo y la herbivoría.* XIV Reunión de Ungulados Silvestres Ibéricos (RUSI), Figueira de Castelo Rodrigo (Portugal).

Grau, O., Margalef, O., Joosten, H., Richter, A., Canarini, A., Van de Putte, I., Valiente, N., Martin, V., Pla-Rabes, S., Couwenberg, J., Rottensteiner, C., Gall, C., Fernàndez, P., Peñuelas, J., & Janssens, I. (2023, June 18). *Biodiversity and biogeochemistry of permafrost ecosystems and global change.* The 6th European Conference on Permafrost (EUCOP6), Puigcerdà (Spain).

Hamedpour, A., Sigurdsson, B., Peñuelas, J., Filella, I., Einarsson, H., Latré, S., & Stefánsson, T. (2023, April 23). *Analyzing the effect of the duration of soil warming of subarctic grasslands using high-resolution multispectral images.* EGU General Assembly 2023, Vienna (Austria).

Junttila, S., Descals, A., Filella, I., Peñuelas, J., Brandt, M., Wigneron, J. P., & Vastaranta, M. (2023, April 23). *Vegetation optical depth reveals changes in ecosystem-level water stress for global forests.* EGU General Assembly 2023, Vienna (Austria).

Klinek, L., Au, J., Rao, M. P., Wong, C. S. Y., & Magney, T. S. (2023, December 11). *Assessing Satellite GPP Products' Ability to Track Seasonal Changes in Sequoia sempervirens Photosynthesis.* AGU 2023, San Francisco (USA).

Larmola, T. A., Andersson, E., Balkovic, J., Barthelmes, A., Decleer, K., Haltia, E., Soosaar, K., Lazdins, A., Peñuelas, J., Peters, J., Raman, M., Rossberg, M., Sabater, F., Sánchez Pérez, J. M., Shchoka, I., Tournebize, J., Vitaly, E., Ukonmaanaho, L., & ALFAwetlands team. (2023, August 28). *Wetland restoration for the future – ALFAwetlands.* IBFRA Conference 2023, Helsinki (Finland).

Le Noir de Carlan, C., de Tender, C., Metze, D., Bhattarai, B., Pesqueda, A., Sigurdsson, B., Peñuelas, J., Richter, A., Janssens, I., & Verbruggen, E. (2023, April 23). *Effect of root*

exclusion on the soil microbial community response to warming. EGU General Assembly 2023, Vienna (Austria).

Liu, D., Wang, T., Peñuelas, J., & Piao, S. (2023, April 23). *Drought resistance enhanced by tree species diversity in global forests.* EGU General Assembly 2023, Vienna (Austria).

Liu, M., Trugman, A. T., Peñuelas, J., & Anderegg, W. R. L. (2023, December 11). *Climate-driven disturbances amplify forest drought sensitivity.* AGU 2023, San Francisco (USA).

Marañón-Jiménez, S. (2023a, October 2). *Warming may cause substantial nitrogen losses from subarctic soils.* General FutureArctic/ ForHot Project Meeting, Tartu (Estonia).

Marañón-Jiménez, S. (2023b, October 16). *Warming may cause substantial nitrogen losses from subarctic soils.* XVI Congreso Nacional AEET, Almeria (Spain).

Marañón-Jiménez, S., Luo, X., Richter, A., Gündler, P., Fuchslueger, L., Sigurdsson, B., Janssens, I., & Peñuelas, J. (2023, April 23). *Warming may cause substantial nitrogen losses from subarctic grasslands.* EGU General Assembly 2023, Vienna (Austria).

Marcer, A., Escobar, A., Chapman, A. D., & Wieczorek, J. R. (2023a, October 9). *GeoPick: A new tool for easy georeferencing following best practices.* TDWG 2023, Tasmania (Australia) & Online. https://www.youtube.com/watch?v=dpSE0nqRlto

Marcer, A., Escobar, A., Chapman, A. D., & Wieczorek, J. R. (2023b, October 24). *GeoPick: A new tool for easy georeferencing following best practices.* TaxonWorks Together 2023, Online. https://www.youtube.com/watch?v=dpSE0nqRlto

Martínez-Vilalta, J., Anderegg, W. R. L., & Mencuccini, M. (2023, October 16). *Towards a general classification of plant water use and drought resistance strategies.* XVI Congreso Nacional AEET, Almeria (Spain).

Masó, J., Brobia, A., Serral, I., Simonis, I., Noardo, F., Bastin, L., Cob Parro, C., García, J., Palma, R., & Ziegler, S. (2023). *What does the European Spatial Data Infrastructure INSPIRE need in order to become a Green Deal Data Space?* EGU23-5936.

Mattana, S., Sabate, S., Tallec, T., Boland, F., Manise, T., Heinesch, B., Feigenwinter, I., Turco, F., Rautakoski, H., Lohila, A., Peichl, M., Guerrieri, R., Janssens, I., Roland, M., Poblador, S., Palau, J., Margalef, O., Carrey, R., Otero, N., … Ribas, A. (2023, December 11). *Advancing Understanding of Denitrification: The D-NESS Project.* AGU 2023, San Francisco (USA).

Nogué, S. (2023a, March 30). *Trajectories of biodiversity change on islands.* European Pollen Database (EPD) Workshop, Göttingen (Germany).

Nogué, S. (2023b, July 3). *Trajectories of biodiversity change on islands.* The Island Biology Conference 2023, Lipari (Italy).

Nogué, S. (2023c, September). *Trajectories of biodiversity change on islands.*

Nogué, S. (2023d, October 16). *Island time-lines to quantify biodiversity change.* XVI Congreso Nacional AEET, Almeria (Spain).

Nogué, S. (2023e, October 26). *Trajectories of biodiversity change on islands.*

Nogué, S. (2023f, November 15). *Island time-lines to quantify biodiversity change.* The Micropalaeontological Society Annual Conference 2023, Southampton (UK).

Ogaya, R., Llusià, J., & Peñuelas, J. (2023, March 7). *Estaciones experimentales de estudio de los efectos del Cambio Global en Cataluña.* AnaEE-ERIC meeting, Madrid (Spain).

Otsu, K. (2023, June 26). *Blue research INFRAEOSC projects for the Green Deal data space.* Data Week Leipzig '23, Leipzig (Germany).

Otsu, K., & Masó, J. (2023, February 20). *The Cos4Cloud architecture for integrating citizen science based services in the EOSC.* 125th OGC Member Meeting, Frascati (Italy).

Pascual, D., Pla, E., Nadal-Romero, E., Zabalza Martínez, J., Lasanta, T., Foronda, A., Reiné, R., Barrantes, O., Pueyo, Y., Lana-Renault, N., & Ruíz-Flaño, P. (2023, March 15). *Quantifying the environmental effects of pasture restauration though scrubland clearing combined with livestock management.* LIFE Pastoralp final conference, Bard (Italy).

Pascual Sánchez, D. (2023, June 9). *Resiliencia forestal: ¿Cómo podemos gestionar los bosques para mantener su funcionalidad frente al cambio climático?* Forest Communities, Resilient Land Stewardship Entities, Almeria (Spain).

Pascual Sánchez, D., Vergèr, D., Terrádez Mas, J., & García Balaguer, E. (2023, March 15). *Pyrenean Climate Change Strategy at the crossroads of science and political agenda at regional level.* LIFE Pastoralp final conference, Bard (Italy).

Peguero, G., Ferrin, M., Petersen, H., Salmon, S., Ponge, J.-F., Arnedo, M., Emmett, B., Beier, C., Schmidt, I. K., Tietema, A., de Angelis, P., Liberati, D., Kovács-Láng, E., Kröel-Dulay, G., Estiarte, M., Bartrons, M., & Peñuelas, J. (2023, March 13). *Trait-mediated responses to aridity and experimental drought by springtail communities across Europe.* The 3rd Global Soil Biodiversity Conference, Dublin (Ireland).

Peñuelas, J. (2023a, October 2). *Joint Ecosystem Assessment on the Effects of Natural Soil Warming and N-input Manipulation on Subarctic Grasslands and Forests.* General FutureArctic/ForHot Project Meeting, Tartu (Estonia).

Peñuelas, J. (2023b, October 23). *3rd meeting of sMile: Synthesising plant Metabolomics into biodiversity, Life history & Ecology.*

Peñuelas, J. (2023c, October 23). *Exposome.* The Biology Group's Annual Theme Opening Session, Barcelona (Spain).

Peñuelas, J. (2023d, October 28). *Impact of nutrient limitation on food security in the 21st century.* Shanghai Forum 2023, Shanghai (China) & online.

Peñuelas, J. (2023e, November 14). *Slow down of carbon sinks.* The Global Carbon Project (GCP) Activity Discussions, Online.

Pla, E. (2023, November 9). *Tenim aigua per tothom?* 31a edició Curs Científic: Viure sense aigua, sequera meteorológica o hidrológica?, Online.

Pla Ferrer, E. (2023a, March 22). *Climate adaptation in marginal mid-mountains areas of Spain—MIDMACC project.* Resilient Mediterranean Forests: improving ecosystem services and sustainable management, Valencia (Spain).

Pla Ferrer, E. (2023b, December 12). *El paper de la gestió forestal en temps de sequera i altes*

temperatures. Jornada Prismàtic: Sequera i onades de calor en augment. I ara què?, Barcelona (Spain).

Poyatos, R., Fatecha, B., Nelson, J. A., Flo, V., Granda, V., De Cáceres, M., Anderegg, W. R. L., Bittencourt, P. R. L., Fisher, R. A., Junttila, S., Konings, A. G., Migliavacca, M., Miralles, D. G., Novick, K. A., Rowland, L., Zhang, W., Mencuccini, M., & Martínez-Vilalta, J. (2023, April 23). *Quantifying water use resilience from sap flow data to better understand post-drought effects on tree functioning*. EGU General Assembly 2023, Vienna (Austria).

Poyatos, R., Flo, V., Fernández-De-Uña, L., Fatecha, B., Granda, V., Mencuccini, M., & Martinez-Vilalta, J. (2023, November 31). *Sap flow monitoring in environmental research networks: Lessons learned from SAPFLUXNET and challenges for the future*. XII International Workshop on Sap Flow, Rotorua (New Zealand).

Prat, E., Pesquer, L., Batlle, A., Spyrakos, E., & Thant, S. (2023). *Characterization of Copernicus EO products for water modelling*. EGU-8586.

Rao, M. P. (2023a, March 27). *Decoupling between carbon assimilation and growth in temperate oaks*. VIII Congreso Forestal Latinoamericano (CONFLAT), Mendoza (Argentina).

Rao, M. P. (2023b, April 10). *Approaching a thermal tipping point in the southern margins of boreal Eurasia*.

Rao, M. P. (2023c, April 20). *The forest carbon cycle, from assimilation to allocation*.

Rao, M. P. (2023d, May 18). *All that grows is not green*.

Rao, M. P. (2023e, July 11). *A paired flux tower-dendrometer network to investigate forest carbon from assimilation to allocation to tree growth*. FLUXNET Meeting 2023, Brno (Czech Republic).

Rao, M. P. (2023f, December 6). *Seven centuries of reconstructed Brahmaputra River discharge demonstrate underestimated high discharge and flood hazard frequency*. EGU CL Campfire, Online.

Rao, M. P., Pacheco-Solana, A., Jensen, J. E., Li, R., Griffin, K. L., Pederson, N., McCormack, L., Verfaillie, J., Yang, X., Baldocchi, D., Andreu-Hayles, L., Oryan, B., Hise, J., Nixon, T., Rodriguez-Catón, M., Turner, A., Eitel, J., Peñuelas, J., & Magney, T. S. (2023, December 11). *Summer aridity decouples growth from carbon assimilation in temperate oaks*. AGU 2023, San Francisco (USA).

Rodriguez-Caton, M., Seibt, U., Stutz, J., Parazoo, N., Wong, C. Y. S., Dierick, D., Rao, M. P., Filella, I., Bigwood, J., Cooperdock, S., Peñuelas, J., & Magney, T. S. (2023, December 11). *Diurnal down-regulation of photosynthesis and its environmental drivers in the wet tropical forest of Costa Rica*. AGU 2023, San Francisco (USA).

Romero, R., Gambra, D., Perea, R., & INCREMENTO consortium. (2023, September 29). *Efecto de las distintas densidades de ciervo sobre las poblaciones de mesocarnívoros en Quintos de Mora, Toledo (España)*. XIV Reunión de Ungulados Silvestres Ibéricos (RUSI), Figueira de Castelo Rodrigo (Portugal).

Wenzel, J. C., Hernández-Castellano, C., & INCREMENTO consortium. (2023, September 29). *Short-term effects of increasing red deer densities on ant (Formicidae) communities in Mediterranean ecosystems*. XIV Reunión de Ungulados Silvestres Ibéricos (RUSI), Figueira de Castelo Rodrigo (Portugal).

Wu, Z., Fu, Y. H., Crowther, T. W., Janssens, I. A., Wang, S., Peñuelas, J., Gong, Y., Zohner, C., Zhang, J., & Zhao, Y. (2023, December 11). *Poleward shifts in the maximum of spring phenological responsiveness of Ginkgo biloba to temperature in China*. AGU 2023, San Francisco (USA).

INSTITUTIONAL EVENTS & TRAINING

CREAF *TALKS*

Rosas, T. (Org.). (2023, October 11). *Making aridland restoration better: Learning from (many) mistakes*. CREAFTalks, Bellaterra (Spain).

Rosas, T. (Org.). (2023, October 24). *Understanding and managing adaptation of widespread conifers to climate change*. CREAFTalks, Bellaterra (Spain).

Rosas, T., & Anadon, A. (Org.). (2023, January 20). *Bats and bugs: How to connect bat conservation with farmers and conservationist*. CREAFTalks, Bellaterra (Spain).

Rosas, T., Anadon, A., & Barba, J. (Org.). (2023, May 5). *Quantitative wood anatomy: A window into the intrannual dynamics of tree growth*. CREAFTalks, Bellaterra (Spain).

Rosas, T., & Anadon, A. (Org.). (2023, June 2). *Drought in Catalonia: Climate change or poor water management?* CREAFTalks, Bellaterra (Spain).

Rosas, T., & Anadon, A. (Org.). (2023, November 2). *How can island studies help us understanding the effects of global change on Earth biodiversity?* CREAFTalks, Bellaterra (Spain).

Rosas, T., & Barba, J. (Org.). (2023, February 17). *Ecological components of urbanization in the context of a changing climate*. CREAFTalks, Bellaterra (Spain).

Rosas, T., & Barba, J. (Org.). (2023, May 19). *Tree-ring analyses for evidence-based decision-making*. CREAFTalks, Bellaterra (Spain).

Rosas, T., & Barba, J. (Org.). (2023, November 16). *High phylogenetic turnover magnifies evolutionary relatedness along microbial primary succession*. CREAFTalks, Bellaterra (Spain).

Rosas, T., & Cardador, L. (Org.). (2023, March 3). *Comparing animal brains and intelligence*. CREAFTalks, Bellaterra (Spain).

Rosas, T., & Fraixedas, S. (Org.). (2023, April 20). *Biodiversity and narrative: The ecosystems of science fiction*. CREAFTalks, Bellaterra (Spain).

Rosas, T., & Fraixedas, S. (Org.). (2023, March 31). *Biodiversity conservation in a changing world: The contribution from citizen science*. CREAFTalks, Bellaterra (Spain).

Rosas, T., & Fraixedas, S. (Org.). (2023, November 30). *The dynamic occupancy (dynocc) model: One of the most under-utilised statistical models in ecology*. CREAFTalks, Bellaterra (Spain).

Rosas, T., & Padullés, J. (Org.). (2023, March 17). *Towards more sustainable spatial planning in rural areas: Insights from Norway*. CREAFTalks, Bellaterra (Spain).

Rosas, T., & Padullés, J. (Org.). (2023, December 14). *Nitrogen transfer between plant species in natural and agro-ecosystems.* CREAF-Talks, Bellaterra (Spain).

Rosas, T., & Sayol, F. (Org.). (2023, October 5). *A plant hydraulic perspective on the impact of climate change on forests and strategies for adaptation.* CREAFTalks, Bellaterra (Spain).

JOURNAL CLUB

De La Casa, J., & Riera, M. (Org.). (2023, January 26). *Discussion of the paper 'Why facts don't change minds: Insights from cognitive science for the improved communication of conservation research'.* Journal Club, Bellaterra (Spain).

De La Casa, J., & Riera, M. (Org.). (2023, April 27). *Discussion of the paper 'Empathy and compassion toward other species decrease with evolutionary divergence time'.* Journal Club, Bellaterra (Spain).

De La Casa, J., & Riera, M. (Org.). (2023, May 11). *Discussion of the paper 'Negative results are disappearing from most disciplines and countries'.* Journal Club, Bellaterra (Spain).

De La Casa, J., & Riera, M. (Org.). (2023, June 22). *Discussion of the paper 'Rising complexity and falling explanatory power in ecology'.* Journal Club, Bellaterra (Spain).

De La Casa, J., & Riera, M. (Org.). (2023, September 27). *Discussion of the paper 'Decoloniality and anti-oppressive practices for a more ethical ecology'.* Journal Club, Bellaterra (Spain).

De La Casa, J., & Riera, M. (Org.). (2023, November 23). *Discussion of the paper 'Intentional release of native species undermines ecological stability'.* Journal Club, Bellaterra (Spain).

De La Casa, J., Riera, M., & Di Cintio, A. (Org.). (2023, June 8). *Discussion of the paper 'The global tree restoration potential'.* Journal Club, Bellaterra (Spain).

VERMUTS

Banqué, M. (2023, October 16). *Canvis temporals dels SE forestals dels boscos de Catalunya.* Vermut Ecosistèmic, Bellaterra (Spain).

Berk, B. (2023, October 16). *Digital transformation of forests: A new era for ecosystem services.* Vermut Ecosistèmic, Bellaterra (Spain).

Calduch, S. (2023, October 16). *Urban ecosystem services at local scale.* Vermut Ecosistèmic, Bellaterra (Spain).

Campos, F. (2023, October 16). ASEBIO: *Assessment of Ecosystem Services and Biodiversity in Portugal.* Vermut Ecosistèmic, Bellaterra (Spain).

Daiyoub, A. (2023, March 15). *The Effects of the Armed Conflict on the Conservation of Nature in Syria.* Vermut Biodivers, Bellaterra (Spain).

De Cáceres, M. (2023, October 16). *Projection of forest ecosystem services in Catalonia under climate and management scenarios. Results from a processbased modeling exercise.* Vermut Ecosistèmic, Bellaterra (Spain)

Doblas-Miranda, E. (2023, October 16). *Sustainable soil management for ecosystem services.* Vermut Ecosistèmic, Bellaterra (Spain)

Domene, X. (2023, March 15). *Soil biodiversity inventory in permanent plots for their use as global change indicators: First-round results of the SISEBIO project.* Vermut Biodivers, Bellaterra (Spain).

Domingo, C. (2023, October 16). *Remote Sensing for monitoring EESS.* Vermut Ecosistèmic, Bellaterra (Spain)

Ferrandiz-Rovira, M. (2023, March 15). *From Wildlife to Urban Biodiversity.* Vermut Biodivers, Bellaterra (Spain).

Florido, F., Justamante, A., Pérez-Porro, A., Sánchez, A. (Org.), Saura-Mas, S. & Brotons, L. (ambassadors) (2023, March 15). *Vermut Biodivers.* CREAF.

Florido, F., Justamante, A., Pérez-Porro, A., Sánchez, A. (Org.), Martínez-Vilalta, Banqué, M. & Roquer-Beni, L. (ambassadors) (2023, October 16). *Vermut Ecosistèmic.* CREAF.

Fraixedas, S. (2023, March 15). *Birds as indicators of environmental change: From Boreal to Mediterranean ecosystems.* Vermut Biodivers, Bellaterra (Spain).

Herrando, S. (2023, March 15). *Living Planet Index-Catalonia.* Vermut Biodivers, Bellaterra (Spain).

Herrando, S. (2023, October 16). *Perspectives de serveis ecosistèmics segons el camí de la nostra societat?* Vermut Ecosistèmic, Bellaterra (Spain).

Lapiedra, O. (2023, March 15). *Unraveling global change by studying island lizards.* Vermut Biodivers, Bellaterra (Spain).

Lloret, F. (2023, March 15). *Climate imbalance in plant communities.* Vermut Biodivers, Bellaterra (Spain).

Marcer, A. (2023, March 15). *Biodiversity science and informatics.* Vermut Biodivers, Bellaterra (Spain).

Martí, D. (2023, March 15). *EBBA Live Farmland: Data integration at European scale.* Vermut Biodivers, Bellaterra (Spain).

Martínez-Vilalta, J. (2023, October 16). *Assessing forest ecosystem service resilience to drought in Catalan forests.* Vermut Ecosistèmic, Bellaterra (Spain)

Móstiga, M. (2023, October 16). *NCPs y la biodiversidad en la conservación de los bosques de Perú.* Vermut Ecosistèmic, Bellaterra (Spain)

Nogué, S. (2023, March 15). *Trajectories of Biodiversity change.* Vermut Biodivers, Bellaterra (Spain).

Padullés Cubino, J. (2023, March 15). *Temporal changes in plant community biodiversity: Winners and losers across habitats.* Vermut Biodivers, Bellaterra (Spain).

Pino, J. (2023a, October 16). *Green infrastructure planning and impact evaluation using ES indicators.* Vermut Ecosistèmic, Bellaterra (Spain)

Pino, J. (2023b, October 16). *Selecting ES indicators for Green Infrastructure decisionmaking at regional scale.* Vermut Ecosistèmic, Bellaterra (Spain).

Pla, M. (2023, March 15). *Drivers of change mapping for biodiversity conservation decision-making.* Vermut Biodivers, Bellaterra (Spain).

Rao, M. P. (2023, March 15). *Temporal decoupling between carbon assimilation and tree*

growth in temperate oaks. Vermut Biodivers, Bellaterra (Spain).

Raya, I. (2023, October 16). *Boosting global change adaption in farming and forest systems in the long term: Multifunctionality as criteria*. Vermut Ecosistèmic, Bellaterra (Spain).

Rodríguez Miret, X. (2023, March 15). *Molecular mechanisms of freshwater diatoms for adaptation to different pH conditions*. Vermut Biodivers, Bellaterra (Spain).

Roquer-Beni, L. (2023, October 16). *Strategies to preserve and enhance pollination services in fruit orchards*. Vermut Ecosistèmic, Bellaterra (Spain)

Saura-Mas, S. (2023, March 15). *Endangered biodiversity*. Vermut Biodivers, Bellaterra (Spain).

Selwyn, M. (2023, March 15). *Let's increase tree diversity! A task for animal dispersed and higher drought tolerant species?* Vermut Biodivers, Bellaterra (Spain).

Solà, O. (2023, March 15). *Modelling species dynamics using long-term monitoring programs*. Vermut Biodivers, Bellaterra (Spain).

Villero, D. (2023, March 15). *Building science-policy interfaces: Driving evidence-based biodiversity assessments to inform Catalan and European biodiversity policies*. Vermut Biodivers, Bellaterra (Spain).

Ye, H. (2023, October 16). *Does phosphorus supply affect nitrogen loss in tropical forests?* Vermut Ecosistèmic, Bellaterra (Spain)

WATERING TALENTS

Rosas, T. (Org.), Bueso, S. (speaker and facilitator) & Alsina, O. (guest speaker). (2023, March 14). *¡Descubre el arte de pedir! Básicos de un Fundraising institucional efectivo*. Watering Talents, Bellaterra (Spain).

Couto, V., Justamante, A., & Rosas, T. (Org.). (2023, 2 May & 1 June). *Com puc utilitzar LinkedIn per a la recerca?* Watering Talents, Bellaterra (Spain).

Doblas-Miranda, E., & Rosas, T. (Org.). (2023, January). *¡Dales uso a tus ideas! La transferencia tecnológica y de conocimiento*. Watering Talents, Bellaterra (Spain).

Doblas-Miranda, E., & Rosas, T. (Org.). (2023, October 11). *IPR para todos: Curso básico sobre derechos de propiedad intelectual para personal investigador*. Watering Talents, Bellaterra (Spain).

Doblas-Miranda, E., & Rosas, T. (Org.). (2023, October 25). *Cómo explotar los resultados de tu investigación: Desarrolla una propuesta exitosa para conseguir financiación y aumentar tu impacto*. Watering Talents, Bellaterra (Spain).

Galiano, L., Altarriba, X., & Rosas, T. (Org.). (2023, January 17). *Gestió de residus i productes químics al laboratori*. Watering Talents, Bellaterra (Spain).

Galiano, L., Altarriba, X., & Rosas, T. (Org.). (2023, January 31). *Calibratge i verificació d'equips de laboratori*. Watering Talents, Bellaterra (Spain).

Galiano, L., Altarriba, X., & Rosas, T. (Org.). (2023, November 17 & 22). *Capacitació per a la recollida de nitrogen líquid per a la recerca*. Watering Talents, Bellaterra (Spain).

Gámez, P., & Pizarroso, M. (Org.). (2023, June 6 & 8). *Comunicación efectiva-positiva*. Watering Talents, Bellaterra (Spain).

Gámez, P., & Pizarroso, M. (Org.). (2023, November 15). *Conducción segura en turismos y conducción de vehículos todo terreno*. Watering Talents, Bellaterra (Spain).

Granda, V., De Cáceres, M., & Rosas, T. (Org.). (2023, June 12 & 14). *Accessing and processing climate data with Meteospain and Meteoland R packages*. Watering Talents, Bellaterra (Spain) & lecturer.

Granda, V., Molowny-Horas, R., (Lecturers) & Rosas, T. (Org.). (2023, April 24 & 27). *Introductory R Course*. Watering Talents, Bellaterra (Spain). https://emf.creaf.cat/training/r_basics/

Rosas, T. (Org. & lecturer). (2023, October, November & December). *Career management for predoctoral researchers*. Watering Talents, Bellaterra (Spain).

Rosas, T. (Org.). (2023, March). *Creativity and collaboration in research: A roadmap for scientists*. Watering Talents, Bellaterra (Spain).

Rosas, T. (Org.). (2023, November 23). *En la prevenció de l'assetjament tu també hi tens un paper: Informació clau dins del CREAF*. Watering Talents, Bellaterra (Spain).

Rosas, T. (Org.). (2023, February & March). *Gestió de l'estrès i les emocions*. Watering Talents, Bellaterra (Spain).

Rosas, T. (Org.). (2023, may 10). *Newcomers to Horizon Europe. Watering Talents,* Bellaterra (Spain).

Rosas, T., & Florido, F. (Org.). (2023, March 7 & 9). *As open as possible, as closed as necessary: Keep calm and learn how to open up your science*. Watering Talents, Bellaterra (Spain).

SEVERO OCHOA BREAKFASTS

Broncano, M. J., Retana, J. (Org.). *Esmorzars Severo Ochoa*.

De Cáceres, M., Granda, V., Molowny, R., & Tovar, A. (2023, May 18). *SO Action # 1.3: To create a modeling facility for developing integrated ecological models*. Esmorzars Severo Ochoa, Bellaterra (Spain).

Doblas-Miranda, E., Sánchez, A., & Escobar, J. (2023, April 13). *SO Objective #15: To consolidate, enhance and promote the transfer of knowledge, products and tools of the center*. Esmorzars Severo Ochoa, Bellaterra (Spain).

Poyatos, R., & Fernández Martínez, M. (2023, September 29). *SO Action # 1.2: To develop leading synthesis actions on key ecological issues*. Esmorzars Severo Ochoa, Bellaterra (Spain)

Rosas, T. (2023, November 7). *SO Action # 7.2: CREAF's Career Service and opportunities*. Esmorzars Severo Ochoa, Bellaterra (Spain).

OFFICIAL VISITS & STAFF MEETINGS

Cardona, A. (Org. and guide). (2023, February 17). *Guided visit to CREAF for Centre d'Oftalmologia Barraquer*, Bellaterra (Spain).

Cardona, A. (Org. and guide). (2023, June 13). *Guided visit to CREAF for Fundació Caixa d'Enginyers*, Bellaterra (Spain).

Cardona, A., Force, L., Banqué, M., Guzmán, P., & Pino, J. (Org. & guides) (2023, June 10). *Guided visit to Can Balasc Biological Station for Centre d'Oftalmologia Barraquer,* Barcelona (Spain).

Cardona, A. (Org. and guide). (2023, November 20). *Guided visit to CREAF for Trek and Ride,* Bellaterra (Spain).

Cardona, A., Force, L., & Pino, J. (Org. & guides) (2023, June 20). *Guided visit to Can Balasc Biological Station for Fundació Caixa d'Enginyers.* Bellaterra (Spain).

Gràcia, M., Broncano, M. J., Retana, J., Pino, J., & Justamante, A. (Org. & guides) (2023, November). *Guided visit to Planeses farm for Departament d'Acció Climàtica de la Generalitat de Catalunya.* Sant Ferriol (Spain)

Pino, J. (Org. & speaker) (2023, December 21). *CREAF staff annual meeting.* Bellaterra (Spain).

Pino, J., Escobar, J., Retana, J., Pérez-Porro, A., Sánchez, A., Roig, O., & Ramon, A. (Guides) (2023, June 9). *Raül Romeva (ERC political party) official visit to CREAF.*

OTHER INSTITUTIONAL PRESENTATIONS & TRAINING

Cardona, A. (2023). *(Co-Org.) Fundraising.cat's autonomic professional quarterly thematic expert workshops & (Org.) Afterwork networking events.*

Cardona, A. (2023). *Philanthropy for research and education in Catalunya: making it work. CERCA-MORE-CASE, Barcelona.*

Cardona, A. (Org. & facilitator) (2023, March 9 and 31). *Launch and implementation of CREAF's Institutional Fundraising and general data bases management tool in coordination with other offices: Civi CRM.*

Cardona, A. (Org.). (2023, September 21). *The science of Philanthropy and philanthropy for Science.* Bellaterra (Spain).

Cardona, A. (Org. & facilitator). (2023, November 28). *Mi propuesta de valor ganadora de mi proyecto I+D+i!* Bellaterra (Spain).

Corral, M., Roig, O., & Garcia, C. (Org. & speakers) (2023, September 26). *The new pre & post-award units at CREAF.* Bellaterra (Spain).

CREAF Directive board. (2023). *Colloquium: The government of fundraising. IESE-UIC, Barcelona.*

Rosas, T. (Org.). (2023, October 9). *FAR mentoring programme—How to be a good mentor.*

Rosas, T., & Roig, O. (Org.). (2023, July). *How to Design and Write a Marie Skłodowska-Curie Postdoctoral Fellowship Proposal.*

Sánchez, A. (Org. & speaker) (2023, May 24). *Impact model of CREAF.*

Sánchez, A. (Org. & lecturer) (2023, October 31). *Impact monitoring and evaluation at CREAF.*

Sánchez, A. (Org., lecturer & facilitator) (2023c, November 16). *Impact narratives.*

TRAINING

COORDINATION OF TRAINING PROGRAMMES

Ferrandiz-Rovira, M., & Pino, J. (2023, May). *Greening your city: Develop your Urban Forestry Project.* European Innovation Programme on Urban Forestry 4.0, Online.

Haverbeck, D., & Pino, J. (2023, September 12). *The Uforest Specialization School: Barcelona.* European Innovation Programme on Urban Forestry 4.0, Barcelona (Spain).

Rosas, T. (2023). *Institutional strategy & management.* Master's Degree in Health and Science Management, Bellaterra (Spain).

LECTURES

Basnou, C. (2023, September 12). *Nature-based solutions in urban and metropolitan forests: Clearing House.* The Uforest Specialization School: Barcelona. European Innovation Programme on Urban Forestry 4.0, Barcelona (Spain).

Bosch, J. (2023, February 2). *SPRING Regional Bee Taxonomy Course.*

Bosch, J. (2023, March 2). *Curso Básico de Taxonomía de Abejas.*

Bosch, J. (2023, March 4). *Curso Básico de Taxonomía de Abejas.*

Domingo, C. (2023, September 12). *Ecopotential EU project: Remote assessment of ecosystem services.* The Uforest Specialization School: Barcelona. European Innovation Programme on Urban Forestry 4.0, Barcelona (Spain).

Espelta, J. M. (2023, February 20). *Disturbance regimes and forest management in protected natural areas.* Master's Degree in Protected Natural Areas, Madrid (Spain).

Haverbeck, D., Basnou, C., & Pino, J. (2023, September 12). *The urban forest challenge: Designing climatic refugia in Barcelona.* The Uforest Specialization School: Barcelona. European Innovation Programme on Urban Forestry 4.0, Barcelona (Spain).

Martínez-Vilalta, J., & Poyatos, R. (2023, September 12). *Measuring tree water use: From understanding mechanisms to monitoring forest function at regional scales.* The Uforest Specialization School: Barcelona. European Innovation Programme on Urban Forestry 4.0, Barcelona (Spain).

Pascual Sánchez, D. (2023, November 9). *Guided visit to Roses pilot experience (LIFE MIDMACC project).* Master's Degree in Terrestrial Ecology and Biodiversity Management, Roses (Spain).

Pesquer, L. (2023, May). *GIS fundamentals, tools & platforms applied to urban forestry projects.* Greening Your City: Develop Your Urban Forestry Project. European Innovation Programme on Urban Forestry 4.0, Online. Lecturer & facilitator.

Pino, J. (2023, September 12). *Urban forests in the Mediterranean.* The Uforest Specialization School: Barcelona. European Innovation Programme on Urban Forestry 4.0, Barcelona (Spain).

Pino, J., & Martínez-Vilalta, J. (2023). *Carbon cycle items in forests.* MOOC Nature in the City: Turning Knowledge into Urban Forestry Practice. European Innovation Programme on Urban Forestry 4.0, Online.

Pino, J., & Pesquer, L. (2023). *GIS and Remote Sensing tools for Urban Forestry.* MOOC Nature in the City: Turning Knowledge into Urban Forestry Practice. European Innovation Programme on Urban Forestry 4.0, Online.

Ramon, A. (2023, February 12). *Institutional Communications 360.* Master's Degree in Scientific, Medical and Environmental Communication, Barcelona (Spain).

Ramon, A. (2023, March 30). *Com fer un pla de comunicació.* Postgraduate Diploma in Science Communication, Vic (Spain).

Sánchez, A. (2023, September 6). *Impacto social de la investigación: Significado y medición.* La carrera académica y científica en España, Santander (Spain).

SUPERVISION

Bookwalter, J. (2023, January 26). *Community dynamics of saproxylic insect functional groups at tree-line.* Directors/tutors: Caballero-Lopez, B. & Claramunt, B. PhD in Terrestrial Ecology. Universitat Autònoma de Barcelona (UAB), Bellaterra (Spain).

Lanzas Lopez-Asiain, M. (2023, September 15). *Addressing the challenges of decision-making for biodiversity conservation under global change.* Directors/tutors: Hermoso López, V. & Rodrigo, A. PhD in Terrestrial Ecology. Universitat Autònoma de Barcelona (UAB), Bellaterra (Spain).

Mostazo Alsina, P. (2023, October). *Lack of annual stem growth despite rapid post-precipitation rehydration under the ongoing western Mediterranean megadrought in Prades, Catalonia.* Tutor: Rao, M. Bachelor's Degree in Environmental Science. Universitat Autònoma de Barcelona (UAB), Bellaterra (Spain).

Pinos Flores, J. (2023, January 24). *Multi-approach investigation of the dynamics of rainfall partitioning fluxes and their implications in a mediterranean environment.* Directors/tutors: Latron, J., Llorens Garcia, P. & Poyatos, R. PhD in Terrestrial Ecology. Universitat Autònoma de Barcelona (UAB), Bellaterra (Spain).

Sandoya, V. (2023, May 12). *Patterns of abundance and functional traits of woody plant communities in andean elevation gradients.* Directors/tutors: Granzow de la Cerda Roca de Togores, I., Saura Mas, S. & Lloret, F. PhD in Terrestrial Ecology. Universitat Autònoma de Barcelona (UAB), Bellaterra (Spain).

Vives-Ingla, M. (2023, December 11). *Process-based insights into insect responses to climate change: Linking microclimate, ecophysiology, and demography in a butterfly model system.* Directors/tutors: Peñuelas, J. & Carnicer, J. PhD in Terrestrial Ecology. Universitat Autònoma de Barcelona (UAB), Bellaterra (Spain).

Yang, K. (2023, December 20). *Climate change effects on soil respiration and belowground biogenic volatile organic compounds in subalpine and Mediterranean forests.* Directors/tutors: Peñuelas., J., Llusià, J. & Preece, C. PhD in Terrestrial Ecology. Universitat Autònoma de Barcelona (UAB), Bellaterra (Spain).

Zango Palau, A. (2023, November 30). *A social-ecological approach to assess the effects of global change on mountain ecosystems: Gamification as a strategy to transfer knowledge to society.* Directors/tutors: Loepfe, L. & Claramunt, B. PhD in Terrestrial Ecology. Universitat Autònoma de Barcelona (UAB), Bellaterra (Spain).

CITIZEN SCIENCE EVENTS, DIFFUSION, INTERNATIONALIZATION AND DISCLOSURE

CITIZEN SCIENCE

Banqué, M., & Fraile, L. (Org. & facilitators). (2023, May 4). *Prenent el pols al bosc.* Barcelona (Spain)

Bianchi, S. (2023, November 24). *Flora i fauna a Collserola.* Bioblitz Collserola, Barcelona (Spain).

Ferrandiz-Rovira, M. (2023, March 25). *Els grans mamífers, els seus rastres. Fototrampegem una estona?* II Bioblitz UAB 2023, Bellaterra (Spain).

Guzmán, P. (2023a, March 4). *Consells i recordatoris al voluntariat.* Jornada anual mBMS 2023, Cornellà de Llobregat (Spain).

Guzmán, P. (Org. & moderator). (2023b, *March 4).* Jornada anual mBMS 2023, Cornellà de Llobregat (Spain).

Guzmán, P. (Org. & moderator). (2023, May 27). *Jornada anual uBMS 2023, Cornellà de Llobregat* (Spain).

Guzmán, P. (Org.). (2023, May 15). *Curs de papallones metropolitanes,* online. https://www.youtube.com/watch?v=mGqSQs0p-kZI

Guzmán, P. (Org.). (2023, June 28). *Curs de papallones metropolitanes,* online. https://www.youtube.com/watch?v=aOMFi-wZ9hLM

Guzmán, P. (Org.). (2023, July 8). *Curs de papallones metropolitanes,* Vallvidrera (Spain).

Guzmán, P. (Org.). (2023f, October 10). *Curs de papallones metropolitanes escasses,* online. https://www.youtube.com/watch?v=JW_uGqE2cGY

Prat, E., & Gaya, G. (2023). *RitmeNatura workshops.* #ArtScience23, Barcelona (Spain).

Prat, E., & Gaya, G. (2023, November 16). *RitmeNatura workshops.* Setmana de la ciència, Barcelona (Spain).

Prat, E., Gaya, G., Domingo, C., Guzmán, P., & Force, L. (Org. & speakers) (2023, June 16). *Transferint el seguiment fenològic del canvi climàtic a les noves generacions.* Barcelona (Spain)

Riera, M. (2023, March 25). *Descobrim la flora dels boscos de ribera.* II Bioblitz UAB 2023, Bellaterra (Spain).

Riera, M. (2023, May 27). *Bioblitz en Montserrat—Coll de Can Maçana.*

Riera, M. (2023, October 21). *Patrones espaciales y amplitud de nicho de plantas invasoras.* 1er Encuentro de Voluntariado LIFE medCLIFFS, Barcelona (Spain).

Saura-Mas, S. (Org.). (2023, March 25). *II Bioblitz UAB 2023.*

PRISMÀTIC

Brotons, L. (Speaker), Couto, V. (moderator) & Gimbert, A. (Org.). (2023, February 6). *Del món al Born: Preservar i restaurar per revertir la pèrdua de biodiversitat.* Cafè Prismàtic, online. https://www.youtube.com/watch?v=6eVGH1c7BQ4&list=PLBX3bH-1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=17

Comas, L. (Speaker), Couto, V. (moderator) & Gimbert, A. (Org. & moderator). (2023, October 24). *Gestió forestal per millorar la biodiversitat en boscos mediterranis.* Cafè Prismàtic, online. https://www.youtube.com/watch?v=wosqPcuEjys&list=PLBX3bH1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=10&t=1665s

Gimbert, A. (Org. & moderator). (2023, September 28). *Com reduïm els contaminants en ecosistemes aquàtics amb solucions basades en la natura.* Cafè Prismàtic, online. https://www.youtube.com/watch?v=W-

Jz9O9E-I4k&list=PLBX3bH1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=10

Couto, V. (moderator) & Gimbert, A. (Org.). (2023, November 9). *Experiències de restauració d'hàbitats marins: Potencialitats i limitacions*. Cafè Prismàtic, online. https://www.youtube.com/watch?v=SMlGu_NnOX0&list=PLBX3bH1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=8

Couto, V. (moderator) & Gimbert, A. (Org.). (2023, December 12). *La conservació dels paisatges de pedra seca i el seu valor per la biodiversitat*. Cafè Prismàtic, online. https://www.youtube.com/watch?v=UYIcEj-7ZeQ&list=PLBX3bH1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=7&t=11s

Gimbert, A. (Org. & moderator). (2023, April 20). *Microreserves de papallones: Posant al punt de mira les espècies amenaçades de Catalunya*. Cafè Prismàtic, online. https://www.youtube.com/watch?v=OytzVQIMsr0&list=PLBX3bH1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=14&t=15s

Couto, V. (moderator) & Gimbert, A. (Org.). (2023, February 22). *Recerca i gestió en ecosistemes fluvials urbans per fer front a la crisi climàtica i el canvi global*. Cafè Prismàtic, online. https://www.youtube.com/watch?v=4wCZoY5FLOg&list=PLBX3bH1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=16&t=2511s

Couto, V. (moderator) & Gimbert, A. (Org.). (2023, June 13). *Recuperació d'hàbitats per amfibis en els lligallos del Perelló. Del paper a l'experiència al camp*. Cafè Prismàtic, online. https://www.youtube.com/watch?v=IeIOiy1ab5k&list=PLBX3bH1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=12

Gimbert, A. (Org. & moderator). (2023, November 22). *Restauració d'aiguamolls d'alta muntanya. Sobrepastura, aforestació i regulació hidroelèctrica*. Cafè Prismàtic, online. https://www.youtube.com/watch?v=RJMLPOYvkrE&list=PLBX3bH1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=8&t=2s

Couto, V. (moderator) & Gimbert, A. (Org.). (2023, March 22). *Restauració hidromorfològica d'ambients fluvials al riu Ter*. Cafè Prismàtic, online. https://www.youtube.com/watch?v=XFSKi8L8zmk&list=PLBX3bH1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=14

Couto, V. (moderator) & Gimbert, A. (Org.). (2023, May 17). *Solucions basades en natura per crear ciutats més resilients, justes i habitables*. Cafè Prismàtic, online. https://www.youtube.com/watch?v=hgnq85z4dLQ&list=PLBX3bH1DDDrmj7wwmwkmvkw2CR_OjqzSU&index=13&t=117s

Gimbert, A. (2023, February 21). *The Prismàtic platform*. EU-Farmbook Platform Day, Brussels (Belgium).

Gimbert, A. (Org. & speaker). (2023, December 12). *Jornada anual del Prismàtic*.

DISSEMINATION & INTERNATIONALISATION

Banqué, M., & Lloret, F. (2023, September 19). *Presenting DeBoscat results*. Comissió de Prevenció i Gestió dels Incendis Forestals al Parlament de Catalunya, Barcelona (Spain).

Basnou, C. (2023, May 3). *The Clearing House project*. Bosques urbanos para ciudades más verdes, sanas y sostenibles, Barcelona (Spain).

Bosch, J. (2023, April 20). *Introducing PIPOL, the Plan for the Conservation of Wild Pollinators in Catalonia*. Speaker.

Bosch, J. (2023, November 28). *Combined effects of pesticides and other stressors on solitary bees*. EU Pollinator Week, Brussels (Belgium).

Cardona, A. (2023, May 16). 1er Cafè Tertulia *"Nova Llei de Mecenatge: Que ens espera?"*, Barcelona (Spain).

Cardona, A. (2023, November 22). 2n Cafè Tertulia *"Aliances, PIMES i tercer sector"*, Barcelona (Spain).

Cardona, A. & Escobar, J. (Workshop participants). (2023, February 22). *Philanthropy in support of research and education in Catalunya: making it work*, Barcelona (Spain).

Carnicer, J. (2023, January 18). *Results from IPCC's Sixth Assessment Report*.

Domene Casadesús, X. (2023, November 8). *Biodiversitat edàfica com a motor de funcions del sòl*. Jornada tècnica PATT: Nematodes i microorganismes del sòl, Vilafranca del Penedès (Spain).

Domene Casadesús, X. (2023, December 5). *Beneficis i limitacions del biochar com a esmena agrícola innovadora*. Jornada tècnica PATT: Biochar en conreus llenyosos, aigua i fertilitat, Falset (Spain).

Florido, F. (Org. & speaker). (2023, May 3). *Blueprint for Innovation in Urban Forestry*. Bosques urbanos para ciudades más verdes, sanas y sostenibles, Barcelona (Spain).

Force, L. (Org. & speaker). (2023, February 16). *Eines de ciència ciutadana*. Xerrada pràctica sobre el funcionament de la plataforma de ciència ciutadana iNaturalist, Barcelona (Spain). https://www.youtube.com/watch?v=NM4nRGCi7H8&list=PLBX3bH1DDDrmefC6YanyQKMEvR2isBYS3

Force, L. (Org.). (2023, October 27). *Meeting of the Escoles Verdes network*.

Gaya, G., & Busto, M. (2023, December 13). *Citizen Science and Climate Change in Barcelona*. Data Science for/in Barcelona (DS4BCN), Barcelona (Spain).

Martínez-Vilalta, J. (2023, May 8). *Els boscos i l'estrès hídric*. Gestió de l'aigua. Nous reptes, noves solucions, Barcelona (Spain).

Nogué, S. (2023, June 1). *Trajectories of biodiversity change on islands*. 6a edição do Spring seminar, Ponta Delga, Açores.

Pascual Sánchez, D., & Pla Ferrer, E. (Org. & speakers). (2023, February 23). *4th meeting of the MIDMACC Regional Committee in Catalonia*.

Pascual Sánchez, D., & Pla Ferrer, E. (Org. & speakers). (2023, March 2). *4th meeting of the MIDMACC Regional Committee in Aragon*.

Pascual Sánchez, D., & Pla Ferrer, E. (Org. & speakers). (2023, March 9). *4th meeting of the MIDMACC Regional Committee in La Rioja*.

Pascual Sánchez, D., & Pla Ferrer, E. (Org. & speakers). (2023, May 30). *4th meeting of the MIDMACC Supra-Regional Working Group*. Pérez-Porro, A. (2023, October 3). Science advice for foreign policy. Euro-Mediterranean Conference on Science Diplomacy, Barcelona (Spain).

Pérez-Porro, A. (2023, October 19). *Planet and Sustainability*. Future4Citizens. Dialogues – Barcelona, Barcelona (Spain).

Pérez-Porro, A. (Moderator). (2023, December 13). *Changing Seas: Adaptation of the Fisheries in the Mediterranean Basin*. Med Dialogues +2030, 2023 Edition, Barcelona (Spain).

Pérez-Porro, A. (2023, December 15). C*ities and the international climate regime.* Climate-diligent cities: Aligning mitigation ambitions with the Paris Agreement, Barcelona (Spain).

Pérez-Porro, A., & Clivillé, A. (2023, June 22). *Enhancing Tink Tank Contributions to Address Climate Change.* 3rd Edition MedCOP Climate, Tangier (Morocco).

Pérez-Porro, A., & Clivillé, A. (2023, November 24). *MedCREAF. Summit for the Mediterranean Macroregion*, Barcelona (Spain).

Pérez-Porro, A., & Pino, J. (Delegates). (30 November-12 December). *Scientific support to the Catalan Government in the MCAP initiative & presentation of the 'Post-2020 Biodiversity Framework. EU Support' video.* COP28 UN Climate Change Conference, Dubai (United Arab Emirates). Delegate.

Pino, J. (Org. & speaker). (2023, May 3). *The Uforest project.* Bosques urbanos para ciudades más verdes, sanas y sostenibles, Barcelona (Spain).

Pino, J., & Banqué, M. (Delegates). (2023, November 7). *Science-based proposals to improve the management of Catalan forests.* The need for forest management. The case of Mediterranean forests, Brussels (Belgium).

Pla Ferrer, E. (2023, November 15). *Gestió forestal i disponibilitat d'aigua: Resultat de proves pilot en boscos mediterranis.* Jornada tècnica PATT: Silvicultura i gestió dels recursos hídrics, Sant Celoni (Spain).

Prat, E., & Gaya, G. (2023, July 18). *The RitmeNatura project.* BIST technical meeting, Sant Fruitós de Bages (Spain).

Ramon, A., & Couto, V. (2023, October 2). *Comunicant natura per al Tercer Sector Ambiental: Estratègies impactants, genuïnes i memorables.* Congrés de Conservació de la Natura, Guardiola de Berguedà (Spain).

Roig, O. (Delegate). (2023, September 20). *Institutional representation.* EFI 2023 Annual Conference, Novi Sad (Serbia).

Roig, O., Rosas, T., & Sánchez, A. (Delegates). (2023, May 21). *Institutional representation.* INORMS 2023 Pre-Congress Study Tour of Southern Africa, Johannesburg, Cape Town, Durban (South Africa) & Gaborone (Botswana).

Roig, O., Rosas, T., & Sánchez, A. (Delegates). (2023, June 30). *Institutional representation.* INORMS Congress 2023, Durban (South Africa).

Sánchez, A. (2023, March 6). *Impact at CREAF.* The culture of impact in research institutions and universities, Barcelona (Spain).

Sánchez, A. (Workshop participant). (2023, November 24). *Taller pel desenvolupament del Pla d'acció del Hub de Ciència Ciutadana de la UAB.*

Terradas, J. (2023, June 3). *El bosc mediterrani, gestionar l'adaptació al canvi.* 75 anys del Consorci Forestal de Catalunya, Llinars del Vallès (Spain).

ECOTONS, ART & SCIENCE

Bruna, P., & Martínez-Vilalta, J. (2023a, February 21). *Ecotons—Embolismo por soleá. Diálogo performativo.* Biennal Ciutat i Ciència, Barcelona (Spain).

Bruna, P., & Martínez-Vilalta, J. (2023b, June 27). *Ecotons—Embolismo por soleá. Diálogo performativo.* Courageous Conversations on Climate Change, Barcelona (Spain).

Galiano, L., Martínez-Vilalta, J., & Santaflorentina, A. (Org.). (2023). *Idil·li project presentation.* [FES] Festival d'Educació per la Sostenibilitat, L'Espluga de Francolí (Spain)

París, G., Llop, R. (Speakers) & Ecotons (Org.). (2023). *Temps al Bosc, Atles Biodivers d'Instants Possibles final project presentation.* Ecotons, Bellaterra (Spain).

Santaflorentina, A., Costa, N., & Barberà, C. (Speakers) & Ecotons (Org.) (2023). *Idil·li project presentation.* Ecotons, Barcelona (Spain).

OUTREACH

Alegre, J., & Torres, L. (2023, December 5). El Bosc Glial project. *A Climate Shelter at the UAB.* European Urban Forest Week, Bellaterra (Spain).

Anadon, A. (2023, May 24). *Reconstruccions del passat a través de la fusta de les plantes alpines.* Tronades cientificonaturalistes, Mataró (Spain).

Broekman, A. (Interviewee) & Ramon, A. (Interviewer). Protegir el patrimoni natural per reduir la vulnerabilitat. (2023, June 19). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/medi-ambient-creaf/6916763/

Castell, C. (Interviewee) & Ramon, A. (Interviewer). Una dosi de natura per millorar la nostra salut. (2023, May 22). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/natura-salut/6895976/

Domene, X. (Interviewee). Descomposició de residus electrònics al sòl (T1xC9-Residu electrònic). (2023, October 30). In *Kanviem?* Corporació Catalana de Mitjans Audiovisuals - 3Cat. https://www.ccma.cat/3cat/t1xc9-residu-electronic/video/6247688

Force, L. (Interviewee). (2023, May 16). *De l'escorça al núvol, passant pel mòbil.* GeneraciónATs, Online. https://www.youtube.com/watch?v=ubSGBulQwp8

Guzmán, P. (Interviewee). Observatori metropolità de papallones mBMS. (2023, April 23). In *La veu dels animals.* Ràdio Estel. https://www.radioestel.cat/programes/la-veu-dels-animals/

Haverbeck, D., & Ferrandiz-Rovira, M. (2023, December 5). *La UAB com a cas destudi: Els refugis climàtics de la Plaça del Coneixement i el projecte guanyador de la Uforest Specialization School.* A Climate Shelter at the UAB. European Urban Forest Week, Bellaterra (Spain).

Haverbeck, D., Pino, J., & Florido, F. (Org.). (2023, December 5). *A climate shelter at the UAB.* European Urban Forest Week, Bellaterra (Spain).

Pino, J., Basnou, C., Haverbeck, D., Ferrandiz-Rovira, M. (2023, December 5). *Urban forests as key tools for climate change adaptation: The Uforest initiative at the UAB.* A Climate Shelter at the UAB. European Urban Forest Week, Bellaterra (Spain).

Pla Ferrer, E. (2023, September 23). *La gestió del bosc mediterrani davant el canvi climàtic.* Science Needs You!, Figueres & Darnius (Spain).

Pla Ferrer, E. (2023, November 16). *Com saben els científics que el canvi climàtic ens du pel pedregar o que Catalunya ha perdut el 25% de la seva biodiversitat?* Setmana de la ciència, Mataró (Spain).

Pla-Rabes, S. (2023a, April). *Recerca Canvi Climàtic, Canvi Global.* Xerrada a l'Institut Sants, Barcelona (Spain)

Pla-Rabes, S. (2023b, April). *Recerca Canvi Climàtic, Canvi Global.* Xerrada a l'Escola Mireia, Barcelona (Spain).

Ramon, A. (Interviewer). Com canviarà el clima de cara als pròxims anys? (2023, March 20). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/canvi-clima-estudis/6838109/

Ramon, A. (Interviewer). Economia de la crisi ambiental. (2023, June 12). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/segona-hora-economia-crisi-ambiental-blas-canto/6911905/

Ramon, A. (Interviewer). El cicle de vida dels mosquits. (2023, January 16). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/anna-ramon-cicle-vida-mosquits/6776917/

Ramon, A. (Interviewer). El combustible de la transició energètica. (2023, May 8). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/combustible-transicio-energetica/6884798/

Ramon, A. (Interviewer). El Delta de l'Ebre en estat de vulnerabilitat. (2023, January 30). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/delta-ebre-plataforma/6790699/

Ramon, A. (Interviewer). Els nous mètodes de consum d'aigua. (2023, April 10). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/consum-aigua-aixeta/6859037/

Ramon, A. (Interviewer). Emergència climàtica a les ciutats espanyoles. (2023, May 15). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/primera-hora-15-05-23/6890662/

Ramon, A. (Interviewer). Es busquen detectius de mamífers. (2023, February 20). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/detectius-mamifers-atlas/6815358/

Ramon, A. (Interviewer). Humor i ecologisme. (2023, April 17). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/anna-ramon-ecologisme-humor-divulgacio-sosteniblitat/6864911/

Ramon, A. (Interviewer). La robòtica i el mercat laboral del futur. (2023, June 26). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/bicizen-jordi-honey-anna-ramon/6921656/

Ramon, A. (Interviewer). La Xarxa de Conservació de la Natura. (2023, March 13). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/avui-sortim-13-03-2023/6833077/

Ramon, A. (Interviewer). L'impacte ambiental de l'ampliació de l'aeroport pel mar. (2023, February 27). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/ampliacio-aeroport-platges/6821169/

Ramon, A. (Interviewer). L'impacte de la moda en el medi ambient i en la salut. (2023, March 6). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/industria-moda-medi-ambient/6827403/

Ramon, A. (Interviewer). Parlem sobre el consum conscient. (2023, April 3). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/anna-ramon-residus-sostenibilitat-climate-mondays-consum-responsable-creaf/6850238/

Ramon, A. (Interviewer). Refugis climàtics. (2023, May 29). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/primera-hora-29-05-23/6901461/

Riera, M. (2023a, February 23). *La biosfera en moviment: Com viatgen les espècies exòtiques?* Tronades cientificonaturalistes, Mataró (Spain).

Riera, M. (2023b, April 28). *Espècies invasores. Mecanismes de les invasions biològiques.* Parlem de Ciència, Puigcerdà (Spain).

Riera, M., & Terradas, J. (2023, March 13). *Envaïts pel bosc o boscos envaïts?* GeneracióNATs, Online. https://www.youtube.com/watch?v=cC54YuM1g54

Terradas, J. (2023, June 10). *Reduir les emissions, els consums i els residus.* El Futur és Ara 2023, Barcelona (Spain).

Terradas, J. (Interviewee) Els naturalistes també s'extingeixen (T2023-Capítol 20230513120401). (2023, May 12). In *Nautilus.* IB3 Ràdio. https://ib3alacarta.com/radio/nautilus/e20230513120401

Terradas, J. (interviewee) & Ramon, A. (Interviewer). Energies renovables. (2023, January 9). In *Avui sortim.* Ràdio 4. https://www.rtve.es/play/audios/avui-sortim/energies-renovables-anna-ramon/6771847/

FUNDING, AWARDS & DONATIONS

ACCREDITATIONS & AWARDS - NEW & ONGOING

INSTITUTIONAL ACCREDITATIONS

CREAF (2019-2023). *Severo Ochoa excellence accreditation* (J. Retana, PI). Ministerio de Ciencia, Innovación y Universidades.

RESEARCH GROUP SUPPORT

SGR/00843 Ecologia forestal i incendis. (2022-2025). *Support to Catalan research groups* (J. Retana, PI). AGAUR.

SGR/00849 Biogeografia funcional i ressiliència d'ecosistemes terrestres (RESET). (2022-2025). *Support to Catalan research groups* (J. Martínez-Vilalta, PI). AGAUR.

SGR/00889 Biodiversity conservation under global change (BIOCONS). (2022-2025). *Support to Catalan research groups* (L. Brotons, PI). AGAUR.

SGR/01333 Global Ecology Unit (GEU). (2022-2025). *Support to Catalan research groups* (J. Peñuelas, PI). AGAUR.

SGR/01334 Respostes ecoevolutives dels animals al canvi global (EcoEvoChange). (2022-2025). *Support to Catalan research groups* (D. Sol, PI). AGAUR.

INDIVIDUAL AWARDS

Anderegg, W. R. L. (2023a). *The 2023 Blavatnik National Awards for Young Scientists: Ecology & Evolutionary Biology*. The New York Academy of Sciences & the Blavatnik Family Foundation.

Anderegg, W. R. L. (2023b). *The Alan T. Waterman Award* 2023. National Science Foundation (NSF).

Codina, G. (2023). *Premi Beca Impulsa Barraquer: Tinguem vista pels boscos del futur*. Centre d'Oftalmologia Barraquer.

Nogué, S. (2023). *Premis Ciutat de Barcelona 2023: Ciències Ambientals i de la Terra*. Ajuntament de Barcelona.

Peñuelas, J. (2023). *Premio Nacional de Investigación 'Alejandro Malaspina' 2023: Ciencias de los Recursos Naturales*. Ministerio de Ciencia, Innovación y Universidades.

RESEARCH FELLOWSHIPS
Pre-doctoral

Albacete González, S. (2020). *FPI* (J. Bosch, PI.). Ministerio de Ciencia, Innovación y Universidades.

Barriendos, J. (2023). *Joan Oró FI* (L. Andreu-Hayles, PI.). AGAUR.

Casbas Pinto, G. (2023). *FPI* (O. Lapiedra, PI.). Ministerio de Ciencia, Innovación y Universidades.

Chowdhury, F. (2022). *INPhINIT "la Caixa"*. Fundació Bancària La Caixa.

Ciot, L. (2023). *INPhINIT "la Caixa" STRESSBEE* (J. Bosch, PI.). Fundació Bancària La Caixa.

Codina Martínez, G. (2022). *FPI* (F. Lloret, PI.). Ministerio de Ciencia, Innovación y Universidades.

Coello Sanz, F. (2021). *FPI* (J. Peñuelas, PI.). Ministerio de Ciencia, Innovación y Universidades.

Cos del Cacho, A. (2022). *FPI* (J. Retana, PI.). Ministerio de Ciencia, Innovación y Universidades.

De la Casa, J. (2021). *FPU* (J. Peñuelas, PI.). Ministerio de Ciencia, Innovación y Universidades.

De La Casa, J. (2023). *Estancia FPU* (J. Peñuelas, PI.). Ministerio de Ciencia, Innovación y Universidades.

Díaz Borrego, R. (2021). *FPU* (F. Lloret, PI.). Ministerio de Ciencia, Innovación y Universidades.

Fatecha, B. (2021). *FPI* (J. Martínez-Vilalta, PI.). Ministerio de Ciencia, Innovación y Universidades.

Ferrin Guardiola, M. (2021). *FPI* (J. Peñuelas, PI.). Ministerio de Ciencia, Innovación y Universidades.

García Gómez, A. (2023). *FPI* (J. Bosch, PI.). Ministerio de Ciencia, Innovación y Universidades.

Hernando, S. (2022). *FPI* (M. Mencuccini, PI.). Ministerio de Ciencia, Innovación y Universidades.

Jiménez Elvira, N. (2019). *FPU* (F. Lloret, PI.). Ministerio de Ciencia, Innovación y Universidades.

Jolivet, A. (2024). *FPU* (B. Claramunt-López, PI.). Ministerio de Ciencia, Innovación y Universidades.

Martín Lorenzo, D. (2021). *FPI* (J. Catalán, PI.). Ministerio de Ciencia, Innovación y Universidades.

Martinez Artero, J. (2021). *FPI* (J. Catalán, PI.). Ministerio de Ciencia, Innovación y Universidades.

Martínez Rubio, N. (2023). *FPI* (O. Lapiedra, PI.). Ministerio de Ciencia, Innovación y Universidades.

Olmo, R. (2021). *FPI* (X. Domene, PI.). Ministerio de Ciencia, Innovación y Universidades.

Pérez Noguer, L. (2022). *FPI* (D. Sol, PI.). Ministerio de Ciencia, Innovación y Universidades.

Pou, M. (2021). Joan Oró FI. AGAUR.

Riera Domínguez, M. (2019). *FPU* (J. Pino, PI.). Ministerio de Ciencia, Innovación y Universidades.

Rodríguez Miret, X. (2019). *FPU* (J. Catalán, PI.). Ministerio de Ciencia, Innovación y Universidades.

Sánchez Davila, J. (2022). *FPI* (J. Retana, PI.). Ministerio de Ciencia, Innovación y Universidades.

Sánchez Mejía, M. T. (2022). *FPI* (F. Lloret, PI.). Ministerio de Ciencia, Innovación y Universidades.

Sancho Blanco, G. (2020). *FPI* (D. Sol, PI.). Ministerio de Ciencia, Innovación y Universidades.

Silvestre Carbonell, S. (2020). *FPI* (J. Peñuelas, PI.). Ministerio de Ciencia, Innovación y Universidades

Sol, D. (2022). *FPI* (D. Sol, PI.). Ministerio de Ciencia, Innovación y Universidades.

Solà, O. (2021). *FPI*—Oriol Sola Vila (L. Brotons, PI.). Ministerio de Ciencia, Innovación y Universidades.

Soler Ruiz, P. (2023). *FPI* (J. Martínez-Vilalta, PI.). Ministerio de Ciencia, Innovación y Universidades.

Stewart, L. (2024). *FPI* (M. Mencuccini, PI.). Ministerio de Ciencia, Innovación y Universidades.

Tyyskä, H. (2023). *FPI* (T. E. Gimeno, PI.). Ministerio de Ciencia, Innovación y Universidades.

Valerós Pasadas, M. (2024). *FPI* (J. Catalán, PI.). Ministerio de Ciencia, Innovación y Universidades.

Vez, M. (2023). *Joan Oró FI* (O. Lapiedra, PI.). AGAUR.

Vez, M. (2024). *FPU* (O. Lapiedra, PI.). Ministerio de Ciencia, Innovación y Universidades.

Zango Palau, A. (2020). *Joan Oró FI.* AGAUR.

Zevenhuizen Martinez, A. (2023). *FPI* (S. Marañón-Jiménez, PI.). Ministerio de Ciencia, Innovación y Universidades.

RESEARCH FELLOWSHIPS
Post-doctoral

Anadón Rossell, A. (2021-2024). *Juan De la Cierva* (J. Martínez-Vilalta, PI.). Ministerio de Ciencia, Innovación y Universidades.

Barba, J. (2024-2029). *Ramón y Cajal.* Ministerio de Ciencia, Innovación y Universidades.

Binks, O. (2022-resigned). *Beatriu de Pinós* (M. Mencuccini, PI). AGAUR.

Binks, O. (2023-2026). *Junior Leader Incoming "la Caixa" PROTEAS.* Fundació Bancària La Caixa.

de Meester, G. (2024-2026). *MSCA-PF INVASIVE_ARMS_RACE* (O. Lapiedra, PI). European Commission.

Descals, A. (2023-2024). *Leonardo BBVA* (J. Peñuelas, PI). Fundación BBVA.

Fernández, M. (2021-2024). *Junior Leader Incoming "la Caixa".* Fundació Bancària La Caixa.

Fernández, M. (2023-2027). *Ramón y Cajal.* Ministerio de Ciencia, Innovación y Universidades.

Fraixedas, S. (2023-2026). *Beatriu de Pinós* (L. Brotons, PI). AGAUR.

Fuzessy, L. (2021-2023). *MSCA-PF ENVIRON-CHANGE* (D. Sol, PI). European Commission.

Gimeno, T. E. (2023-2027). *Ramón y Cajal.* Ministerio de Ciencia, Innovación y Universidades.

Giska, I. (2024-2026). *MSCA-PF riskADAPT* (O. Lapiedra, PI). European Commission.

Gómez, L. (2021-2024). *Junior Leader Incoming "la Caixa".* Fundació Bancària La Caixa.

Hu, Z. (2024-2027). *Beatriu de Pinós* (M. Fernández Martínez, PI). AGAUR.

Iranzo, E. (2024-2027). *Beatriu de Pinós* (B. Claramunt-López, PI). AGAUR.

Johnson, K. (2024-2026). *MSCA-PF IVERdrought* (J. Martínez-Vilalta, PI). European Commission.

Lapiedra, O. (2020-2023). *Junior Leader Incoming "la Caixa".* Fundació Bancària La Caixa.

Lapiedra, O. (2024-2029). *Ramón y Cajal.* Ministerio de Ciencia, Innovación y Universidades.

Muñoz, E. (2023-2025). *MSCA-PF DISEQ* (J. Carnicer, PI). European Commission.

Padullés Cubino, J. (2022-resigned). *Beatriu de Pinós* (J. Retana, PI). AGAUR.

Rao, M. (2022-2024). *MSCA-PF TERRACARB* (J. Peñuelas, PI). European Commission.

Sayol, F. (2023-2026). *Junior Leader Incoming "la Caixa" AVOTREX* (O. Binks, PI). Fundació Bancària La Caixa.

Siqueira, F. (2024-2027). *Beatriu de Pinós* (J. Retana, PI). AGAUR.

SUPPORT TECHNICIANS

Maspons, J. (2020-2023). *Personal técnico de apoyo (PTA).* Ministerio de Ciencia, Innovación y Universidades.

Zuccarini, P. (2021-2024). *Personal técnico de apoyo (PTA).* Ministerio de Ciencia, Innovación y Universidades.

PROJECTS & SERVICES

For your information, we are currently redefining how to we show our projects and services to balance transparency with the protection of confidential information. These lists, therefore, do not represent all the projects and services we do at CREAF.

You may exercise your right to access public information by completing the form available in the transparency section of the CREAF website.

CATALAN COMPETITIVE & NON-COMPETITIVE PROJECTS

Bartumeus, F. (2019-2023). BIG MOSQUITO BYTES - *Intel·ligència de dades de ciència ciutadana i massives per lluitar contra les malalties trameses per mosquits.* Fundació Bancària La Caixa.

Bosch, J., & Rodrigo, A. (2023). *POL·LINITZACIÓ.* Generalitat de Catalunya.

Bosch, J., & Rodrigo, A. (2023). *SEGUES - Protocol de modificació de segues.* Generalitat de Catalunya.

Brotons, L. (2023). *FACTORS DE CANVI - Anàlisi de canvis de cobertes del sòl.* Generalitat de Catalunya.

Brotons, L. (2023). *INDICADOR LPI-CAT.* Generalitat de Catalunya.

Brotons, L. (2023). *OBSERVATORI.* Generalitat de Catalunya.

Carabassa, V. (2020-2024). *RESTARC - Research, innovation and promotion of the use of*

amendments and organic residues in soil restoration. Agència de Residus de Catalunya.

Carabassa, V. (2023). *PEDRERES - Research and innovation in the control and restoration process of mining activities.* Generalitat de Catalunya.

Claramunt López, B. (2023). *NERET (former CANEM)—Investigació, innovació per l'increment del capital natura de les estacions d'esquí i muntanya d'FGC.* Generalitat de Catalunya.

Espelta, J. M. (2018-2023). *DINFORREST - Ecological evaluation of the results of forestry practices to enhance forest recovery and resilience after extensive wildfires.* Oficina Tècnica de Prevenció Municipal d'Incendis Forestals de la Diputació de Barcelona.

Galiano, L. (2021-2023). *CERCA-GINYS - Actuacions en infraestructures científico-tecnològiques del sistema CERCA i pel desenvolupament d'una plataforma d'accés a les mateixes.* iCERCA.

Gràcia, M., & Andrés, P. (2022-2026). *AgriCarboniCat—Carbon Agriculture in Catalonia.* Fons Climàtic. Generalitat de Catalunya.

Gràcia, M., & Andrés, P. (2022-2026). *AgriRegenCat—Regenerative Agriculture in Catalonia.* Fons Climàtic. Generalitat de Catalunya.

Martínez-Vilalta, J. (2023). *ESTAT HIDRIC - Protocol per al seguiment de l'estat hídric dels boscos.* Generalitat de Catalunya.

Peñuelas, J. (2023). *CARACTERITZACIÓ PLUGES - Gestió i avaluació de la composició química i l'acidesa de la precipitació de Catalunya.* Generalitat de Catalunya.

Peñuelas, J. (2024-2026). *CLIMABOSC - Forests and climate change mitigation.* AGAUR. AGAUR

Pino, J. (2018-2023). LET-BCN - *Creation and development of the Metropolitan Lab of Ecology and Territory of Barcelona.* Institut Metròpoli.

Pino, J. (2021-2023). *NAT_VILADECANS - Natural status and biodiversity strategy of the Viladecans municipality.* Ajuntament de Viladecans.

Pino, J. (2022-2026). *PLA NATURA - Collaboration in the development of the Nature Plan of the Barcelona city.* Ajuntament de Barcelona.

Pino, J. (2023). *EXCEL·LENCIA CIENTIFICA - Promoció excel.lència científica.* Generalitat de Catalunya.

Pino, J. (2023). *EXOCAT.* Generalitat de Catalunya.

Pino, J. (2023). *FLORA AMENAÇADA - Unitat mixta CREAF-GeoVeg UB per projectes de botànica i flora amenaçada.* Generalitat de Catalunya.

Pino, J. (2023). *INFRAESTRUCTURA VERDA.* Generalitat de Catalunya.

Pino, J. (2023). *PARC DE L'ALBA - Seguiments del Parc de l'Alba.* Generalitat de Catalunya.

Pino, J. (2023). *SERVEIS ECOSISTÈMICS.* Generalitat de Catalunya.

Pons, X. (2023). *Dinàmica territorial i canvi d'usos del sòl.* Generalitat de Catalunya.

Pons, X. (2023). MIRAMON - *Tractament SIG de la informació ambiental i territorial.* Generalitat de Catalunya.

Prat, E. (2022-2023). *BCN Reconnecta—Reconnecting citizenship and nature to measure the effects of climate change in Barcelona.* Ajuntament de Barcelona.

Ramon, A. (2022-2023). *PRIMARY BCN - Building educational and cultural communities in the face of climate emergencies.* Ajuntament de Barcelona.

Ramon, A. (2023-2025). *CIENCIA CIUTADANA - Implicació dels centres educatius en la conservació de la natura.* Generalitat de Catalunya.

Ramon, A. (2023). *DESFAKE CLIMA.* Ajuntament de Barcelona.

Ramon, A. (2023). *OPNAT - Comunicació de l'OPNAT.* Generalitat de Catalunya.

Ramon, A. (2023). *PRISMÀTIC - Knowledge platform for environmental and biodiversity management.* Generalitat de Catalunya.

Retana, J. (2023). *SISEBIO - Sistema de Parcel·les de Seguiment de la Biodiversitat Terrestre.* Generalitat de Catalunya.

Retana, J. (2024-2026). *REGENERA.CAT - Regenerative Agriculture as a way to advance towards food sovereignty and the fight against climate change, biodiversity loss and rural abandonment.* AGAUR

Sánchez, A. (2023). *CENTRES EDUCATIUS - Implicació dels centres educatius en la conservació de la natura.* Generalitat de Catalunya.

Saura Mas, S. (2021-2024). *SILVODIVERS - Sustainable forest grazing: The mutual benefit between fire prevention management, forest conservation and extensive grazing.* Generalitat de Catalunya.

Saura Mas, S. (2023). *AIGUAFLOR - Monitoring of different species of endangered flora of Empordà wetlands natural park.* Parc Natural dels Aiguamolls de l'Empordà.

Saura Mas, S. (2023). *AMPLIBIO - Study of the natural heritage (fauna, flora and geology) and connectivity in the area of the proposed expansion of the Natural Park of Sant Llorenç del Munt i l'Obac.* Parc Natural de Sant Llorenç del Munt i l'Obac.

Saura Mas, S. (2023). A*RBRES MONUMENTALS - Estat ecològic dels arbres monumentals de Catalunya.* Generalitat de Catalunya.

Saura Mas, S. (2023). *CALES - Technical work on the proposed management plan for the habitats of the Cap de Creus Natural Park.* Parc Natural de Cap de Creus.

Saura Mas, S. (2023). *SESELI - Technical work about demographic data of Seseli farrenyi.* Parc Natural de Cap de Creus.

Saura Mas, S. (2023). *TRANSLOCAT - Assessment of the conservation situation of the Butomus umbellatus plantations, Sarcocornia perennis alpini and Hydrocotyle vulgaris carried out during 2022 and from 2023 plantings.* Parc Natural del Montgrí, les illes Medes i el Baix Ter.

Solé, J. (2023). *PYMEDEAS - Energy systems model.* Generalitat de Catalunya.

Vayreda, J. (2023a). *BIORGEST II - Gestió Forestal per a la millora de la biodiversitat.* Generalitat de Catalunya.

Vayreda, J. (2023b). *ENP - Estudi sobre l'adaptació al CC en un ENP. Estudi pilot a l'Alta Garrotxa.* Generalitat de Catalunya.

Vayreda, J. (2023c). *FORESTFUTURE - Canvi global i boscos. OCCC.* Generalitat de Catalunya.

Vayreda, J. (2023d). *XARXA BOSCOS - Dinàmica natural.* Generalitat de Catalunya.

Vayreda, J., & Martínez-Vilalta, J. (2023). *DEBOSCAT - Monitoring network for observing the status of Catalonian forest.* Generalitat de Catalunya.

NATIONAL COMPETITIVE & NON-COMPETITIVE PROJECTS

Andreu-Hayles, L. (2022-2025). *DENDROHIST - Long-term perspective to the current enviornmental crisis in the Iberian Mediterranean region from dendrochronological and historical archives.* Ministerio de Ciencia, Innovación y Universidades.

Brotons, L. (2022-2025). *SPEAR - Scenarios for protecting European avian redistributions.* Ministerio de Ciencia, Innovación y Universidades.

Carnicer, J. (2021-2024). *MICROCLIM - Microclimatic variability and forest carbon sink resilience to global warming.* Ministerio de Ciencia, Innovación y Universidades.

Catalan, J. (2017-2023). *PALEO - Paleolimnology: Techniques and applications.* CEDEX, Instituto Pirenaico de Ecología & others.

Catalan, J. (2020-2023). *ALKALDIA - The pH-alkalinity gradient in space and time, an ecological framework for freshwater biodiversity.* Ministerio de Ciencia, Innovación y Universidades.

Catalan, J. (2020-2023). BIOGEOMONT - *The acceleration of biogeochemical cycles in the high mountains during the Anthropocene.* Organismo Autónomo de Parques Nacionales.

Catalan, J., & Felip, M. (2023-2027). *WATERSCAPE - The waterscape as a framework for species coexistence: Diatoms as model.* Ministerio de Ciencia, Innovación y Universidades.

De Cáceres, M. (2022-2024). *BOMFORES - Advancing process-based modelling to project forest dynamics and associated ecosystem services at the stand and regional scales.* Ministerio de Ciencia, Innovación y Universidades.

Domene, X. (2021-2024). *ECOFARMERS - Boosting global change adaption in farming and forest systems in the long term: Multifunctionality as criteria.* Ministerio de Ciencia, Innovación y Universidades.

Domene, X., Carabassa, V., & Marañón-Jiménez, S. (2021-2024). *BIDEKO - Biodegradable and compostable batteries for precision agriculture and decentralized energy systems.* Ministerio de Ciencia, Innovación y Universidades.

Felip, M. (2022-2025). *FishMe—Social and ecological effects of Fish removal in Mountain Ecosystems.* Ministerio de Ciencia, Innovación y Universidades.

Fernández Martínez, M., & Peguero, G. (2023-2026). *ETRAITS - Elementomes and Traits: Investigating the correspondence between elemental composition and functional traits in plants and arthropods.* Ministerio de Ciencia, Innovación y Universidades.

Gómez, L. (2022-2024). *CARBINTER - Perturbations of the carbon cycle in high-mountain watersheds under a more intermittent hydrology.* Ministerio de Ciencia, Innovación y Universidades.

Lapiedra, O. (2021-2024). *BEECOEVO - Animal behavior: A modulator of evo-evolutiobary dynamics in a changing planet?* Ministerio de Ciencia, Innovación y Universidades.

Lapiedra, O. (2022-2025). *FearIsland—The fear effect: Ecological and evolutionary consequences of island tameness in a rapidly changing planet.* Ministerio de Ciencia, Innovación y Universidades.

Lloret, F. (2021-2024). RESIBIO - *Resilience and species climatic niche in woody communities under climate change-driven disturbances.* Ministerio de Ciencia, Innovación y Universidades.

Marañón-Jiménez, S. (2022-2025). *SOCRATES - Sequential destabilization of C and N in biogeochemical cycles to increasing temperatures in the subartic region.* Ministerio de Ciencia, Innovación y Universidades.

Martínez-Vilalta, J. (2022-2026). *TRACES - Accounting for trait coordination and evolutionary history to improve our capacity to predict plant performance under stress.* Ministerio de Ciencia, Innovación y Universidades.

Martínez-Vilalta, J. (2023). *CoForFunc—Toward a biome-scale monitoring of the Congo basin forest functional composition.* Ministerio de Ciencia, Innovación y Universidades.

Masó, J. (2022-2023). *FENOAULA - Citizen science, innovation and transfer to new generations in the phenological monitoring of climate change.* Fundación Española para la Ciencia y la Tecnología (FECYT).

Mayol, M. (2021-2024). *READAPT - Regional patterns of genomic and phenotypic trait variability associated with ADAPTation in Taxus baccata L.* Ministerio de Ciencia, Innovación y Universidades.

Melero, Y. (2021-2024). *MEDYCI - From islands to traps: Metapopulation dynamics in the city and their mediation with the species traits and the environmental conditions.* Ministerio de Ciencia, Innovación y Universidades.

Mencuccini, M. (2023-2027). *DRASTIC - Tree water use and drought responses: The roles of allometry, water storage and transport under climate change.* Ministerio de Ciencia, Innovación y Universidades.

Nogué, S. (2022-2024). *TEMPOINVASIONS - Towards understanding the temporal dimension of the invasion process: Implications for restoration.* Ministerio de Ciencia, Innovación y Universidades.

Peñuelas, J. (2021-2023). *ELEMENTAL CLIMATE - Impacts of climate change on bioelemental stocks and flows and feedbacks on ecosystems and crops.* Fundación Ramón Areces.

Peñuelas, J. (2022-2024). *NUTRIARID - Unraveling and providing solutions to mitigate and adapt to the changes in the elementomes of organisms, communities and ecosystems.* Ministerio de Ciencia, Innovación y Universidades.

Peñuelas, J. (2023-2026). *SOILDEEPCHANGE - Unraveling the role of soil layers deeper than 30 cm in a changing world.* Ministerio de Ciencia, Innovación y Universidades.

Pino, J. (2023a-2025). *BIORESILMED - Promotion of bioeconomy and climatic resilience in Mediterranean landscapes.* Life Programme. Fundación Biodiversidad.

Pino, J. (2023b-2025). *SANTBOIRESPIRA - Sant Boi Breathes +Green.* Fundación Biodiversidad.

Ramírez, J. (2022a-2024). *4DRIVERS - Characterization of forest genetic resources of Pinus pinaster: Importance of genetic variation and phenotypic plasticity to respond to a drier environment.* Ministerio de Ciencia, Innovación y Universidades.

Ramírez, J. (2022b-2024). *AGENTS - Adaptation to climate from a multivariate perspective: The role of selection and demography in the genetic variation and plasticity of functional traits.* Ministerio de Ciencia, Innovación y Universidades.

Retana, J. (2021-2024). *GREEN-RISK - Evaluation of past changes in ecosystem services and biodiversity in forests and restoration priorities under global change impacts.* Ministerio de Ciencia, Innovación y Universidades.

Ribas, A. (2021-2024). *SUSFORAGE - Sown forage mixtures for sustainable agroecosystems in the Mediterranean area.* Ministerio de Ciencia, Innovación y Universidades.

Ribas, A. (2022-2025). *D-NESS - Evaluating the role of Denitrification as the most important sink of Nr in European Soil Ecosystems.* Ministerio de Ciencia, Innovación y Universidades.

Romero, E. (2022-2024). *KALORET - Characterising the links between the water cycle and the N-P-K cycles in a warmed-up world. Lessons from two climate change hotspots.* Ministerio de Ciencia, Innovación y Universidades.

Sardans, J. (2021-2024). *BIO-ARID - Shifts in bioelements (C:N:P:K) stocks, fluxes and stoichiometry in plant-soil system related to aridity rise.* Ministerio de Ciencia, Innovación y Universidades.

Sol, D. (2021-2024). *COG-BUFFER - Cognitive buffer and population persistence under environmental change.* Ministerio de Ciencia, Innovación y Universidades.

INTERNATIONAL COMPETITIVE & NON-COMPETITIVE PROJECTS

Andrés Pastor, P. (2018-2023). *PHUSICOS - 'According to nature'. Solutions to reduce risk in mountain landscapes.* European Commission.

Andrés Pastor, P. (2021-2024). *CARBOFOOD - Agricultural potential in carbon sequestration Humus content of land used for agriculture and CO2 storage in soil.* European Parliament.

Andrés Pastor, P. (2023-2028). *CARDIMED - Climate adaptation and resilience demonstrated In the Mediterranean region.* European Commission.

Andrés Pastor, P. (2023-2026). C*REDIBLE - Building momentum and trust to achieve credible soil carbon farming in the EU.* European Commission.

Basnou, C. (2019-2023). *CLEARING HOUSE - Collaborative Learning in Research, Information-sharing and Governance on How Urban tree-based solutions support Sino-European urban futures'.* European Commission.

Basnou, C. (2020-2024). *CONEXUS - Co-producing nature-based solutions and restored ecosystems: Transdisciplinary nexus for urban sustainability.* European Commission.

Basnou, C. (2021-2023). *UFOREST - European Alliance on Interdisciplinary Learning and Business Innovation for Urban Forests. Erasmus+.* European Commission.

Berk, B., & Doblas-Miranda, E. (2023-2026). *DigiMedFor—Digital tools and technology systems for the sustainable management of Mediterranean forest resources.* European Commission.

Bosch, J., & Rodrigo, A. (2021-2023). *SPRING - Strengthening Pollinator Recovery through INdicators and monitoring.* European Commission.

Bosch, J., & Rodrigo, A. (2022-2023). *BEACON - Agri-environmental measures to enhance pollination and pest control services in apple and orange orchards.* Innocent Drinks.

Bosch, J., & Rodrigo, A. (2023-2027). *Restpoll—Restoring Pollinator habitats across European agricultural landscapes based on multi-actor participatory approaches.* European Commission.

Broekman, A. (2023-2029). *C4N - Community for Nature.* European Commission.

Brotons, L. (2020-2023). *EUROPABON - Europa Biodiversity Observation Network: Integrating data streams to support policy.* European Commission.

Brotons, L. (2022-2027). *BIO-AGORA - Bio Knowledge Agora: Developing the Science Service for European Research and Biodiversity Policymaking.* European Commission.

Brotons, L. (2023-2026). *REINFORCEMENT - Improving the capabilities of the EuroBirdPortal project in order to boost its contribution towards EU policy objectives under the Birds Directive and the 2030 Biodiversity Strategy.* Life programme. European Commission.

Brotons, L., & Pérez-Porro, A. (2024-2027). *RESPIN - Reinforce science-policy interfaces in innovative ways to boost effectiveness and interconnectedness of biodiversity and climate policies.* European Commission.

Carabassa, V. (2020-2024). *NIEBLAS - Reforestation & Climate Change Mitigation: Tests, evaluation and transfer of innovative methods based on fog collection.* Life programme. European Commission.

Claramunt López, B. (2016-2023). *EARTHWATCH PIRINEU II - Wildlife in the Andorran Pyrenees (II).* EarthWatch Institute.

Claramunt López, B. (2023-2028). *MountResilience—Accelerating transformative climate adaptation for higher resilience in European mountain regions.* European Commission.

Doblas-Miranda, E. (2019-2023). *PROGRESS - Promoting the governance of regional ecosystem services. Interreg.* European Commission.

Espelta, J. M. (2021-2025). *RESONATE - Resilient forest value chains – enhancing resilience through natural and socio-economic responses.* European Commission.

Espelta, J. M. (2023-2026). *wildE - Climate-smart rewilding: Ecological restoration for climate change mitigation, adaptation and biodiversity support in Europe.* European Commission.

Fernández Martínez, M. (2023-2028). *STOIKOS - Elemental Ecology: Towards an element-based functional ecology.* European Commission.

Jolles, J. (2023-2024). *FISHINDROUGHT - Under the surface: Uncovering the role of individual differences in how fish populations deal with severe droughts.* National Geographic Society.

Masó, J. (2019-2023). BESTMAP - *Behavioural, Ecological and Socio-economic Tools for Modelling Agricultural Policy*. European Commission.

Masó, J. (2019-2023). *E-SHAPE - EuroGEOSS Showcases: Applications Powered by Europe*. European Commission.

Masó, J. (2020-2025). *FRAMEWORK - Farmer clusters for Realising Agrobiodiversity Management across Ecosystems*. European Commission.

Masó, J. (2021-2023). *InSituGEO - Mainstreaming GEOSS Data Sharing and Management Principles in support of Europe's environment*. European Commission.

Masó, J. (2021-2023). *WQEMS - Copernicus-assisted lake water quality emergency monitoring service*. European Commission.

Masó, J. (2022-2025). *AD4GD - All Data For Green Deal—An Integrated, FAIR Approach for the Common European Data Space*. European Commission.

Masó, J. (2022-2025). *ILIAD - Integrated digital framework for comprehensive maritime data and information services*. European Commission.

Masó, J. (2022-2026). *OEMC - Open-Earth-Monitor Cyberinfrastructure*. European Commission.

Masó, J. (2023-2026). *CITIOBS - Enhancing citizen observatories for healthy, sustainable, resilient and inclusive cities*. European Commission.

Masó, J. (2024-2027). *MoRe4nature—Empowering citizens in collaborative environmental compliance assurance via monitoring, reporting and action*. European Commission.

Masó, J., & Carabassa, V. (2021-2023). *NEWLIFE4DRYLANDS - Remote sensing oriented nature based solutions towards a new life for drylands*. European Commission.

Masó, J., & Ramon, A. (2019-2023). *COS4CLOUD - Co-designed citizen observatories for the European Open Science Cloud*. European Commission.

Mencuccini, M. (2021-2025). *FORGENIUS - Improving access to forest genetic resources information and services for end-users*. European Commission.

Otsu, K. (2021-2025). *EOSC FOCUS - Supporting the development and coordination of activities of the EOSC Partnership*. European Commission.

Peñuelas, J. (2019-2023). *FUTURE ARTIC - A glimpse into the Arctic future: Equipping a unique natural experiment for nextgeneration ecosystem research*. Ministerio de Ciencia, Innovación y Universidades.

Peñuelas, J. (2022-2026). *ALFAWETLANDS - Wetland restoration for the future*. European Commission.

Pérez-Porro, A. (2021-2023). S*CIDIPMED - Awareness for Science Diplomacy in the Mediterranean*. Union for the Mediterranean (UfM).

Pesquer, L. (2018-2023). *HRLandCoverCCI - ESA Climate Change Initiative (CCI), the High Resolution (HR) Land Cover (LC) Essential Climate Variable (ECV)*. University of Trento.

Pesquer, L. (2020-2023). EOTIST - *Earth Observation Training in Science and Technology at the Space Research Centre of the Polish Academy of Sciences*. European Commission.

Pesquer, L. (2021-2025). *I-CISK - Innovating Climate Services through integrating scientific and local knowledge*. European Commission.

Pesquer, L. (2021-2023). *WATERFORCE - Water scenarios for Copernicus exploitation*. European Commission.

Pesquer, L. (2023-2026). *AquaINFRA - Infrastructure for Marine and Inland Water Research*. European Commission.

Ramon, A. (2022-2023). *SCICOMMCLIMA - Science-based communication for the ecological transition*. European Climate Foundation.

Ramon, A. (2023-2024). *ESFERA CLIMÁTICA - Expanding the coverage of climate-related topics in the Spanish media and among meteorological presenters*. European Climate Foundation.

Retana, J. (2019-2024). *MIDMACC - Mid-mountain adaptation to climate change. Life programme*. European Commission.

Retana, J., & Claramunt López. (2023-2031). *PYRENEES4CLIMA - Towards a climate resilient cross-border mountain community in the Pyrenees*. Life programme. European Commission.

Sabaté, S. (2022-2026). *INFORMA - Science-based integrated forest mitigation management made operational for Europe*. European Commission.

Sabaté, S., & Solé, J. (2019-2023). *LOCOMOTION - Low-carbon society: An enhanced modelling tool for the transition to sustainability*. Ministerio de Ciencia, Innovación y Universidades.

Vayreda, J. (2018-2023). B*IORGEST - Innovative Forest Management Strategies to Enhance Biodiversity in Mediterranean Forests*. Life programme. European Commission.

Vayreda, J. (2020-2024). *BIOREFORMED - Implementing a Mediterranean biorefinery to boost forest management through the production of added value products*. Life programme. European Commission.

Vayreda, J. (2021-2025). *REDBOSQUES_CLIMA - Nature-based solutions to improve adaptation of forests to climate change*. Life programme. European Commission.

Vayreda, J. (2022-2027). *UNCINATA - Restoration, conservation, and resilience of mountain pine (Pinus uncinata) forests on limestone in the Pyrenees*. Life programme. European Commission.

Verger, A. (2015-2023). *C-GLOPS1—Copernicus Global Land Service – Framework contract for the operation, evaluation and evolution of the global land component of the Copernicus Land Service*. European Commission.

Vilà-Cabrera, A. (2023-2025). *FORESTSOILORG - Soil organisms enhance stability as disturbed forests regrow in a warming world?* National Geographic Society. .

PHILANTHROPY

INSTITUTIONAL DONORS

Centre d'Oftalmologia Barraquer. (2023). Contribution to CREAF's Future Forests Fund.

Fundació Caixa d'Enginyers. (2023-2024). Contribution to CREAF's Citizen Science Fund.

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