

ASSOCIAÇÃO BIOPOLIS

Annual Activity Report

2022

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SUMMARY

This document presents the BIOPOLIS Association's Activity Report for 2022, as the managing institution of CIBIO - Centre for Research in Biodiversity and Genetic Resources, covering the main components of BIOPOLIS/CIBIO's operations, including Scientific Activities and Achievements; Education and Training; Facilities; Knowledge and Technology Transfer & Services, Communication and Dissemination; Fundraising and Sustainability.

INITIAL CONSIDERATIONS

2022 marks the first full year of activity for the BIOPOLIS Association, following its establishment in July 2021 and the European Commission's approval in April 2019 of the "BIOPOLIS – Teaming to Upgrade to Excellence in Environmental Biology, Ecosystem Research, and Agrobiodiversity" project, submitted by CIBIO – ICETA, the University of Montpellier, and Porto Business School to the Horizon 2020 Widespread – Teaming Program.

The main objective of the BIOPOLIS project is to upgrade CIBIO, a research unit whose activities, until July 2021, were directly managed by ICETA – the Institute of Science, Technology, and Agroenvironment of the University of Porto. To this end, the BIOPOLIS Association – a non-profit scientific association – was established in 2021, to which the personnel, assets, liabilities, and contractual responsibilities related to CIBIO's activities were transferred, as part of a spin-off agreement between ICETA and BIOPOLIS. Thus, by the end of 2021, a total of 63 projects and 16 service contracts had been transferred to this Association, with a total of 15 projects and 6 service contracts remaining at ICETA, due to their approaching completion date and the limited amount of their respective budgets still to be executed. Additionally, a total of 57 projects, already completed but still awaiting final reimbursement, remained at ICETA.

During 2022, the process of establishing the BIOPOLIS Association continued and consolidated, particularly through the recruitment and strengthening of research teams and administrative and financial support areas, in parallel with the process of strengthening the governance structure and the various governing bodies that constitute the Association. Likewise, the reformulation and updating of several procedural standards and internal regulations was promoted, as well as the approval of new documents guiding the Association's governance and management, including the Human Resources Strategic Plan and the Code of Ethics and Conduct. This effort to review BIOPOLIS's entire regulatory and management framework—which will continue throughout 2023—along with the development of new management tools and instruments, such as the first annual activity budget and the improvement of the management information system, aims to equip and

empower the Association with the necessary resources to face future challenges, especially those arising from the ambitious goals established by the BIOPOLIS project.

Importantly, the activities reported herein are not only aligned with the mission and statutory purposes of the Association, but also explicitly articulated with objectives of general, regional, and local interest. Scientific research and innovation activities contribute directly to the advancement of knowledge and to evidence-based policies in biodiversity, ecology, and sustainability, thereby serving the general interest. Education and training programmes, including doctoral and master's courses, continuous professional development, and outreach with schools, demonstrate the Association's role in fostering human capital of strategic importance for society. Investment in infrastructures such as the Biological Station of Mértola and the Branda Científica de S. Bento do Cando strengthens regional cohesion and provides new opportunities for local development, while partnerships with municipalities, cultural institutions, and the media promote scientific culture and public awareness of biodiversity, which are essential to the exercise of active citizenship. This articulation between activities and statutory aims was recognized by the Portuguese Government with the award of Public Utility Status to the BIOPOLIS Association in December 2022, highlighting the relevance of its contribution to the public interest at national, regional, and local levels.

GOVERNANCE

The main governing bodies of BIOPOLIS, Board of Directors (BoD), Supervisory Board (SB) and General Assembly (GA) were previously established.

Board of Directors

In 2022 there was a change to the BoD resulted from the decision of the Associate Director (AD) for Administration and Finance, Cláudia Ribeiro, to cease the contract established with Associação BIOPOLIS, due to personal reasons, as specified in her letter of resignation from 13/06/2022. To assure that the operation of BIOPOLIS was not affected by this decision, Cláudia Ribeiro, remained as Associate Director until the 30/08/2022. During this transition period, a new call was open to select the new director, using the procedures adopted for the initial selection of the BoD. Following the selection procedures, a new Associate Director for Administration and Finance, Luís Folhadela, was designated by the SB according to the by-laws, and subsequently contracted by Associação BIOPOLIS. Luís Folhadela started its functions at the BoD on 01/09/2022.

At present, the BoD is thus composed by: Nuno Ferrand - General Director; Pedro Beja - Associate Director of Operations, Fund Raising and Knowledge Transfer; Gabriel Marais - Associate Director for Research and Innovation; and Luís Folhadela - Associate Director for Administration and Finance. However, to obtain the Public Utility status¹ in compliance with Portuguese laws, the BoD should have an odd number of members, and so a fifth director will have to be designated by the SB and approved by the GA in the near future.

The Director (Nuno Ferrand), has been the main responsible for BIOPOLIS, including coordinating strategic planning, ensuring top-level and legal representation, promoting key initiatives, assuring compliance with the vision and mission, and overseeing self-sustainability targets. The Associate Directors (AD) have been responsible for managing BIOPOLIS in close cooperation with the Director. The AD for Administration and Finance (Cláudia Ribeiro and then Luís Folhadela) has been the direct responsible for the operation of the Administration and Finance Units, coordinating the strategic planning and reporting of

¹ <https://eportugal.gov.pt/en/fichas-de-enquadramento/fundacoes-e-pessoas-coletivas-de-utilidade-publica>

this unit. This AD has also been involved in the purchases of large equipment, the hiring of personnel, and other activities involving major financial commitments and/or long-term responsibilities. The AD for Research and Advanced Training (Gabriel Marais) has overseen scientific and innovation management, contributing to components such as training, communication, and dissemination. The AD for Operations, Fundraising and Knowledge Transfer (Pedro Beja), is responsible for all aspects regarding the organisation of infrastructures, equipment, and technical support to the operation of BIOPOLIS, communication and dissemination, fundraising, contracts and services, relations with stakeholders, and knowledge transfer. This reduced the workload of the AD for Administrations and Finance and, particularly, the AD for Science and Innovation, given them more time to dedicate to their core missions. In this reorganisation, the attributions of the AD for Science and Innovation have also been reinforced regarding the strengthening of the relations between BIOPOLIS and the scientific community of UM.

Supervisory Board

The management of BIOPOLIS by the BoD has been overseen by the BoD and the GA, as required by the by-laws of the Association. During 2022, the SB met three times (14/01/2022; 20/05/2022; 06/08/2022 and 25/11/2022), with the participation of members of the BoD. These meetings addressed among other subjects the approval of the budget and activity plan for 2022, the approval of the Management and Financial Report of 2021, the creation of the Executive Committee and other minor changes to the by-laws, the designation of new members of the BoD, and the approval of the Internal Rules of the Association. The SB meetings also involved updates of the Association activity, and discussion of strategies and major decisions with the BoD.

An important decision by the SB was the creation of an Executive Committee, including all AD, which was dedicated to streamline the daily management of BIOPOLIS, releasing the Director for more high-level functions, and allowing him a deeper involvement in particular strategic planning and in the establishment and nurture of links to external stakeholders.

General Assembly

During 2022, the GA met two times (14-02-2022; 20-05-2022) and passed a unanimous consent resolution. Highlights of these meetings, include the approval of the Management and Financial Report of 2021.

During 2022 the two missing governing bodies of BIOPOLIS were established by the BoD, and approved in the 9th meeting of the SB that took place on 25/11/2022: the Science Council (SC) and the International Advisory Board (IAB).

Science Council

The Science Council (SC) was established according to the by-laws, with an initial composition of five members, including the Director of BIOPOLIS as chairman, two members from the BIOPOLIS community, and two members from the UM community. Membership of the SC is expected to increase to up to ten members. Currently, the designated members of the SC are:

- Nuno Ferrand (Chairman) – Director of BIOPOLIS.
- Henrique Miguel Pereira – Senior researcher affiliated with BIOPOLIS-CIBIO², but that is also Professor of Biodiversity Conservation at iDiv - German Center for Integrative Biodiversity Research Halle-Jena-Leipzig³.
- Miguel Carneiro – Principal researcher affiliated with BIOPOLIS-CIBIO⁴, and holder of an ERC Consolidator Grant⁵.
- Nicolas Galtier – Senior Researcher affiliated with the University of Montpellier and Director of the joint research unit ISEM - Institut des Sciences de l'Évolution de Montpellier⁶.

² <https://cibio.up.pt/en/people/details/henrique-miguel-pereira/>

³ <https://www.idiv.de/en/profile/132.html>

⁴ <https://cibio.up.pt/en/people/details/miguel-jorge-pinto-carneiro/>

⁵ <https://perin.pt/the-european-research-council-awards-6-portuguese-researchers/>

⁶ <https://isem-evolution.fr/membre/galtier/>

- Claire Billot – Senior researcher affiliated with the University of Montpellier and Director of the Joint Research Unit Genetic Improvement and Adaptation of Plants⁷ / CIRAD.

International Advisory Board

The International Advisory Board (IAB) was also established according to the by-laws, and it included two components: the International Scientific Advisory Board (ISAB) and the International Industry Advisory Board (IIAB). The ISAB was initially established with internationally recognized researchers that had previously been core members of CIBIO's International Advisory Board, and that have been instrumental in the preparation of the Teaming proposal and the early implementation of the project. In the future, membership of the ISAB is expected to increase to up to ten members, incorporating a wide range of expertise and diversity. Currently, the designated members of the ISAB are:

- Scott Edwards – Professor of Organismic and Evolutionary Biology and Curator of Ornithology in the Museum of Comparative Zoology at Harvard University, USA⁸.
- Jeremy Searle – Professor; Faculty Curator of Mammalogy, Cornell University Museum of Vertebrates⁹.
- Luigi Boitani – Emeritus Professor at Sapienza University of Rome, Italy¹⁰.
- Craig Moritz – Director of the ANU-CSIRO-UC Centre for Biodiversity Analysis, Australia¹¹.

The IIAB was initially established with renowned individuals from key stakeholders of BIOPOLIS, which were selected considering their potential to advise on opportunities for collaboration with industry and other stakeholders, and for promoting industry involvement in the BIOPOLIS research programme and projects. In the future, membership of the IIAB is expected to increase to up to ten members, incorporating a wide range of expertise and diversity. Currently, the designated members of the IIAB are:

- Cláudia Azevedo - Chief Executive Officer, Sonae.

⁷ <https://umr-agap.cirad.fr/en/directory-access>

⁸ <https://oeb.harvard.edu/people/scott-v-edwards>

⁹ <https://ecologyandevolution.cornell.edu/jeremy-b-searle>

¹⁰ <https://www.researchgate.net/profile/Luigi-Boitani>

¹¹ <https://biology.anu.edu.au/people/academics/craig-moritz>

- Rombout Swanborn - CTO of HyET group, Founder of Africa's Eden group, and Renaissance Oil & Gas.
- Fernando Freire de Sousa - Former President of the CCDR-N and President of the General Council of Universidade do Porto.
- Paul Symington - Former Chairman of Symington Family Estates.
- Jorge Moreira da Silva - Chairman, Platform for Sustainable Growth. Independent Consultant. Former Director of OECD Development Co-operation Directorate. Former Minister of Environment & Energy, PT.
- João Nuno Palma - Executive Committee Vice-Chairman of Millenium BCP banking group.

SCIENTIFIC ACTIVITIES AND ACHIEVEMENTS

Highlights

Scientific research activity at BIOPOLIS is carried out by a total of 476 researchers (186 of whom hold PhDs), who are organized into a total of 35 research groups, distributed across 3 thematic areas: Evolution, Genetics & Genomics; Biodiversity, Ecology & Conservation; Sustainability, Ecosystems & the Environment.

The scientific output of BIOPOLIS during the year 2022 was outstanding. During this period InBIO's activities generated more 430 papers in SCI-journals, including Nature and Science, among others.

In this reporting period BIOPOLIS' researchers were awarded with relevant recognitions including the PhD Award in Ecology attributed to researcher Joana Bernardino. This is an initiative of the Portuguese Society of Ecology (SPECO) that rewards the writer of the best PhD thesis in any area of Ecology, defended in Portuguese Universities. The award-winning research aimed to significantly advance the understanding of bird collisions with power lines and to further develop the methods used to quantify and mitigate this impact. This work was conducted within the scope of the REN Biodiversity Chair, an ongoing research program created in the context of a protocol set between BIOPOLIS, REN - Rede Eléctrica Nacional, S.A. and FCT (Fundação para a Ciência e a Tecnologia).

Also, the Ciência Viva 2022 Grand Prix distinguished BIOPOLIS' Director Nuno Ferrand for his remarkable work in the promotion of scientific culture as a teacher, researcher and disseminator in the field of Biodiversity and Evolutionary Biology.

The Ciência Viva Awards are awarded to personalities and institutions of exceptional merit in the promotion of scientific culture in Portugal, according to the selection of representatives of scientific institutions associated with the Ciência Viva Agency.

Our researchers have made significant contributions in different research lines including:

- i) finding a new species of owl in the forests of Prince Island, Central Africa.

Based on several lines of evidence, including morphology, color and plumage pattern, vocalizations and genetics, an international team of BIOPOLIS researchers, led by Martim Melo, Bárbara Freitas and Angelica Crottini, made the description of this species, published by ZooKeys.

ii) in addition, researchers from BIOPOLIS together with scientists from the Marine Biological Association (MBA) and the University of Southampton, published in PNAS a new study indicating that fatal collisions between whale sharks and ships are largely underestimated, and may even be the main reason why populations of this species are declining.

Finally, 2022 constituted the first full year of activity for 4 new research groups at BIOPOLIS: Movement Ecology – MOVE, Invasions Science – InvasionS, 21st Century Conservation Lab – LACOS21 and PlantEvol.

Collaborative Research and Capacity Building in Africa

Relations with developing countries were further expanded and strengthened during 2022 building on the previously established network of TwinLabs¹² and the UNESCO Chair Life on Land¹³. In this context, multiple scientific missions were carried out in collaboration with local researchers, in countries such as Angola, Botswana, Cape Verde, Guinea Bissau, Guinea Equatorial, Mozambique, Namibia, Sao Tome e Principe, South Africa and Zimbabwe. Also, BIOPOLIS cooperated on a regular basis and have established synergy protocols with other international institutional initiatives including, among others: ALTERNet¹⁴; BES-Net¹⁵; The African Biodiversity Network¹⁶; EPBRs¹⁷; IPBES¹⁸; H3Africa¹⁹; Africa Biogenome Project²⁰.

¹² <https://cibio.up.pt/twinlabs-unesco>

¹³ <https://cibio.up.pt/media-clippings/details/unesco-chair-life-on-land-awarded-to-university-of-porto>

¹⁴ <http://www.alter-net.info>

¹⁵ <http://besnet.world>

¹⁶ <http://africanbiodiversity.org>

¹⁷ <http://www.epbrs.org>

¹⁸ <http://www.ipbes.net>

¹⁹ <https://h3africa.org/>

²⁰ <https://africanbiogenome.org/>

In September 2022, it is worth mentioning the award of the UNESCO Chair in Land within sea (Biodiversity & Sustainability in Atlantic Islands) to BIOPOLIS Pole of Azores.

EDUCATION AND TRAINING

The BIOPOLIS Programme of Advanced Training and Continuous Development, includes internal and external components. The internal component has a focus on BIOPOLIS staff and students, assuring their continuous training and updating, as well as supporting the PhD and Post-Doctoral Programmes.

In addition, it also aims at fostering a co-tutelle (joint supervision) agreement between UP and UM, whereby PhD students enrolled in BIODIV and with co-supervision with UM researchers will have a joint degree.

During the academic year that began in 2022, 26 new BIODIV students enrolled, along with 3 from other doctoral programmes. We would also like to highlight that during 2022, 7 BIODIV students completed their doctorates. On 31 December, the total number of doctoral programme students was divided between 115 BIODIV students and 16 students from other programmes.

Table 1 – BIODIV Programme Students

BIODIV	2018/19	2019/20	2020/21	2021/22	2022/23
TOTAL (registered)	94	83	101	110	123
New students	18	14	25	21	26
New international students (%)	39%	14%	40%	29%	42%
Concluded	11	9	14	7	3*

Table 2 – Students from other doctoral programmes

Other programs	2019	2020	2021	2022
TOTAL (registered)	9	13	13	16
New students	2	4	3	3
Concluded		2	1	0

With regard to doctoral scholarships, in the academic year beginning in 2022, 30 candidates applied for the FCT's individual doctoral scholarship competition, with scholarships being awarded to 24 (80% success rate) of the applications submitted. In addition to the individual competition, another 25 doctoral scholarships were awarded under other competitions and protocols, which were also reflected in the 2021/22 academic year.

Table 3 – Doctoral Scholarships

Funding source	BIOPOLIS-CIBIO			
	2019/20	2020/21	2021/22	2022/23
FCT national grants	15	15	15	21
Structural Funds (CCDR-N)	-	-	-	10
Research projects (FCT)	-	-	-	1
Own funds (FUI/FCT)	-	2	-	3
CEBICNA	-	-	-	6
Other Funds	3	3	5	5
TOTAL	18	20	20	44

Many of the thesis are supervised or co-supervised by researchers from institutions in Europe and North America, including researchers from prestigious institutions such as the Muséum National d'Histoire Naturelle in Paris – CNRS (France), Oxford and Cambridge Universities (UK), Max Planck Institute for Evolutionary Anthropology - Department of Evolutionary Genetics (Germany), ETH Zurich (Switzerland), and University of Barcelona (Spain), among many others. The theses adequately cover the three thematic lines (TL) of BIOPOLIS-CIBIO, albeit with more associated with TL2 (Biodiversity, Ecology & Conservation), than either TL1 (Evolution, Genetics & Genomics) or TL3 (Sustainability, Ecosystems & the Environment).

The work towards establishing a co-tutelle agreement is progressing, though with some difficulties due to differences in rules and practices between UM and UP regarding the

duration (e.g., three years versus four years doctoral programmes in UM and UP, respectively), supervision and approval of theses. Despite these difficulties, one co-tutelle PhD was successfully concluded in 2022, which allowed to identify some of the administrative problems associated with awarding a joint degree and how to overcome them. Another co-tutelle is currently on-going. These two co-tutelles have been used as test cases, upon which negotiations are underway to reach the best possible compromise to achieve a joint degree.

All BIOPOLIS PhD students enrolled in BIODIV have a first year of advanced training, before progressing into the development of their thesis. Therefore, students have been offered a range of training opportunities, including advanced training courses, scientific seminars, and workshops, and lab and field practical training with experienced technicians and researchers. During 2022, 12 Advanced Courses in Biodiversity and Evolution were held, attended by 170 participants, most of whom (62%) were BIODIV students. It should be noted that of the 170 participants, 37% were international participants.

Early in the first year, each student is allocated to a mentor/supervisor, who supports the development of the doctoral research project to be developed in the next three years. The thesis research project is publicly presented by the student and discussed with the supervisors, other researchers, and other PhD students.

Using broadly the same governance and management structure adopted for the BIODIV Doctoral Programme, BIOPOLIS also runs a MSc course on Biodiversity, Genetics and Evolution. The degree is attributed by the Faculty of Sciences of the University of Porto, but most lecturing is performed by BIOPOLIS researchers. BIOPOLIS researchers also act as supervisors or co-supervisors of most theses. For most students, this MSc course is a starting point for the development of a PhD, thus it is taken as a preliminary training step for future enrolment in the BIODIV Doctoral Programme. The total number of students enrolled have been stable at around 35 before and after the Teaming project, with 16-22 students in their first year, and another 14-20 developing their dissertations.

Table 4 – Master program students

Students	ICETA-CIBIO	BIOPOLIS_CIBIO		
	2018/19	2019/20	2020/21	2021/22

Total number of students registered	33	34	36	36
New students enrolled (1st Year)	16	16	22	16
Dissertations (2nd Year)	17	18	14	20
Concluded Theses	16	11	13	-

During 2022 work was developed aiming at creating and implementing a Post-Doctoral Training Programme. The objective is to train researchers towards independence in the first few years after their PhD, and to provide additional professional development opportunities in the context of their long-term career prospects. As indicated in the DoA, the programme enrolls all junior BIOPOLIS researchers, irrespective of the funding source, thereby creating equal opportunities across the BIOPOLIS community of young researchers.

Briefly, junior researchers contracted by BIOPOLIS, 30 hired in 2022 from different funding sources, were offered the opportunity to participate in a total of 21 advanced courses. These courses are open to the entire BIOPOLIS-CIBIO community and to researchers and other professionals from external institutions. However, they are mostly designed to support the training of first-year PhD students and of junior researchers. This was considered an adequate strategy to promote the interactions between students and early-career researchers, to the benefit of both groups. The courses organized in 2022 have focused on a wide range of topics with strong theoretical and conceptual components (e.g., , Terrestrial Ectotherms Thermal Ecology ²¹ , Theoretical perspectives on biodiversity and biogeography²²), but also on scientific tools and approaches (e.g., Systematic Reviews and Meta-analysis²³, Museum Techniques²⁴).

Another component of post-doctoral training involves mentoring by more senior researchers. Therefore, all junior researchers are allocated to one of the BIOPOLIS research groups, where they are supported and mentored by supervisors and other senior researchers. Mentoring responsibilities include sharing knowledge and skills, overseeing the junior researchers' work, helping to contact with other researchers and assisting with career counselling. Junior researchers are typically involved in research projects of senior researchers, primarily developing tasks related to data collection and analysis, but also participating in all steps of the research pipeline, from study design to paper writing. In this

²¹ <https://cibio.up.pt/en/events/terrestrial-ectotherms-thermal-ecology-in-a-changing-world-theory-and-practice/>

²² <https://cibio.up.pt/en/events/theoretical-perspectives-on-biodiversity-and-biogeography-2/>

²³ <https://cibio.up.pt/en/events/methods-in-research-synthesis-systematic-reviews-and-meta-analysis/>

²⁴ <https://cibio.up.pt/en/events/museum-techniques-in-the-21st-century-2/>

process they learn new concepts and techniques, improve their skills, and interact with experienced researchers from BIOPOLIS and elsewhere. Junior researchers are also supported by more senior researchers in the preparation of research proposals, namely the small exploratory projects (up to 50k€) funded by FCT. This strategy has resulted in the award of 12 exploratory projects (590k€ of funding) to BIOPOLIS in the calls of 2022. Junior researchers are also encouraged to expand their collaborative networks, through participation in consortium meetings of national and European projects, participation in Cost Actions, attendance of international congresses and workshops, among other activities.

Regarding the external component of the Programme of Advanced Training and Continuous Development, it targets on technicians and researchers from external stakeholders. The programme has been structured in three main components: i) Organisation of scholarly events; ii) Continuous training and development programs; and iii) training for society. The work developed and achievements of each of these components during 2022 are briefly described below.

Scholarly events

BIOPOLIS organized a number of scholarly events, which were targeted at both internal and external researchers and students:

- **Scientific Seminars.** These seminars are organized each Friday afternoon, except during holiday periods, usually involving each day one senior researcher and one PhD student. Besides these regular seminars, there are also seminars organized with occasional visitors, and welcome seminars for researchers starting to work at BIOPOLIS. Overall, during 2022 there were 40 seminars.

Table 5. Number of scientific seminars organized at BIOPOLIS-CIBIO in 2022

Seminars	BIOPOLIS_CIBIO
	2022 ^a
Senior	2
Student	8
Casual	13
Invited	17
Welcome	-
Total	40

- PhD Days. These are two-day events organized by PhD students promoting the exchange of ideas, learning of new techniques and approaches, and the acquaintance with soft skills that are important for career development. One PhD Days (BIODIV Annual Meetings) have been organized during 2022²⁵.
- Periodic workshops. BIOPOLIS organizes high-profile, in-person training workshops, in close collaboration with the University of Montpellier and other international institutions. These workshops are aimed at complementing the advanced courses offered by BIOPOLIS, by bringing top scientists and opening the course to both in-house and international students. The first such workshop was carried out on 9-13/05/2022, about “Evolutionary Genomics for Plant Models and Crops”²⁶. This workshop model was tested for the first time at BIOPOLIS-CIBIO, and it was considered a successful example to be followed in future organisations.
- Summer Schools. In 2022, BIOPOLIS organised two summer schools, one of which took place in Mértola (Spring School of the Biological Station of Mértola; 28/03 to 08/04/2022), and the other in the BIOPOLIS-CIBIO pole of Azores (Azores Summer School in Marine Island (Palaeo)Biogeography; 6-16/07/2022).

Continuous training and development programs

BIOPOLIS-CIBIO provided its personnel access to continuous training and development, contributing to the development of the Centre as well as personal development of its staff. A particular attention was given to the training of administrative and technical staff. Noteworthy examples include: i) COST Academy – 10th Grant Holder Managers Seminar; ii) Quality Management Systems - Implementation of NP EN ISO 9001:2015; iii) IATA DGR Cat.6; iv) ERCEA Grant Management Workshop for Portuguese Host Institutions.

Training for society

BIOPOLIS-CIBIO started a number of activities targeted at the training of stakeholders’ staff and at the general public. Part of these activities overlap the advanced training courses, seminars and workshops, which are open to external participants. There has also been a strong overlap between these training events and communication & dissemination activities. The most relevant activities are described below:

²⁵ <https://biodiv.pt/en/phd-programme/annual-meeting-2022/>

²⁶ <https://cibio.up.pt/en/events/training-and-research-workshop-in-evolutionary-genomics-for-plant-models-and-crops/>

- Rapid biodiversity surveys (BIOBLITZ). Bioblitz at Herdade de Vale de Perditos (9-10/04/2022), municipality of Serpa, with 40 participants and 306 species recorded until now²⁷.
- Ciência Viva. BIOPOLIS-CIBIO researchers participate regularly in training sessions and other events organised by the Ciência Viva²⁸ program of the Ministry of Science and Higher Education, with a particularly close collaboration with the Hall of Biodiversity – Ciência Viva Center²⁹ and the Ciência Viva Centre of Vila do Conde (CCVVC)³⁰. BIOPOLIS-CIBIO is an associated member of CCVVC since March 2022³¹, and two of its researchers have been designated as President of the Direction and Executive Director, respectively.
- Collaboration with schools. BIOPOLIS signed protocols with eight schools located close to Campus de Vairão, to support the development of educational activities. The objectives include the support to continuing professional development of teachers in the fields of BIOPOLIS-CIBIO research. Also, the protocols aim at bringing schools closer to sources of knowledge and technology, targeting at both teachers and students.
- Training of corporate professionals. BIOPOLIS-CIBIO started to engage with private corporations in the training of their professionals on themes such as biodiversity conservation, ecosystem services, and sustainability, among others. The training was made considering the needs of corporations, and it resulted either from acquisitions of services to BIOPOLIS-CIBIO or from collaborations towards the development of new invited chairs or joint research projects. During this period, training involved mainly professionals from SONAE SGPS³² and LIPOR³³.

²⁷ <https://www.inaturalist.org/projects/vp-bio>

²⁸ <https://www.cienciaviva.pt/en/>

²⁹ <https://mhnc.up.pt/galeria-da-biodiversidade/#english>

³⁰ <https://viladoconde.cienciaviva.pt/>

³¹ <https://viladoconde.cienciaviva.pt/3335/associados>

³² <https://www.sonae.pt/en/>

³³ <https://www.lipor.pt/en/>

BUILDING AND FACILITIES

Rehabilitation of facilities at Campus de Vairão

During 2022, at CIBIO's main building, efforts have been devoted to maintenance operations, including small interventions to avoid the degradation of the buildings (e.g., water infiltrations), reparation of generators and electric systems that failed after thunderstorms, among others. Work was also developed to resume the operation of the canteen, which was closed in 2020 due to the COVID pandemic. Lack of a canteen is currently a major hindrance for the people working daily or visiting BIOPOLIS. To solve this problem, a negotiation was started to transfer the canteen operation and assets from the Social Services of the University of Porto (SASUP) to BIOPOLIS, involving the identification of the equipment and material within the canteen, and the preparation of a transfer agreement. A first draft of the agreement has been prepared and is being revised by the University of Porto legal services and it includes the continued support of SASUP to student's meals. In the meantime, work has been developed for getting the canteen fully operational to receive a new service provider, including revision and reparation of all the equipment, as well as gas pipelines, ventilation, electric and sewage systems. As these had not been used for two years, they needed a full overhaul and inspection from the certification entities. This has been done during 2022, and after receiving the certification for the gas system this week the infrastructure and equipment are now ready to be used. The final step is now to find someone interested in taking the operation of the canteen, with negotiations underway. Besides the canteen, work has also been developed to identify the rehabilitation needs of the main building of BIOPOLIS in Vairão, including improvement of energetic efficiency and self-sufficiency. A preliminary technical assessment suggest that the interventions required may amount to over one million euros, so the work has started to prepare a detailed intervention plan to be supported by structural funds in the next framework program (Portugal 2030).

The scientific equipment of BIOPOLIS has been monitored and maintained according to the Plan, with maintenance contracts established for the largest and most expensive lab equipment. Besides the normal implementation of the Plan, the most significant intervention was related to the reparation of a plant growth chamber, which is now fully operational at the Plant Lab. These tasks have been performed under the direct responsibility of lab managers, which work in close liaison with the Infrastructures and Equipment Committee.

At Quinta de Crasto, the most significant investment took place. In 2022, the renovation of Quinta de Crasto began, involving a budget of 6.7 million euros supported by CCDR-N through

the complementary structural funds to the Teaming project (NORTE-01-0246-FEDER-000071). The rehabilitation work is mostly focused on: (i) the architectural and constructive characterization of the buildings of Quinta do Crasto; (ii) Exterior interventions (facades and roofs); (iii) Interior interventions (for offices, meeting rooms and labs); (iv) the necessary interventions in the surrounding outer spaces aiming to turn the outdoor spaces more attractive and pleasant. After concluding all the public procurement procedures, with the support of a lawyer's firm, the construction works started on 25/08/2022. In addition to housing the Association's headquarters, Quinta de Crasto will host new technical and laboratory areas, in particular Portugal's first Ancient DNA laboratory.

Investment on Field Stations are concentrated in south-eastern (Estação Biológica de Mértola; EBM) and in north-western Portugal (Branda Científica de São Bento do Cando), representing the extremes of an ecological gradient running through the country.

Biological Station of Mértola (EBM)

Investment on EBM includes the rehabilitation and adaptation (functionalization) of an old industrial building, in an advanced state of degradation, encompassing the creation of office and lab spaces, accommodation for students, auditorium, and other facilities needed for the biological field station operation. The intervention involves an investment of 4.4 million euros, which is co-funded by CCDR-Alentejo through structural funds (ALT20-03-0246-FEDER-000042), and by the municipality of Mértola. EBM will promote research by BIOPOLIS in collaboration with other national and international partners, in the fields of biodiversity, agroecology, and wildlife biology, and on the monitoring and assessment of the impacts derived from climate change and desertification.

Biological Station in São Bento do Cando

Regarding Branda Científica, a Master Plan has already been prepared, with more detailed preparatory studies to be carried out in the next few months. The investment will be supported by structural funds and the municipality of Arcos de Valdevez. The beginning of interventions is expected to start in 2023. The Field Stations initiative is raising much interest at the highest levels, as expressed during visits to the sites of several ministers of the Portuguese government, and even the European Commissioner for Cohesion and Reforms (Mértola, 23/09/2022).

KNOWLEDGE, TECHNOLOGY TRANSFER AND SERVICES

In 2022, 19 new service contracts were signed in the areas of consulting, applied ecology and environmental monitoring, for a total contracted amount of approximately €2.5 million. Among these, a contract worth €2.34 million stands out, corresponding to a survey of fauna species from all taxonomic groups in a nature reserve in the Middle East. The remaining contracts are of a diverse nature, mostly with Portuguese entities, and involve small environmental or archaeobotanical consulting services and the preparation of management plans for parks and gardens (landscape architecture and landscape management).

With regard to the provision of genetic analysis services by the Molecular Testing Centre (CTM), which are of a diverse nature but exclusively involve molecular biology techniques routinely performed in the laboratory, in 2022 a total of €71,900 in services was contracted to the CTM by 24 clients, the vast majority of which were entities or individuals residing in Portugal. In the first six months of 2021, the CTM had invoiced a total of €107,700 to 11 clients. It should be noted that the decrease in the amount invoiced is related to a substantial set of services (totalling approximately €46,000), which, despite having started in 2022, were only completed (and invoiced) in early 2023.

On the other hand, eight R&D contracts were signed in 2022, for a total amount of €139,000, with Portuguese and Spanish clients. The work to be carried out aims to monitor different animal species, such as steppe birds, wild rabbits and even the Iberian wolf, either through radio tracking with rings or collars equipped with GPS systems, which involves the prior capture of the animals, or through molecular biology techniques with DNA analysis of excrement.

IT is also worth highlighting the collaborations established with non-academic entities that directly finance research projects to be carried out by BIOPOLIS researchers. In this category, five new contracts were signed in 2022, representing total revenues of €313,000. Among these contracts, two collaboration protocols with the Regional Government of Extremadura (in Spain) stand out, for the development of a project on the reproductive biology of steppe birds and another for monitoring the Iberian wolf. Also noteworthy is the renewal for a further two years of the partnership with the SONAE group regarding support for the development and implementation of its Strategy for Nature and Biodiversity.

Important during 2022 is also the participation of BIOPOLIS in the framework partnership concerning the European Topic Centre on Biodiversity and Ecosystems (ETC-BD), which will provide expertise and capacity to support the European Environment Agency and its member countries with implementing the EEA-Eionet Strategy. Finally, stressing the increasing visibility of BIOPOLIS, it is important to note the invitation to participate in a consortium applying to a very competitive call to support the European Investment Bank (EIB) Advisory Services activities inside and outside the EU-27 (Lot No. 1: Environment). To support the growth of its consultancy and service provision sector, BIOPOLIS has been working on a number of internal improvements, including budgeting process and the administrative and financial structure to deal with complex, international projects, but also reinforcing the human resources and the scientific and technical components required to successfully implement the projects obtained.

The creation of new businesses and spin-offs is one of the key components of BIOPOLIS strategy towards achieving long-term sustainability. One of the main activities during 2022 involved continued support to ElectricBlue, a non-profit technology transfer start-up created in 2018 at CIBIO, and now embedded within BIOPOLIS activity. This company co-develops loggers and other devices with BIOPOLIS-CIBIO researchers, which are then used in internal projects, but are also sold worldwide for several applications. The funds obtained by selling these products are then totally reinvested in research and the development of new products. Devices recently developed by this start-up include a new cardiac frequency logger for molluscs and crustaceans. Six of these systems were assembled and distributed among internationally renowned scientists in exchange for their feedback. In addition, ElectricBlue finished the development of two miniaturized temperature loggers to study the thermal performance of crocodiles: one to be inserted under the skin and another to be embedded in a small spherical float to be ingested by these animals. In 2022, ElectricBlue created an Android app to aid and organize the collection of biodiversity data in the field. It is an important conceptual improvement over previous methods as it allows for fieldwork to be decoupled from taxonomic expertise. The app is now being thoroughly tested by BIOPOLIS-CIBIO researchers. In June 2022, ElectricBlue participated in sea-going trials of the developed tri-axial accelerometer loggers (codename Trident and MultiS) off the Azores, where mako sharks were tagged for the first time. In total, the tags were deployed and retrieved five times. During the trip, pop-off timers were also successfully tested. As a result, six Tridents and four MultiS were supplied to the Marine Biological Association of the UK (MBA-UK).

Also, during 2022, negotiations have been developed with a French company for establishing a Joint Venture in Portugal. This Joint Venture will be dedicated to environmental monitoring based on novel molecular methods. To develop this partnership, BIOPOLIS-CIBIO researchers participated in missions to test and showcase these techniques in French Guyana, Guinea Bissau, and Namibia. Further details cannot be provided at this stage, as they are protected by a non-disclosure agreement between the two entities. This conclusion of this negotiation and the implementation of the Joint Venture are expected during 2023.

COMMUNICATION AND DISSEMINATION

In 2022, BIOPOLIS published a total of 433 articles in international peer-reviewed scientific journals (ISI), representing the second highest annual record to date and reflecting the sustained increase in the volume of its scientific output. This growth was accompanied by a rise in publications in prestigious, high-impact international journals. Specifically, 100 articles were published in journals with an impact factor above 6, including 29 in top-tier journals with an impact factor above 12, such as *Science*, *Nature Sustainability*, *Trends in Ecology & Evolution*, *Nature Ecology & Evolution*, and *Global Change Biology*. This demonstrates the continuous strengthening of BIOPOLIS' scientific profile and the growing recognition of its research in high-level international forums.

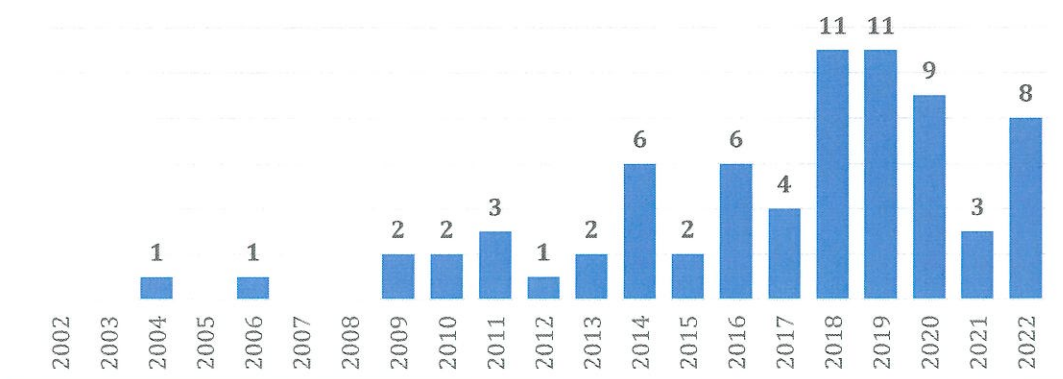


Figura 1 – Total de artigos publicados na Science, Nature e PNAS

BIOPOLIS maintained a strong digital presence through multiple social media platforms, including Facebook, YouTube, Twitter, LinkedIn, and Instagram, which were extensively used to disseminate the center's activities and achievements. The YouTube channel, in particular, was leveraged to provide permanent access to webinars and other scientific content. During the 1st European Teaming Conference held in Cyprus on 20–21 October 2022, BIOPOLIS' Twitter account was recognized as second in the number of tweets and followers, and fourth in terms of engagement and content interest, compared to the Twitter channels of other Teaming projects. In addition to social media dissemination, BIOPOLIS

produced 82 newsletters, which were widely circulated to communicate its activities and achievements to the internal and external scientific community.

Throughout 2022, BIOPOLIS actively contributed to exhibitions and related activities, strengthening long-term partnerships with municipalities managing the Natural Regional Park of the Tua Valley. These exhibitions included “Biodiversidade do Vale do Tua,” held in Murça from 21 May 2021 to 31 August 2022 and in Vila Flor from 18 August to 30 September 2022; “Borboletas Noturnas no Vale do Tua,” held in Alijó from 18 November 2021 to 29 March 2022; and “Briófitas e Líquenes no Vale do Tua,” held in Carrazeda de Ansiães from 23 November 2021 to 31 March 2022. Another highlight of the year was the participation of “Arte e Ciência” in the 92nd Feira do Livro de Lisboa, from 25 August to 11 September 2022, where the BIOPOLIS stand received positive attention, including a visit from the President of the Republic, Marcelo Rebelo de Sousa.

BIOPOLIS also organized and participated in numerous public meetings and events aimed at presenting its initiatives and achievements to stakeholders and decision-makers. Notable events included a public session for the communication of BIOPOLIS activities and the signing of the Memorandum of Understanding establishing the Branda Científica, which was attended by the Minister for Higher Education and Science, Elvira Fortunato, the Minister for Territorial Cohesion, Ana Abrunhosa, the Secretary of State for Regional Development, Isabel Ferreira, and the President of the Portuguese Science and Technology Foundation (FCT), Madalena Alves, on 29 July 2022. Another significant event was the ceremony for laying the first stone of the new headquarters of the Biological Station of Mértola on 23 September 2022, attended by the European Commissioner for Cohesion and Reforms, Elisa Ferreira, and the Minister for Territorial Cohesion, Ana Abrunhosa. Additional events included the launch of the partnership with the newspaper PÚBLICO at the University of Lisbon on 4 March 2022 and at the Hall of Biodiversity on 22 April 2022, which featured speakers such as Humberto Rosa, Director for Natural Capital of DG Environment. Furthermore, the Director of BIOPOLIS presented the organization and its TwinLabs initiative internationally, with events held in Namibia (Ongava Research Center and University of Namibia), Brazil (National Museum, Rio de Janeiro), and São Tomé and Príncipe (Forever Príncipe Conservation Alliance).

In the realm of non-technical publications, BIOPOLIS registered the trademark of its publishing house, “Arte & Ciência,” and published several books aimed at promoting

scientific culture and awareness of biodiversity. Among these were *Observar* by Desmond Morris, *Uma Ténue Luz na Escuridão* by Richard Dawkins, and *Antropoceno* by Simon L. Lewis and Mark A. Maslin. These publications further reinforce the role of BIOPOLIS as a hub for communicating the importance of scientific knowledge and biodiversity conservation.

A landmark achievement in media engagement during 2022 was the establishment of a partnership with the newspaper PÚBLICO, which significantly enhanced the visibility and communication capacity of BIOPOLIS. This collaboration led to the creation of a dedicated section on biosphere and biodiversity, named Azul, produced by a multidisciplinary team of journalists and scientists. Since its inauguration in April 2022, Azul has disseminated BIOPOLIS research and activities to the general public, covering topics such as the European project Biodiversity Genomics Europe, publications in high-profile scientific journals, and interviews with researchers. Beyond this partnership, BIOPOLIS' work was widely featured in national and international media, including newspapers (*Jornal de Notícias*, *Expresso*, *Diário de Notícias*, *El País*), magazines (*Visão*), television (*SIC Notícias*), and radio (*TSF*).

The implementation and monitoring of dissemination activities in 2022 focused on making the results of BIOPOLIS research and innovation available for use by both the scientific community and other stakeholders, including corporate partners, policymakers, public administration entities at national, regional, and local levels, and non-governmental organizations. In this context, BIOPOLIS researchers delivered over 300 presentations at scientific meetings, facilitating both dissemination of results and networking opportunities. Notable conferences included the 6th World Lagomorph Conference (Montpellier, France, 4–8 July 2022), the XIII International Symposium on Grapevine Breeding and Genetics (Landau, Germany, 10–15 July 2022), and the 13th International Conference of the French Society of Plant Biology (Montpellier, France, 29–30 August 2022).

Demonstration events also formed a key component of BIOPOLIS' outreach activities. During the UN Ocean Conference in Lisbon (27 June–1 July 2022), BIOPOLIS showcased advances in biologging technology through a stand exhibiting an in-house developed logger. This device, equipped with a 9-axis sensor (accelerometer, gyroscope, magnetometer) and temperature and pressure sensors, recorded the three-dimensional movements of large pelagic fish. It also included an optical oxygen sensor for measuring dissolved oxygen, a uSD card for data storage, a GPS unit for location tracking, and a Bluetooth module for data

transfer. Powered by two rechargeable lithium batteries, the logger could operate for 2–3 consecutive days, and all electronics were encapsulated in low-density resin, resistant to deformation up to 2000 meters. The device generated significant interest among conference attendees and was featured in national media coverage.

FUNDRAISING

Attracting project-based funding is one of the key components of the strategy for assuring the long-term sustainability of BIOPOLIS. To achieve this goal, during 2022 BIOPOLIS continued the implementation of its Project Support Office, thereby promoting and enhancing its participation in research funding programs. This Office support BIOPOLIS researchers in i) seeking funding opportunities for their research and innovation projects; ii) preparing reports and other written documentation; and iii) assisting in partner searches, project, and consortium management. To boost its capacity, the human resources of the Office were reinforced with one Project Support Officer (Jorge Neves at 13/04/2022) and one Project Manager (Tatiana Coelho at 06/10/2022). Training of project managers was another key activity to increase the capacity of the Office, involving their participation in workshops and training courses focused on research proposal preparation and management. Briefly, examples include the participation of Isa Ribeiro in the “COST Academy – 10th Grant Holder Managers Seminar” (Brussels, 21st June of 2022), and the participation of Jorge Neves and Isa Ribeiro in the training action “Grant Management Event for Finance/Project Administrators in Host Institutions” organized by the European Research Council Executive Agency (ERCEA) in collaboration with the Portuguese ERC National Contact Point. Through the joint work of the project support office and researchers, BIOPOLIS has been remarkably successful in the attraction of new projects and contracts at European (mainly Horizon Europe) and national levels (mainly FCT), as described below.

Horizon Programmes

In 2022 BIOPOLIS was awarded 6 Horizon Europe projects (ANERIS, BGE, Isladapt, NaturaConnect, Selina and Wilde), with an amount awarded to BIOPOLIS of 2.8 million euros. Highlights include the participation in the flagship project Biodiversity Genomics Europe (BGE; GA n° 101059492). The project involves 23 partners coordinated by Stichting Naturalis Biodiversity Center – Naturalis, with an overall budget of 20M€, of which 1.3M€ will support BIOPOLIS activities. The main aim is to accelerate the application of genomic science to enhance the understanding of biodiversity, monitor biodiversity change, and guide interventions to address its decline. BIOPOLIS will also participate in two approved LIFE projects (Safeline4Birds e Wildwolf), with a requested budget of 401k€ (final budget under negotiation).

Portuguese Science and Technology Foundation (FCT)

Funding through FCT is a key component for BIOPOLIS activity and comprises different funding typologies, including primarily PhD grants, grants and contracts of researchers at different levels of career, the pluriannual funding of BIOPOLIS, and research projects. During 2022, there was a total of 51 projects (ongoing and awarded). In the FCT call for research projects in all scientific areas opened in 2022, BIOPOLIS researchers were awarded a total of 19, corresponding to a total funding amount of 2.2M€. There were also 21 new employment contracts (about 6.5M€), under the scope of the 4th and 5th Editions of the FCT Individual Call to Scientific Employment and of the 2nd Edition of the FCT Institutional Call to Scientific Employment, which will be developed during the next 3-6 years. Additionally, BIOPOLIS was granted with 772 k€ from FCT for the Associate Laboratory funding running until the end of 2025. Finally, FCT has kept its commitment to provide the co-funding required for all the Invited Chairs that will be implemented during BIOPOLIS.

HUMAN RESOURCES

The Association's staff grew gradually throughout 2022, particularly in the category of research technicians:

Table 6 – Staff and scholarship holders

Category	2021	2022
Board of Directors	4	4
Researchers	108	102
Coordinators	2	3
Senior (IP)	9	11
Assistant	22	26
Junior	75	61
Other	0	1
Grant holders	28	27
Administrative and technicians	36	59
Administrative and Financial Support	19	25
Technicians	17	34
TOTAL	176	192

To complement the BIOPOLIS workforce, a number of additional recruitment processes were conducted during 2022. These includes the recruitment and subsequent hiring of the chief Human Resources Officer (Ana Campos). This officer started at BIOPOLIS on 01/10/2022. This is a key position in the organizational structure of BIOPOLIS, as this officer will be responsible for the implementation of the Center HR strategy, and to deal with the increasing number of staff. Specifically, Ana Campos will be responsible, among other tasks, to support the development and implementation of HR initiatives and systems, to provide counselling on policies and procedures, to coordinate future recruitment processes by preparing job descriptions, posting ads and managing the hiring processes, to maintain employee records (attendance, EEO data etc.) according to policy and legal requirements, to manage the work contracts after recruitment and to revise the employment and working conditions to ensure

legal compliance. Also important was the recruitment of a new Project Manager (Tatiana Coelho), who will be involved in the financial management and reporting of projects.

Also important was the recruitment of a new Officer (Jorge Neves) to reinforce the Project Support Office. Expanding this Office was considered essential to deal with the funding opportunities through Horizon Europe and national programs, to support researchers in the preparation of proposals, and to help managing the growing number of European projects obtained. Further reinforcement of this Office is expected during the next year.

A call for the Legal Officer was open, but the selection process is on-going. This person will provide legal advice and support to BIOPOLIS; be responsible for the legal support and public procurement service; deal with legal consulting, tax and financial consulting, legal mediation, and arbitration; advise and oversee the review, negotiation, and drafting of key agreements, institutional and operational modalities, and other legal documents and to contribute to the revision of internal policies, guidelines, systems, rules of scientific platforms, etc. The person is expected to be selected and start working at BIOPOLIS in early 2023.

Finally, a call for a junior Finance Officer is to be open until the end of 2022. This person will release the senior members of the Finance team from routine tasks such as execution of payments or expenses verification, thus allowing them more focus on strategic activities such as financial monitoring and reporting.

During 2022 there was also a significant recruitment effort for new researchers, to enhance the workforce required to implement the Strategic Research Programme of BIOPOLIS. Therefore, BIOPOLIS contracted 25 researchers at different levels of seniority, which are funded by different sources. Recruitment followed all provisions of applicable legal frameworks and involved open, independent, merit-based, and competitive calls, and followed the best international practice, adjusted to the type and level of the position to be filled. Besides all provisions defined in Portuguese legislation and best practice guidelines, the recruitment of Researchers and staff and the evaluation of applications followed the European Charter & Code for Researchers and the tenets of the EU Employment Equality Directive (2000/78/EC59) and other relevant provisions regarding Equal Opportunities standards. Calls were always widely advertised and the announcements for the positions were clear in providing the selection criteria and the selection procedures which included the CVs detailed assessment, reference and motivation letters, and interviews to assess professional experience, creativity, communication, interpersonal relationships, and other relevant skills.

There was also an increase in seniority among researchers, in contrast to a decrease in the number of junior researchers. As for administrative staff, their total weight in the number of BIOPOLIS employees (including scholarship holders) increased from 10.8% to 13.0%.

The number of scholarship holders decreased slightly, reinforcing the trend that has been occurring since the publication of Decree-Law No. 57/2016, which favors the recruitment of PhD researchers and limits the duration of postdoctoral scholarships. The increase in the ratio of employees to scholarship holders, which has been consistently recorded since 2019, also reflects the greater weight of technology transfer activities – whether through chairs or the provision of services – in BIOPOLIS's total portfolio of activities.

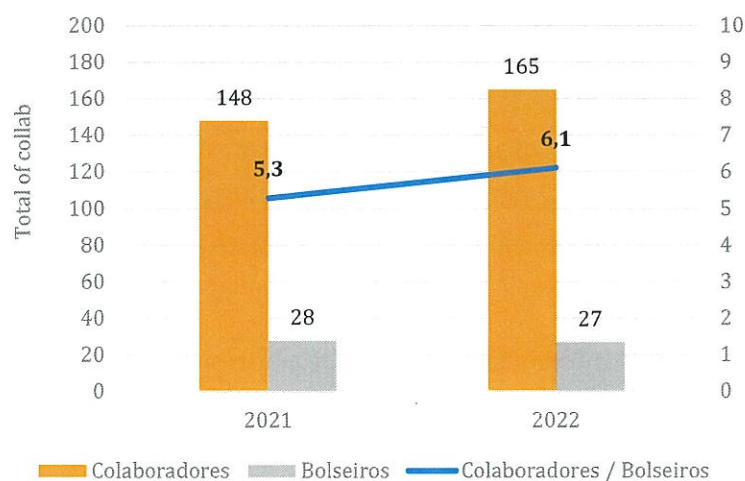


Figure 2 – Ratio of employees per researcher

Personnel costs are financed from various sources, as described in the following figure:

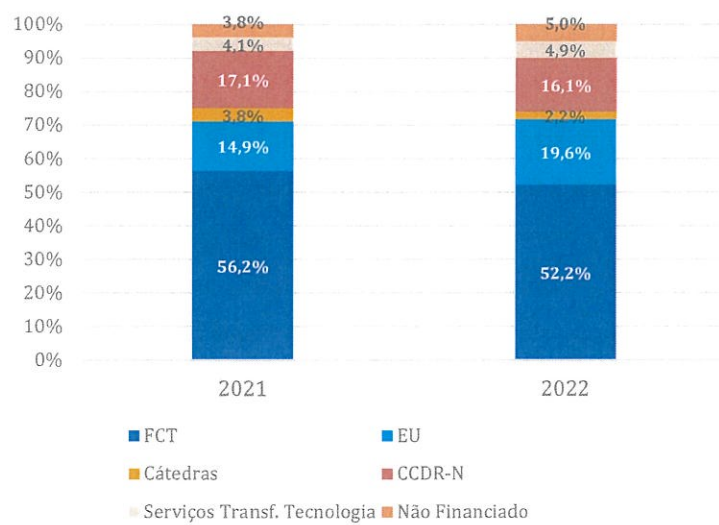


Figure 3 – Sources of financing for personnel expenses from 2021 to 2023

CHALLENGES AND FUTURE PROSPECTS

The year 2023 is expected to be a decisive year in the consolidation of the BIOPOLIS Association project, starting with the completion of the new Quinta de Crasto facilities, which are crucial to meeting the needs arising from the sharp growth of our research teams and their scientific activities. This growth also requires us to continue the process already underway to improve and refine the Association's set of rules and procedures, as well as to strengthen the teams and areas that support research, as exemplified by the recent hiring of new heads of Human Resources, Legal Support and IT. The reformulation of the institution's functional organisational chart, including the establishment of competency and remuneration grids for the various professional categories, the strengthening and modernisation of information technology resources and the rules for their use, and the establishment of new management information tools and solutions, are initiatives currently being implemented, the results of which are expected to enable BIOPOLIS to respond to the demands and ambitions imposed on it by the project 'BIOPOLIS - Teaming to Upgrade to Excellence in Environmental Biology, Ecosystem Research and Agrobiodiversity'.

Fundamental to the long-term sustainability of BIOPOLIS will be its ability to strengthen its membership base, continuing a process that has already begun and which should lead to the entry of new members in 2023 and subsequent years. At the same time, the Association should continue its efforts to generate its own revenue, whether through new service contracts or the establishment of chairs and partnerships with the private sector and public entities. In this regard, the work currently being carried out by BIOPOLIS research teams in the Middle East offers excellent prospects for attracting new projects in that region.

At the same time, and at a time when the current Community Support Framework is nearing completion, success in securing new public funding projects is crucial not only for the development of the initiatives comprising the BIOPOLIS Teaming project, but also for continuing the effort to rehabilitate and renovate the Association's infrastructure, which does not end with the completion of the rehabilitation of Quinta do Crasto and the Mértola Biological Station. Therefore, in addition to the Branda Científica de S. Bento do Cando, the renovation of the main CIBIO building – equipping it with new features while promoting greater sustainability and energy efficiency – should receive special attention from the management team.

FINAL CONSIDERATIONS

The activities carried out, together with the significant investment in new research infrastructure – notably the ongoing renovation of Quinta do Crasto and the construction of the future biological stations in Mértola and S. Bento do Cando – and the gradual growth of its team of researchers, enable the BIOPOLIS Association to face future challenges with the confidence and ambition necessary for the successful completion of the project “BIOPOLIS – Teaming to Upgrade to Excellence in Environmental Biology, Ecosystem Research and Agrobiodiversity”. This confidence is reinforced by the Portuguese Government's award of Public Utility Status to the BIOPOLIS Association in December 2022, recognising the importance of the activities carried out by this association, which increases the responsibility of the mission we are committed to pursuing.

Finally, we would like to thank all our researchers and collaborators for their effort and dedication, and our associates, funding entities, national, regional and local authorities, and other partners of the BIOPOLIS Project for their support.