



I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Scienze e Politiche Ambientali**

Scientist- in - charge: **Prof. Diego Rubolini**

**Joan Ferrer Obiol**

## CURRICULUM VITAE

### PERSONAL INFORMATION

<b>Surname</b>	Ferrer Obiol
<b>Name</b>	Joan
<b>Date of birth</b>	06/03/1989

### PRESENT OCCUPATION

<b>Appointment</b>	<b>Structure</b>
PhD Student	University of Barcelona

### EDUCATION AND TRAINING

<b>Degree</b>	<b>Course of studies</b>	<b>University</b>	<b>year of achievement of the degree</b>
BSc. Degree	Biology	University of Barcelona	2012
MSc. Degree	Genetics and Genomics	University of Barcelona	2015
PhD	Genetics	University of Barcelona	Will be earned in December 2020
Postgraduate course	Phylogenies and genealogies of DNA: Reconstruction and Applications from the University of Barcelona	University of Barcelona	2015
Workshop	Population variation genetics - experimental strategies and analysis	The Genome Analysis Centre (TGAC), Norwich, UK	2016
Postgraduate course	Mapping trait evolution by Transmitting Science	Catalan Institute of Paleontology M. Crusafont, Spain	2017



Workshop	Workshop on Genomics	Evomics, Czech Republic	2018
Postgraduate course	Phylogenomics and Population Genomics: Inference and Applications	University of Barcelona	2019

## FOREIGN LANGUAGES

Languages	level of knowledge
Catalan	Native speaker
Spanish	Native speaker
English	Fluent
French	Fluent
Italian	Beginner
Portuguese	Beginner

## AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2019	Second best talk award at the <i>Young Systematists' Forum</i> , London, UK
2018	Research secondment grant (FPU - Ayudas a la movilidad para estancias breves y traslados, 4280 €)
2017	Instrumental in the writing and member of the research team of a funded research project (100,000 €): Genómica de la conservación aplicada a la Pardela balear (PABAgen) funded by the Fundación BBVA
2015	Awarded a competitive PhD funding: FPU Doctoral Training Program, 4-year funded PhD
2012	Extraordinary award: overall top grade for the BSc. in Biology 2012 cohort from the University of Barcelona
2011	<i>Erasmus</i> grant to perform an internship (6 months) to work in the CNRS in France (3000 €)
2010	<i>JAE-Intro</i> Research Initiation Grant to work at CSIC (Spain) during the summer (2 months)
2008	5 awards for secondary school research project including 1000 €, a short research secondment at CSIC and the opportunity to present my work at <i>ESI (Expo-Sciences International)</i> in Durban, South Africa and in <i>ESOF (Euroscience Open Forum)</i> in Barcelona, Spain



## TRAINING OR RESEARCH ACTIVITY

I started to develop a passion for birds and bird migration when I was 9 years old and since then, I have been involved in several research programs for the study of birds, with a special interest in seabirds and migration. My first research experience was in the framework of a secondary school project on Mediterranean gull (*Ichthyaetus melanocephalus*) population movements through the analysis of ring-reading recoveries and population censuses. This project received several national awards (see section above) and the research resulted in a publication in 2011 in Journal of Ornithology led by Albert Cama (see publications). During my BSc., I started to research movement and foraging ecology of seabirds with a particular interest in linking them with demography, involving a research secondment in France and another at the University of Barcelona. After my BSc., I worked as a research assistant in the Subantarctic Islands of Kerguelen (one year) where I gained fieldwork experience in a wide range of seabird and marine mammal species (see below). Here, I developed an increased interest in questions of evolutionary biology such as how does speciation occur in seabirds? And under which drivers? How is bird migration genetically controlled? Thus, after this contract I started a MSc. in Genetics and Genomics specialising in Evolutionary Genetics. Aware of the rise of genomics as a new and exciting field, and due to the fact that no one had experience with genomic data in my lab, during my PhD I assisted several postgraduate courses and workshops to further develop my skills in bioinformatics. I rapidly gained experience in genomic data analyses and I received an invitation to be involved in the Workshop on Genomics (<http://evomics.org/workshops/workshop-on-genomics/>) as a teacher assistant in 2019 and 2020. I also took the opportunity to partake in two research internships to gain research experience in genomics data and to start new collaborations with large sequencing projects. This included a **phylogenomics** project to resolve the phylogeny of the Procellariiformes (Andreanna J. Welch, Durham University) and a **comparative genomics** data with the **Bird10K project** (Guojie Zhang, University of Copenhagen), specifically to explore **migration**. I am an evolutionary biologist using phylogenomics, population and comparative genomics to answer evolutionary questions and I am very motivated to be given the opportunity to work on a project that puts together the study of seabird migration with the genetic and epigenetic control of this complex behavioural trait. Through my research experience, I have gained skills in the following areas:

- Wet-lab skills: DNA extraction, PCR, Microsatellite genotyping, genomic library preparation
- Bioinformatics skills: very competent in **R**, **bash**, **Python**.
- Analysis skills: experience in genomic data read processing and quality control, *de novo* and reference-based analyses, **genome assembly and annotation**, transcriptomics data generation and analysis, extensive experience in handling **ddRAD data**, including strong skills in using Stacks & pyRAD and optimisation of ddRAD loci, strong awareness of potential biases and pitfalls in ddRAD data, strong competences in phylogenomics and population genomics analyses, **genotype-phenotype association analyses** using linear models
- Research skills: **manuscript writing**, preparation of **high-quality figures** (R and Adobe Illustrator), conference presentations, grant writing

### *PhD in Genetics*

*University of Barcelona, Spain*

*Dates:* November 2015 - Present (submission December 2020)

*Supervisors:* Dr. Marta Riutort and Dr. Julio Rozas

*Thesis title:* The drivers of rapid diversification and genomic differentiation in highly mobile pelagic seabirds

*Research experience:* Phylogenetic and introgression analyses using ddRAD-Seq and UCE genomic data to resolve rapid radiations in shearwaters (*Procellariidae*). Divergence dating using fossils and biogeographic and phylogenetic comparative analyses to understand mechanisms of diversification. Assembly of a reference genome and population genomics analyses to explore models of speciation.

### *Additional research project started during PhD*

*University of Barcelona, Spain*

*Dates:* November 2015 - Present

*Collaborators:* Dr. Marta Riutort, Dr. Jacob González-Solís and Dr. Virginia Morera Pujol

*Project title:* Heritability and genomic basis of migratory strategies in the Cory's Shearwater (*Calonectris borealis*)

*Research experience:* Fieldwork in the Canary Islands (4 annual seasons) to deploy geolocators and extract blood samples on related individuals. Sequencing of a reference genome for the species. Awaiting further genomic analyses.



<p><b>M.Sc. in Genetics and Genomics</b>  <b>Dates:</b> September 2014 - June 2015  <b>Supervisors:</b> Dr. Marta Riutort and Dr. Jacob González-Solís  <b>Thesis title:</b> New insights into the genetic base of bird migration: a population genetics study based on candidate genes  <b>Research experience:</b> Sanger sequencing and microsatellite genotyping of 5 candidate genes for migratory behaviour in 5 species of shearwater (<i>Procellariidae</i>). Population genetics analyses, geolocator data analysis and genotype-phenotype association analyses.</p>	<p><b>University of Barcelona, Spain</b></p>
<p><b>Research secondment</b>  <b>Dates:</b> September 2018 - December 2018  <b>Principal Investigator:</b> Dr. Guojie Zhang  <b>Research experience:</b> Comparative genomics to study the genetic basis of migratory behaviour in birds using the 300 genomes produced by the Bird10K Consortium. Detection of convergent evolution and gene family expansions and contractions.</p>	<p><b>University of Copenhagen, Denmark</b></p>
<p><b>Research secondment</b>  <b>Dates:</b> February 2018 - May 2018  <b>Principal Investigator:</b> Dr. Andreanna J. Welch  <b>Research experience:</b> Phylogenomic analyses comparing two different genome-scale sequencing approaches: ddRAD (sequencing the region around restriction sites) and UCE (sequencing the region surrounding ultra-conserved elements). Concatenation and coalescent-based phylogenetic approaches, introgression analyses (Phylogenetic networks, ABBA-BABA tests), mapping to a reference genome.</p>	<p><b>Durham University, UK</b></p>
<p><b>Zoological Field Assistant</b>  <b>Dates:</b> September 2012 - March 2014  <b>Scientific supervision:</b> Dr. Henri Weimerskirch  <b>Research experience:</b> Field assistant for the IPEV program 109 (Seabirds and marine mammals as sentinels of global changes in the Southern Ocean) in Kerguelen Islands, Southern Indian Ocean. Demographic monitoring, population censuses (tally-counter, photo-based approaches including drone-based photographs), tracking with different devices including GPS, GLS, TDR, VHF, radar detectors, database analyses on a total of 22 seabird species and 2 marine mammal species.</p>	<p><b>French Polar Institute (IPEV), Kerguelen, TAAF, France</b></p>
<p><b>Undergraduate Research secondment</b>  <b>Dates:</b> February 2012 - June 2012  <b>Principal Investigator:</b> Dr. Jacob González-Solís  <b>Research experience:</b> Geolocation and stable isotopes (<sup>13</sup>C and <sup>15</sup>N) analyses to explore the migratory behaviour of Subantarctic skuas (<i>Catharacta antarctica</i>).</p>	<p><b>University of Barcelona, Spain</b></p>
<p><b>Undergraduate Research secondment</b>  <b>Dates:</b> September 2011 - February 2012  <b>Principal Investigator:</b> Dr. Yves Cherel and Dr. Christophe Barbraud  <b>Research experience:</b> Relationship between foraging ecology and demography of the Blue petrel (<i>Halobaena caerulea</i>) in Kerguelen, Southern Indian Ocean.</p>	<p><b>Centre d'Études Biologiques de Chizé (CNRS), France</b></p>

PROJECT ACTIVITY

Year	Project
2017-present	Conservation Genomics applied to the Balearic Shearwater - Member of the research team <a href="https://www.fbbva.es/equipo/genomica-la-conservacion-aplicada-la-pardela-balear-pabagen/">https://www.fbbva.es/equipo/genomica-la-conservacion-aplicada-la-pardela-balear-pabagen/</a>
2017-2019	Seabirds as a tool for a dynamic management of protected areas and fisheries - Research assistant (Fieldwork organisation). Funded by National Programme for Research aimed at the Challenges of Society. Ministerio de Economía, Industria y Competitividad.



2015-2016	Season interactions and carry-over effects in seabirds - Research assistant (Fieldwork organisation). Funded by National Programme for Fostering Excellence in Scientific and Technical Research. Ministerio de Economía y Competitividad
2012-2014	Seabirds and marine mammals as sentinels of global changes in the Southern Ocean (ORNITHOECO) - Research assistant <a href="https://www.institut-polaire.fr/blog/Programmes-soutenus/oiseaux-et-mammiferes-marins-sentinelles-des-changements-globaux-dans-locean-austral/?lang=en-US">https://www.institut-polaire.fr/blog/Programmes-soutenus/oiseaux-et-mammiferes-marins-sentinelles-des-changements-globaux-dans-locean-austral/?lang=en-US</a>

## CONGRESSES AND SEMINARS

Date	Title	Place
November 2019	Talk. Young Systematists Forum 2019	Natural History Museum, London, UK
November 2019	Talk. XXIV Congreso Español y VII Ibérico de Ornitología	Cádiz, Spain
August 2018	Poster. II Joint Congress on Evolutionary Biology	Montpellier, France
August 2018	Poster. 13th European Wildlife Disease Association Conference	Larissa, Greece
April 2017	Talk. Genetics of Migration Symposium	Max Planck Institute for Evolutionary Biology, Plön, Germany
September 2016	Committee member and Poster. 6th International Albatross and Petrel Conference	University of Barcelona, Barcelona, Spain
April 2016	Talk. 9th International Animal Navigation Conference	Royal Holloway University of London, Egham, UK

## PUBLICATIONS

Book chapters
5. Cama, A., Ferrer-Obiol, J. 2011. Gavià argentat de potes roses <i>Larus argentatus</i> . In Herrando, S., Brotons, L., Estrada, J., Guallar, S. & Anton, M. (eds.). <i>Atles dels ocells de Catalunya a l'hivern 2006-2009</i> . Institut Català d'Ornitologia (ICO). Lynx Edicions. Barcelona
4. Cama, A., Ferrer-Obiol, J. 2011. Gavià fosc <i>Larus fuscus</i> . In Herrando, S., Brotons, L., Estrada, J., Guallar, S. & Anton, M. (eds.). <i>Atles dels ocells de Catalunya a l'hivern 2006-2009</i> . Institut Català d'Ornitologia (ICO). Lynx Edicions. Barcelona
3. Carboneras, C., Josa, P., Cama, A., Ferrer-Obiol, J. 2011. Gavina capnegra <i>Larus melanocephalus</i> . In Herrando, S., Brotons, L., Estrada, J., Guallar, S. & Anton, M. (eds.). <i>Atles dels ocells de Catalunya a l'hivern 2006-2009</i> . Institut Català d'Ornitologia (ICO). Lynx Edicions. Barcelona
2. Ferrer-Obiol, J., Cama, A. 2011. Gavià caspi <i>Larus cachinnans</i> . In Herrando, S., Brotons, L., Estrada, J., Guallar, S. & Anton, M. (eds.). <i>Atles dels ocells de Catalunya a l'hivern 2006-2009</i> . Institut Català d'Ornitologia (ICO). Lynx Edicions. Barcelona
1. Ferrer-Obiol, J., Cama, A. 2011. Gavinet polar <i>Larus glaucooides</i> . In Herrando, S., Brotons, L., Estrada, J., Guallar, S. & Anton, M. (eds.). <i>Atles dels ocells de Catalunya a l'hivern 2006-2009</i> . Institut Català d'Ornitologia (ICO). Lynx Edicions. Barcelona



Articles in reviews (published articles)
11. Feng, S., Stiller, J., Deng, Y., Armstrong, J., ... Ferrer-Obiol, J., ... Paten, B., Zhang, G. (Accepted in Nature 2019-06-08336A). Densely sampling genomes across the diversity of birds increases power of comparative genomics analyses. <i>Nature</i>
10. Bigonneau, R., Bazire, R., Marteau, C., Barbraud, C., Ferrer-Obiol, J., Delord, K. 2020. First record of Black-winged Pratincole <i>Glaucopis trichotis</i> for Amsterdam Island, Indian Ocean. <i>Bulletins of the African Bird Club</i> , 27:1, 94-95
9. Soliño, L., Ferrer-Obiol, J., Navarro-Herrero, L., González-Solís, J., Costa, P. R. (2019). Are pelagic seabirds exposed to amnesic shellfish poisoning toxins? <i>Harmful algae</i> , 84, 172-180. <a href="https://doi.org/10.1016/j.hal.2019.03.014">https://doi.org/10.1016/j.hal.2019.03.014</a>
8. Josa. P., Ferrer-Obiol, J. 2018 Unusual plumages of Mediterranean Gull in Spain. <i>Dutch Birding</i> , 40:2, 101-104.
7. Rouco, M., Ferrer, J., García-Tarrasón, M., García-Vargas, F. J., Gil-Velasco, M., Gutiérrez, A. Hevia, R., López, F., López-Velasco, D., Ollé, A., Rodríguez, G., Sagardía, J., Salazar, J.A. 2018 Lista de aves raras de España. Taxones de aves sometidos a homologación por el Comité de Rarezas de SEO/BirdLife
6. Gil-Velasco, M., Rouco, M., Ferrer, J., García-Tarrasón, M., García-Vargas, F. J., Gutiérrez, A. Hevia, R., López, F., López-Velasco, D., Ollé, A., Rodríguez, G., Sagardía, J., Salazar, J.A. 2018. Observaciones de Aves Raras en España, 2016. <i>Ardeola</i> , 65:1, 97-139. <a href="https://doi.org/10.13157/arla.65.1.2018.rb">https://doi.org/10.13157/arla.65.1.2018.rb</a>
5. Gil-Velasco, M., Rouco, M., Ferrer, J., García-Tarrasón, M., García-Vargas, F. J., Gutiérrez, A. Hevia, R., López, F., López-Velasco, D., Ollé, A., Rodríguez, G., Sagardía, J., Salazar, J.A. 2017. Observaciones de Aves Raras en España, 2015. <i>Ardeola</i> , 64:2, 397-442. <a href="https://doi.org/10.13157/arla.64.2.2017.rb">https://doi.org/10.13157/arla.64.2.2017.rb</a>
4. Gil-Velasco, M., Rouco, M., Ferrer, J., García-Tarrasón, M., García-Vargas, F. J., Gutiérrez, A., Hevia, R., López, F., López-Velasco, D., Ollé, A., Rodríguez, G., Sagardía, J., Salazar, J.A. 2017. Observaciones de Aves Raras en España, 2014. <i>Ardeola</i> , 64:1, 161-235. <a href="https://doi.org/10.13157/arla.64.1.2017.rb">https://doi.org/10.13157/arla.64.1.2017.rb</a>
3. Cama, A., Josa, P., Ferrer-Obiol, J., Arcos, J.M. 2011. Mediterranean Gulls <i>Larus melanocephalus</i> wintering along the Mediterranean Iberian coast: numbers and activity rhythms in the species' main winter quarters. <i>Journal of Ornithology</i> , 152:4, 897-907. <a href="https://doi.org/10.1007/s10336-011-0673-6">https://doi.org/10.1007/s10336-011-0673-6</a>
2. Brinkhuizen, D., López-Velasco, D., Ferrer-Obiol, J., Rodríguez, G., Ardaiz, J., Seitz, L. 2011. First record of Blue grosbeak <i>Passerina caerulea</i> in western Ecuador. <i>Cotinga</i> , 33:1, 81.
1. Carboneras, C., Aymí, R., Cama, A., Duponcheel, C., Ferrer-Obiol, J., Flamant, R., García, S., Garzón, J., Gutiérrez, A., Olivé, M., Poot, M. 2010. Mediterranean Gulls <i>Larus melanocephalus</i> wintering in Spain and Portugal: one population or several? <i>Airo</i> , 20, 3-11.



Articles in peer-review and in preparation for submission
7. Ferrer-Obiol, J., James, H.F., Chesser, R.T., Bretagnolle, V., González-Solís, J., Rozas, J., Riutort, M., Welch, A.J. ( <i>In review in Systematic Biology since 12/07/2020</i> ). Integrating Sequence Capture and Restriction-Site Associated DNA Sequencing to resolve Recent Radiations of Pelagic Seabirds.
6. Ferrer-Obiol, J., James, H.F., Chesser, R.T., Bretagnolle, V., González-Solís, J., Rozas, J., Welch, A.J., Riutort, M. ( <i>In preparation for submission to Molecular Ecology</i> ). Paleoceanographic changes during the Pliocene promoted rapid diversification in a group of pelagic seabirds.
5. Ferrer-Obiol, J., Herranz-Alzueta, J.M., González-Solís, J., Rozas, J., Riutort, M. ( <i>In preparation for submission to Molecular Ecology</i> ). Speciation continuum in the North Atlantic Shearwaters.
4. Ferrer-Obiol, J., Riutort, M., Rozas, J., Stiller, J., Feng, S., Zhang, G. ( <i>In preparation</i> ). Comparative genomics of densely sampled bird genomes reveals insights into avian migration.
3. Bath, E., Green, J.P., Ferrer-Obiol, J., Perry, J.C. ( <i>In preparation for submission to The American Naturalist</i> ) Dispersal and mating system interact to determine sex differences in aggression across vertebrates.
2. Cuevas-Cavallé, C., Vizueta, J., Ferrer-Obiol, J., González-Solís, J., Rozas, J., Riutort, M. ( <i>In preparation for submission to Molecular Ecology Resources</i> ) Genome of the extremely threatened seabird <i>Puffinus mauretanicus</i> (Balearic shearwater): a powerful resource for conservation genetics.
1. Estandía, A., Chesser, R.T., James, H.F., Levy, M., Ferrer-Obiol, J., Bretagnolle, V., Welch, A.J. ( <i>In preparation for submission to Systematic Biology</i> ) Genome-wide phylogenetic reconstruction for procellariiform seabirds is robust to molecular rate variation.

Congress proceedings
1. Josa, P., Cama, A., Ferrer-Obiol, J. 2011. La invernada de la gaviota cabecinegra ( <i>Larus melanocephalus</i> ) en Cambrils: evolución del número, comportamiento y origen. <i>Boletín del Grupo Ibérico de Aves Marinas</i> , 34, 23-25.

## OTHER INFORMATION

<b>Supervising and teaching experience:</b> <ul style="list-style-type: none"><li>Teaching Assistant at the Workshop on Genomics by <i>Evomics</i>. January 2019 and 2020, Cesky Krumlov, Czech Republic <a href="http://evomics.org/people/instructors/workshop-on-genomics-instructors/">http://evomics.org/people/instructors/workshop-on-genomics-instructors/</a></li><li>Demonstrator in the Analyses of RAD-Seq data using STACKS Workshop. February 2018, <i>University of Buenos Aires</i></li><li>Demonstrator for undergraduate practicals of Genetics: Genetic Analysis (361651) 2016-2019, <i>University of Barcelona</i></li><li>Demonstrator for undergraduate practicals of Bioinformatics (361623) 2019, <i>University of Barcelona</i></li><li>Co-supervisor of a <i>MSc student at University of Barcelona</i>. 2017. Masters student working on the Phylogeography of the North-Atlantic shearwaters</li></ul>
Invited talk at the Delta Birding Festival International Bird Fair, Ebro Delta, Spain (2015)
Possession of an official bird ringing licence by the Catalan Institute of Ornithology (ICO)
Coordinator of the Spanish Mediterranean gull colour-ringing program
Organisation of the 2 <sup>nd</sup> International Mediterranean Gull meeting in Cambrils, Spain (2007)



Teaching of several courses and seminars on bird identification (2003-2010)
Organisation of boat trips for seabird observation with Pescadors d'Alçada, GEPEC (2003-2012)
Member of Spanish Rarities Committee of SEO-Birdlife for two years (2016-2018) and the Catalan Rarities Committee (CAC-ICO) for three years (2007-2010)
Full clean EU Driving License

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Place and date: Exeter, 08/09/2020

SIGNATURE