Center for Macroecology, Evolution and Climate (CMEC)

Natural History Museum of Denmark and Department of Food and Resource Economics
University of Copenhagen

Announcement of eight PhD (3 years) and Postdoc (2 years) positions.

1. PhD in **Island Macroecology**
2. PhD in **Movement Macroecology**
3. PhD in **Macroecology of the Anthropocene**
4. PhD in **Biodiversity, macroecology and citizen science**
5. PhD (several) in **Eco-evolutionary Dynamics and Macroecology**
6. Postdoc in **Macroecology/Phylogeography**
7. Postdoc in **Tropical Bird Movement**
8. Postdoc in **Marine Macroecology**

We also welcome inquiries from prospective applicants for a Marie Curie fellowship (2018).

CMEC and its research mission statement: Life on Earth – addressing the big questions
CMEC (http://macroecology.ku.dk/) is a long-term funded center of excellence with a cross-disciplinary research program addressing fundamental questions on the origin, maintenance, conservation and future of life and biological diversity on Earth. The 40+ researchers at the center currently represent 14 different nationalities and the working language is English. The center juxtaposes faculty staff scientists from the fields of macroecology, historical biogeography, oceanography, evolutionary biology, ecology, population biology, climate change research, conservation biology and environmental economics.

CMEC combines natural history knowledge, rigorous field work in all corners of the world and an assemblage of huge biological data sets built from primary sources with the use of cutting-edge DNA techniques, novel macroecological and null models, powerful bioinformatics tools and statistics to enable a truly holistic approach for addressing fundamental questions about life on Earth. The aim of CMEC is to elucidate biology's "laws of nature" by understanding the four main processes influencing life: the origin and birth of species (speciation), the dispersal of species (movement), the persistence of species through interactions with other species (maintenance) and the disappearance of species (extinction). Using and combining knowledge of individual process in a hypothesis-driven spatio-temporal framework, we focus on the grand challenge of answering one of the most important questions facing science today: *What are the fundamental evolutionary and ecological principles and processes that generate and maintain the complex patterns of the distribution of life on Earth*?

The positions

POSITION 1 –PhD IN ISLAND MACROECOLOGY to work on the fundamental questions of how species colonize, evolve and go extinct in oceanic islands. We are particularly interested in how the geological dynamics of islands and archipelagos interact with environmental energy levels to shape island life. The project will likely integrate simulation modelling, data analysis and possibly collection of basic field data. We seek a macroecogist or biogeographer with strong analytical and modelling skills, and solid natural history knowledge. This position is open as a 3-year position for an MSc candidate, or a 4-5 year position for an exceptional BSc candidate through the integrated PhD programme. Please find further information on the job announcement at UCPH job portal via link below.

Main contact person for more information and questions: Assistant Professor Michael Krabbe Borregaard, co-supervisor, e-mail: mkborregaard@snm.ku.dk; phone +45 35 32 11 68. Principal supervisor: Carsten Rahbek crahbek@snm.ku.dk

APPLY ONLINE PhD in ISLAND MACROECOLOGY

POSITION 2 –PhD IN MOVEMENT MACROECOLOGY to work on dispersal and movement as fundamental processes influencing the spatiotemporal distribution of life on Earth. The research aims at closing the gap between the direct study of movement and dispersal and our understanding of the build-up of larger-scale biodiversity. The research program will focus on birds as study organisms and have an emphasis on individual movements through the use of advanced tracking technology but could also include distribution modelling and phylogeographical analyses. We expect the appointee to have a background of natural history with experience in tracking, statistical and modelling skills and knowledge of a computer language such as R. The position is part of an integrated research program addressing fundamental questions on the origin, maintenance, conservation and future of life and biological diversity on Earth.

Contact person for more information and questions: Principal supervisor, Associate Professor Kasper Thorup, e-mail: kthorup@snm.ku.dk; phone: +45 35 32 10 51.

APPLY ONLINE PhD in MOVEMENT MACROECOLOGY

POSITION 3 - PhD in MACROECOLOGY OF THE ANTHROPOCENE to work on biodiversity responses to land use change scenarios from local to continental scales. We seek an ecologist or bioinformatician with excellent analytical, statistical and modeling skills, and preferably with a background in natural history and field work experience. We are particularly interested in 1) testing the use of Digital Era products (LiDAR, Google ground imagery) and image

recognition techniques to quantify biodiversity along land use gradients, and 2) developing simulations of biodiversity responses under scenarios of future land use change for conservation planning. Denmark will be used as a case study for developing imagery-based biodiversity measures and test them with local field data. Projections across Europe under global change scenarios will allow assessing the impacts of different land use planning recommendations for preserving biodiversity. The project is part of a larger study that tests hypotheses about the synergistic effects of land use and climate change on biodiversity, and explores novel approaches for land use change quantification.

Main contact person for more information and questions: Assistant Professor Naia Morueta Holme, co-supervisor, e-mail: morueta-holme@snm.ku.dk; phone: +45 35 32 35 29. Principal supervisor: Carsten Rahbek crahbek@snm.ku.dk

APPLY ONLINE PhD in MACROECOLOGY OF THE ANTHROPOCENE

POSITION 4 – PhD in BIODIVERSITY, MACROECOLOGY AND CITIZEN SCIENCE to work on a project that is improving our understanding of the distribution of invertebrate in time and space across Denmark using citizen science data. We seek a person with a broad taxonomic knowledge about the Northern European invertebrate fauna, excellent analytical and modeling skills preferably with experience DNA sequencing and related bioinfomatic analyses. The project aims are to 1) quantify biodiversity patterns across Denmark using invertebrates collected by the public, 2) increase our understanding of factors controlling higher level biodiversity and establish a national scale food web by combining the invertebrate data with data on land-use and the avifauna, and 3) develop new methods in monitoring the invertebrate fauna using the samples, citizen science network experience and novel DNA-methods. The candidate will assist in developing the citizen science-based invertebrate collection and ID/size-sorting of the invertebrate samples. The project is funded by Aage V. Jensen Naturfond and is a collaboration with Århus University.

Contact person for more information and questions: Principal supervisor, Associate Professor Anders P. Tøttrup aptottrup@snm.ku.dk

APPLY ONLINE PhD in BIODIVERSITY, MACROECOLOGY AND CITIZEN SCIENCE

POSITION 5 – PhD (several) in ECO-EVOLUTIONARY DYNAMICS AND MACROECOLOGY to work on multi-disciplinary projects that are improving our understanding of how the geographical ranges of species contract and erode biodiversity. We seek people who are interested in using the latest developments in quantitative ecology, paleoclimatology, geochronology and genomics to establish the processes that drive species to contract their ranges in response to climate change, overexploitation and habitat modification. These projects will involve using simulation models to reconstruct the past range dynamics of vertebrates and plants using

information from fossils and species genes. The research outputs will be used to directly inform the conservation and management of future biodiversity.

These positions are dual PhD degrees at the University of Adelaide's School for Biological Sciences, with joint external supervision from staff at CMEC. The successful candidates will spend 2 years studying at the University of Adelaide and 1 year studying at the University of Copenhagen http://www.adelaide.edu.au/graduatecentre/scholarships/research/opportunities/#eco-evolutionary

Contact person for more information and questions: Principal supervisor, Dr. Damien Fordham damien.fordham@adelaide.edu.au and at CMEC depending on subject: Principal supervisor,Associate Professor David Nogués-Bravo (dnogues@snm.ku.dk) or Principal supervisor, Professor Carsten Rahbek (crahbek@snm.ku.dk).

APPLY ONLINE PhD in ECO-EVOLUTIONARY DYNAMICS AND MACROECOLOGY

POSITION 6 - POSTDOC IN MACROECOLOGY/PHYLEOGRAPHY. To work on projects exploring the past determinants and future responses of intra-specific genetic diversity at large spatial scales. The post-doc will take advantage of new databases generated in CMEC on the distribution of hundreds of thousands of sequences for thousands of vertebrate species. We are seeking for a macroecologist/biogeographer or phylogeographer who has excellent analytical, spatial statistical and modeling skills (e.g. Species Distribution Models, population genetics). Experience in hindcasting SDMs to the past and experience fossil databases will be highly valuable. We are particularly interested in considering the influence of climate change and anthropogenic impacts on the current and future global patterns of intra-specific genetic diversity for vertebrates.

Contact person for more information and questions: Associate Professor David Bravo Nogues, e-mail: dnogues@snm.ku.dk; phone: +45 35 32 12 58

APPLY ONLINE Postdoc in MACROECOLOGY/PHYLOGEOGRAPHY

POSITION 7 - POSTDOC IN TROPICAL BIRD MOVEMENT to study the mobility of Andean forest birds to answer general biological questions as defined in the CMEC research program. Almost nothing is known about the movement and dispersal of forest birds because of the extremely elusive behavior of most species, combined with the exceptional difficultly of conducting fieldwork on steep slopes cloaked with impenetrable vegetation. To overcome these challenges, we will use new GPS tags small enough to be carried by medium-sized birds to provide high-resolution information on geographical position over long time periods via an orbital communication node on the International Space Station (i.e., the ICARUS program: http://icarusinitiative.org/). The movement data will be combined with our genomic data (i.e., the b10k project: https://b10k.genomics.cn/) and our distributional data on Andean birds. The postdoc is part of a

longer-term project involving CMEC scientists with ornithological expertise within macroevolution, macroecology, biogeography, bioinformatics and genomics. The postdoc is expected to be instrumental in setting up the field program and testing technological equipment in the Andes. Strong interest and expertise in fieldwork and natural history knowledge of birds is expected.

Contact person for more information and questions: Professor Carsten Rahbek, e-mail: crahbek@snm.ku.dk; phone: +45 35 32 10 30.

APPLY ONLINE Postdoc in TROPICAL BIRD MOVEMENT

POSITION 8 – POSTDOC IN MARINE MACROECOLOGY to work on research questions related to what controls large scale spatio-temporal patterns in phytoplankton community composition and diversity using data sets of species occurrences paired with co-incident oceanographic data. In particular, we are investigating how small scale oceanographic features may affect dispersal and maintenance of diversity. The candidate should have well developed analytical, statistical and modelling skills and experience in applying these to molecular (next-generation) sequencing data. Ideally the candidate should also have knowledge of phytoplankton community ecology/biological oceanography.

Contact person for more information and questions: Katherine Richardson, e-mail: kari@science.ku.dk; phone: +45 35 32 12 03.

APPLY ONLINE Postdoc in MARINE MACROECOLOGY

Further information on the positions
The successful applicant for each position will refer to and collaborate with the contact person(s) listed under each theme. Applicants can apply for more than one of the positions, but an individual and position-specific application needs to be submitted for each position applied for. Applicants are expected to engage in ongoing research projects using the center's data/resources and to contribute to further development of new projects. We expect successful candidates to be interested in conducting collaborative projects within the center with other center scientists.

Qualifications
The postdoc positions require a PhD degree and the PhD position a Master's degree. We seek internationally competitive candidates for the postdocs with a very strong publication record in the best international peer-reviewed journals and a proven publication track record for the PhD candidates. Applicants should have documented strong analytical and data handling skills and the ability to communicate within a cross-disciplinary research center. Strong natural history knowledge and experience with fieldwork would be viewed favorably for all positions.

Length of appointment and starting time is negotiable, but is expected to be 2 years for postdoc

positions and 3 years for the Ph.D. position and with a starting time in December 2017 or as soon as possible thereafter for the PhD. position and in January for the Postdoc positions or as soon as possible thereafter.

Inquiries concerning the positions can be made to the contact persons indicated under each position or general questions to the Center Director of CMEC, Professor Carsten Rahbek, Center for Macroecology, Evolution and Climate, Universitetsparken 15, DK-2100 Copenhagen, Denmark. Phone: +45 35 32 10 30; E-mail: crahbek@snm.ku.dk

The University wishes our staff to reflect the diversity of society and thus welcomes applications from all qualified candidates regardless of personal background

Formal information on the PhD positions:
Formal requirements:
Applicants should hold an MSc degree in Science with good results and good English skills. As criteria for the assessment of your qualifications emphasis will also be laid on previous publications (if any) and relevant work experience.
Applicants should have documented strong analytical and data handling skills and the ability to communicate within a cross-disciplinary research center. Strong natural history knowledge and experience with fieldwork would be viewed favorably for all positions.

Formal job description
The position is available for a 3-year period and your key tasks as a PhD student at SCIENCE are:

- To manage and carry through your research project
- Attend PhD courses
- Write scientific articles and your PhD thesis
- Teach and disseminate your research
- To stay at an external research institution for a few months, preferably abroad
- Work for the department

Terms of employment
The position is covered by the Memorandum on Job Structure for Academic Staff.

Terms of appointment and payment accord to the agreement between the Ministry of Finance and The Danish Confederation of Professional Associations on Academics in the State.

The starting salary is currently at a minimum DKK 312.879 including annual supplement (+ pension up to DKK 43.219). Negotiation for salary supplement is possible.
Information about working conditions and taxes is available at: http://ism.ku.dk/ and http://employment.ku.dk/staff/working-at-ucph/

The application, in English, must be submitted electronically by clicking APPLY ONLINE/SØG STILLINGEN on the specific link to each of the position. Please note that the materials to be considered in the assessment must be attached to the application form, which you will find under APPLY ONLINE. Applications received by e-mail or any other way other than the official electronic system of the University will not be considered.

Please include in the following order:
• Application letter (max 1 page);
• Motivation for applying (max 0.5 page);
• Description of previous research experience (max 0.5 page).

• A list of your most significant publication(s) (up to three) and briefly describe in 2-3 sentences what is interesting in the paper(s) (max 0.5 page).
• A brief outline of an idea for research within the topic area (1 page). This is used for evaluating the applicants *only*.
• Curriculum vitae (with applicant's e-mail address and telephone number) with documentation of education and complete publication list.
• Diploma and transcripts of records (BSc and MSc).
• Full contact details (name, address, telephone and email) of three professional references.

The deadline for applications is **22 October 2017, 23:59 GMT +1**. Applications or supplementary material received after this date will not be considered.

After the expiry of the deadline for applications, the authorized recruitment manager selects applicants for assessment on the advice of the Interview Committee. Afterwards an assessment committee will be appointed to evaluate the selected applications. The applicants will be notified of the composition of the committee and the final selection of a successful candidate will be made by the Head of Department, based on the recommendations of the assessment committee and the interview committee.

The main criterion for selection will be the research potential of the applicant and the above mentioned skills. The successful candidate will then be requested to formally apply for enrolment as a PhD student at the PhD school of Science. You can read more about the recruitment process at http://employment.ku.dk/faculty/recruitment-process/.

General information about PhD programmes at SCIENCE is available at http://www.science.ku.dk/phd.

Formal information on the Postdoc positions
Terms of employment
The position is covered by the Memorandum on Job Structure for Academic Staff.

Terms of appointment and payment accord to the agreement between the Ministry of Finance and The Danish Confederation of Professional Associations on Academics in the State.

The starting salary is currently up to DKK 413.717 including annual supplement (+ pension up to DKK 70.746). Negotiation for salary supplement is possible. Information about working conditions and taxes is available at http://ism.ku.dk/ and http://employment.ku.dk/staff/working-at-ucph/

The application, in English, must be submitted electronically by clicking APPLY ONLINE/SØG STILLINGEN on the link to the positions. Please note that the materials to be considered in the assessment must be attached to the application form, which you will find under APPLY ONLINE. Applications received by e-mail or any other way other than the official electronic system of the University will not be considered.

Please include in the following order:
• Application letter (max 1 page).
• Motivation for applying (max 0.5 page).
• Description of previous research experience (max 0.5 page).

• A list of your most significant publication(s) (up to three) and briefly describe in 2-3 sentences what is interesting in the paper(s) (max 0.5 page).
• A brief outline of an idea for research within the topic area (1 page). This is used for evaluating the applicants *only*.
• Curriculum vitae (with applicant's e-mail address and telephone number) with documentation of education and complete publication list.

• Diplomas (Master and PhD degree or equivalent).
• Full contact details (name, address, telephone and email) of three professional references.

The deadline for applications is **30 October 2017, 23:59 GMT +1.** Applications or supplementary material received after this date will not be considered.

After the expiry of the deadline for applications, the authorized recruitment manager selects applicants for assessment on the advice of the Interview Committee.

You can read about the recruitment process at http://employment.ku.dk/faculty/recruitment-process/.