# Postdoctoral positions and PhD studentships within the Center of Macroecology, Evolution and Climate

### **Danish National Research Foundation**

University of Copenhagen and Technical University of Denmark

#### Themes where we seek postdoctoral and PhD applications

The center has been established with funds from Danish National Research Foundation ("Danmarks Grundforskningsfond"), the University of Copenhagen and the Technical University of Denmark. It is a long-term funded center of excellence that starts 1<sup>st</sup> of January 2010. It will integrate terrestrial and marine research in a cross-disciplinary research program addressing fundamental questions on the origin, maintenance, conservation and future of life and biological diversity on Earth.

The center will bring together ca. 40 marine and terrestrial high-profile scientists, postdoctoral scientists, PhD-students as well as technical and administrative staff. The center will juxtapose faculty staff scientists from the fields of macroecology, historical biogeography, oceanography, evolutionary biology, ecology, population biology, climate change research, conservation biology and environmental economics, who have been assigned to the center from the Department of Biology, the Natural History Museum of Denmark, and Forest & Landscape (all University of Copenhagen) and the National Institute of Aquatic Resources (Technical University of Denmark).

#### See list of senior scientists (PIs) involved.

Associated with the center is a strong network of international collaborators (see names).

A number of individual postdoctoral positions and PhD-stipends are now open for applications. Candidates for both PhD stipends and post-docs can apply to themes that match their specific skills within the broader program. For post-docs, we seek candidates with strong publication records, relevant analytical and data handling skills, and an ability to communicate within a cross-disciplinary research team. We offer a competitive salary (for postdocs, depending on qualifications, approx. 8,600 USD / 5,900 Euro per month, including pension and holiday-allowance; for PhD stipends including TA-salary approx. 6,300 USD / 4,300 Euro per month, including pension and holiday-allowance). The appointed post doctoral researchers will refer to one of the PIs and will be expected to maintain strong links to at least one of the other participating PIs and one of the relevant international partners. Cohesiveness of the Center will be further strengthened through workshops in the Copenhagen area with active participation of external partners in some of them.

#### Mission of the research program

The overall aim of the center is to conduct cross-disciplinary research using some of the World's largest collections of contemporary distribution data, information on historical distributions (including ancient DNA), evolutionary history (phylogenies, phylogeographical data), Earth history and processes, and climate, to elucidate the primary mechanisms that underlie the distribution of life on Earth. The objective is to reconcile current controversies through the amalgamation of historical, evolutionary and contemporary data within a single unified analytical framework. This insight will be used to allow greater accuracy in predicting biosphere responses to changes in land- and ocean-use and global climate to explore how to replace the current, biologically naïve climate change models with more realistic and sound models. Our research will use data- and evidence-based strategies to address

two of the most pressing challenges of our time: 1) how to combat the ongoing global mass extinction of species and overexploitation of natural resources and 2) how to predict the effect of global climate change on biological diversity and environmental resources.

To achieve the above goals, we aim to tackle a major methodological issue challenging the study of the large-scale spatial distribution of biological diversity – which is how to incorporate the most fundamental biological processes of speciation, species extinction, and dispersal into global models aimed at explaining large-scale spatio-temporal distribution of species, species assemblages, diversity as well as life history traits. We aim to tackle this problem by bringing together marine and terrestrial researchers and their data. We will merge macroecological distribution data on thousands of species (millions of records) with evolutionary information derived from complete phylogenetic trees. We will combine the use of modern DNA-techniques, novel macroecological predictive and null models, new climate-change ensemble forecast models of species distribution, and powerful bioinformatics tools and statistics. This will enable a truly holistic approach in which we also intend to explore how the major geophysical and oceanic processes act together in shaping the distribution of life on Earth.

## Themes where we seek postdoctoral and/or PhD applications

<u>Note to potential PhD-applicants:</u> In addition to the PhD scholarships listed below, we welcome letters of interest for those interested in applying for individual PhD scholarships from the Faculty of Science (UC). Next deadline is 22<sup>nd</sup> of February 2010 (more details). Letters of interest should include the same contents as a formal application to one of the below themes.

**THEME 1 - MACROECOLOGIST/BIOGEOGRAPHER** to work on questions related to species distributions, species assemblages and diversity patterns using phylogenetic information on species evolutionary history information derived from phylogenetic trees (details). Only Postdoc applications.

**THEME 2 - SPECIES DISTRIBUTION MODELER** to work on macroecological and climate change issues using SDM-techniques (details). Both Postdoc applications and PhD scholarships.

**THEME 3 – PHYSICAL OR PALEO OCEANOGRAPHER** to work together with biologists in addressing questions related to the impact of climate driven changes in ocean currents on species distributions and diversity patterns (details). Only Postdoc applications.

**THEME 4 – PLANKTON ECOLOGIST/BIOLOGICAL OCEANOGRAPHER** to work on questions related to prediction of potential effect of climate change on future patterns of phytoplankton distributions and diversity (details). Only PhD stipends.

**THEME 5 - CLIMATE CHANGE BIOLOGIST** to work on climate change and human impacts in Quaternary biodiversity (details). Only Postdoc applications.

**THEME 6 – FISHERIES ECOLOGIST/FISHERIES OCEANOGRAPHER** to work on effects of climate change on north Atlantic fish populations (details) Both Postdoc applications and PhD scholarships.

**THEME 7 – FISHERIES/BIOLOGICAL OCEANOGRAPHER** to work on effects of climate change

on marine food web structure and fish biodiversity (details). Both Postdoc applications and PhD scholarships.

**THEME 8 - EVOLUTIONARY BIOLOGIST** to study the diversification of bird groups, which originated in the Indopacific area (details). Only Postdoc applications.

**THEME 9 - HISTORICAL BIOGEOGRAPHER** to study the dynamics of diversification of continental avifaunas in time and space (details). Only Postdoc applications.

**THEME 10 - BIOSTATISTICIAN/STATISTICAL BIOLOGIST** to work on estimating the seasonal changes in distribution of migratory bird species on the basis of data on marked birds (details). Only Postdoc applications.

**THEME 11 - MIGRATION BIOLOGIST / ORNITHOLOGY** to work on questions related to control of bird migration and dispersal (details). Only PhD scholarships.

**THEME 12 – MACROECOLOGY OF VECTORBORN DISEASES** to work on questions related to macroecological patterns of vector born diseases (details). Only Postdoc applications.

**THEME 13 – ENVIRONMENTAL ECONOMIST** to work on questions related to the potential economic effects of climate change on environmental services linked to biodiversity (details). Only PhD scholarships.

**THEME 14 – CONSERVATION ECOLOGIST/COMPUTATIONAL BIOLOGIST** to work on questions related to dynamic (adaptive) nature management, dynamic reserve site selection and socio-economics (details). Only Postdoc applications.

**THEME 15 - NATURE RESERVE SCIENTIST** to work on Danish Nature Conservation and specifically the management of the reserves owned and managed by the Å.V. Jensens Foundation in Denmark (details). Only Postdoc applications.

**THEME 16 - CONSERVATION SCIENTIST** to work on issues related to international conservation (details). Only PhD scholarships.

## **Candidate profile - general requirements and expectations**

The postdoc positions require a PhD-degree, a demonstrated ability towards increasing independence, quantitative analytical skills and proficiency in writing, as documented by publications. In addition to pursuing their own independent research within the program outline, successful candidates are expected to participate in collaborative projects with other researchers at the Center and to develop innovative angles as the Centre develops.

The PhD-scholarships requires a M.Sc or B.Sc degree. We will in general prefer applicants with a M.Sc degree - and scientific publications may affect the evaluation positively.

Specific inquiries concerning positions within individual themes should be directed to the contact person listed at the full description (details) of each theme. General questions can be made to Center

Director, Professor Carsten Rahbek, Center of Macroecology, Evolution and Climate, Department of Biology, University of Copenhagen, Universitetsparken 15, DK-2100 Copenhagen Ø, Denmark E-mail: <u>crahbek@bio.ku.dk</u>; Phone: +45 35321030.

**Applications** must be in English, emailed as <u>a single PDF file</u> to <u>vacancy@bio.ku.dk</u> (**Subject line:** last name and the Theme number for which you apply). The application should include a cover letter, a brief outline (1-2 pages) of planned research, a CV with the names and contact details of 3 referees, and copies of relevant official exam documents.

Applicants may apply for more than one position, as long as position-specific applications are submitted for each position applied for.

#### Closing date for applications is the 31<sup>st</sup> of October 2009 at 12:00 noon.

The University of Copenhagen wishes to reflect the diversity of society and welcomes applications from all qualified candidates regardless of personal background.

Additional information on Danish postdoc and PhD rules and regulations, including salaries and taxation, is available at <u>http://www.ku.dk/pers/hrm/</u>

## National and International senior scientists involved in the Center

Hans Henrik Bruun, Associate Professor (community ecology), Section of Ecology and Evolution, Department of Biology, University of Copenhagen.

**Neil Burgess**, Professor (biodiversity and conservation), Section of Ecology and Evolution, Department of Biology, University of Copenhagen.

**Jon Fjeldså**, Professor (ornithology, biodiversity, biogeography), Head of the Research group 'Vertebrate Zoology', Zoological Museum, Natural History Museum of Denmark, University of Copenhagen.

Henrik Glenner, Professor (marine evolutionary biology), University of Bergen.

**Bo Jellesmark**, Professor (applied economics, environment, uncertainty), Head of Divison of Economics, Policy and Management Planning, Department of Forest & Landscape, University of Copenhagen

Brian R. MacKenzie, Professor (fisheries oceanography), National Institute for Aquatic Resources, Technical University of Denmark

**Carsten Rahbek**, Professor (macroecology, evolution, climate change), Head of the Research group 'Biodiversity and Macroecology', Section of Ecology and Evolution, Department of Biology, University of Copenhagen.

**Katherine Richardson**, Professor (biological oceanography, climate change), Vice-dean, Faculty of Science, University of Copenhagen, Section of Ecology and Evolution, Department of Biology, University of Copenhagen

**Nikolaj Scharff**, Associate Professor (entomology, phylogeny, and biogeography), Zoological Museum, Natural History Museum of Denmark, University of Copenhagen.

**Niels Strange**, Professor (conservation planning, environmental economics, biodiversity), Director of the Erasmus Mundus Masters Course SUFONAMA, Department of Forest & Landscape, University of Copenhagen

**Kasper Thorup**, Research Assistant Professor (ornithology), Head of the Danish Ringing Scheme, Zoological Museum, Natural History Museum of Denmark, University of Copenhagen.

### Main International partners:

Miguel B. Araujo (Museo Nacional de Ciencias Naturales, Spain;) Rauri C. K. Bowie (University of California, Berkeley; USA) Jonathan A. Coddington (Smithsonian Institution; USA) Robert K. Colwell (University of Connecticut; USA) Nicholas J, Gotelli (University of Vermont; USA) Catherine Graham (State Uni. of New York; USA) Gary Graves (Smithsonian Institution; USA) Robert E. Ricklefs (University of Missouri-St. Louis; USA) Nils Christian Stenseth (University of Oslo; Norway).

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Principle Investigator: Professor Carsten Rahbek, Center for Macroecology, Evolution and Climate, Department of Biology, University of Copenhagen, Universitetsparken 15, DK-2100 Copenhagen, Denmark. Phone: +45 35 32 10 30; e-mail: crahbek@bio.ku.dk; Homepages: http://www.bio.ku.dk/staff/crahbek and http://www.macroecology.ku.dk/

### Themes where we seek applications

**THEME 1 - MACROECOLOGIST/BIOGEOGRAPHER** (<u>postdoc applications</u>) to work on questions related to species distributions, species assemblages and diversity patterns using phylogenetic information on species evolutionary history information derived from phylogenetic trees.

<u>Specific postdoc profile:</u> We are seeking a scientist with a strong background of natural history who has excellent analytical, spatial statistical and modeling skills (e.g. null modeling, predictive modeling, simulation modeling, species distribution, and niche-modeling, etc) and who is interested in combining phylogenies with species distribution data.

<u>Research area and questions:</u> The person should be interested in working on research questions testing hypotheses related to what determines large-scale patterns of species distribution, species assemblages, species richness and life-history traits using vast quantitative databases on species distribution with phylogenetic information in association with climatologic, geophysical, geological, and ecological information. We are particularly interested in considering the influence of history on contemporary patterns of diversity along environmental gradients across spatial and temporal scales.

<u>Period of appointment:</u> The appointment is for 2-3 years. Starting time is negotiable, but preferably as soon as possible.

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

**THEME 2 - SPECIES DISTRIBUTION MODELER** (<u>postdoc/PhD applications</u>) to work on macroecological and climate change issues using SDM-techniques. We are particularly, but not exclusively, interested in work on marine taxa and/or questions related to predicting the distribution of species and investigate the potential effect of climate change on future patterns of species distributions and diversity.

<u>Specific postdoc/PhD profile:</u> We are seeking a person with a strong background of natural history who has excellent analytical, spatial statistical and modeling skills within species distribution and niche modeling.

<u>Research area and questions:</u> The person should be interested in working on research questions related to how global changes in environment and climate may impact large-scale patterns of species distribution, species assemblages, species richness and life-history traits using vast quantitative databases on species distribution in association with climatologic, oceanographic, geophysical, geological, and ecological information. We are particularly interested in moving beyond the current limitation of niche-modeling and its naïve biological assumption by combining macroecological theories with SDM-techniques in combination with knowledge about population dynamics and species interactions.

<u>Period of appointment:</u> The appointment is for 2-3 years. Starting time is negotiable, but preferably as soon as possible.

<u>Contact person for more information and questions</u>: Professor Carsten Rahbek, Director of the NSF Center for Macroecology and Evolution, Department of Biology, Section of Ecology and Evolution (e-mail: crahbek@bio.ku.dk; phone: +45 35 32 10 30).

**THEME 3 – PHYSICAL OR PALEO OCEANOGRAPHER** (<u>postdoc applications</u>) to work together with biologists in addressing questions related to the impact of climate driven changes in ocean currents on species distributions and diversity patterns.

<u>Specific postdoc profile:</u> We are seeking a scientist with a strong background in the climatic control of ocean currents who is interested in combining knowledge of changes in ocean current systems with biological information on changes in species' abundance and distributions on the land (i.e. the coastally located continental tropical mountain ranges, by far the most biological rich systems on Earth) and in the sea.

<u>Research area and questions:</u> The person should be interested in working on research questions testing hypotheses related to how changes in ocean conditions influence the abundance and distribution of life on Earth both at the global and regional level, eg tropical areas or the North Atlantic region. Of particular interest in the studies is how ocean conditions influence the distribution of life in terrestrial ecosystems.

<u>Period of appointment:</u> The appointment is for 2-3 years. Starting time is negotiable, but preferably as soon as possible.

Contact person for more information and questions: Professor Katherine Richardson (e-mail

kari@science.ku.dk; phone 35 32 42 85).

### THEME 4 – PLANKTON ECOLOGIST/BIOLOGICAL OCEANOGRAPHER (PhD applications)

to work on questions related to prediction of potential effect of climate change on future patterns of phytoplankton distributions and diversity.

<u>Specific PhD profile:</u> We are seeking a person with a strong background in biological oceanography or plankton ecology. It would be an advantage if the candidate has experience in examining datasets for spatial or temporal differences in species distributions.

<u>Research area and questions:</u> The person should be interested in working on a research question related to climate change and how it may impact large-scale patterns of species distribution, species assemblages and species richness in planktonic marine species. Our strategy is to apply methods (including GIS applications) developed in terrestrial macroecological studies to existing plankton species distribution datasets

<u>Period of appointment:</u> The appointment is for 3 years. Starting time is negotiable, but preferably as soon as possible.

<u>Contact person for more information and questions</u>: Professor Katherine Richardson (e-mail kari@science.ku.dk; phone 35 32 42 85).

**THEME 5 - CLIMATE CHANGE BIOLOGIST** (postdoc applications) to work on climate change and human impacts in Quaternary biodiversity

<u>Specific postdoc profile:</u> We are seeking a scientist with a strong background on species extinction processes, who has excellent spatial statistical and modeling skills within niche modeling and GIS. Experience in phylogeography and/or coalescence theory and methods is highly valuable.

<u>Research area and questions:</u> The person should be interested on Quaternary climate change and human interactions, and how they may have affected geographical patterns of population genetics and species extinctions of selected species. We are interested in investigate these aspects in combination with spatial models using species distribution models that combines different types of palaeo-sources of information such as fossil records and ancient DNA with palaeo-climatic data to reconstruct scenarios of past dispersal and range-sizes dynamics of species during the Late Quaternary.

<u>Period of appointment:</u> The appointment is for 2 years. Starting time is negotiable, but preferably as soon as possible.

<u>Contact person for more information and questions</u>: Professor Carsten Rahbek, Director of the NSF Center for Macroecology and Evolution, Department of Biology, Section of Ecology and Evolution (e-mail: crahbek@bio.ku.dk; phone: +45 35 32 10 30).

**THEME 6 – FISHERIES ECOLOGIST/FISHERIES OCEANOGRAPHER** (postdoc/PhD applications) to work on effects of climate change on north Atlantic fish populations.

Specific postdoc profile: We are seeking a population modeler/zoogeographer/fisheries oceanographer

with interests in effects of climate change on population dynamics and biogeography. The candidate should have a strong background in quantitative statistical methods and computer programming; experience with GIS desirable.

<u>Research area and questions:</u> The candidate should investigate effects of climate change and spatialtemporal variations in life history on ecology of functionally and economically important fish species (cod, herring) in the north Atlantic and the mechanisms governing past, present and future distributions. We are interested in how population distributions and productivity throughout the north Atlantic will be influenced by the interaction of climate change with ongoing human impacts (e. g., exploitation), and how these species interact with other species in ecosystems at present and future geographic locations.

<u>Period of appointment:</u> The appointment is 2-3 years. Starting time is negotiable, but preferably as soon as possible.

Contact person for more information and questions: Professor Brian MacKenzie, (e-mail: brm@aqua.dtu.dk; phone: +45 33 96 34 45).

**THEME 7 – FISHERIES/BIOLOGICAL OCEANOGRAPHER** (postdoc/PhD applications) to work on effects of climate change on marine food web structure and fish biodiversity.

<u>Specific postdoc profile:</u> We are seeking a fisheries/biological oceanographer interested in how climate change affects the functional composition of fish communities via changes in foodweb structure and the structure/function of marine ecosystems.

<u>Research area and questions</u>: The candidate should investigate using quantitative and comparative methods how food web structure and its response to climate change affects the functional composition of marine fish communities throughout the global ocean. The candidate should have a strong background in biological oceanography, plankton foodweb ecology and how plankton production and energy flow affects fish communities. The candidate should have technical skills in handling large datasets and executing statistical analyses (e. g., comparative approaches, meta-analyses).

<u>Period of appointment:</u> The appointment is 2-3 years. Starting time is negotiable, but preferably as soon as possible.

Contact person for more information and questions: Professor Brian MacKenzie, (e-mail: brm@aqua.dtu.dk; phone: +45 33 96 34 45).

**THEME 8 - EVOLUTIONARY BIOLOGIST** (postdoc applications) to study the diversification of bird groups, which originated in the Indopacific area; this work will be done in close collaboration with an international team of ornithologists working with the evolution and biogeography of the largest order of birds (Passeriformes).

<u>Specific postdoc profile</u>: We are seeking an evolutionary biologist/ornithologist with a strong phylogenetic background and analytical capabilities, and with an interest in combining phylogenies, species distributions and earth history data. Applicants with a good knowledge of the avifauna of the Indopacific area, and of earth history for this region, will be preferred.

Research area and questions: The person should generate own phylogenetic hypotheses, and collect

relevant data from the literature, with the aim of understanding the diversification of birds within the Indopacific area, and the dispersal and expansions beyond this region. Focus should be on explaining the variation in diversification, in time and space, between groups, which evolved within a restricted part of the region only, or which became relictual, and those which dispersed and underwent large expansions into other biogeographic regions.

<u>Period of appointment</u>: The appointment is for 3 years; starting time from 1. January 2010 or as soon thereafter as possible.

<u>Contact person for more information and questions</u>: Professor Jon Fjeldså (e-mail: jfjeldsaa@snm.ku.dk, phone +45 35 32 10 23).

**THEME 9 - HISTORICAL BIOGEOGRAPHER** (postdoc applications) to study the dynamics of diversification of continental avifaunas in time and space. This work will be done in close collaboration with (1) an international team of ornithologists working with the evolution and biogeography of the largest order of birds (Passeriformes) and (2) a team of macroecologists.

<u>Specific postdoc profile</u>: We are seeking an evolutionary biologist/biogeographer with strong analytical capabilities, experience with morphological and/or molecular data, and an interest in analyzing diversification processes in time and geographical space.

<u>Research area and questions</u>: The person should, using phylogenetic hypotheses generated through own work or from the literature, analyze diversification processes within continental areas. In particular, we are interested in analyses of vicariance/dispersal, which can illustrate the relative role of environmental opportunities and innovations in triggering dynamic changes in diversity patterns, such as expansions and diversification into new geographical areas.

<u>Period of appointment</u>: The appointment is for 2 years; starting time is negotiable, but preferably as soon as possible.

<u>Contact person for more information and questions</u>: Professor Jon Fjeldså (e-mail: jfjeldsaa@snm.ku.dk, phone +45 35 32 10 23).

**THEME 10 - BIOSTATISTICIAN/STATISTICAL BIOLOGIST** (postdoc applications) to work on estimating the seasonal changes in distribution of migratory bird species on the basis of data on marked birds.

<u>Specific postdoc profile:</u> We are seeking a scientist with strong background in statistical modeling preferably within the analyses of marked animal populations.

<u>Research area and questions:</u> The appointee should be interested in working on statistical models predicting non-breeding distributions using capture-mark-recapture theory, and possible spatio-temporal changes related to climate change. We are particularly interested in exploring the enormous amounts of data already collected trough European ringing schemes.

<u>Period of appointment:</u> The appointment is 2 years. Starting time is negotiable, but preferably as soon as possible.

Contact person for more information and questions: Ass. Prof. Kasper Thorup, (e-mail:

kthorup@snm.ku.dk; phone: +45 35 32 10 51).

**THEME 11 - MIGRATION BIOLOGIST / ORNITHOLOGY (PhD applications)** to work on questions related to control of bird migration and dispersal.

<u>Specific PhD profile:</u> We are seeking a graduate student with a background of natural history and with excellent skills within the study of migratory animals and preferable with experience with one or more techniques involving tracking of individuals.

<u>Research area and questions:</u> The appointee should be interested in working on research questions related to migration and movement as an important part of the life of many animals. The research program could be within ecology, behavioral ecology, evolution and /or climate change and should have an emphasis on individual migrations through the use of radio/satellite tracking, geolocators and/or molecular techniques. We are particular interested in the control of individual migrations and the possible influence on the seasonal distribution of birds, including potential effects of climate change on future migration patterns.

<u>Period of appointment:</u> The appointment is 3 years. Starting time is negotiable, but preferably as soon as possible.

Contact person for more information and questions: Ass. Prof. Kasper Thorup, (e-mail: kthorup@snm.ku.dk; phone: +45 35 32 10 51).

**THEME 12 – MACROECOLOGY OF VECTORBORN DISEASES** (Postdoc applications) to work on questions related to macroecological patterns of vector born diseases: geographical distribution of 'species', richness patterns and assemblages rules. It could include emphasis on issues related to climate change and how climatic parameters may affect the distributions of vector and host species and/or on the geographic mosaic of the co-evolutionary history between vector and host species.

<u>Specific postdoc profile:</u> We are seeking a scientist with a strong background in natural history who has excellent analytical, spatial statistical and modeling skills and who is interested in combining approaches from host-pathogen evolutionary ecology with those of community ecology and macroecology.

<u>Research area and questions</u>: The appointee will be expected to design innovative models of the spatial distribution of disease in one of the following areas A) does vector-born disease follow general macroecological patterns with regard to distributions, assemblages and richness? B) What is the distribution and potential future spread of vector-borne diseases in light of expected global change in climate and environment, and how the impact of these diseases be exacerbated if novel vectors became available in newly invaded areas beyond the range of traditional vectors? C) Can we reconstruct previous distributions of human diseases and their vectors and intermediate hosts from geographical records of historical and contemporary climate, and can we use these reconstructions to predict how these diseases might spread and evolve in the future? D) Can genetic and macroecological analyses of their co-evolutionary history with humans provide crucial insights about the strong central African affinities of many major vector-borne diseases?

<u>Period of appointment:</u> The appointment is for 2 years. Starting time is negotiable, but preferably as soon as possible.

<u>Contact person for more information and questions</u>: Professor Carsten Rahbek (e-mail: crahbek@bio.ku.dk; phone: +45 35 32 10 30).

**THEME 13 – ENVIRONMENTAL ECONOMIST** (PhD applications) to work on questions related to the potential economic effects of climate change on environmental services linked to biodiversity

<u>Specific PhD-student profile:</u> We are seeking a PhD student with a strong background in environmental economics and strong interest in biodiversity and its ecosystem value. The PhD student should have a strong background in one or more relevant approaches such as environmental valuation, ecosystem services modeling, ecological economics, resource economics and uncertainty or similar. The PhD-student should have excellent skills in quantitative methods e.g. econometrics, mathematical modeling and computational or numerical methods.

<u>Research area and questions:</u> The person should be interested in working on research questions related to improving the methods for valuation of biodiversity and associated ecosystem services in the context of uncertainty and climate change. The person should analyze and model the potential economic effects of climate change on environmental services related to biodiversity. The research should bring together approaches from ecological and environmental economics and the modeling of ecosystem services. The person should include suggestions for addressing the research questions in the application.

<u>Period of appointment:</u> The appointment is for 3 years. Starting time is negotiable, but preferably as soon as possible.

Contact person for more information and questions: Professor Niels Strange (e-mail: nst@life.ku.dk; phone: +45 35 33 17 53).

**THEME 14 – CONSERVATION ECOLOGIST/COMPUTATIONAL BIOLOGIST** (Postdoc applications) to work on questions related to dynamic (adaptive) nature management, dynamic reserve site selection and socio-economics

<u>Specific postdoc profile:</u> We are seeking a scientist with a strong background in ecology and uncertainty analysis (e.g. climate change, socio-economic/-political factors), who has excellent computer modeling and programming skills (e.g. stochastic dynamic programming, heuristic dynamic modeling) and experience in working with predictive modeling, simulation modeling, and species distribution data.

<u>Research area and questions:</u> The person should be interested in working on research questions related to dynamic conservation management, uncertainty and climate change. The person should analyze the potential effects of such changes from static conservation area management to dynamic management and consider mitigating options as well as adaptive land and ocean management strategies. We are particular interested in investigating how present designations of area for biodiversity could depend on the future conservation values (biological/economic) caused by, for example, climate change or land use, rather than current values. The testing of the hypotheses applies to large-scale patterns of species distribution, species assemblages, species richness and life-history traits using vast quantitative databases on species distribution with phylogenetic information in association with climatologic, geophysical, geological, and ecological information, combined with socio-economic data.

<u>Period of appointment:</u> The appointment is for 2 years. Starting time is negotiable, but preferably as

soon as possible.

Contact person for more information and questions: Professor Niels Strange (e-mail: nst@life.ku.dk; phone: +45 35 33 17 53).

**THEME 15 - NATURE RESERVE SCIENTIST** (Postdoc applications) to work on Danish Nature Conservation and specifically the management of the reserves owned and managed by the Å. V. Jensens Foundation in Denmark.

<u>Specific Postdoc profile:</u> We are seeking a scientist to work on issues related to the management of the network of reserved that are owned and managed by the Å. V. Jensens Foundation in Denmark. The person to be employed will have excellent understanding of reserve management in Europe, most likely in Denmark but it could also be relevant from the Netherlands, Germany or the UK. The ability to speak Danish is required.

<u>Research area and questions:</u> The candidate should be prepared to address the following questions related to the management of the Å. V. Jensens reserve network, and to further develop a targeted research program leading to the scientific management of these reserves, potentially in comparison with similar reserve networks in Denmark and elsewhere in northern Europe. Initial questions to be addressed are as follows: a) To scientifically assess the conservation management and conservation needs within the network of reserves owned and managed by the Å. V. Jensens Foundation in Denmark, b) To scientifically assess the management plans so far developed for the reserves in Denmark and make recommendations on how they could be improved to better serve the function of managing the species and habitats of particular concern within the reserve network, c) To undertake and coordinate targeted research that addresses issues of particular concern for the better management of the set of reserves owned by the Å. V. Jensens foundation, d) To use the results of scientific research to provide the Å. V. Jensens foundation with advice on the better management of the habitats in their set of nature reserves.

<u>Period of appointment:</u> The appointment is for 5 years. Starting time is negotiable, but preferably as soon as possible.

Contact person for more information and questions: Professor Neil Burgess, (e-mail: ndburgess@bio.ku.dk; phone: +45 35 32 13 03).

**THEME 16 - CONSERVATION SCIENTIST** (PhD applications) to work on issues related to international conservation

<u>Specific PhD profile:</u> We are seeking a Masters level conservation scientist with some experience of GIS and statistical analysis to undertake a PhD program within the areas of protected area effectiveness and conservation outcomes, or assessing range changes in red listed species at different spatial scales.

<u>Research area and questions:</u> Candidates are requested to respond to one of two potential PhD questions: A) Relationship between measures of protected area management effectiveness and the conservation outcomes of the protected area concerned, which could be species trends, habitat cover trends, or habitat condition trends. This PhD would use the management effectiveness database that has been compiled by WCPA and UNEP-WCMC and would also work in collaboration with the University of Oxford. B) Developing and testing models of distributions of species affected by climate change due to particular life history traits with broad scale analyses at the scale of Africa and Europe,

and finer scale analysis at the scale of Tanzania (especially Eastern Arc Mountains) and Denmark. This PhD would utilize the available data on species distributions compiled by the IUCN SSC and would build upon the work being undertaken at the IUCN offices in Cambridge.

<u>Period of appointment:</u> The appointment is 3 years. Starting time is negotiable, but preferably as soon as possible.

<u>Contact person for more information and questions</u>: Professor Neil Burgess, (e-mail: ndburgess@bio.ku.dk; phone: +45 35 32 13 03).