## Til: Styret for Naturhistorisk museum

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| **Sakstype:** | **Vedtak** |
| **Saksnr.:** | **V-sak 4** |
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| **Saksansvarlige:** | **Mehlum, Lindheim** |

**Sakstittel: Opprettelse ny forskergruppe i zoologi**

## De viktigste problemstillingene

NHMs styre har tidligere vedtatt at det innen Seksjon for forskning og samlinger skal formaliseres et mindre antall forskergrupper, hvor gruppeleder har budsjettansvar, rapporteringsansvar og personalansvar for gruppen. Styret har også godkjent egne retningslinjer for forskergrupper og funksjonsbeskrivelse for gruppeleder.

Til nå har NHM hatt sju formelle forskergrupper, mens noen forskere formelt har ligget i linjen direkte under seksjonsleder. Etter tilsetting av ny professor i zoologi, Torsten Struck er det kommet et ønske om å opprette en ny forskergruppe omkring ham og de øvrige tre fast vitenskapelig ansatte som i dag ikke formelt er tilknyttet noen forskergruppe. Dette gjelder Lutz Bachmann, Vladimir Gusarov og Øystein Wiig.

De ovennevnte personer har utarbeidet en beskrivelse av den nye forskergruppens forskningsinteresser og planer for de nærmeste årene. Navnet på gruppen er *Frontiers in Evolutionary Zoology (FEZ)*. Gruppen har hatt kort tid på å utarbeide dokumentet og ønsker å bruke noe mer tid på å utvikle detaljene for satsingen.

Ledelsen ved NHM vurderer forslaget som meget positivt. Gruppen har nødvendig faglig styrke og koherens til å kunne fungere som en egen integrert forskergruppe. Gruppen adresserer fundamentale vitenskapelige problemstillinger som er sentrale for forskning ved et naturhistorisk museum, hvor bruk av samlingene er et viktig element.

**Drøfting med tjenestemannsorganisasjonene (TMO):**
Saken ble drøftet med TMO i IDF-møte 4. 12. 2017.
Akademikernes representant kommenterte at han håpet medlemmene i den nye forskergruppen er enige i opprettelsen. Dette ble bekreftet fra Lindheims side.

**Forslag til vedtak:** Styret vedtar opprettelse av en ny forskergruppe innen zoologi

**Vedlegg**
Notat om opprettelse av ny forskergruppe *Frontiers in Evolutionary Zoology*

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**New Research Group at NHM**

## *Frontiers in Evolutionary Zoology (FEZ)*

The suggestion of the establishment of the new research group *Frontiers in Evolutionary Zoology* follows up on the expressed wish of NHM director Tone Lindheim to organize all scientific staff in productive and straightforward research groups. The intent with this suggestion is to contribute in a constructive way to the director's vision of the future NHM. It is taken for granted that the new research group is accepted as equal to the previously established research groups with respect to access to internal resources and information, and that senior staff members have full rights of training students.

Although many details still need to be discussed and developed the proposal is built on and takes into consideration NHM's adopted guidelines for research groups

- consisting of at least three permanent academic staff
- in line with the research focus of NHM
- shared methodological and/or scientific interests of the members
- potential for shifting and developing individual research profiles through interactions
- openness for other NHM staff

## *Modern challenges in animal taxonomy and systematics*

The animal kingdom provides by far the largest proportion to Earth's biodiversity and animals occupy essentially all habitats on Earth. Taxonomy and systematics aim at comprehensively describing biodiversity based on an evolutionary background. There are many challenges to taxonomy and systematics such as rapid identification and description of animal species for biodiversity research, understanding changes in distribution ranges due to anthropogenic impact, evolution and maintenance of cryptic diversity or common genomic signatures of specific evolutionary trajectories like parasitism or progenesis that also need to be tackled by NHM researchers. An additional challenge is to stay at a high international research level while at the same time remain tied to scientific collections. Fortunately, numerous recent technical developments offer also new dimensions for high profile collection-based research. O*mics* applications have developed into almost universally applied methods for addressing a wide variety of research questions. However, they are also still very resource-demanding and it goes without saying that exploring them in a tightly cooperating research groups makes perfect sense.

We, therefore, believe it is timely to pragmatically join forces through founding the *Frontiers in Evolutionary Zoology* research group, building on the current scientific portfolio of the suggested members. Our portfolio covers a broad range of research topics and provides several areas of scientific and methodological overlap.

***Members of the proposed group***

*Senior staff:*

- Lutz Bachmann (proposed as group leader)
- Vladimir Gusarov
- Torsten Hugo Struck
- Øystein Wiig[1]

*PhD fellow:*

- Jose Cerca de Oliveira

*Visiting PhD fellow:*

- Asmaa Haris Elgetany

Despite different research foci, the permanent staff of the proposed group share a strong history of successful scientific cooperation on various topics in taxonomy, systematics, phylogeography, ecology, population biology and genomics. To mention a few examples:

- LB and ØW have cooperated for many years on various projects on marine mammals
- LB and VG have cooperated for many years on projects in insect systematics. Projects have already been developed that also integrate THS (see recent application for an internal PhD position)
- LB, VG and THS have cooperated in a discussion group on cryptic species that already led to a first paper accepted for publication in a high-impact journal.
- LB, VG and THS are cooperating in drafting an ITN application of *Comparative Parasitomics*

***The research profile of FEZ***

In the start phase the current research topics of the participants will contribute most to the research portfolio of the new group. In general terms, they include:

- systematics, evolution and *omics* of Annelida, Platyhelminthes and staphylinid beetles
- population biology of Arctic marine mammals with particular emphasis on bowhead whales
- biodiversity of Kinorhyncha in Norway and Annelida in Egypt
- phylogeography and population genetics/genomics of different cryptic species complexes in Annelida
- exploration of museum material for new sequencing methodologies

[1] ØW will retire within the next year. It is agreed that he will join the proposed research group for administrative reasons, and based on ongoing research cooperations. He will keep his own budget and resources, and will only to a minor degree contribute to developing the group further.

The short-term (1-2 years) goals of the proposed group are:

- submission and implementation of a *Comparative Parasitomics* (COMPASS) MSCA-ITN
- development of a comprehensive research strategy for the group including a conceptual streamlining of future projects
- a functional group seminar series (similar as the previous *cryptic species* discussion group)
- conceptual integration of *individual* research projects into a larger-scale group strategy
- 2-3 internally funded PhD positions
- recruitment of Masters students

The medium term (3-5 years) goals include:

- development of publication milestones to increase output per senior by 20 percent
- recruitment of externally funded PhDs and PostDocs
- joint grant applications ranging from national (e.g., RCN, Artsdatabanken) to EU projects
- further development of international cooperation
- development of sustainable teaching concepts
- development of concepts and milestones for public outreach activities
- gender balance in the group

***Conceptual development of a coherent FEZ profile***

The group members already have a strong record of cooperative research projects, have supervised Masters- and PhD students together, delivered many co-authored publications, and applied for external funding. Moreover, we consider our "heterogeneity" in research topics a strength rather than a weakness for the proposed group, as it will enable us to tackle broader research topics from different angles. As indicated above, the proposed FEZ group is not starting entirely from scratch, but can be further developed building on previous cooperations. It is important to note that the potential broader projects we are currently considering are also open for cooperation with NHM staff outside the proposed research group as well as colleagues at other UiO departments.

Examples of potential focal research topics:

- Comparative Parasitology is the focus of an MSCA-ITN application that is currently revised for resubmission in 2018. If successful, the ITN will have a major impact on the structure and the training and research focus of the proposed group. Comparative projects on host-parasite systems and genomic adaptations to parasitism will become a key topic.
- Cryptic species are a common phenomenon across the tree of life. In contrast to the numerous species with obvious phenotypic differentiation many species exhibit no or only minimal differences in phenotype even after long periods of separation. The evolution of cryptic species in various animal systems can easily become a uniting theme for the senior staff.

- Exploration of genetic resources preserved in natural history collections is of key interest for natural history museums. Despite technical and methodological challenges, modern *omics* applications are very promising to boost collection-based research including material from wet collections, which comprises still the most challenging of the preserved material. There is already expertise in the proposed group to develop projects exploring the collections of NHM for research projects related to the other focal topics of the group.
- The senior staff of the proposed group is particularly dedicated to training and teaching. As indicated by several successful SIU projects and the planned MSCA-ITN, advanced training and high profile research can easily be developed hand in hand, and do not exclude each other. Therefore, the proposed research group will further develop higher education training contributing to NHM's education efforts such as ForBio and the new Master specialization in Biodiversity and Systematics.