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Dato:

MØTEINNKALLING

Utvalg: **Styret for Norges arktiske universitetsmuseum og akademi for kunstfag**
Møtested: Sirkulasjon
Møtedato: 06.03.2019

Rutiner for behandling av sirkulasjonssaker i Styret for Norges arktiske universitetsmuseum og akademi for kunstfag:

- Saksdokumentene sendes ut elektronisk.
- Dersom dere samtykker i vedtaket, sender dere tilbakemelding i form av svar på eposten til saksbehandler og medlemmene i styret.
- Dersom dere mener saken bør behandles i møte gir dere beskjed om det innen fristen.
- Samtidig må det gis en kort redegjørelse for hva som ønskes nærmere belyst eller tatt opp.
- **Frist for å gi tilbakemelding settes til onsdag 6.03.2019.**
- Gi tilbakemelding til saksbehandler dersom dere ikke har anledning til å møte/behandle saken. Den vil da bli sendt til vararepresentant.

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Saksliste

Saksnr	*Tittel/beskrivelse*	*U.off.*	*Arkivref.*
UMAK 6/19	Ansettelse i stilling som instituttleder (kode 1475) ved Universitetsmuseet	X	2018/5637
UMAK 7/19	Tilsetting - stipendiat innen prosjektet SoDI- Sami ved seksjon for Kulturvitenskap, Tromsø Museum	X	2018/4657
UMAK 8/19	Ber om godkjenning av betenkning - stipendiatstilling i økologi for landskapsarkitektur		2019/942
UMAK 9/19	Godkjenning av betenkning - to universitetslektorstillinger i 50 % stilling i landskapsarkitektur		2019/781
UMAK 10/19	Godkjenning av betenkning - postdoktor inne FATE-prosjektet		2019/386

Jobbnorge, NAV

Ref: 2018/5637
Søknadsfrist: 09.01.19

Instituttleder ved Universitetsmuseet, Norges arktiske universitetsmuseum og akademi for kunstfag (åremål)

Fra 1.1.2019 er Norges arktiske universitetsmuseum og akademi for kunstfag en ny sammenslått enhet ved UiT. Enheten består av instituttene Universitetsmuseet, Musikkonservatoriet og Kunstakademiet. Universitetsmuseet dekker forskning, samling, forvaltning og formidling innen natur- og kulturvitenskapelige fagområder.

Vi søker etter ny instituttleder ved Universitetsmuseet med ledererfaring og interesse for flerfaglig forskningsledelse. Stillingen er for en åremålsperiode på fire år.

Stillingens tilhørighet
Universitetsmuseet driver forskning, samling, forvaltning og formidling innen et bredt fagspekter: geologi, zoologi, botanikk, arkeologi, samisk kulturvitenskap, polarhistorie, kulturvitenskap og museologi.

Til instituttet hører Polarmuseet, MS Polstjerna og Tromsø Arktisk-Alpine Botaniske Hage.

Ved instituttet er det 21 faste vitenskapelige stillinger, 27 faste støttestillinger til forskning og forvaltning, samt 10 stipendiater og post.docs. Det er i tillegg til enhver tid flere engasjerte ansatte ved instituttet.

Stillingens arbeidsområde
Instituttlederen har den daglige ledelse av den samlede faglige virksomheten ved instituttet. Instituttlederen skal lede arbeidet med å utvikle og sikre instituttets forskning, formidling og samlingsarbeid. Det forventes at instituttleder har evne til god forskningsledelse.

Instituttleder har ansvar for å nå de mål og resultatkrav som er satt i enhetens og universitetets virksomhetsplaner, årsplan og budsjett. Instituttleder er underlagt direktøren og er den del av Norges arktiske universitetsmuseum og akademi for kunstfags ledergruppe. Instituttlederen har personalansvar for alle ansatte.

Det vil etter nærmere vurdering kunne avtales at instituttlederstillingen kan kombineres med egen FoU-aktivitet.

Kvalifikasjonskrav
Vi søker etter en person med forsknings- og ledelseserfaring, primært innen sentrale fagområder ved instituttet.

Det kreves normalt professor-/førstestillingskompetanse innen fagfelt som dekkes ved det aktuelle institutt. Dersom spesielle faglige og rekrutteringsmessige hensyn tilsier det, kan kravet om førstestillingskompetanse fravikes. Det legges særlig vekt på lederegenskaper som evne til god kommunikasjon og samarbeid, resultatorientering og strategiske evner.

Den som tilsettes må beherske et skandinavisk språk samt engelsk (skriftlig og muntlig).

Det er i tillegg ønskelig med erfaring fra:

- Endringsledelse
- Personalledelse og administrasjon
- Forskningsgruppeledelse og innhenting av eksterne forskningsmidler
- Museum

Personlig egnethet tillegges stor vekt.

Arbeidsvilkår
Lønn etter Statens regulativ 1475 Instituttleder avhengig av kvalifikasjoner. Fra bruttolønn trekkes 2 % pliktig innskudd til Statens pensjonskasse.

Tilsetting skjer på de vilkår som til enhver tid gjelder for offentlige tjenestemenn, og det er seks måneders prøvetid. Det er mulighet for forlengelse i ytterligere to fire-årsperioder.

Nærmere opplysninger om stillingen fås ved å kontakte direktør Lena Aarekol, epost lena.aarkol@uit.no, tlf: 776 45 010, eller kontorsjef Inger Kaisa Bækø, epost inger.k.bako@uit.no, tlf: 776 45 016.

Søknad sendes elektronisk på søknadsskjema på http://www.jobbnorge.no/

Forespørsler om hvordan arbeidsmiljøet er tilrettelagt, herunder arbeidsstedet fysiske beskaffenhet, helsetjeneste, muligheter for fleksitid og lignende rettes til telefonreferansen i annonsen.

Ved UiT Norges arktiske universitet legger vi vekt på mangfold, og oppfordrer derfor kvalifiserte søkere til å søke uten hensyn til alder, kjønn, funksjonsevne og nasjonal eller etnisk bakgrunn. Universitetet er IA-virksomhet, og legger derfor vekt på å tilrettelegge arbeidsforholdene for tilsatte med redusert funksjonsevne.

Personopplysninger som avgis i søknad og CV til stillinger behandles i henhold til lov om behandling av personopplysninger; personopplysningsloven. I henhold til offentlighetsloven § 25, 2. ledd kan søker be om ikke å bli oppført på den offentlige søkerlista. Universitetet kan likevel beslutte at navnet på kandidaten skal offentliggjøres. Søker vil i forkant av eventuell offentliggjøring bli varslet.

Velkommen som søker!

PhD Candidate in the research project "The Societal Dimensions of Sámi Research (SoDi-Sámi)" at UiT The Arctic University of Norway

Application deadline: 3 weeks

Ref. no (use case no. in ePhorte): 2018/4657

The Department of Cultural Science at Tromsø University Museum has a PhD position vacant for applicants who wish to obtain the degree of Philosophiae Doctor (PhD). The position is affiliated with the research group The Societal Dimensions of Sámi Research (SoDi-Sámi). For further information about the project and the project plan see https://en.uit.no/forskning/forskningsgrupper/gruppe?p_document_id=492164

The appointment is for a period of four years.

The PhD position is for a fixed term, with the objective of completion of research training to the level of a doctoral degree. The PhD Candidate shall participate in an organized research training, and the PhD project must be completed during the period of employment.

Further information about the position is available by contacting Professor Trude Fonneland +47 776 46630 or + 47 40286355, e-mail trude.fonneland@uit.no or project leader Jukka Nyyssönen + 4777645323 or +47 45221079. E-mail jukka.kalervo@uit.no

The position's affiliation
Tromsø University Museum is a conglomerate consisting of Tromsø Museum, The Polar Museum, MS Polstjerna and the Tromsø Arctic-Alpine Botanical Garden.

Tromsø University Museum was founded in 1872 and is North Norway's oldest research institution. The museum was incorporated in Tromsø University in 1976. Our main tasks are research, research communication, development and maintenance of research collections, outreach, management and teaching.

We have two research sections: Natural Sciences and Cultural Sciences. Each section has large research collections and archives.

The position's field of research
The research group SoDi-Sámi's point of departure is that the scholarly knowledge production and society share a complex interdependence. More closely, we are interested in how different institutional and societal contexts as well as discourses have impacted upon the production of knowledge regarding the Sámi across time, and how this academic knowledge actually impact upon Sámi communities and their standing within the Nordic societies? The exploration and understanding of such analytical dimensions generate a historically and internationally comparative understanding of the ways in which the relationship between academic knowledge and society has transformed itself in the context of academic knowledge concerning the Sámi.

One case to be explored within the project is museums as important arenas for production and dissemination of knowledge on Sámi cultures, societies and identities**.** The intention is to examine how the relationships between science and society have changed in the context of

Nordic museums, and whether and how these changes have impacted upon the societal discourses surrounding the Sámi.
Nordic media is another case for negotiating scholarly knowledge on the Sámi. How is knowledge produced by scholars working with Sámi issues articulated, transformed or omitted through the channels of different media? How has media's images and discourses affected researchers' focus and results, and thus the professional and disseminated understandings of Sámi pasts and presents?

For closer information about each of the thematic fields and the methods employed in the project see project plan:
https://uit.no/Content/585340/cache=20180908104855/NFR%20Samisk%202016%20II%20final.pdf

The PhD-applicant is invited to develop a projects related to one of these fields and must present a project description outlining the academic basis of the PhD project (about 5-6 pages).

The PhD candidate will be appointed at least one tutor and will have the opportunity to collaborate with researchers in the SoDi-Sámi group that work on related issues and projects, where the overall goal is to develop a novel approach to the study of the interconnections between academic knowledge and societal change.

Qualification requirements
The successful applicant must fulfil the requirements for admission to UiT's PhD program, cf. Regulation for the degree of Philosophiae Doctor (PhD) at UiT – The Arctic University of Norway. Further information on the requirements and proficiency in English, see PhD regulations at UiT.

The successful applicant must hold a Master's degree in cultural studies, museology, history, anthropology, history of science, indigenous studies or related fields. The Master's degree should be recognized as equivalent to a 2-year Norwegian Master's degree.

The candidate should show good academic performances (preferably with an average grade B or better), and a genuine interest and motivation for performing research.

Emphasis is also attached to personal suitability.

The candidate is expected to have good knowledge of English and one of the Scandinavian languages, both written and verbal. Foreign students must document proficiency in English language, see PhD regulations at UiT. Knowledge of one of the Sami languages is considered an additional merit.

Working conditions
The normal period of employment is four years. The nominal length of the PhD program is three years. The fourth year, distributed as 25 % of each year, shall be used for other duties for the museum and the university cf. Guidelines for the research fellow's duties.

A shorter period of appointment may be decided when the research fellow has already completed parts of his/her research training program or when the appointment is based on a

previous qualifying position (PhD Candidate, research assistant, or the like) in such a way that the total time used for research training amounts to three years.

Remuneration for the position of PhD Candidate is in accordance with the State salary scale code 1017. A compulsory contribution of 2 % to the Norwegian Public Service Pension Fund will be deducted.

Assessment
The applicants will be assessed by an expert committee. During this assessment process, emphasis will be attached to the applicant's potential for research as shown by

- Master's thesis or equivalent
- any other academic works, and
- project description

In addition, consideration may be given to work experience or other activities of significance for the implementation of the PhD studies, and to any teaching qualifications. This includes museum-related work, as in curatorial work or work with archives and collections, teaching education, teaching experience, and experience in mediation of knowledge. Information and material to be considered during the assessment must be submitted by the stipulated deadline.

The applicants who are assessed as the best qualified can be called to an interview. The interview shall, among other things, aim to clarify the applicant's personal suitability for the position.

Application
The application must be submitted electronically via the application form available on www.jobbnorge.no.

The application must include:

- Letter of application
- Project description and project plan (5-6 pages)
- CV (containing a complete overview of education, supervised professional training
- and professional work)
- Diploma and transcript from your Bachelor's degree and Master's degree, or
- equivalent degrees
- Diploma supplement for completed degrees
- List of 2-4 references with contact information.
- List of works and description of these (see below)
  The list of works shall contain the following information:
- author(s), the work's title for articles: the journal's name and volume, the first and
- last page of the article, year of publication
- for publications: publisher, year of publication, number of pages
- The works (published or unpublished) which the applicant wishes to be taken into
- consideration during the assessment process must be submitted

All documentation that is to be evaluated must be certified and translated into English or a Scandinavian language.

All documents mentioned above are mandatory for evaluation.
Information and material to be considered during the assessment must be submitted by the stipulated deadline.
Applications submitted via email will not be evaluated.

General
Applicants shall also refer to the *Supplementary regulations for appointment to postdoktor (Postdoctoral Fellow), stipendiat (PhD) and vitenskapelig assistent (Research Assistant) positions at UiT The Arctic University of Norway* and to the *Regulations concerning terms and conditions of employment for posts of postdoktor (Postdoctoral Fellow), stipendiat (PhD), vitenskapelig assistent (Research Assistant) and spesialistkandidat (Resident).(In Norwegian only)*

Questions concerning the organization of the working environment, such as the physical state of the place of employment, health service, possibility for flexible working hours, part time, etc. as well as questions about the PhD programme may be directed to the telephone reference in this announcement.

UiT has HR policy objectives that emphasize diversity, and encourages all qualified applicants to apply regardless of their gender, functional ability and national or ethnic background.

UiT is an IW (Inclusive Workplace) enterprise and will emphasize making the necessary adaptations to the working conditions for employees with reduced functional ability.

Personal data given in an application or CV will be processed in accordance with the Act relating to the processing of personal data (the Personal Data Act). In accordance with Section 25 subsection 2 of the Freedom of Information Act, the applicant may request not to be registered on the public list of applicants. However, the University may nevertheless decide that the name of the applicant will be made public. The applicant will receive advance notification in the event of such publication.

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Seksjon for rekruttering
Arkivref: 2019/942/IST045
Dato: 18.02.2019

SAKSFRAMLEGG

Til:	Møtedato:	Sak:
Styret for Norges arktiske universitetsmuseum og akademi for kunstfag	06.03.2019	8/19

Ber om godkjenning av betenkning - stipendiatstilling i økologi for landskapsarkitektur (st. 3069)

Innstilling til vedtak:

Betenkningen for stillingen godkjennes. Stillingen utlyses.

Begrunnelse:

Universitetsstyret behandlet sak om refordeling av rekrutteringsstillinger med finansieringsstart i 2015 i møte 19. juni 2014, sak S 28-14. (ePhorte 2013/5156-36), hvor det kunstfaglige fakultet fikk tildelt stilling nr 3069.

Stillingen ble lyst ut med søknadsfrist 26.5.15 (ePhorte 2015/1080 og ny sak 2016/3216). Det var bare en kvalifisert søker og stillingen ble trukket, og ny utlysning ble godkjent 21.3.16.
Stillingen ønskes nå utlyst.

Det forutsettes en rask utlysning, bedømmelse og tilsetting, for å unngå at midlende trekkes tilbake, da det har gått uforholdsmessig lang tid.

Lena Aarekol
museumsdirektør

Ingunn Strømmesen
førstekonsulent

ingunn.strommesen@uit.no
77 64 63 78

Dokumentet er elektronisk godkjent og krever ikke signatur

UIT NORGES ARKTISKE UNIVERSITET
NO-9037 TROMSØ

Jobbnorge.no, Nav.no, Forskning.no

Stipendiat i økologi for landskapsarkitektur ved Kunstakadmiet

Søknadsfrist:
Ref.no: X/X

Ved Kunstakademiet, Norges arktiske universitetsmuseum og akademi for kunstfag, UiT Norges arktiske universitet er det ledig en stilling som stipendiat i **økologi for landskapsarkitektur**. Stillingen er knyttet til Landskapsarkitektstudiet og gjennom ph.d.-programmet ved Fakultetet for biovitenskap, fiskeri og økonomi (BFE) til Forskningsgruppen nordlige populasjoner og økosystemer, Institutt for arktisk og marin biologi (AMB)

Tilsettingen gjelder for 4 år.

Målet er at forskerutdanningen skal føre fram til doktorgrad (ph.d). Opptak til doktorgradsprogram er en forutsetning for tiltredelse som stipendiat - se forskrift for graden philosophiae doctor(ph.d) ved UiT - og studieperioden starter ved tiltredelse i stillingen. Stipendiaten deltar i BFEs forskerutdanning, og doktorgradsprosjektet gjennomføres i løpet av tilsettingsperioden. Informasjon om søknadsprosessen for opptak til ph.d.-programmet og ph.d. forskrift finnes på ph.d.-nettsidene til Fakultet for biovitenskap, fiskeri og økonomi.

Landskapsarktiektstudiet er en femårig mastergradsutdanning i landskapsarkitektur etablert i samarbeide mellom UiT og Arkitektur- og designhøgskolen i Oslo (AHO). Studentene tilbringer de første tre årene ved AHO og de siste to ved Kunstakademiet i Tromsø.

Master i landskapsarkitektur tar utgangspunkt i det lokale for å etablere et globalt laboratorium som legger særlig vekt på nordlige forhold. Naturskapte og menneskeskapte endringer påvirker både samfunn og økosystem i nord. Studiet har som mål å gjøre undersøkelser i, og produsere ny kunnskap om hvordan vi kan beskytte, formgi og videreutvikle spesielt sårbare landskap innenfor samfunn i endring. Ved Kunstakademiet er det et kreativt og produktivt arbejdsmiljø med per idag 12 undervisere/forskere innenfor visuell kunst, skrivekunst og landskapsarkitektur.

Institutt for arktisk og marin biologi (AMB) samler seks forskningsgrupper i biologi i et stort institutt hvor den faglige aktiviten spenner vidt og dekker forskning og utdanning fra molekylære mekanismer på cellenivå, fysiologiske tilpasninger hos organismer til økologiske interaksjoner i akvatiske og terrestre miljøer. Instituttet representerer en tidsriktig og spennende faglig enhet i biologi som møter faglige utfordringer innen grunnforskning, næringsrettet og forvaltningsrettet forskning med et sterkt fokus på Nordområdene. Instituttet har samarbeid med regionale institusjoner som Framsenteret, Havforskningsinstituttet og Nibio om omfattende nasjonalt og internasjonalt forskningssamarbeid. Ved AMB er det for tiden 53 faste vitenskapelig ansatte, 7 administrative og 26 ansatte i tekniske stillinger, samt 60 midlertidig ansatte forskere, ph.d stipendiater og teknikere.

Stillingens forskningsområde/forskningsprosjekt og andre arbeidsoppgaver
Doktorgradsprosjektet skal utforske hvordan økologi kan integreres i landskapsarkitekturen. Prosjekter med et fokus på landskapsarkitektur i nordlige forhold med et kaldt kllima vil bli foretrukket. Prosjektet kan være empirisk, konseptuelt og/eller teoretisk basert. Prosjektforslag med en didaktisk tilnærming, med forskning på hvordan økologi for landskapsarkitektur kan undervises, er også velkomne. Stipendiaten skal ta ansvar for offentliggjøring og formidling av prosjektet.

Den som blir tilsatt forventes å bo i Tromsø og ta del i feltarbeid der det måtte bli aktuelt. Det vil være

mulig med et forskningsopphold i utlandet på opptil 3 mnd iløpet av stipendiatperioden.

Kvalifikasjonskrav
Det kreves mastergrad eller tilsvarende i landskapsarkitektur og/eller økologi, fortrinnsvis vegetasjonsøkologi. I tillegg vil erfaring i en eller flere av fagområdene plantebiologi, arktisk og/eller alpin biodiversitet være en fordel. God samarbeidsevne vil bli vektlagt.

En prosjektbeskrivelse på maksimum 2 sider kreves. *Beskrivelsen skal inkludere motivasjonen for en tverrfaglig PhD-stilling.* Ta kontakt for informasjon og om du ønsker å diskutere prosjektoppgave.

Det forventes at avhandlingen leveres på engelsk og søker må derfor beherske engelsk skriftlig på et tilfredstillende nivå. Under ellers like vilkår vi en søker som i tilegg beherkser et skandinavisk språk bli fortetrukket. Slik dekker du språkkravet.

Plan for stipendiatperioden:
Ved tilsetting fattes det et vedtak om midlertidig opptak til ph.d.-program. Den tilsatte kandidaten skal innen seks uker etter tiltredelse sende inn søknad om opptak til forskningsseksjonen. Søknaden omfatter blant annet bearbeidet prosjektbeskrivelse, avtaler og plan for gjennomføring av utdanningen. Dersom ph.d.-avtale ikke foreligger innen fristen, kan arbeidsgiver heve avtalen, jf. § 1-3(8) i forskrift om ansettelsesvilkår for stillinger som postdoktor, stipendiat, vitenskapelig assistent og spesialistkandidat.

Arbeidsvilkår
Normal tilsettingsperiode er fire år. Ph.d.-studiet er normert til tre år. Det fjerde året, fordelt med 25 % pr år, skal brukes til undervisning eller andre arbeidsoppgaver for universitetet, jf. retningslinjer for stipendiaters arbeidsoppgaver.

Kandidaten vil ha sitt kontor blant landskapsarkitektene på Kunstakademiet, men i perioder - når dette er nødvendig eller ønskelig – kan kandidaten ha kontor blant økologene ved Fakultet for biovitenskap, fiskeri og økonomi.

Stillingen vil spesielt bli tillagt undervisning av studenter i emner relatert til «økologi for landskapsarkitektur» i landskapsarkitektstudiet.

Kortere tilsettingsperiode kan innrømmes dersom stipendiaten alt har gjennomført deler av sitt forskerutdanningsprogram, eller når ansettelsen bygger på tidligere tilsetting i utdanningsstilling (stipendiat, vitenskapelig assistent og liknende), slik at total tid til forskerutdanning blir tre år.

Lønn
Stipendiat lønnes etter statens regulativ kode 1017. Det trekkes 2 % pliktig innskudd til Statens pensjonskasse.

Bedømmelse
Søkerne vil bli vurdert av en sakkyndig komité. Ved bedømmelsen vil hovedvekten bli lagt på søkerens potensial for forskning slik det fremgår av:

- masteroppgaven eller tilsvarende,
- eventuelle andre vitenskapelige arbeider, og
- prosjektbeskrivelse.

I tillegg kan det tas det hensyn til yrkespraksis og annen virksomhet av betydning for gjennomføring av doktorgradsstudiet, og til eventuelle pedagogiske kvalifikasjoner. Herunder pedagogisk utdanning, undervisningserfaring, erfaring fra popularisering samt erfaring/utdanning fra andre typer formidling.

De søkerne som vurderes å være best kvalifisert vil bli innkalt til intervju. Intervju skal blant annet ta sikte på å avklare personlig egnethet for stillingen. *Søkere må ta med originale vitnemål og attester til intervju.*

Send inn din søknad via www.jobbnorge.no
For å bli vurdert av bedømmelseskomiteen må følgende dokumenter vedlegges søknaden i Jobbnorge innen søknadsfristen utløp. Dokumenter som skal vurderes må være sertifisert og oversatt til skandinavisk eller engelsk.

Vedlegg til søknadsbrev:

- CV (fullstendig oversikt over utdanning, praksis og faglig arbeid)
- vitnemål og karakterutskrift fra bachelorgrad eller tilsvarende
- vitnemål og karakterutskrift fra mastergrad eller tilsvarende
- masteroppgaven eller tilsvarende
- diploma supplement for avlagte grader
- prosjektbeskrivelse
- dokumentasjon av engelskkunnskaper
- attester og referanser med kontaktinformasjon
- liste over arbeider og beskrivelse av disse

    - Listen over arbeider skal ha følgende opplysninger:
        - forfatter(e), arbeidets tittel.
        - for artikler: tidsskriftets navn og volum, artikkelens første og siste sidetall, årstall.
        - for publikasjoner: forlag, trykkested, år og sidetall.

Arbeider – publiserte eller upubliserte arbeider som søkeren ønsker det skal bli tatt hensyn til i bedømmelsen skal legges som vedlegg til søknaden.

Nærmere opplysninger om stillingen fås ved henvendelse til Professor i landskapsarkitektur, Thomas Juel Clemmensen: thomas.j.clemmensen@uit.no, tlf 776 60547 / +45 28932838, Professor i biologi, Kari Anne Bråthen: kari.brathen@uit.no, tlf 776 46629 / +47 45028754.

Søknad og vedlegg via e-post kan ikke godkjennes.

Informasjon
Her finner du informasjon og retningslinjer som det henvises til i våre kunngjøringer
Forespørsler om hvordan arbeidsmiljøet er tilrettelagt, herunder arbeidsstedets fysiske beskaffenhet, helsetjeneste, muligheter for fleksitid, deltid o.l. kan rettes til telefonreferansen.

Ved UiT legger vi vekt på mangfold, og oppfordrer derfor kvalifiserte søkere til å søke uten hensyn til kjønn, funksjonsevne og nasjonal eller etnisk bakgrunn.

Universitetet er IA-virksomhet og legger derfor vekt på å tilrettelegge arbeidsforholdene for tilsatte med redusert funksjonsevne.

Personopplysninger som avgis i søknad og CV til stillinger behandles konfidensielt i henhold til lov om behandling av personopplysninger; personopplysningsloven. I henhold til offentlighetsloven § 25, 2. ledd kan søker be om ikke å bli oppført på den offentlige søkerlista. Universitetet kan likevel beslutte at navnet på kandidaten skal offentliggjøres. Søker vil bli varslet i forkant av en eventuell offentliggjøring.

UIT NORGES ARKTISKE UNIVERSITET
NO-9037 TROMSØ

Jobbnorge.no, Nav.no, Forskning.no,
(utlyses på Euraxess av enheten, jf. Stillingsannonsering på EURAXESS Jobs)

PhD student position in ecology for landscape architecture at the Academy of Arts

Application deadline: April 15, 2019
Applications shall be marked: X/X

The Academy of Arts, The Arctic University Museum of Norway and Academy of Fine Arts (UMAK), UiT The Arctic University of Norway (UiT) has a vacant PhD position in **ecology for landscape architects**. The position will be a part of the academic community around the Academy's Landscape Architect Programme as well as the research group of Northern populations and ecosystems at the Department of Arctic and Marine Biology (AMB), The Faculty of Biosciences, Fisheries and Economic (BFE) s.

The position is a four year fixed appointment . The objective is to complete a research training programme at the level of a doctoral degree. Admission to a PhD programme is a prerequisite for employment, and the programme period starts at the time of commencement of the position. The PhD Candidate must participate in BFE's organized research training programme, and the PhD project must be completed within the period of employment (four years). Information about the application process for admission to the PhD programme and regulations for the degree of Philosophiae Doctor (PhD) are available at the following web address Faculty of Biosciences, Fisheries and Economics PhD web pages.

The Landscape Architecture Programme is a five-year joint masters programme between UiT and The Oslo School of Architecture and Design (AHO). The students spend their first three years of study at AHO an the last two years at the Academy of Fine Arts in Tromsø.

The masters programme uses the local as basis for a global laboratory with a specific emphasis on northern conditions. Natural as well as human-made changes influences both society and ecosystems in the North. The study programme aims at exploring and producing new knowledge on how to protect, design and develop vulnerable landscapes within a society in transformation. The Academy of Art in Tromsø has a creative and productive working environment with currently 12 teachers/researchers in visiual art, creative writing av landscape architecture.

The Department of Arctic and Marine Biology (AMB) includes 6 research groups. Research and teaching at AMB has a broad span, from molecular mechanisms at cellular/subcellular levels via studies of adaptations at the organismal level, to ecological interactions in aquatic and terrestrial environments. The staff counts 53 permanent scientists, 26 technicians, 7 administrative positions and 60 temporary employees (researchers, postdocs, PhD research fellows, technicians).

Research area
The PhD project must focus on how ecology can be integrated in landscape architecture, preferabily with a focus on northern conditions and a cold climate. The project can be both empirically, conceptually and/or theoretically based. Project proposals that encompass a didactic dimension, with research on how to teach ecology for landscape architecture, are also welcome. The PhD-candiate will be responsible for project outreach.

The successful applicant must be based in Tromsø and participate in field work if relevant. The candidate will have the opportunity to have a research stay abroad for up to 3 months.

Qualifications required
A Norwegian Masters degree or an equivalent foreign Masters degree in landscape architecture and/or ecology, preferentially vegetation ecology, is required. Additional experience in one or several of the fields of plant biology, arctic-alpine biodiversity is advantageous. Teamwork skills will be emphasized.

Emphasis is attached to personal suitability.

It is expected that the dissertation is written in English. As a consequnce applicants must show good command in English – written and verbal. Under otherwise equal circumstances, applicants who in addition show good command in a Scansinavian language will be preferred. How to document languages proficiency

A project description of maximum 2 pages is required, including a presentation of the motivation for an interdisciplinary project. Please get in touch for more information and if needed.

Admission to a PhD programme is a prerequisite for employment in a PhD position; cf. Section 6 of the Regulations for the degree of Philosophiae Doctor (PhD) at the UiT. The enrolement in the PhD programme must be approved and the contract signed no later than six weeks after the starting date. In connection with this, the person who is appointed may be allowed a period of up to two month in which to submit a draft of the project description/revised project description and a proposal of courses for the education component. In the event that the PhD contract is not completed within the stipulated deadline, the employer may annul the contract; cf. Section 1-3(8) of the Regulations relating to conditions of employment for positions of Postdoctoral Fellows, PhD Candidate, Research Assistant (only in Norwegian).

Working conditions
The normal period of employment is four years. The nominal length of the PhD programme is three years. The fourth year, distributed as 25 % of each year, shall be used for teaching or other duties for the university cf. Guidelines for the PhD candidate's duties.

The candidate will have his/her working space at the Tromsø Art academy. When necessary or beneficial, the candidate can have his/her working space at the Department of Arctic and Marine Biology for shorter periods of time.

The position will especially be assigned teaching duties in subjects related "ecology for landscape architects" thaught to students at the landscape architecture programme.

A shortened period of employment may be approved if the PhD Candidate already has implemented parts of the PhD programme or if the appointment is based on previous appointments in teaching positions (PhD candidate, Research Assistant or the equivalent), to the effect that the total time of the PhD programme is three years.

Remuneration for the position of PhD Candidate is in accordance with State salary scale code 1017. A compulsory contribution of 2 % to the Norwegian Public Sector Pension Fund will be deducted from the gross salary.

Assessment
The applicants will be assessed by an expert committee. During this assessment process, emphasis will be attached to the applicant's potential for research as shown by:

- Master's thesis or equivalent
- any other academic works, and
- project description

In addition, consideration may be given to work experience or other activities of significance for the implementation of the PhD studies, and to any teaching qualifications. This includes teaching education, teaching experience, from popularization and experience/education from other types of dissemination**.** The best qualified assessed applicants will be called to an interview. The interview is among other things aiming to clarify the applicant's personal suitability for the position.

Applicants should bring original certificates/diplomas and reference letter (work) to an interview.

Submit your application in www.jobbnorge.no
To be assessed by the Committee it's important that the application includes the below mentioned documents befor the application deadline expires. Documents must show certified translation to Scandinavian or English.

Attachment to letter of application:

- CV (containing a complete overview of education, supervised professional training and professional work)
- diploma and transcript from your Bachelor's degree or equivalent
- diploma and transcript from your Master's degree or equivalent
- Master's thesis or equivalent
- diploma supplement for completed degrees
- project description
- documentation of English language proficiency
- reference letter and contact information
- List of works and description of these
    - The list of works shall contain the following information:
        - author(s), the work's title
        - for articles: the journal's name and volume, the first and last page of the article, year of publication
        - for publications: publisher, printer, year of publication, number of pages

Works – The applicant have to attach the published or unpublished work he/she wish the Committee be taken into consideration during the assessment process.

For further information, please contact: Professor of landscape architecture, Thomas Juel Clemmensen: thomas.j.clemmensen@uit.no, tel 776 60547 / +45 28932838, Professor of biology, Kari Anne Bråthen: kari.brathen@uit.no, tel 776 46629 / +47 45028754.

Application and attachment in e-mail can not be approved.

Information
Information and guidelines referenced in our announcement are available here.
Questions concerning the organization of the working environment, such as the physical state of the place of employment, health service, possibility for flexible working hours, part time, etc. may be directed to the telephone reference in this announcement.

UiT has HR policy objectives that emphasize diversity, and therefore encourages qualified applicants to apply regardless of gender, functional ability and national or ethnic background.

UiT is an IW (Inclusive Workplace) enterprise, and will therefore emphasize making the necessary adaptations to the working conditions for employees with reduced functional ability.

Personal data given in an application or CV will be processed in accordance with the Act relating to the processing of personal data (the Personal Data Act). In accordance with Section 25 subsection 2 of the Freedom of Information Act, the applicant may request not to be registered on the public list of

applicants. However, the University may nevertheless decide that the name of the applicant will be made public. The applicant will receive advance notification in the event of such publication.

In case of discrepancies between the Norwegian and the English version of this description, the Norwegian version takes precedence.

We look forward to receiving your application!

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Seksjon for rekruttering
Arkivref: 2019/781/HSK001
Dato: 18.02.2019

SAKSFRAMLEGG

Til:	Møtedato:	Sak:
Styret for Norges arktiske universitetsmuseum og akademi for kunstfag	06.03.2019	9/19

Godkjenning av betenkning - to universitetslektorstillinger i 50 % stilling i landskapsarkitektur

Innstilling til vedtak:
Styret ved Norges arktiske universitetsmuseum og akademi for kunstfag godkjenner fremlagt betenking for to 50 % stillinger som universitetslektor (kode 1009) i landskapsarkitektur.

Begrunnelse:
Ved Kunstakademiet i landskapsarkitekturstudiet er det ledig to 50% stillinger som universitetslektor. Utlysningene lyses ut som følge av vedtak om opprettelse av landskapsarkitektstudiet i styrene for UiT og Arkitektur og designhøgskolen i Oslo. Universitetsstyret behandlet saken i sak S 54/17, 2016/3473-24.

I bemanningsplan/rekrutteringsplan for studieprogrammet er det fastsatt at det skal rekrutteres to 50 % stillinger som universitetslektor i landskapsarkitektur.

Lena Aarekol
direktør
–

Hege Skogvang
rådgiver
–

Dokumentet er elektronisk godkjent og krever ikke signatur

To faste stillinger i 50% som universitetslektor i landskapsarkitektur

Søknadsfrist: 01.04.2019

Søknad merkes: 2019/781

Kunstakademiet ved Norges arktiske universitetsmuseum og akademi for kunstfag, UiT, har fra 01.08.19 ledig to stillinger som universitetslektor i 50% i landskapsarkitektur.

For nærmere informasjon om stillingene kontakt professor Thomas Juel Clemmensen på e-post thomas.j.clemmensen@uit.no.

Stillingens tilhørighet

Høsten 2018 ble de første studentene tatt opp på den felles femårige landskapsarkitekturutdanningen som UiT har etablert i samarbeid med Arkitektur og designhøgskolen i Oslo (AHO). Denne masterutdanningen i landskapsarkitektur er være basert på de beste utdannings- og profesjonstradisjoner innenfor landskapsarkitektur og har kaldt klima som spesielt fokusområde. Stillingene som lyses ut er tilknyttet Kunstakademiet ved UiT. Akademiet har studenter og tilsatte innenfor fagområdene kunst, skrivekunst og landskapsarkitektur.

Stillingens innhold

Undervisning og veiledning:

Den som tilsettes skal ha undervisnings- og veiledningsoppgavene knyttet til fjerde og femte året i studieprogrammet (masternivå). De første studentene i programmet ble tatt opp høsten 2018 og de studerer i Oslo fram til høsten 2021. Frem til høsten 2021 vil den som tilsettes ha undervisnings- og veiledningsoppgaver knyttet til en toårig engelskspråklig master i landskapsarkitektur med fordypning i arktiske problemstillinger.

Forskning, faglig og kunstnerisk utviklingsarbeid:

Den som tilsettes forutsettes å opprettholde et høyt faglig nivå gjennom egen landskapsarkitektonisk virksomhet og ved deltakelse i formidlings- og utviklingsprosjekter. Det forventes også at vedkommende skal bidrag til å bygge bro mellom akademia og praksis. Det settes normalt av inntil 20% av stillingsomfanget til FoU-virksomhet.

Administrative oppgaver:

I stillingen inngår et mindre omfang av fagadministrative oppgaver knyttet til undervisnings- og veiledningsoppgavene.

Kvalifikasjoner:

Vi søker etter dyktige og energiske landskapsarkitekt med dokumentert interesse/erfaring fra arktiske/subarktiske problemstillinger og som kan dokumentere dyktige formgivningsevner innenfor rammene av en bærekraftig samfunnsutvikling.

Personen vi søker skal være med i et faglig sterkt team som

- Utdanner formsikre landskapsarkitekter av høy internasjonal kvalitet som er allsidige, skapende og nytenkende og som er rustet til å møte et samfunn i stadig endring.

- Driver prosjekt- og forskningsbasert undervisning innenfor studiets fokusområder.
- Bidrar til kunnskapsproduksjon i faget som legger særlig vekt på en bærekraftig samfunnsutvikling med den arktiske/subarktiske konteksten og kaldt klima som ramme.

Personen vi søker må kunne dokumentere:

- Høyere grads eksamen i landskapsarkitektur eller tilsvarende ved universitet eller høgskole.
- Praksiserfaring med arbeider på internasjonalt nivå og erfaring fra prosjektledelse.
- Gode formidlings- og samarbeidsevner.
- Gode resultater fra undervisning på masternivå.
- Nasjonalt fagnettverk og aktiv tilknytning til faglig praksis.

Fordi det legges så stor vekt på praksiserfaring åpnes det for at stillingene kan innehas av personer med deltidsstilling som utøvende landskapsarkitekt. Det åpnes derfor for at det kan søkes om en mindre stillingsandel enn 50 %. Slik stillingsandel må oppgis og begrunnes i søknaden.

Søkerne må beherske norsk, dansk eller svensk samt ha gode kunnskaper i engelsk. I en situasjon der kandidater er likestilt vil kandidater med grad i landskapsarkitektur bli foretrukket.

Søkere må kunne dokumentere pedagogiske kvalifikasjoner i form av universitetspedagogisk seminar, annen pedagogisk utdanning eller gjennom å ha utviklet en pedagogisk mappe, se *Pedagogisk kompetanse*. I særlige tilfeller kan dokumentert praktisk kompetanse som underviser vurderes som likeverdig. Det er videre ønskelig at søkerne kan dokumentere erfaring fra undervisning på høyt nivå med gode resultater. For mer informasjon om ulike pedagogiske erfaringer finnes her. Stillingen kan også søkes om man ønsker seg vurdert på såkalt kvalifiseringsvilkår – se pkt. 7.6 her.

Kravene for fast tilsetting som universitetslektor går fram av pkt. 4.4.5 her.

Arbeidsvilkår

UiT har som hovedprinsipp at universitetslektorer bruker om lag 80 % av sin stilling undervisning og resten til FoU-arbeid når tid til andre arbeidsoppgaver er trukket fra. Som norm avsettes 5 % tidsressurs til administrative oppgaver. For nærmere informasjon vises det til Retningslinjer for fordeling av arbeidstid for ansatte i undervisnings- og forskerstillinger.

Lønn etter Statens regulativ 1009 Universitetslektor avhengig av kvalifikasjoner. Fra bruttolønn trekkes 2 % pliktig innskudd til Statens pensjonskasse.

Tilsetting skjer på de vilkår som til enhver tid gjelder for offentlige tjenestemenn, og det er seks måneders prøvetid.

Bedømmelse

Søkerne vil bli vurdert av en sakkyndig komité. Komiteens oppgave er å foreta en vurdering av søkernes kvalifikasjoner på grunnlag av det materiale som sendes inn, og denne betenkningen. De søkere som vurderes å være best kvalifisert vil bli innkalt til intervju.

Intervjuet skal blant annet ta sikte på å avklare personlig egnethet for stillingen. Det kan også bli avholdt prøveundervisning. UiT Norges arktiske universitet ønsker å øke kvinneandelen i vitenskapelige stillinger. Dersom to eller flere søkere blir funnet tilnærmet likeverdig kvalifisert vil UiT rangere kvinner foran menn.

Søknad
Søknad med vedlegg sendes elektronisk på søknadsskjema som ligger på www.jobbnorge.no

Søkeren kan levere inntil 15 arbeid som er sentrale i hennes/hans produksjon. Det skal også legges ved en oversikt over den samlede kunstneriske/vitenskapelige produksjon der det **må** spesifiseres hvilke arbeider som er mest betydningsfulle i forhold til den utlyste stillingen. Kapasiteten på mottak av det elektronisk innlevert søknadsmateriale i Jobbnorge sin søknadsbase har en maksimumsgrense på 15 MB. Dersom søknadsmaterialet krever større tilgjengelig plass, bes søkere oppgi lenke i søknaden til annet nettsted hvor vedlegg legges tilgjengelig for vurdering.

Det vises forøvrig til utfyllende bestemmelser for tilsetting og opprykk i undervisnings- og forskerstillinger ved UiT og forskrift om ansettelse og opprykk i undervisnings- og forskerstillinger.

Generelt
Forespørsler om hvordan arbeidsmiljøet er tilrettelagt, herunder arbeidsstedets fysiske beskaffenhet, helsetjeneste, muligheter for fleksitid, deltid o.l. kan rettes til kontaktpersoner for stillingen.

Ved UiT legger vi vekt på mangfold, og oppfordrer alle kvalifiserte søkere til å søke uten hensyn til alder, kjønn, funksjonsevne og nasjonal eller etnisk bakgrunn. Universitetet er IA-virksomhet, og legger vekt på å tilrettelegge arbeidsforholdene for tilsatte med redusert funksjonsevne.

Personopplysninger som avgis i søknad og CV til stillinger behandles i henhold til lov om behandling av personopplysninger; personopplysningsloven. I henhold til offentlighetsloven § 25, 2. ledd kan søker be om ikke å bli oppført på den offentlige søkerlista. Universitetet kan likevel

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Seksjon for rekruttering
Arkivref: 2019/386/HSK001
Dato: 06.02.2019

SAKSFRAMLEGG

Til:	Møtedato:	Sak:
Styret for Norges arktiske universitetsmuseum og akademi for kunstfag	06.03.2019	10/19

Godkjenning av betenkning - postdoktor innen FATE-prosjektet

Innstilling til vedtak:
Styret ved Norges arktiske universitetsmuseum og akademi for kunstfag godkjenner fremlagt betenking for stilling som postdoktor innen FATE-prosjektet.

Begrunnelse:
Høsten 2018 fikk daværende Tromsø museum – Universitetsmuseet tilslag på en søknad om midler i BiodivERsAs og Belmont Forums COFUND-utlysing – BiodivScen via Norges forskningsråd.

Prosjektet *Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethnoecology, contemporary ecology and ancient DNA* har som målsetting å: *"[...] develop scenarios of future biodiversity and ecosystem services in the circumpolar Arctic region by integrating paleoecological data from ancient DNA, archaeological and historical observations, recent ecological data and indigenous and local knowledge to identify drivers of biodiversity change."*

Forskningsrådet innstiller på å bevilge totalt 350 000 EUR til den norske delen av prosjektet for en periode på inntil 36 måneder. Til prosjektet er det en postdoktorstilling.

Lena Aarekol
direktør
–

Hege Skogvang
rådgiver
–

Dokumentet er elektronisk godkjent og krever ikke signatur

Vedlegg
1 Forslag til betenkning
2 Søknad til NFR

Postdoctoral Fellow in ancient sedimentary DNA at the University Museum

Application deadline:
Ref.: 2019/386

The University Museum, UiT The Arctic University of Norway, has a 2.5 year fixed term contract vacant at the post-doctoral level. The applicant will join the international team of researchers in the ERA-NET BiodivERsA project "**Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethnoecology, contemporary ecology and ancient DNA**" (https://www.biodiversa.org/1400). The project will conduct a circumarctic investigation of long-term biodiversity change based on ancient DNA from lake sediment cores, with a specific focus on the role of herbivory and climate in shaping vegetation. We will use this data, in conjunction with data from contemporary ecology and indigenous and local knowledge, to develop scenarios of future biodiversity and ecosystem services.

Further information about the position is available by contacting Prof Inger Greve Alsos (inger.g.alsos@uit.no).

The postdoc will generate and analyse paleogenetic data on vegetation, mammals and fungi/lichens using lake sediment cores from Norway and Svalbard. The project will involve field work in both areas. He/she will also contribute to identify long-term, broad-scale drivers and develop scenarios of ecosystem change at pan-Arctic scale through literature review and data collection. The work will be carried out in close collaboration with the ancient DNA labs at the Alfred-Wegener-Institute (AWI) Research Unit Potsdam, the University of California Santa Cruz and McMaster University. This post doc will have a special responsibility for vascular plant aDNA protocol development. The project builds strongly on interdisciplinary exchange leading to joint analyses and publications with the other international members of the BiodivERsA project.

The position of Postdoctoral Fellow is a fixed-term position for a period of **2.5 years starting on May 1st 2019**. The main objective of the appointment as a post-doctoral research fellow is to qualify for work in senior academic position. No one may be appointed to more than one fixed term-period as a Postdoctoral Fellow at the same institution.

The position's affiliation
This position is attached to the Department of Natural Sciences, which is responsible for developing and maintaining scientific collections of objects (animals, plants, fossils and minerals) as well as public outreach, including the Tromsø Arctic Alpine Botanical Garden. The department has a permanent staff of 15, of which eight are in academic positions. At the moment, four PhD students, two post docs and two researchers are connected to the department. The position is within the research group in taxonomy and biodiversity, which focuses on diversity, phylogeography and taxonomy of northern organisms using molecular as well as traditional methods. The department has laboratories for modern and ancient DNA analyses, and it is currently involved in four large projects: ECOGEN, ERC - IceAGenT , ERC – TerrACE, and Norwegian Barcode of Life". The latter includes full genome sequencing of the flora of Norway and the Arctic. For more information about the Department of Natural Sciences, visit this site. This project will also link with research by the Department of Arctic and Marine Biology at UiT.

The successful applicant is expected to spend most of the time in Tromsø, but there will also be research stay with our project collaborators (see above) and fieldwork.

Required qualifications
A Norwegian doctoral degree in the subject area or a corresponding foreign doctoral degree recognised as equivalent to a Norwegian doctoral degree is required. Experience in gearchaeology is most relevant, and experience in pedology, palaeoecology, geochronology and bioinformatics/biostatistics are advantages. English language skills are required. Norwegian/Scandinavian, French, and Italian language skills are advantages. Personal fit to the team and teamwork skills are important. Average physical condition is sufficient for the fieldwork.

Working conditions
The working hours will be utilised for research, research-related activities and research administration. The position may include duties in support of the research group or the University Museum of up 10 % of the position. The successful applicant must be willing to engage in the ongoing development of his/her discipline and the University as a whole.

The remuneration for this position is in accordance with the State salary scale code 1352. A compulsory contribution of 2 % to the Norwegian Public Service Pension Fund will be deducted on top of tax.

Assessment
The applicants will be assessed by an expert committee. The committee's mandate is to undertake an assessment of the applicants' qualifications based on the written material presented by the applicants and the detailed description drawn up for the position. The applicants who are assessed as the best qualified will be called to an interview. The interview will, among other things, provide the opportunity to discuss the applicant's personal suitability for the position.

Application
The **application** must be submitted electronically via the application form available on www.jobbnorge.no and should include the following:

- Letter of application
- CV (containing a complete overview of education, supervised professional training and professional work)
- Certified copies of diploma for completed degrees
- Documentation of English language proficiency (not needed for native English speakers, Scandinavians or people educated in EU/EFTA)
- Complete list of works containing the following information:
    - author(s), the work's title
    - for articles: the journal's name and volume, the first and last page of the article, year of publication
    - for publications: publisher, printer, year of publication, number of pages
- Up to 10 works (published or unpublished) which the applicant wishes to be taken into consideration during the assessment. The doctoral thesis is regarded in this context as one work.
- List of referees with contact information.

All documentation that is to be evaluated must be certified and translated into English or a Scandinavian language and be submitted by the stipulated deadline.

More information and guidelines referenced in our announcement are available here.
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Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethnoecology, contemporary ecology and ancient DNA (Researcher Project - MILJØFORSK)

Application Number: ES632637 Project Number: 296987

Project partners

Project Owner

Institution / company (Norwegian name)	UiT - The Arctic University of Tromsø
Address	Tromsø Museum
Postal code	9037
City	TROMSØ
Country	Norway
E-mail	lena.aarekol@uit.no
Website	https://uit.no/om/enhet/ansatte/person?p_document_id=43552&p_dimension_id=88179
Enterprise number	970422528
Partner's role	Both research activity and financing

Project administrator

First name	Lena
Last name	Aarekol
Date of birth	130370
National identity number	
Gender	Female
Position/title	Direktor
Phone	
E-mail	lena.aarekol@uit.no
Confirmation	✔ The application has been approved by the Project Owner

Project manager

First name	Inger Greve
Last name	Alsos
Date of birth	180668

Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethnoecology, contemporary ecology and ancient DNA (Researcher Project - MILJØFORSK)

Application Number: ES632637 Project Number: 296987

National identity number	**********
Gender	Female
Institution / company (Norwegian name)	UiT - The Arctic University of Tromsø
Address	Tromsø Museum
Postal code	9037
City	TROMSØ
Country	Norway
Position/title	Professor
Academic degree	PhD
Preferred language	Bokmål
Phone	77620796
E-mail	inger.g.alsos@uit.no

Partners under obligation to provide professional or financial resources for the implementation of the project

Project participants

First name	Last name	Institution/company

Project info

Project title

Project title	Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethnoecology, contemporary ecology and ancient DNA

Primary and secondary objectives of the project

Primary and secondary objectives	We develop scenarios of future biodiversity and ecosystem services in the circumpolar Arctic region by integrating paleoecological data from ancient DNA, archaeological and historical observations, recent

	ecological data and indigenous and local knowledge to identify drivers of biodiversity change.

Project summary

Project summary	The Arctic is currently experiencing dramatic ecosystem changes, with immediate effects on ecosystem services connected to food production, climate regulation, natural resources and cultural integrity1. Understanding the relative impacts of climate2, herbivory3,4 and human management on ecosystems, in particular on vegetation, is of paramount importance for their long term sustainability (conservation) as well as for the well-being of indigenous communities across the circumpolar North. These communities directly depend on herding and hunting large herbivores, such as reindeer/caribou and are already struggling to adapt to the effects of climate warming and correlated changes in vegetation5. Well-informed ecosystem management and species conservation is however precluded by the scarcity of long-term (millennia) data sets spanning ancient and contemporary climatic and land use events (Overpeck et al. 2003). Palaeorecords offer a unique possibility to fill this gap as they provide data on long-term ecosystem development, historic events of climate change and land use modification (Willis and Birks 2006). These long-term records provide the basis for developing transdisciplinary scenarios that are ?ground-truthed? and refined by the inclusion of local community observations and knowledge extending back decades and generations. By coupling indigenous and scientific analyses and interpretations, fine-grained and broad spatio-temporal scales, and qualitative and quantitative data sets6, scenarios will be created that support decision-making in the face of accelerating socio-ecological transformations throughout the circumpolar North.

Outcomes and impacts

Outcomes and impacts	Novelty of the research planned: ? Exploitation of large-scale multi-taxa paleoecological data of plants, mammals and fungi/lichens using DNA from sediment cores to investigate biotic feedbacks on vegetation across long temporal and spatial scales.

	? Integration of data from modern ecological experiments with molecular genetic paleo-data to evaluate the stability of biotic interactions through time and space and to parameterize species distribution models, which will be used in ecological forecasting. ? Building transdisciplinary scenarios based on both ecological science and indigenous and local knowledge (ILK).

Funding scheme

Funding scheme - supplementary info from applicant

Programme / activity	MILJØFORSK
Application type	Researcher Project
Topics	
Other relevant programmes/ activities/projects	
If applying for additional funding, specify project number	
Have any related applications been submitted to the Research Council and/or any other public funding scheme	No

Classification of scientific disciplines

Filter by subject field	Filter by subject	Discipline
Matematikk og naturvitenskap	Zoologiske og botaniske fag	Økologi
Matematikk og naturvitenskap	Zoologiske og botaniske fag	Vegetasjonshistorie
Landbruks- og fiskerifag	Landbruksfag	Naturressursforvaltning

Progress plan

Project period

From date (yyyymmdd)	20190201
To date (yyyymmdd)	20220131

Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethnoecology, contemporary ecology and ancient DNA (Researcher Project - MILJØFORSK)

Application Number: ES632637 Project Number: 296987

Main activities and milestones in the project period (year and quarter)

	Milestones throughout the project	From		To	
1	1.1 Sediment coring Northern Europe	2019	2	2020	2
2	1.1 DNA and lithology analyses	2019	2	2020	3
3	2.2 Testing impact on palaeoenv. data	2020	3	2021	4
4	3.4. IKL Varanger	2019	2	2022	1
5	4 Scenario building	2019	2	2022	1
6	5 data management and dissemination	2019	4	2022	1

Dissemination of project results

Dissemination plan	Communication to scientists We expect that each of the work packages WP 1-4 will produce a minimum of three to four papers, in addition to a number of papers that will follow and use the data we generate. Due to the size and detail of the data we will produce, and the comparative and collaborative analyses we will perform, we expect several of the resulting papers to be published in highly ranked journals, such as Nature, Science, Nature Communications, Nature Ecology and Evolution, Nature Climate Change. Targeted specialist journals for publication of all more specific papers are: Quaternary Science Reviews, Molecular Ecology, Global Change Biology, Ecology, Methods in Ecology and Evolution and open access journals like PlosOne,, BMC Biology, Ecology and Evolution. All publications will be openly accessible, either by publishing in open access journals or by paying for open access papers in journals like e.g. Science or Nature. The research data produced in the project will also be openly accessible upon publication, or within a year of the project end, whichever comes first. The results will also be presented at international conferences like International Union for Quaternary Research (INQUA), American Geophysical Union (AGU), European Geophysical Union (EGU), Artic Science Summit Week (ASSW) and Conservation of Arctic Flora and Fauna (CAFF). Communication to non-scientific stakeholders The FATE project actively incorporates communication with non-scientific stakeholders through the

different phases of the project. The input of local stakeholders will form a large part of the data used in our
scenario development, and these will be refined in an iterative relationship. The project works on multiple
spatial scales and will thus deliver information relevant for stakeholders at different scales:
1. Local communities will be involved in the scenario building and will get local scenario-results,
relevant to actions on future climate adaptation and animal husbandry.
2. Regional and national scenario results will be communicated to stakeholder organisations and
governmental bodies for policy work and legislation.
3. Circumpolar results and synthesis will be communicated to stakeholder representatives, politicians
and scientists.
We will involve stakeholder representatives, such as the Sami Council, the Arctic Council, the UN
permanent Forum on Indigenous Issues, UNESCO LINKS (local and indigenous knowledge systems), the
IPBES regional assessments and global assessment and the IPCC.
Representatives of stakeholder organisations will be invited to common project meetings.The approximately 20 main findings will be published as a Summary for Policy Makers.
Communication to the general public
We will disseminate our work to the general public through a website and social media, primarily Twitter.
Project results will also be made known to the media and thus feature in newspapers, radio and television.

See full project for more details.

Budget

Cost plan (NOK 1000)

	2018	2019	2020	2021	2022	2023	2024	2025	Sum
Payroll and indirect expenses		928	1361	1193	35				3517
Procurement of R&D services			80						80
Equipment									0
Other operating expenses		64	504	54					622
Totals	0	992	1945	1247	35	0	0	0	4219

Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethnoecology, contemporary ecology and ancient DNA (Researcher Project - MILJØFORSK)

Application Number: ES632637 Project Number: 296987

Specification	Andre direkte kostnader 2017 2018 2019 2020 2021 Fieldwork Colesdalen Svalbard 120 Lithology + DNA extraction 4 cores up to 3 m IN-HOUSE 50 DNA PCR, cleanup, sequencing 4 cores x 3 peri IN-HOUSE 64 68 Extra capture probes IN-HOUSE 150 Meetings and conferences 20 20 20 Open Access Publications 10 15 AMS C14 dating, 8 dates 80 Utenlandsk opphold post-doc 64 Leiested 21 Sum direkte kostnader 0 0 84 583 35

Cost code (NOK 1000)

	2018	2019	2020	2021	2022	2023	2024	2025	Sum
Trade and industry									0
Research institutes									0
Universities and university colleges		992	1865	1247	35				4139
Other sectors									0
Abroad			80						80
Totals	0	992	1945	1247	35	0	0	0	4219

Funding plan (NOK 1000)

	2018	2019	2020	2021	2022	2023	2024	2025	Sum
Own financing		194	236	233	35				698
International funding									0
Public funding									0
Private funding									0
The Research Council		798	1709	1014					3521
Totals	0	992	1945	1247	35	0	0	0	4219

Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethnoecology, contemporary ecology and ancient DNA (Researcher Project - MILJØFORSK)

Application Number: ES632637 Project Number: 296987

Originally applied from Research Council of Norway

	2018	2019	2020	2021	2022	2023	2024	2025	Sum
Decided by Research Council of Norway									0
Originally applied from Research Council of Norway									0

Specification

Person for whom a fellowship/position is being sought

Allocations sought from the Research Council (NOK 1000)

	2018	2019	2020	2021	2022	2023	2024	2025	Sum
Student fellowships									0
Doctoral fellowships									0
Post-doctoral fellowships		734	1125	960					2819
Grants for visiting researchers									0
Grants for overseas researchers									0
Researcher positions									0
Hourly-based salary including indirect costs									0
Procurement of R&D services			80						80
Equipment									0
Other operating expenses		64	504	54					622
Total amount sought	0	798	1709	1014	0	0	0	0	3521

Attachments

Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethnoecology, contemporary ecology and ancient DNA (Researcher Project - MILJØFORSK)

Application Number: ES632637 Project Number: 296987

Project description

Filename	
Project description	ES632637_001_2_Prosjektbeskrivelse_20181030
Reference	FATE_full_Biodiversa.pdf

Curriculum vitae (CV) with list of publications

Filename	
Curriculum vitae (CV) with list of publications	ES632637_002_2_CV_20181030
Reference	CV Alsos 4 pages 2018 Sept.pdf

Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethno-ecology, contemporary ecology and ancient DNA

A. Detailed description of the research area and research plan

We develop scenarios of future biodiversity and ecosystem services in the circumpolar Arctic region by integrating paleoecological data from ancient DNA, archaeological and historical observations, recent ecological data and indigenous and local knowledge to identify drivers of biodiversity change.

Short description

The Arctic is currently experiencing dramatic ecosystem changes, with immediate effects on ecosystem services connected to food production, climate regulation, natural resources and cultural integrity[1]. Understanding the relative impacts of climate[2], herbivory[3,4] and human management on ecosystems, in particular on vegetation, is of paramount importance for their long term sustainability (conservation) as well as for the well-being of indigenous communities across the circumpolar North. These communities directly depend on herding and hunting large herbivores, such as reindeer/caribou and are already struggling to adapt to the effects of climate warming and correlated changes in vegetation[5]. Well-informed ecosystem management and species conservation is however precluded by the scarcity of long-term (millennia) data sets spanning ancient and contemporary climatic and land use events (Overpeck *et al.* 2003). Palaeorecords offer a unique possibility to fill this gap as they provide data on long-term ecosystem development, historic events of climate change and land use modification (Willis and Birks 2006). These long-term records provide the basis for developing transdisciplinary scenarios that are 'ground-truthed' and refined by the inclusion of local community observations and knowledge extending back decades and generations. By coupling indigenous and scientific analyses and interpretations, fine-grained and broad spatio-temporal scales, and qualitative and quantitative data sets[6], scenarios will be created that support decision-making in the face of accelerating socio-ecological transformations throughout the circumpolar North

Main research questions

- How did the diversity of plants, mammals and fungi/lichens change through time at different sites throughout the Arctic?
- To what extent are particular plant species and overall diversity correlated to climatic change or to the influence and abundance of herbivores?
- What is the knowledge and experiences of local communities/indigenous peoples about the interactions of vegetation, climate change, herbivory and other anthropogenic influences?
- How can we build integrated scenarios on arctic ecosystems based on ecological science and indigenous and local knowledge?

We will conduct a comprehensive inter- and transdisciplinary study using **sedimentary ancient DNA**, **current ecological observations** and **anthropological investigations** of indigenous peoples' knowledge and interpretations.

Novelty of the research planned

- **Exploitation of large-scale multi-taxa paleoecological data of plants, mammals and fungi/lichens using DNA from sediment cores** to investigate biotic feedbacks on vegetation across long temporal and spatial scales.
    - We will chronicle biodiversity changes since the Pleistocene for multiple organismic groups (plants, mammals, fungi/lichens) using the same methods throughout the Arctic.
    - We will obtain data at a high temporal resolution at each of the sampled sites. Existing circumarctic data on vegetation change from sedimentary ancient DNA (Willerslev et al. 2014) has been acquired at a much coarser temporal resolution, which precludes detailed analyses of the processes of change.
- **Integration of data from modern ecological experiments with molecular genetic paleo-data** to evaluate the stability of biotic interactions through time and space and to parameterize species distribution models, which will be used in ecological forecasting.
    - We will evaluate the effects of herbivores on specific plant species at a circumarctic scale, taking into account their palatability and other functional traits. In contrast to the commonly used remote sensing data and pollen analyses, this is possible using sedimentary DNA and vegetation field assessments due to their taxonomic resolution.

- We will use niche models that incorporate the effects of both biotic drivers and climate to forecast future vegetation change.

- **Building transdisciplinary scenarios based on both ecological science and indigenous and local knowledge (ILK).**
  - Indigenous societies possess vast observational knowledge about current and historical ecosystem changes and develop strategies to adapt[7]. They therefore provide unique data and alternative approaches to scenario building. We will pilot methods to enhance scenarios by building synergies between ILK and science.
  - By comparing the different datasets to build scenarios, we will assess the explanatory value of each of our methods through the comparative analyses of results obtained from each dataset alone, as well as all sets combined. Thus, the methods developed will be applicable to a much wider range of tasks, such as environmental monitoring and biodiversity inventories.

Scientific objectives

1. **Sedimentary ancient DNA** - identify local **biodiversity changes and vegetation shifts** over large spatial (circumarctic) and temporal (Last Glacial Maximum until today) scale using ancient DNA from deep time sediment cores.
   - Relation to the **Theme 2** of the call: We provide data on different dimensions of biodiversity (genetic, species, phylogenetic, functional groups) on different scales (time and space), which will feed into biodiversity scenarios.
   - **Ongoing projects**: At the **Alfred Wegener Institute** (Laura Epp, Ulrike Herzschuh), ancient DNA analyses of sediment cores are used to investigate Arctic vegetation change (DFG grant EP98/2-1 to L. Epp)[8,9]. At **Tromsø Museum, UiT** (Inger Alsos) the ECOGEN project (NFR Toppforsk grant to I. G. Alsos) is generating genomic data from sediment cores from Northern Europe. The groups at **University of California Santa Cruz** (Beth Shapiro) and **McMaster University** (Hendrik Poinar) are are global leaders in paleogenomics, especially related to past extinct and extant megafuanal populations. This is performed in collaboration with the **Canadian Permafrost Archives Science Laboratory** (Duane Froese), with funding from NSERC and Canada Research Chairs Program related to Environmental Change in Northern Canada.
2. **Ecological data** - identify **drivers of recent and historic plant diversity changes** by comparing contemporary and past effects of herbivory, anthropogenic impacts and climate change on a circumarctic spatial scale and integrate them in climatic niche models to forecast future changes.
   - Relation to **Theme 1** of the call: We identify both short-term and long-term drivers of biodiversity and ecosystem services.
   - Relation to **Theme 2** of the call : We provide scenarios for future biodiversity, for different dimensions of biodiversity (genetic, species, phylogenetic, functional groups) on different scales
   - **Ongoing projects**: The group at **Umeå University** (Johan Olofsson) has been working with plant-herbivore interactions in the Arctic for more than two decades, and has running projects within this field from Swedish research councils (VR and Formas).. The research is a part of the Climate Impact Research Centre (CIRC), a strategic environment at Umeå University.
3. **ILK analyses** - chronicle **indigenous and local knowledge of biodiversity changes and their drivers**, and of the role of societal practices/human choices in shaping and adapting to changes in four separate Arctic areas.
   - Relation to **Theme 1** of the call: We work in collaboration with stakeholders to develop multi-dimensioned scenarios rooted in indigenous practices, knowledge and worldviews.
   - Relation to **Theme 2** of the call : We collaborate with local communities to identify indigenous and local knowledge on biodiversity shifts and trends, and identify current and potential future ecosystem services on local and circumarctic scale.
   - **Ongoing projects**: Members of the **Laboratoire Ecologie, Systématique, Evolution** (Samuel Roturier) and of the **Muséum National d'Histoire Naturelle** (Marie Roué) have worked for many decades on ILK in Fennoscandia and the Canadian Arctic, in particular on Sami knowledge about reindeer pastures with both anthropological[10] and ecological approaches[11]. They work with **UNESCO** (Douglas Nakashima) on knowledge co-production through the ANR funded research program BRISK (Bridging Indigenous and Scientific Knowledge about climate change in the Arctic, ANR 12_SENV-0005), including community-

based observatories of climate change (BRISK-OBS program funded by the French Polar Institute). Members of the group are involved in the IPBES task force for ILK [12]. UNESCO is conducting similar research with pastoral peoples across six countries in Africa, funded by the Swedish International Development Agency (SIDA), and collaborates with IPCC and UNFCCC on ILK and climate change assessment and adaptation.

4. **Scenario building** - based on outcomes of 1-3, stakeholder involvement and synthesis of data/literature that explore ecosystem shifts.
    - Relation to the **Theme 1** of the call: We build local scenarios based on ILK and exploratory scenarios based on synthesis and structural expert elicitation including arctic experts and researchers. We evaluate the use of downscaling and upscaling of scenarios and co-production of scenarios linking potential ecosystem shifts relevant to biodiversity changes, ecosystem services and local communities in the Arctic.
    - Relation to the **Theme 2** of the call: Through exploratory scenario analysis and by use of ILK we include trade-offs among bundles of ecosystem services relating to ecosystem shifts and to different stakeholders.
    - **Ongoing projects.** The **Arctic Sustainability Lab** (PI. Hausner (www.arcticsustainability.com) at UiT includes multi-scale scenario exersises in the CONNECT project on arctic coastal tundra funded by the **Belmont Forum** and in the **coastal barometer** financed by FRAM centre and **Bluetrans** financed by the Norwegian Research Council.

Sampling

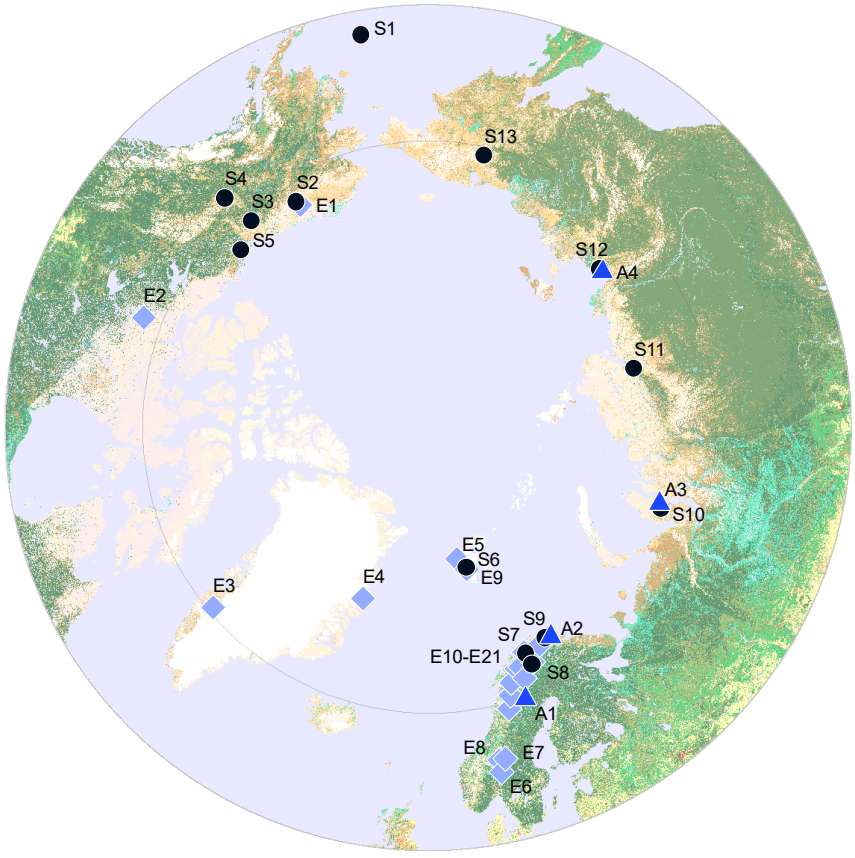

Fig. 1 Sampling sites of the FATE project. (i) Black circles S1-S13: sediment cores, (ii) Light blue squares E1-21: ecological sites. (iii) Blue triangles A1-A4: anthropological field studies.

We will build upon a circumarctic set of (i) sediment cores, (ii) modern herbivore exclosures and (iii) anthropological field studies. (i) Most sediment cores have been collected, with little additional sampling during the project. (ii) Vegetation assessments from within and from outside these exclosures are available as datasets. We will also perform vegetation and herbivore surveys at most of the coring sites. (iii) The anthropological field sites are selected to fit some of the coring sites and will target communities that are strongly affected by ecosystem changes.

Work plan and division of work packages (WP)

We will organise the work in four scientific work packages (WPs 1-4). In WPs 1-3 we will collect different sets of data, which will be used in WP4 to build scenarios linking potential ecosystem shifts to biodiversity changes and ecosystem services. Coordination of the project will be realized by WP5.

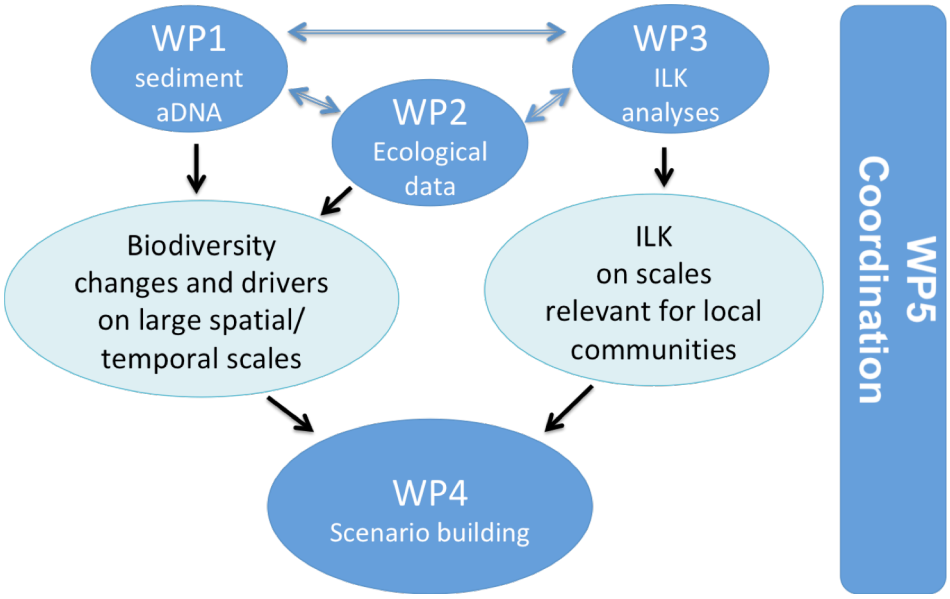

Fig. 2 Interrelationships of the work packages. The scientific WPs 1 and 2 produce data on biodiversity changes and drivers on large spatial and temporal scales. The anthropological work package WP3 investigates ILK on biodiversity changes on scales relevant for local communities. These datasets will jointly be used in WP4 for scenario building. The three WPs exchange data and interpretations.

WP1 Analyses of biodiversity changes through time using sediment core DNA (WP lead: Epp)

In **WP1** (**PI: Epp, CIs: Alsos, Herzschuh, Shapiro, Froese, Poinar**), we will investigate past ecosystem changes from the circumarctic sites using novel ancient DNA (aDNA) methods where we isolate DNA directly from sediments. Such aDNA can be reliably recovered from high latitude sediment cores reaching back into the Pleistocene[13] and can readily identify the flora and fauna present in the surrounding are at the time of sedimentation[8,14,15].

We will analyse at least four separate sediment cores per geographical region (Northern Europe, Northern Siberia, North America, Fig. 1), using 40 samples per core. To recover plant DNA, we will metabarcode the P6 loop of the plastid DNA *trn*L (UAA) intron [16] , a method which is well established in our labs and allows a taxonomic resolution to species level of 65-93% depending on site[9,17,18]. By identifying a high proportion of taxa to species level, we can make detailed inferences about the vegetation, including its palatability and potential toxicity to herbivores (proportion of palatable plants), as well as refine reconstructions of past ecological conditions (e.g. proportion of species adapted to moist/dry soils, low/high pH, warm/cold conditions etc.). We will supplement this with assays to track the presence and abundance of herbivore populations. This can be done either directly by targeting mammal DNA[19,20] or indirectly by targeting fungal DNA, which at the same time also will provide information of lichens[21,22]. The latter has been shown to reveal coprophilous fungal taxa [21], and can thus potentially be used as a proxy for the presence of mammals in a similar way as microscopically detectable fungal spores[23]. In addition to metabarcoding, shotgun sequencing of complete DNA extractions[24,25] and enrichment of sequencing libraries using hybridisation capture[26] can potentially reveal an even more detailed picture of acute biodiversity change in real time. We are currently developing and evaluating the efficiency of these techniques for different organisms, and will, by the start of the project, be able to decide which method is most suitable to generate our proposed large-scale data. Each of the involved research groups will develop and/or optimise protocols for one of the three organismal target groups (plants, mammals, fungi). We will share protocols among the groups to ensure comparability of results, and the different research groups will then perform analyses on cores from a particular geographical region (Northern Europe, Northern Asia, North America). Thus, the researchers working on this, will each perform independent paleoecological studies, which stand for

themselves in publications, but will also feed into the common analyses of vegetation changes and herbivory.

Task 1.1 Analyses of sediment cores from Northern Europe (Alsos)
The group of Prof. Alsos, within the Norwegian Barcode of Life network (www.norbol.org), is currently generating reference sequences (complete chloroplast genomes and ITS) of >2000 arctic and Norwegian vascular plant species, and will thus be responsible for the implementation of a common aDNA assay for plants. She already has aDNA analyses of sediment cores from Northern Scandinavia (~20 cores, 10-20,000 years BP) and we selected three that are in close proximity to modern ecological exclosures studies (WP2) and/or to anthropological field study sites (WP3) (Fig. 1, S7-S9). This will be complemented with analyses of four new cores from Svalbard, an area that until 1600 had no influence by humans and therefore serves as reference area (Fig. 1, S6).

Task 1.2 Analyses of sediment cores from North America (Shapiro, Poinar, Froese)
In addition to metabarcoding, mammal DNA in sediments has been successfully identified using shotgun sequencing[24,25] and mitogenomic hybridisation capture[26]. After currently ongoing evaluation, we intend to use a combination of these approaches. Cores are available to the project from three different sites in Northern Canada (Fig. 2, S3-S5), and we will conduct further investigations on a core from St. Paul Island, for which some DNA data has already been published[25] (Fig. 1, S1). In addition, we will collect a core from the vicinity of Toolik (Fig. 1, S2), Alaska, in close proximity to modern ecological plots of WP2 (Fig. 1, E1).

Task 1.3 Analyses of sediment cores from Northern Siberia *(Epp, Herzschuh)*
We will develop a protocol to track mammals through coprophilous taxa fungal aDNA, using the metabarcoding approaches and analyses outlined in[21,27]. This will also identiry the fungal part of lichens and thus give valuable information of this important part of reindeer diet. Based on our results, we will also establish a specific reaction for the putatively most valuable mammals indicators, in particular Sporormiella [28]. Cores from three different sites in Northern Siberia are available to the project at the Alfred Wegener Institute (Fig. 1, S11-S13), of which one (S12) will be targeted by an anthropological field study (A4). In addition, a core will be retrieved on an expedition to the Yamal Peninsula that will be conducted by the AWI, and, which is also targeted in anthropological field work (Fig. 1, S10 and A3)

WP2 Identification of drivers of current and past vegetation change and implementation in niche modelling (WP lead: Olofsson)
In **WP2** (PI: Olofsson, CI: Svenning) we will analyse contemporary effects of climate change and herbivore populations on Arctic vegetation and link these to the biodiversity changes through time analysed in WP 1. The importance of herbivores will be assessed using several different sources of information. We have a unique resource available in Olofsson's lab at Umeå University, a database with detailed vegetation recordings from over 10 years from more than 200 exclosures. This database is currently finalized by field expeditions in summer 2018 to the last Arctic sites, and will be complete and freely available for this project to use. We have also collected all available information on herbivore densities and land use regimes in all these sites[29], and, through the Tromsø team, DNA data on reindeer diets (REININ project, Gusarova). In the design of this project we have tried to spatially coordinate the efforts in WP 1 and 2. We will perform field assessments of the present density of herbivore populations and their impact of the vegetation using a modified version of the herbivory network protocol (http://herbivory.biology.ualberta.ca/protocols/). at most coring sites, and and we have long-term exclosure data from the vicinity of five of the sites from which sediment cores will be analysed in WP1 (Fig. 1, S2, S6-S9). These exclosures will thus provide detailed information of the impact of herbivores during the last decades at these sites. The exclosure data set as a whole will also provide the currently best available trait based understanding of different herbivore densities on plant community composition, and thus provides the best available information on which plant species are expected to be favoured or disfavoured by different herbivore densities in all locations where cores will be analysed. We will also review the existing scientific literature, such as published papers about the impact of herbivores from the Russian sites (S10-S13), where we lack long-term exclosures. Combining the data on plants and herbivores from WP2 with the data on changes on plant and herbivore abundance in time from WP 1, will allow us to assess which of the changes over time are driven by climate alone and which changes are mediated through changes in herbivore densities..Moreover, we will also use climate niche models to assess how well plants historically have tracked their climate envelopes and how plants' ability to do so is determined by herbivore populations at the site (see Normand et al 2013 for an example). This will be carried out in collaboration with the lab of Prof. Svenning at Aarhus University, building on their

expertise to conduct niche modelling and combine it with paleoecological data. We will focus on a few important species/functional groups (evergreen and deciduous shrubs) and few sites, where both sedimentary cores and exclosure data are available. We will then use this climatic niche modelling to forecast expected vegetation changes during the next century.

Task 2.1 Assess the contemporary impact of herbivores (Olofsson)
The contemporary impact of herbivores on overall plant diversity and on specific species will be assessed in our set of circumarctic sites for modern vegetation surveys. This includes most sites where sediment cores have been collected and will be achieved by combining field surveys of plants at the sediment coring sites, data from long term exclosures, an assessment of herbivore densities, a general understanding on how plant species responds to herbivory.

Task 2.2 Assess the importance of climate and herbivory for historical vegetation changes by combining contemporary data and paleoecological records (Olofsson, Svenning & WP1)
We will compare the historical changes in herbivore and plant composition in the paleoecological records from the 12 cores, with the expected effects of these herbivore populations on vegetation based on the assessment in task 2.1. The additional information of local perception of changes, and practices of managing (WP 3) will also be considered for the coring sites where it is available (S9 and S10). In addition to that we will conduct climate niche modeling for three sites where both sedimentary cores and long-term exclosure data are available, to assess potential and constraints on key species/functional groups (evergreen and deciduous shrubs) to respond to changes in climate, and whether the potential and constraints to do so depend on herbivore populations.

Task 2.3 Climate niche models to forecast vegetation changes (Olofsson, Svenning)
These climatic niche models will furthermore be used to forecast expected vegetation changes during the next century under different climate and herbivore population scenarios. These forecasts will depend on future climate change and the potential and constraints of different plant species to track these changes. The latter will in turn depend on herbivore populations and human land use in the location. The unique aspect of these forecasts is that we have both contemporary and historical data on plants and herbivores for each of the locations.

WP3 Investigate indigenous and local knowledge on biodiversity changes and societal practices (WP lead: Stammler)
In **WP3 (PI Stammler CIs Roturier, Roué, Nakashima)** we will study indigenous knowledge and interpretation of ecosystems and biodiversity changes, and how they have responded and adapted to these, with a particular focus on animal husbandry. Indigenous and local knowledge (ILK) provides information at a very high degree of resolution, and at small spatial scales. ILK also incorporates observations reaching back several decades and across generations, which may be complimented further with historical and archeological data on land use and livelihood change, and can be compared to data from both vegetation assessments conducted by biologists and by paleoecological data provided by ancient DNA. ILK does not only highlight what happens in the environment, but also for whom and how it matters among humans and animals. In this respect, ILK provides empirical observations plus interpretation, which is crucial if we want to understand the influence of human decision in response to ecosystem changes.
We will carry out field studies based on participant observation, in-depth interviews with key ILK experts and focus group discussions in four different communities in Northern Siberia and Northern Europe. We will synthetize the data into qualitative scenario storylines for biodiversity changes and adaptation strategies of arctic communities in the face of global change. The aim will be to envision plausible futures for sustaining animal husbandry in today's changing arctic environment.

Task 3.1 Field study on the Yamal Peninsula (Stammler, Ivanova, Laptander)
Yamal is the world's largest and most dynamic reindeer herding region, and at the same time at the forefront of Arctic industrial development. The area has undergone a number of recent shocks in the ecosystem, which are highly relevant to reindeer herders (over-icing of pastures due to extreme weather events[30], changes in permafrost and the freshwater environment[31], the appearance of craters on gas deposits and reindeer pastures and anthrax outbreaks[32]). Data gained from this study (Fig. 1, A3) will be compared to the newly extracted sediment core from Yamal (WP1, S10).

Task 3.2. Field study in Yakutia (Stammler, Ivanova, Ivanov)

Yakutia has the most extreme climate of all inhabited places on earth, with temperature differences of up to 100 degrees Celsius between the hottest and coldest days per year. It is also the prime place of studying permafrost changes, as permafrost has its thickest layer in Yakutia. Traditionally people have bred three specifically adapted Arctic pastoral animals in this area, the Eveny and Evenki reindeer, the Yakutian Horse and Yakutian cattle. The herders knowledge of this ecosystem is importantly influenced by their special relation to their respective animals, and this study will include work with reindeer herders, horse herders and cattle breeders. Work in the area shall be specifically with elders who remember how people were using the land with their animals in the 1950s and 1960s and onwards, when Soviet infrastructure allowed for a more widespread and less concentrated use of the land as pastures even in more remote areas. This study (Fig. 1, A4) will be specifically designed to match the sediment core from the Omoloy River area (S12).

Taks 3.3 Field study in the Lule Sami region (Roturier, Roué)
In the Lule Sami region, seasonal migration of reindeer is carried out between conifer forests in winter and alpine tundra in summer, with various intermediary grazing areas. Here we will focus on the articulation between the various seasonal pastures and their interrelated uses, and the resulting changes in vegetation. We will study the dynamics of land use during recent historical periods by interviewing elders and young herders, observations and interpretations of vegetation changes, and adaptation strategies to the changing climate. Data gained from this study will be compared to and feed back to the data acquired from WP2 in the regions.

Task 3.4 Field study on the Varanger Peninsula (Roué, Nakashima, Hausner)
Varanger Peninsula in Norway offers a diversity of vegetation extending from the coastal area to the arctic tundra, where reindeer herders, sheep farmers and fishermen have different land use patterns and livelihood strategies. The work will focus on related knowledge and biodiversity changes and consequent land use changes due to changing climate and encroachment by urbanization and extractive industry. The data from Sami knowledge will be complemented by a continuous archaeological record extending back more than 10,000 years that records shifts in subsistence patterns with changing climate, including the shift from a hunting-fishing lifestyle towards reindeer husbandry approximately 500 B.P. This study will be specifically designed to match the sediment cores from the Varanger Peninsula (WP1).

WP4 Scenario building and knowledge co-production (WP lead: Roturier)
In **WP4 (PI Roturier, CI Nakashima, Hausner)**, we will build exploratory and predictive scenarios based on the outcomes in WP 1-3 to link the potential ecosystem shifts to biodiversity changes, ecosystem services and to changes relevant for local communities in the Arctic. Multi-scale scenario exercises have become more popular in recent years, but have mostly relied upon downscaling of broader-scale scenarios without taking local circumstances appropriately into account [33]. From our three sets of comprehensive and highly resolved outcomes from different disciplinary approaches and knowledge systems, we will explore (1) to which extent they can each be used as standalone source for inferences, and (2) how they can be integrated to build scenarios that are relevant for communities at local scales.
We will build on study cases in WP3 to develop local scenarios based on ILK (Task 4.1) and understand how ILK scenarios can be made in a transdisciplinary setting. Second, we will develop exploratory scenarios that link the potential ecosystem shifts to biodiversity, ecosystem services, including the local adaptations to such changes (Task. 4.2). Finally, tasks 4.1 and 4.2 will provide valuable inputs to workshop(s) that aim to co-produce scenarios together with stakeholders at multiple levels (Task 4.3). The combined inputs of multiple stakeholders, including ILK holders and scientists, enhance understandings of how environmental changes impact local livelihoods, broaden the range of drivers assessed in scenario design, and enable the identification of contextually-appropriate adaptation options (Volkery et al. 2008, Oteros-Rozas et al. 2015, Flynn et al. 2018).

Task 4.1 Understanding ILK scenarios: a transdisciplinary approach (Roué, Roturier, Nakashima)
Inclusion of indigenous and local knowledge (ILK) in scenarios, as well as the elaboration of scenarios rooted in indigenous values and ontologies, has been identified as essential for attaining sustainable development goals [34] In dialogue with ILK holders we will investigate how scenarios are formulated, composed and applied by arctic communities, focusing on indigenous peoples. Through semi-structured interviews and focus group discussions, we aim to understand the epistemologies and values underlying ILK-based scenarios that are mobilized for decision-making to maintain short-term and long-term well being in the face of uncertainties.

Task 4.2 Develop and assess exploratory scenarios through an iterative learning process (Hausner, Roturier, Leadley)
The task is designed as a stepwise and iterative process where exploratory scenarios will be continuously updated based on inputs from WP1-3, experts, arctic stakeholders and task 4.1. Initial exploratory scenarios will be developed based on broad-scale drivers of biodiversity change identified in WP1 and 2, and by structured literature synthesis linking biodiversity, ecosystem services and local needs/adaptation to possible ecosystem shifts.. Thereafter a structured expert elicitation using the IDEA protocol will be used to revise and/or validate the relationships elucidated through the initial stages. The exploratory scenarios will then be enriched with indigenous peoples' knowledge on key drivers and impacts on vegetation (WP3) and inputs from task 4.1.

Task 4.3 Coproducing multi-scale and multi-stakeholder scenarios (Roturier, Leadley, Epp, Olofsson, Stammler, Crawhall)
From the transdisciplinary expertise and diverse knowledge sources mobilized by the FATE project, we will develop local scenarios of future biodiversity and ecosystem services in the circumarctic area. To reach this objective we plan a workshop that brings together the PIs of the different WPs with representatives of participating indigenous communities to encourage a transdisciplinary dialogue. This collective effort will be organized to bring together on equal footing the knowledge, analyses and observations of both indigenous peoples and scientists in order to coproduce scenarios that not only include ILK, but are rooted in indigenous values, worldviews and aspirations for well-being. The workshop is also valuable to understand how downscaling of broad-scale scenarios, or upscaling of local scenarios based on ILK, perform and what kind of knowledge gaps we still need to fill. Furthermore, bridging indigenous and scientific ontologies, epistemologies and semantics remains a major challenge, and we will therefore build on our experiences in task 4.1. and 4.3. to develop guidelines or a framework for integrating ILK and scientific data for scenario building

WP5 Coordination (WP lead: Epp)
The overall aim of WP5 (Epp) is to guarantee an effective, smooth and high-quality performance of the FATE project, including effective and efficient communication within the consortium and beyond, as well as data managment. As horizontal WP, it is closely connected with all other WPs and will act as main contact point for all project members

Task 5.1. Project coordination and communication (Epp)
Optimal internal communication in the project will be ensured through the project website, email lists and both online and face to face meetings. We will organize meetings at yearly intervals for all project members (General Assembly), to which stakeholder representatives will be invited, in addition, to satellite meetings of the WPs, where project members are updated on project progress and collaborative work is coordinated.

Task 5.2. Risk assessment (Epp)
The progress of the WPs will be monitored by the Project Coordinator (PC) in regular meetings of the Executive Committee (EC), which includes all WP leads, and through contact with the task leads.

Task 5.3. Data management (Epp)
As detailed in the data management plan, we will set up a common repository in PANGAEA, in which data that will be used by more than one WP will be deposited and thus made internally available prior to publication. All project members will receive support in questions concerning format and upload of the data.

Task 5.4 Dissemination (Epp)
We will disseminate our work to the general public through a website and social media, and we will internally coordinate press releases issued by the project team members or their respective media relations offices on project outcomes.

Relevance for the policy application

We will determine which types of diversity and which species in tundra plant and animal communities appear to be most influenced by the drivers of climate, herbivores and/or anthropogenic pressures. We will evaluate scenarios for changes in climate and herbivore populations. Armed with a more comprehensive understanding of the drivers of climate change in the North the immediate and long-term responses of both

flora and fauna to these changes and how indigenous communities are coping, we can better translate this knowledge into policy documents that better prepare and protect future ares for the ever changing area. Understanding the drivers and through this develop scenarios for different types of biodiversity measures will present a relevant tool to assess potential changes for different ecosystem services. UNESCO as project partner will ensure that outcomes are relevant and feed into international assessments and policy-making through partnerships with IPBES, IPCC, UNFCCC and the CBD.

Description of stakeholder engagement and identification of end-users for project results

The project integrates the knowledge and needs of affected communities from the start. Stakeholders will be both involved in generating the outcomes of the project as well as in discussions of the data and scenarios. End-users will be local communities, county boards and national environmental protection agencies.

In Siberia long-standing contacts exist with reindeer herding communities and representatives. Particular interest of collaboration has been expressed by Petr Konstantinov (reindeer herding team leader, Eveno-Bytantay region, Yakutia), Yakov Vanuito (private reindeer herder, Se Yakha tundra, Yamal) and (Alexandr Serotetto, director, Yar Sale herding entreprise, Yar Sale, Yamal).

Three reindeer herding communities from Lule Sápmi have declared their interest in the FATE project through their heads of the board (Jan Erik Länta for Jåhkågasska, Jakob Nygård for Sirges and Per Jonas Parffa for Tuorpon). They will participate to interviews, workshops and meetings with researchers in the frame of the projects. In Scandinavia our team of anthropologists have been engaged for more than three decades with reindeer herders. In Lule Sápmi reindeer herders have been involved in various projects during the last decade, including the recent ANR funded project Bridging Indigenous and Scientific Knowledge in the Arctic (2013-2016). BRISK, Unesco and MNHN projects have also involved Kautokeino reindeer herders and Varanger fishermen/sheep farmers. Sami archaeologists and former Directors of the Varanger Sami Museum, Kjersti Schanche and Audhild Schanche, (also former Deputy Director, Sami Parliament, Norway), will bring to the project in-depth knowledge of the Ceavccageadgi archaeological site that documents several thousand years of Sami adaptation to changing climatic conditions across a series of raised fossil beaches

The Norwegian partners are also involved in a long-term monitoring program on the Arctic Tundra in Varanger (COAT), which involve multiple stakeholders in the research cycle, including Sami reindeer herders and Sami sheep farmers. Future local scenarios will presented for stakeholder communities at Varanger in stakeholder meetings relating to this program.

Proposed exploitation of results and knowledge transfer to practitioners, policy- and decisionmakers

We will make scenarios that are immediately relevant to local communities, and that take into account local communities' management and their feedback on the environment. Both the finally developed scenarios, as well as the insights gained into possibilities of integrating such data will present results that are of further interest to practitioners and policy makers.

We plan public conferences to communicate the results of the FATE project in Jokkmokk, the stronghold of Sami culture in Sweden, one at the beginning of the project and one at the end. These conferences will be organised during the Jokkmokk Winter Market, an economical and cultural event running for more than 300 years that gather members of the whole Sami community in Fennoscandia. We also plan to communicate our results to local decision-making bodies such as Laponiatjuottjudus, which is the management board of the UNESCO World Heritage for the Laponia area in northern Sweden, of which the heads of the communities involved in the project are members. We also plan to communicate our results to the Sami Parliament in Sweden.

The final local, exploratory scenarios and the co-produced scenarios will be presented in a report targeting policy-and decision makers. We will collect feedback from the most important end users including the Arctic council, the European Environmental Agency, the Sami parliaments and other indigenous associations, Ministries and National Environmental Agencies, and county governors

Knowledge transfer, communication of results to practitioners, policy- and decision-makers

Stakeholders (i.e. members of local communities and indigenous peoples) will play an integral role in this project and will be fully involved from the start. They will be involved in the identification and documentation of relevant ILK (WP3), as well as the identification of direct and indirect drivers, and ILK-based analyses of the complex interactions among climate variability, biodiversity shifts and trends, and anthropogenic impacts. The synthesis and scenario building proposed in WP4 will rely y on building mutual trust and

understanding as a basis for establishing an equitable dialogue between the involved scientists and ILK-holders. The results will also be communicated to a wider audience at the Arctic Science Summit Week and at the CAFF conference.
UNESCO will ensure linkages to other stakeholder groups (indigenous peoples from across the Arctic and from other world regions) and to a wide range of scientists and policy-makers. UNESCO is actively involved in research and debates across the UN system, notably through its ongoing work with IPBES on ILK in biodiversity assessments, scenario-building and policymaking, and with IPCC and UNFCCC on bringing together ILK and science to enhance climate change observations and adaptation as follow-up to the Paris Agreement.

International added value

- The involvement of two international groups of anthropologists enables communication and integration of local stakeholders from different Arctic regions.
- Only such an international consortium of ancient DNA labs can ensure the sampling for and generation of a circumarctic dataset with a high temporal resolution on biodiversity changes on long (Last Glacial Maximum to present) timescales.

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B. Communication Plan

The FATE project will actively disseminate project results in all WPs through communication to scientists, non-scientific stakeholders the general public, based on a number of different channels targeted to the respective audiences.

Communication to scientists

We expect that each of the work packages WP 1-4 will produce a minimum of three to four papers, in addition to a number of papers that will follow and use the data we generate. Due to the size and detail of the data we will produce, and the comparative and collaborative analyses we will perform, we expect several of the resulting papers to be published in highly ranked journals, such as *Nature, Science, Nature Communications, Nature Ecology and Evolution, Nature Climate Change*. Targeted specialist journals for publication of all more specific papers are: *Quaternary Science Reviews, Molecular Ecology, Global Change Biology, Ecology, Methods in Ecology and Evolution* and open access journals like *PlosOne*,, *BMC Biology*, *Ecology and Evolution*. As we will present unique data that are of large interest both to a community of Arctic Science, but also general ecologist, molecular ecologist, paleoecologists and anthropologists, we expect these publications to receive a high degree of visibility and citations in the scientific community. All publications will be openly accessible, either by publishing in open access journals or by paying for open access papers in journals like e.g. *Science* or *Nature*. The research data produced in the project will also be openly accessible upon publication,, or within a year of the project end, whichever comes first. For details see the Data Management plan. The results will also be presented at international conferences like International Union for Quaternary Research (INQUA), American Geophysical Union (AGU), European Geophysical Union (EGU), Artic Science Summit Week (ASSW) and Conservation of Arctic Flora and Fauna (CAFF).

Communication to non-scientific stakeholders

The FATE project actively incorporates communication with non-scientific stakeholders through the different phases of the project. The input of local stakeholders will form a large part of the data used in our scenario development, and these will be refined in an iterative relationship. The project works on multiple spatial scales and will thus deliver information relevant for stakeholders at different scales:

1. Local communities will be involved in the scenario building and will get local scenario-results, relevant to actions on future climate adaptation and animal husbandry.
2. Regional and national scenario results will be communicated to stakeholder organisations and governmental bodies for policy work and legislation.
3. Circumpolar results and synthesis will be communicated to stakeholder representatives, politicians and scientists.

We will involve stakeholder representatives, such as the Sami Council, the Arctic Council, the UN permanent Forum on Indigenous Issues, UNESCO LINKS (local and indigenous knowledge systems), the IPBES regional assessments and global assessment and the IPCC. We will engage with the latter two by reviewing assessments before publication. Representatives of stakeholder organisations will be invited to common project meetings (see project management plan), part of which will be organised around the Arctic Science Summit Week. In addition to the publications directed at the scientific community, we will publish outcomes of the project that are of direct impact for policy application in additional papers and reports. The approximately 20 main findings will be published as a *Summary for Policy Makers*.

Communication to the general public

We will disseminate our work to the general public through a website and social media, primarily Twitter. Project results will also be made known to the media and thus feature in newspapers, radio and television. We will work together with the media relations offices of our various institutions to ensure timely and high quality press releases and to publish information on the project in popular science publications of the institutions. Press releases will be coordinated internally within the project, enabling an efficient transfer to different countries. At the participating institutions, we will be engaged in public outreach activities, for example the "Long Night of Research" in Potsdam/Berlin, which in 2017 attracted 2000 visitors to the Telegrafenberg Campus. We also participate in educational outreach, such as talks and guided tours to school students.

C. Description of Project Management

Organisational structure

The FATE project will adopt an organisational structure that allows efficient communication and data exchange between the different project members and work packages and involves sharing of responsibilites in both vertical and horizontal directions. The project structure includes a strategic and an operational level, with contact to and involvement of stakeholders integrated throughout. The project **coordinator**, Dr. Laura Epp is an intermediary between the different involved groups within the project as well as the contact point of the BiodivERsA Call Secretariat. The coordinator will be supported by staff recruited in the project for WP5. The ultimate decision making body of the consortium is the **General Assembly**, which consists of representatives from all participants of the project and oversees the overall scientific strategy. The General Assembly will convene annually. The **Executive Committee (EC)** is the supervisory body for the execution of the FATE project and is composed of all **Work Package** leaders. Additionally, a stakeholder representative and a young researcher active in the project will be recruited within the first six months of the project to joing the EC. The EC will meet at least twice a year. Close contact between the researchers active in the different scientific work packages will be facilitated by the Project Coordination (WP5), which will ensure efficient communication, risk management, data management and dissemination of results.

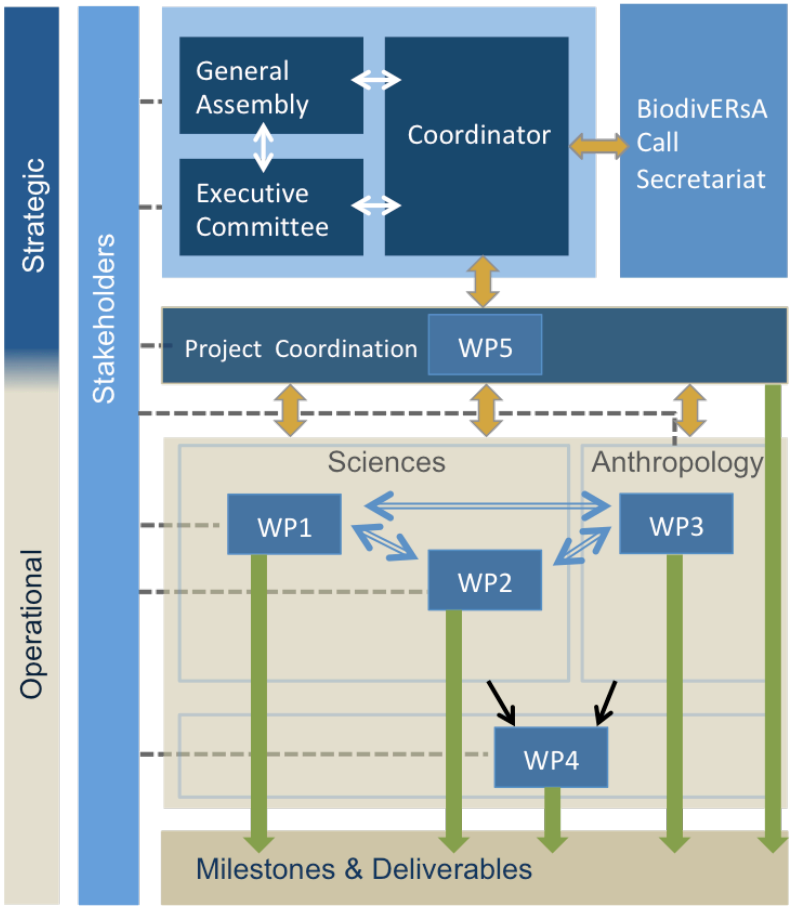

Fig. 1 Overall organisational structure of the FATE project.

Strategic decisions are made by the General Assembly, Executive Committee and Coordinator, who communicate internally (white arrows). Communication between the levels and externally is facilitated by procedures implemented in the Project Coordination WP5 (yellow arrows). The WPs 1-3 work in collaboration and exchange data (blue arrows) using scientific and anthropological methods, which is merged for scenario building in WP4.

A compilation of the project time schedule, including **milestones and deliverables** is found in part F. Time Schedule, and we build on this in our following explanations.

Communication and coordination activities

Within the first year of the project, we will set up a website (D02), email lists and a common data depository, in which data is stored before publication and can be accessed by project members (D04). In month 4 of the project, we will hold our Kick-Off Meeting on the Telegrafenberg Campus in Potsdam (D01), which provides excellent infrastructure for such meetings. A following mid-term meeting is planned to be held as a breakout session at the Arctic Science Summit Meeting (D06), and the final meeting (D15) will be organised in Jokmokk, the centre of the Lule Sami region, to ensure a maximum impact on the local community. Further stakeholders will be invited to the meetings, and we have considered travel and meeting attendance of stakeholders in our budget.

Interrelationship of tasks and schedule - risk management

The FATE project builds on close collaboration between the WPs and within single WPs. Nonetheless, we have minimized delays due to problems in reaching single milestones and deliverables, as we anticipate alternative project paths in the few cases, where we can anticipate risks that arise due to sampling or methodology.

- **M01 - 03 and M07 - 09: Anthropological field studies**

  Results from anthropological field studies are needed for the evaluation of the ILK for scenario building and for the development of scenarios. Our project plans to use data from four different communities, and should we experience problems in obtaining data from one site, this will not jeopardize the project outcome.

- **M04: Assays for sedimentary DNA of plants, mammals and fungi**

  The involved groups are highly experienced in obtaining ancient DNA data and we have well established routines. We are currently evaluating novel approaches (shotgun sequencing and hybridisation capture) and these might be used in the project. If they do not represent an improvement to current techniques, we will use the existing, well established protocols.
  There is no risk for retrieving plant sedimentary DNA, which has developed into a very robust tool in paleoecology. We minimise the risk of not retrieving sufficient data on herbivore populations by using two different proxies - mammals and fungi. Importantly, we also have access to historical records of reindeer populations, and although they do not reach back as far as sediment cores, they will allow assessments of herbivore impacts for historical timescales together with the plant sedimentary DNA.

- **M10: All new sediment cores available**

  The project builds mostly on sediment cores that are already available. Therefore, even if unfortunate, it will not jeopardize the project outcome if we run into difficulties acquiring all additional cores.

D. CVs

Laura Epp

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https://www.awi.de/nc/en/about-us/organisation/staff/laura-epp.html

Education

06/09 **Dr. rer. nat.**, Evolutionary Biology, University of Potsdam
Thesis: "*Molecular genetic analyses of historical lake sediments from the East African Rift Valley*"; grade: summa cum laude

Present position

since 07/14 **Postdoctoral researcher**, Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Research Unit Potsdam, on own DFG grant

- Principal Investigator DFG-Project: "*Response of Siberian treeline forests to historical and present climate changes – a (paleo)genetic approach*".

Previous professional experience

01/13 – 06/14 **Postdoctoral researcher**, Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Research Unit Potsdam

- Establishment and management of a new ancient DNA lab, co-management of a general S1 DNA lab.

07/09 – 11/12 **Postdoctoral researcher**, University of Oslo, Natural History Museum (NHM)

- Project: "*BarFrost:* ***Reconstruction of past ecosystems*** *by barcoding DNA preserved in permafrost*".
- 07/11 - 03/12**Lab management** of the ancient DNA lab at the NHM Oslo; training of researchers and students.
- 09/09 - 09/10**visiting researcher** at the Centre for GeoGenetics, Copenhagen.

01/08 – 06/09 **Scientific Coordinator,** University of Potsdam

- master curriculum "*Evolution across Scales*", funded by the Volkswagen Foundation
- profile area "*Functional Ecology and Evolution*" of the University of Potsdam
- cooperative PhD program "Adaptive Nature Conservation under Climate Change"

10/04 – 12/08 **PhD student**, University of Potsdam, **DFG Research Training Group 1364** "*Shaping Earth's Surface in a Variable Environment*".

Career break

05/15 - 09/16 **Parental leave** (working part time since 11/2015)

Grants and Awards

09/13 German Research Foundation (DFG) grant for the project "*Response of Siberian treeline forests to historical and present climate changes – a (paleo)genetic approach*" (DFG-grant EP98/2-1 of €147.013; co-funded by Alfred Wegener Institute; Project duration until July 2018).

10/07 – 12/07 PhD scholarship of the Equal Opportunities Office at the University of Potsdam

10/04 – 07/07 PhD scholarship in the DFG Research Training Group 1364 "Shaping Earth's Surface in a Variable Environment"

01/00 – 11/03 Scholarship of the German National Academic Foundation (Studienstiftung des deutschen Volkes)

10/99 – 07/00 Erasmus-grant for the University of Florence / Italy.

Supervision of students

PhD students Co-supervision of 4 PhD students at the Alfred Wegener Institute, 2013 - 2017 (main supervisor Ulrike Herzschuh): sedimentary ancient DNA & plant population genetics

Co-supervision of 1 PhD student at the University of Olso, 2012 - 2015 (main supervisor Nils Christian Stenseth); diet analyses of the Walia ibex from feces

BSc theses 2017 Nick Mewes (Martin-Luther University Halle-Wittenberg) *"Investigation of Larix chloroplast genomes for the development of molecular genetic markers"*

2014 Jonas Grünwald (Free University Berlin) "*Identification of willow grouse and rock ptarmigan and their diet using DNA from feces samples*".

Teaching

2014 – 2018 University of Potsdam. Lectures and genetic lab course in MSc module "Terrestrial Paleoecology".

2012 University of Oslo. Lecturer in MSc/PhD course "Biogeography" (total of 6 hours of lectures and two days of practical course throughout the summer semester).

2005 – 2008 University of Potsdam. Yearly undergraduate field course and identification exercises for aquatic organisms.

2005 – 2006 University of Potsdam. Advanced two week lab course on molecular evolution.

Organisation of scientific meetings

05/2017 Session "Ancient DNA for understanding past biodiversity, human history, and drivers of ecosystem changes: achievements, limits and perspectives" at the PAGES OSM, Zaragoza

06/2016 Aession "Palaeoenvironments in permafrost affected areas" at the XI. International Conference on Permafrost, Potsdam

06/2014 Aession "Life and Death: Molecular biomarkers to study current and past ecosystems" at the Goldschmidt 2014 Conference, Sacramento

07/2011 Session "Ancient DNA datasets and methods" at the XVIII INQUA-Congress, Bern.

05/2008 Main organizier of the workshop "*Evolution across Scales – Integrating Genomics, Geosciences and Evolutionary Biology*", University of Potsdam funded by the Volkswagen Foundation.

02/2006 PhD student meeting "New Markers and New Theories" of the German Zoological Society (DZG), University of Potsdam.

Departmental activities

AWI Potsdam Member of five PhD committees at the Alfred Wegner Institute.

University Oslo Member of two PhD committees at the Natural History Museum.

University Potsdam Member of the PhD scholarship selection committee (2006 – 2008).

University Göttingen Different mandates in the students' representation, both faculty & university level

Reviewing experience

Journals: *Nature Ecology and Evolution*, *New Phytologist, Nucleic Acids Research, Molecular Ecology*, *Molecular Ecology Resources*, *ISME Journal, Paleoceanography*, *Geobiology, Bioinformatics, Systematics and Biodiversity, Journal of Visual Experiments, Journal of Paleolimnology, Axios Reviews, Marine Biodiversity*

Funding organisations: *Swiss National Science Foundation (SNSF)*, *National Science Foundation (NSF)*, *Icelandic Research Fund*

Invited talks and seminars

05/2017 Epp, L.S.,, Kruse, S., Kath, N., Pestryakova, L., Herzschuh, U.: *Larch species turnovers and vegetation change in the arctic-boreal treeline ecotone during the Holocene*. Keynote at the PAGES OSM in the session "Do species move, adapt or die? Exploring past biodiversity, ecological change and community dynamics in the fossil record", Zaragoza, 05/17.

05/2016 Epp, L.S.: *Tracking the history of aquatic and terrestrial ecosystems with lake sediment core DNA*, Invited lecture at the EAWAG Kastanienbaum

01/2012 Epp, L.S. *Archives in the dirt: Ancient DNA preserved in Arctic permafrost soils to track past ecosystem changes*, Invited lecture at the Seminar Series on Evolution and Genetics, University of Potsdam.

10/2010 Epp, L.S., Boessenkool, S., Bellemain, E., Brochmann, C.: *Reconstruction of past ecosystems from DNA preserved in permafrost*. Invited lecture at the Temadagar "DNA– a revolution in archaeology?", University of Gothenburg.

11/2008 Epp, L.S.: *Molecular genetic analyses of historical sediments*, Lecture at the international DAAD workshop "Paleoclimate proxies in terrestrial archives", University of Potsdam.

Field experience

2013 Four weeks helicopter expedition to northern Siberia (area near Khatanga, Krasnoyarsk Krai, Russia). Mapping of larch forest stands, and collection of plant material and sediment cores.

2005 & 2007 Field work in Kenya: collection of surface sediments, water samples and short sediment cores from a number of lakes for DNA analyses.

Track record

23 papers in ISI indexed journals, cited 684 times, h-index 12.

Publications (10 most relevant)

Zimmermann, H.H., Raschke, E., **Epp, L.S.**, Stoof-Leichsenring, K.R., Schirrmeister, L., Schwamborn, G., Herzschuh, U. (2017) The history of tree and shrub taxa on Bol'shoy Lyakhovsky Island (New Siberian Archipe-lago) since the last interglacial uncovered by sedimentary ancient DNA and pollen data. *Genes* 2017*, 8, 273;* DOI:10.3390/ genes8100273

Niemeyer, B., **Epp, L.S.**, Stoof-Leichsenring, K.R., Pestryakova, L.A., Herzschuh, U. (2017) Recording vegetation composition at the Siberian boreal treeline: A comparison between sedimentary DNA and pollen. *Molecular Ecology Resources,* DOI: 10.1111/1755-0998.12689

Zimmermann, H.H., Raschke, E., **Epp, L.S.,** Stoof-Leichsenring, K.R., Schwamborn, G., Schirrmeister, L., Overduin, P.P., Herzschuh, U. (2017). Sedimentary ancient DNA and pollen reveal the composition of plant organic matter in Late Quaternary permafrost sediments of the Buor Khaya Peninsula (north-eastern Siberia). *Biogeosciences* 14: 575–596.

Epp, L.S., Gussarova, G., Boessenkool, S., Olsen, J., Haile, J., Schrøder-Nielsen, A., Ludikova, A., Hassel, K., Stenøien, H. K., Funder, S., Willerslev E., Kjær, K., Brochmann, C. (2015) Lake sediment multi-taxon DNA from North Greenland records early post-glacial appearance of vascular plants and accurately tracks environmental changes. *Quaternary Science Reviews* 117: 152 - 163.

Soininen, E.M., Gauthier, G., Bilodeau, F., Berteaux, D., Gielly, L., Taberlet, P., Gussarova, G., Bellemain, E.B., Hassel, K., Stenøien H. K., **Epp, L.S.**, Schrøder-Nielsen, A., Brochmann, C., Yoccoz, N. (2015) Highly overlapping winter diet in two sympatric lemming species revealed by DNA metabarcoding. *PLoS One* 10(1): e0115335.

Boessenkool, S., McGlynn, G., **Epp, L.S.**, Taylor, D., Pimentel, M., Gizaw, A., Nemomissa, A., Brochmann, C., Popp, M. (2014) Use of ancient sedimentary DNA from a biodiversity hotspot in the humid tropics as a novel conservation tool. *Conservation Biology* 28(2):446 - 455.

Willerslev, E., Davison, J., Moora, M., Zobel, M., Coissac, E., Edwards, M.E., Lorenzen, E.D., Vestergård, M., Gussarova, G., Haile, J., Craine, J., Gielly, L., Boessenkool, S., **Epp, L.S.**, Pearman,

P.B., Cheddadi, R. *(...)* Brochmann, C., Taberlet, P. (2014) Fifty thousand years of Arctic vegetation and megafaunal diet. *Nature* 506(7486):47 - 51.

Bellemain, E.P., Davey, M.L., Kauserud, H., **Epp, L.S.**, Boessenkool, S., Coissac, E., Geml, J., Edwards, M.E., Willerslev, E., Gussarova, G., Taberlet, P., Brochmann, C. (2013) Fungal paleodiversity revealed using high-throughput metabarcoding of ancient DNA from arctic permafrost. *Environmental Microbiology* 15 (4), 1176 - 1189.

Epp, L.S., Boessenkool, S., Bellemain, E.P., Haile, J., Esposito, A., Riaz, T., Erséus, C., Gusarov, V., Edwards, M.E., Johnsen, A., Stenøien, H.K., Hassel, K., Kauserud, H., Yoccoz, N.G., Bråthen, K.A., Willerslev, E., Taberlet, P., Coissac, E., Brochmann, C. (2012) New environmental metabarcodes for analysing soil DNA: potential for studying past and present ecosystems. *Molecular Ecology* 21, 1821 - 1833.

Boessenkool, S., **Epp, L.S.**, Haile, J., Bellemain, E., Edwards, M.E., Coissac, E., Willerslev, E., Brochmann, C. (2012) Blocking human contaminant DNA during PCR allows amplification of rare mammal species from sedimentary ancient DNA. *Molecular Ecology* 21, 1806 - 1815.

Inger Greve Alsos

Tromsø Museum, UiT - The Arctic University of Norway

ORCID http://orcid.org/0000-0002-8610-1085

http://en.uit.no/ansatte/inger.g.alsos

EDUCATION

2003 PhD, Disputation date: 06.06.2003

Tromsø Museum, UiT – The Arctic University of Norway

1995 Master, Department of Plant Ecology, UiT – The Arctic University of Norway, in collaboration with Norwegian Institute for Nature Research (NINA) and the Zoological Laboratory, University of Groningen, The Netherlands

CURRENT AND PREVIOUS POSITIONS

2010- Professor at Tromsø Museum, UiT – The Arctic University of Norway

2010-2010 Associate Professor UiT – The Arctic University of Norway

2010-2010 Associate Professor II, University Centre in Svalbard, Norway

2006-2009 Associate Professor, University Centre in Svalbard, Norway

2004-2006 Post doc, National Centre for Biosystematics, University of Oslo, Norway

2003-2003 Post doc, UiT – The Arctic University of Norway

2003-2003 Associate professor, UiT – The Arctic University of Norway

1998-2003 Research fellow UiT – The Arctic University of Norway

1995-1997 Scientific assistant, the Norwegian Polar Institute

1992-1997 Scientific assistant, UiT – The Arctic University of Norway

FELLOWSHIPS AND AWARDS (PI if not otherwise mentioned)

1993-2016 Total grants: 86 mill NOK (ca 9.2 mill EUR) of which 35 mill NOK as PI

2016-2021 The Research Council of Norway/UiT, Toppforsk, ECOGEN - Ecosystem change and species persistence over time: a genome-based approach, 25 mill NOK

2016-2020 The Research Council of Norway, REININ - Reindeer interactions from plants and birds to humans: balancing the odds of climate change (6 mill NOK, PI: G. Gusarova)

2016-2020 The Research Council of Norway (255415), Climate History along the Arctic Seaboard of Eurasia (CHASE), 7 mill NOK (PI: J.I. Svendsen)

2014-2019 The Research Council of Norway, NorBOL - Norwegian Barcode of Life Network, 25.6 mill NOK (PI: Ekrem NTNU, http://www.norbol.org/)

2012-2016 The Research Council of Norway, Ancient DNA of NW Europe reveals responses to climate change, 6 mill NOK (https://www.cristin.no/app/projects/show.jsf?id=454736)

2012-2013 Fram Centre, Shipping in polar waters: Introduction of marine invasive species through ballast water and biofouling, (900.000 NOK)

2012-2013 Svalbard's Environmental Protection Found for studies on "Invasive species pathways II" (500.000 NOK)

2011-2012 Svalbard's Environmental Protection Found for studies on "Invasive species pathways" (650.000 NOK)

2010-2011 Finnmark Fylkeskommune for genetic studies of the redlisted species Polemonium boreale (345.000, PI: Arnesen)

2010-2011 Finnmark Fylkeskommune for genetic studies of the redlisted species Oxytropis deflexa (500.000 NOK, PI: Arnesen)

2010 Directorate for Nature Management for participating in Conservation of Arctic Flora and Fauna (CAFF) flora expert group (41.000 NOK).

2010 Artsdatabanken for "Vascular plants Svalbard" (200.000 NOK)

2010 Norwegian Polar Institute for monitoring climate sensitive species in Svalbard (102.200 NOK)

2010-2011 Taxonomic studies of Puccinellia in Svalbard (138.000 NOK, PI: Eidesen)

2009-2010 Svalbard's Environmental Protection Found for DNA and field studies of redlisted species in Svalbard (250.000 NOK)

2006-2010 The Research Council of Norway SURVICE project (4.8 mill NOK, PhD student Westergaard, PI: Brochmann)

>2009 17 grants of about 1.2 mill NOK as PI, 2 grants of 6.2 and 0.35 mill NOK for PhD and post doc work with C. Brochmann as PI

MOBILITY

2014-2014 Geography and Environment, University of Southampton, UK (Mary E. Edwards)

2000-2000 LECA, University Grenoble-Alpes/CNRS, France (Pierre Taberlet)

1993-1994 University of Groningen, The Netherlands (Rudi Drent)

SUPERVSIONS OF GRADUATE STUDENTS AND RESEARCH FELLOWS

2004-2017 3Postdocs, 7 PhD, 9 Master Students

UiT – The Arctic University of Norway, Norway (1 PhD and all masters joint with University Centre in Svalbard)

TEACHING ACTIVITIES

2010- Board member of the Norwegian-Swedish Research School in Biosystematics (ForBio, http://www.forbio.uio.no/)

2011-2017 Lectures at University Centre in Svalbard and Metabarcoding spring school (ForBio)

2009-2010 Completed the course "Teaching and Instruction in Higher Education" and developed a teaching portfolio, UiT – The Arctic University of Norway

2006-2009 Responsible for AB-210 Arctic Terrestrial Ecology and AB-326 Arctic Plant Ecology, also teaching on AB-329 Winter Ecology, and Arctic Nature Guide course, University Centre in Svalbard, Norway

1992-1995 Assistant teacher in Bio-103 Cell biology, Bio-105 Ecology, Bio-108 Botany and Bio-111 Botany II at the UiT – The Arctic University of Norway

ORGANISATION OF SCIENTIFIC MEETINGS

2017 7th Intern. Barcode of Life conference, committee member and chair, South Africa

2017 5th PAGES Open Science Meeting, chair ancient DNA, 900 participants, Zaragoza, Spain, http://www.pages-osm.org/

2016 Island Biology conference 2016, chair, ca. 400 participants, Azores, Portugal

(http://www.islandbiology2016.uac.pt/)

2015 6th Intern. Barcode of Life conference, committee member and chair, >600 participants, Canada (http://dnabarcodes2015.org/)

Organisation of 5 international conferences in Norway

INSTITUTIONAL RESPONSIBILITIES

2016- Board member Society of Island Biology

2012- Deputy of Norwegian Barcode of Life/NorBOL, http://www.norbol.org/

2012- Leader of research group in taxonomy and biodiversity, Tromsø Museum, UiT

2010- Leader of molecular laboratory, Tromsø Museum, UiT

2010- Member of the Terrestrial Working Group of the International Arctic Science Committee (IASC)

2015-2015 Evaluator of species for red list of Svalbard, Norwegian Biodiversity Information Centre

2011-2013 Board member Tromsø Museum, UiT – The Arctic University of Norway

2009-2009 Evaluator of species for the black list of Svalbard, Norwegian Biodiversity Information Centre

2009-2010 Member of the Circumarctic Flora and Fauna (CAFF) Flora expert group

COMMISSIONS OF TRUST

2002-2017 Referee for Biol. Let., Ecol. Let., Mol.Ecol., Global Ecol. Biogeo., J. Biogeo., Quat. Sci. Rev., Nat. Ecol. Evol., Boreas, J. Paleolimn., Plant Ecol., New Phytol., PlosOne, Sys. Biol., Front. Ecol. Evol., Can. J. Bot., Silvae Genet., Plant Ecol. Div., Plant Sys. Evol., AAAR, Ann. Bot., Funct. Ecol., Polar Biol., Flora, Int. J. Ecol., Polish J. Ecol., Folia Geobot. Former subject editor for Nordic Journal of Botany and board member of Flora. Currently associated editor for Arctic, Antarctic and Alpine Research, Frontiers. Evaluator for National Science Foundation USA, Rannís - The Icelandic Centre for Research, National Science Foundation Polen – OPUS, Deutsche Forschungsgemeinschaft - DFG.

MAJOR COLLABORATIONS

Christian Brochmann / Phylogeography, genetic diversity, arctic plants / Natural history Museum, University of Oslo, Norway

Dorothee Ehrich / Phylogeography, genetic diversity, arctic plants, environmental DNA / UiT – The Arctic University of Norway

Mary E. Edwards / Palaeoecology, ancient DNA / University of Southampton, UK

Pernille Bronken Eidesen / arctic plants, genetic diversity, phylogeography / The University Centre in Svalbard, Norway

Eric Coissac, Ludovic Gielly and Pierre Taberlet / ancient DNA, bioinformatics, environmental DNA, phylogeography / CNRS, LECA, Grenoble, France

CAREER BREAKS

1997 and 2000 Maternal leave, each 6 month.

RESEARCH EXPEDITIONS

Svalbard (>30), Norway (>20), NW Russia/Polar Ural (2), Newfoundland and Gaspe Peninsula (1), The Alps (2)

INVITED LECTURES

2002-2017 Ancient DNA workshop at Uni. of Stockholm 2016, Plant Conference Trondheim 2016, Crannoch workshop Edinburgh 2016, AGU fall meeting San Francisco 2015, Biodiversity and DNA barcoding meeting in Trondheim 2015, COST Action FP1305 meeting at Uni. Reading 2014, Seminar at Palaeoenvironmental Laboratory at the University of Southampton (PLUS), Uni. Centre in Svalbard, Uni. of Oslo, Uni. of Tromsø, Uni. of Copenhagen, Norwegian Uni. of Science and Technology, Uni. of Amsterdam, Norwegian Polar Institute

TRACK RECORD

52 papers in ISI indexed journals, cited 1771 times (1614 excluding self-citation, 10th of Nov. 2017), h-

index 20, 6 book chapters, 29 scientific papers in national journals, 15 scientific reports

PUBLICATIONS (10 MOST RELEVANT)

1. Alsos, IG, Yoccoz, NG, Lammers, Y, Jørgensen, T, Sjögren, P, Gielly, L, Edwards, M. (in press). Metabarcoding lake sediments: taphonomy and representation of contemporary vegetation in environmental DNA records. Plos One.
2. Parducci, L, Bennett, KD, Ficetola, GF, Alsos, IG, Suyama, Y, Wood, JR, Pedersen, MW. 2017. Transley Reviews: Ancient plant DNA from lake sediments. New Phytol. 213:929-941. (3 citations)
3. Sjögren, P, Edwards, ME, Gielly, L, Langdon, C, Croudace, IW, Merkel, MKF, Fonville, T, Alsos, IG, 2017. Lake sedimentary DNA accurately records 20th century introductions of exotic conifers in Scotland. New Phytol. 213, 929-941. (5 citations)
4. Alsos, IG, Landvik, JY, Sjögren, P, Gielly, L, Forwick, M. Coissac, E, Brown, AG, Jakobsen, LV, Føreid, MK, Pedersen, MW and Edwards, ME (2016) Sedimentary ancient DNA from Lake Skartjørna, Svalbard: assessing the resilience of arctic flora to Holocene climate change. The Holocene (2.28): 26:627-642. DOI 10.1177/0959683615612563 (6 citation).
5. Alsos, IG, Ehrich, D, Seidenkrantz, MS, Bennike, O, Kirchhefer, A, Geirsdottir, A (2016). "The role of sea ice for vascular plant dispersal in the Arctic." Biology Letters 12. (0 citations)
6. Alsos IG, Ehrich D, Eidesen PB., Solstad H, Westergaard KB, Schönswetter P, Tribsch A, Birkeland S, Elven R & Brochmann C (2015) Long-distance plant dispersal to North Atlantic islands: colonization routes and founder effect. AoB Plant 7: plv036. DOI: 10.1093/aobpla/plv036. (16 citations)
7. Willerslev, E, ..., Alsos, IG, (48 authors) (2014) Fifty thousand years of arctic vegetation and megafaunal diet. Nature (38.60) 506: 47-51. DOI: 10.1038/nature12921 (121 citations)
8. Parducci, L, +21, Alsos, IG & Willerslev, E. (4 first are co-first authors and 2 last are co-senior authors) (2012) Glacial survival of boreal trees in northern Scandinavia. Science (31.36) 335: 1083-1086. Doi: 10.1126/science.1216043. (142 citations).
9. Lenoir, J., Graae, BJ, Aarrestad, PA, Alsos, IG + 31. (2013). "Local temperatures inferred from plant communities suggest strong spatial buffering of climate warming across Northern Europe." Global Change Biology 19: 1470-1481. (78 citations).
10. Alsos, IG, Ehrich, D, Thuiller, W, Eidesen, PB, Tribsch, A, Schönswetter, P, Lagaye, C, Taberlet, P & Brochmann, C (2012) Genetic consequences of climate change for northern plants. Proceedings of the Royal Society B: Biological Science (5.06) 279: 2042-2051. DOI 10.1098/rspb.2011.2363. (75 citations)

Johan Olofsson

Department of Ecology and Environmental Science, Umeå University

ORCID https://orcid.org/0000-0002-6943-1218

http://www.emg.umu.se/english/about-the-department/staff/olofsson-johan/?languageId=1

EDUCATION

2002 PhD, Disputation 03/08/2002. Long-Term Effects of Herbivory on Tundra Ecosystems, Supervisor Prof Lauri Oksanen

CURRENT AND PREVIOUS POSITIONS

2008 - Associate professor (Universitetslektor) at the Department of Ecology and tal Science (EMG), Umeå University

2003 - 2008 Forskarassistent, EMG, Umeå University, Sweden.

2002 - 2003 Post-doc, Imperial College London at Silwood Park UK

2002 - 2002 Forskarassistent, Department of Ecology and Environmental Science, Umeå ty, Sweden.

2001 Researcher, METLA, Finland

1996 - 2001 PhD student, Dept. of Ecological Botany

PATERNITY LEAVE

2010 02 13 – 2011 09 01 In total 7 month full time.

2014 05-09 – 2016 05 31 In total 6 month full time

SCIENTIFIC PRIZES Umeå kommuns vetenskapliga pris 2005, 50000 SEK

SUPERVISION

PhD students

current: Elin Lindén 2017, past: Dagmar Egelkraut (main supervisor), Hélène Barthelemy 2016 (main supervisor), Anna-Marina Becher, 2016, (deputy supervisor), Elina Kaarlejärvi 2014 (main supervisor), Mikaela Torp, 2010, (main supervisor), Otilia Johansson, 2011, (deputy supervisor), Jonas Dahlgren, 2006, (deputy supervisor),

Post-docs:

current: Mattias Siewert 2017-2019, Maja Sundqvist 2014-2019, past: Fidele Bougnounou (2011), Judith Sitters 2012-2014, Elina Kaarlejärvi 2014, Mariska te Beest 2012-2015, Gesche Blume-Verry 2017-2018

MEMBERSHIPS, BOARDS, ORGANISATIONS

I am a member of the board of Svenska Föreningen Oikos, 2009-

I am a board member in CESAM (Centrum för Samiska Studier), 2009-

I am a program coordinator for the master program in Ecology at Umeå University.

I am a chair of the basic education council at the department of ecology and environmental science, Umeå University.

I am a member of the faculty board of the Faculty for Technology and Natural Sciences, Umeå University.

MAJOR RESEARCH GRANTS

VR: 2018-2021 A trait-based understanding of plant-herbivore interactions. 3500000 SEK;

FORMAS 2016-2018. Effects of herbivores on nutrient cycling and primary production: importance for development of sustainable grazing regimes. 2745000 SEK,

FORMAS, 2012-2015 Effects of reindeer on summer pasture productivity: using historical reindeer pens, border fences and reindeer herding districts as long-term and large scale ecological experiments. 3969000 SEK,

FORMAS 2013-2015 Kan renar öka sommarbetesmarkernas produktivitet? Renvallar, gränsstängsel och samebyar som storskaliga långtidsexperiment. 2754000SEK,

Naturvårdsverket 2013-2015 Vad karaktäriserar ett betespräglat landskap? 3000000 SEK,

Stiftelsen Oscar & Lilli Lamms Minne, 2013, 180000 SEK Effects of reindeer on summer pasture productivity,

Stiftelsen Oscar & Lilli Lamms Minne, 2011, 300000 SEK, Studying voles and lemmings from space: linking plant population dynamics to regional ecosystem processes,

Stiftelsen Oscar & Lilli Lamms Minne, 2010-2013, 2000000 SEK, Interaktioner mellan renbete och en global uppvärmning påverkar fjällvegetationen,

NORDEN, 2011-2015, 2100000SEK (my wp only, whole project 18000000Nkr), NCoE – Tundra, Nordic Centre of Excellence

STAKEHOLDER ENGAGEMENT

I am engaged in several stake holder meetings each year including meetings with reindeer herders and reindeer herder associations, county board administration, the Swedish environmental protection agency and various organizations working with environmental monitoring. Examples of recent activities:

20180131 Activity: Seminar at Ajtte (Sami Museum) during the winter market about rhe role of reindeer in a changing climate – Audience: reindeer herders and general public

20171122 Activity: Seminar and discussion to help reindeer herding districts to develop plans to handle future climate changes. Audience: Reindeer herders and Sami parlament.

20170307 Activity: seminars about the role of reindeer in a changing climate at the Sami week in Umeå. Audience: Reindeer herders and general public

20161227 Activity: pod cast with me, a reindeer herder and a county board administrator discussing the importance of reindeer in a changing landscape. Audience: general public https://podtail.com/podcast/storslagen-fjallmiljo/

20160921-20160922 Activity: Seminar, discussion and excursions about climate change in arctic ecosystems. Audience: Stakeholders working with environmental monitoring.

TRACK RECORD

In total 69 peer-reviewed publications (1999-2017), 43 of them as first or last author, 2890 citations, H:27, in Web of Science. Total number of citations in Google scholar is 3967. The search was performed 2018 02 15.

PUBLICATIONS (10 MOST RELEVANT)

1. Kaarlejärvi E, Eskelinen A & **Olofsson J** 2017 Herbivores rescue diversity in a warming tundra by modulating trait-dependent species losses and gains. *Nature Communications* 8:419.

2. Eskelinen A, Kaarlejärvi E & **Olofsson J** 2017 Herbivory and nutrient limitation protect warming tundra from lowland species' invasions and diversity loss. *Global Change Biology* 23:245-255.

3. Uboni A, Horstkotte T, Kaarlejärvi E, Sêvêque A, Stammler F, **Olofsson J**, Forbes BC & Moen J 2016 Long-term trends and role of climate in the population dynamics of Eurasian reindeer. *Plos One*, 11:e0158359

4. Kaarlejärvi E, Hoset A & **Olofsson J** 2015 Mammalian herbivores confer resilience of Arctic shrub-dominated ecosystems to a changing climate. *Global Change Biology* 21:3379 3388
5. Kaarlejärvi E & **Olofsson J** 2014 Concurrent biotic interactions influence plant performance at their altitudinal distribution margins. *Oikos* 123:943-952
6. Väisänen M, Ylänne H, Kaarlejärvi E, Sjögersten S, **Olofsson J**, Crout N & Stark S 2014. Consequences of warming on tundra carbon balance determined by reindeer grazing history *Nature Climate Change* 4:1-5
7. Kaarlejärvi E, Eskelinen A & **Olofsson J** 2013 Herbivory prevents positive responses of lowland plants to warmer and more fertile conditions at high altitudes. *Functional Ecology* 27: 244-253
8. **Olofsson J**, Tommervik H & Callaghan TV 2012 Vole and lemming activity observed from space. *Nature Climate Change* 2:880-883 Number of Citations: 47
9. **Olofsson J**, Ericson L, Torp M, Stark S & Baxter R 2011 Carbon balance of Arctic tundra under increased snow cover mediated by a plant pathogen. *Nature Climate Change* 1:220-223
10. **Olofsson J**, Oksanen J, Callaghan T, Hulme PE, Oksanen T & Suominen O 2009 Herbivores inhibit climate driven shrub expansion on the tundra., *Global Change Biology* 15:2681-2693

Douglas Nakashima

Division of Science Policy and Capacity-building, Natural Sciences Sector
UNESCO (United Nations Educational, Scientific and Cultural Organization)
ORCID https://orcid.org/0000-0003-0362-0283

EDUCATION

1992	Ph.D. Department of Geography McGill University, Montreal, Canada
1981-82	Regent's Fellow, Evolutionary Ecology University of California, Santa Barbara, CA
1978	B.Sc. Department of Biology McGill University, Montreal, Canada

CURRENT AND PREVIOUS POSITIONS

2017 -	Director a.i., Science Policy & Capacity-Building Division, Science Sector, UNESCO
2006-2017	Chief, Small Islands and Indigenous Knowledge, Science Sector, UNESCO.
2014-16	Head, Technical Support Unit, Task Force on indigenous and local knowledge, Intergovern mental Platform on Biodiversity and Ecosystem Services (IPBES).
2002-17	Head, Local & Indigenous Knowledge Systems (LINKS) programme, UNESCO
1996-2006	Programme Specialist, Coastal Regions & Small Islands Platform, UNESCO
1995-1996	Consultant, Bureau for Coordination of Scientific Programmes, Science Sector, UNESCO
1994-1995	Associate Researcher, Eco-anthropology & Ethnobiology Laboratory, Centre national de la recherche scientifique (CNRS), Museum national d'Histoire naturelle (MNHN), France
1994	Scientific Coordinator, Great Whale Environmental Assessment, Community Consultations, Grand Council of the Crees of Quebec, James Bay, Quebec, Canada
1992-1993	Postdoctoral Fellow, Eco-anthropology & Ethnobiology Laboratory, CNRS/MNHN, Paris, France
1987	Project Director, Research Dept, Makivik Corporation, Kuujjuaq, Arctic Quebec, Canada
1982-86	Director, Makivik Research Centre, Makivik Corp., Kuujjuaq, Arctic Québec, Canada
1978-81	Researcher, Research Dept., Makivik Corp., Kuujjuaq, Arctic Québec, Canada

MAJOR RESEARCH GRANTS (PI if not otherwise mentioned)

2014-2018	Technical Support for the Intergovernmental Platform on Biodiversity and Ecosystem Ser vices (IPBES) Task Force on Indigenous and Local Knowledge Systems (IPBES Work programme 2014-2018), UN Environment Programme (UNEP), US$ 1,071,797
2014-2018	Transdisciplinary Research on Climate Change Adaptation for Vulnerable Indigenous Com munities in Sub-Saharan Africa: Fostering Indigenous - Scientific Knowledge Co-production, Swedish International Development Agency (SIDA), US$ 1,076,409
2014-2017	Building capacities of pastoralists in LDCs in Africa: Reinforcing indigenous knowledge in cli mate change adaptation planning (Climate Frontlines in Africa), Japanese Funds-in Trust, US$ 457,400

2013-2017 Bridging Indigenous and Scientific Knowledge about global change in the Arctic: adaptation and vulnerability of society & environment (BRISK), Agence national de le recherche (ANR-France), US$ 147,614

2012-2015 Small Island and Indigenous Knowledge of Climate Change Impacts and Adaptation: Rea ching out to indigenous, scientific and education communities through Climate Frontlines, Danish International Development Agency, US$ 124,690

STAKEHOLDER ENGAGEMENT

For more than 15 years (since 2002), UNESCO's Local and Indigenous Knowledge Systems (LINKS) programme has been working closely with indigenous peoples and local communities on joint projects, research, events and other actions that reinforce understandings of the role of local and indigenous knowledge in environmental management, including biodiversity conservation and climate change adaptation.

This work includes the development of modalities for building dialogue between indigenous knowledge holders and scientists in order to create opportunities for an equitable sharing of observations, knowledge, priorities and values (see below the series of dialogue workshops organized in the framework of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC).

UNESCO's LINKS programme led the multi-year work within the Organization to develop, in close collaboration with indigenous peoples, a UNESCO Policy on Engagement with Indigenous Peoples. In 2017, the Organization's intergovernmental Executive Board reviewed this UNESCO Policy and took note with satisfaction of the proposed text.

CONTRIBUTIONS TO POLICY DEVELOPMENT

UNESCO's LINKS programme has also been working closely with several intergovernmental bodies to help shape policies that reinforce synergies between scientific knowledge and indigenous knowledge to enhance environmental management and sustainable development.

- with the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), UNESCO serves as the Technical Support Unit for the IPBES Task Force on indigenous and local knowledge (Ilk), and in this capacity has helped develop procedures and approaches for bringing (ILK) into biodiversity assessments.

- with the Intergovernmental Panel on Climate Change (IPCC), UNESCO-LINKS worked with Chairpersons and Authors of IPCC's Fifth Assessment Report, which resulted in strong recognition of the contribution of indigenous knowledge to climate change adaptation in the Summary for Policymakers.

- with the UN Framework Convention on Climate Change (UNFCCC), UNESCO-LINKS is providing technical advice to UNFCCC on the local communities and indigenous peoples platform that was established under the COP21 Paris Agreement.

ORGANIZATION OF SCIENTIFIC MEETINGS

2016 *Indigenous Knowledge and Climate Change*, International experts meeting with indigenous peoples, natural and social scientists and government representatives, UNFCCC COP22 (Marrakesh, Morocco, 2-3 November 2016)

2016 Dialogue workshop for the IPBES Regional Assessment for the Americas. International experts meeting with indigenous peoples, indigenous and local knowledge (ILK) experts and Authors of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) assessment (Sucre, Bolivia, 20-22 July 2016)

2016 Dialogue workshop for the IPBES Regional Assessment for Asia-Pacific. International experts meeting with indigenous peoples, ILK experts and Authors of the IPBES assessment (Chiang Mai, Thailand, 26-28 June 2016)

2016 Dialogue workshop for the IPBES Regional Assessment for Europe and Central Asia. International experts meeting with indigenous peoples, ILK experts and Authors of the IPBES assessment (Paris, 11-13 January 2016)

2015 *Resilience in a Time of Uncertainty: Indigenous Peoples and Climate Change*. International experts meeting with indigenous peoples, natural and social scientists and government representatives in the run-up to UNFCCC COP21 (Paris, 26-28 November 2015)

2015 Dialogue workshop for the IPBES Regional Assessment for Africa. International experts meeting with indigenous peoples, ILK experts and Authors of the IPBES assessment (Paris, September 2015)

2014 Dialogue workshop for the IPBES Thematic Assessment on Pollination, Pollinators and Food Production. International experts meeting with indigenous peoples, ILK experts and Authors of the IPBES assessment. Smithsonian Tropical Resource Institute (Panama City, December 2014)

2013 The contribution of indigenous and local knowledge to IPBES: Building synergies with science. International expert meeting, United Nations University, Institute for Sustainability and Peace (Tokyo, June 2013)

2011 *Indigenous Peoples, Marginalized Populations and Climate Change: Vulnerability, Adaptation and Traditional Knowledge*. International experts meeting to provide inputs on indigenous knowledge to the Intergovernmental Panel on Climate Change (IPCC) Working Group II (Mexico City, 19-21 July 2011)

2011 *Mayangna Knowledge of the Interdependence of People and Nature,* National workshop to initiate the elaboration of pedagogical materials in Mayangna and Spanish that reinforce indigenous knowledge and language in education curricula, BOSAWAS Biosphere Reserve, Nicaragua (Managua, 22-24 June 2011)

2009 *Climate Change and Arctic Sustainable Development: scientific, social, cultural and educational challenges.* International Experts Meeting (Monaco, 3-6 March 2009)

2007 *Indigenous Knowledge and Changing Environments.* International Experts Meeting (Cairns, Australia, August 2007)

2005 *Safeguarding the Transmission of Local & Indigenous Knowledge of Nature*. Experts meeting on the occasion of the Aichi EXPO 2005 (Nagoya, Japan, April 2005).

2005 *Biological and Cultural Diversity: The challenge of local knowledge, practice and worldviews.* In the framework of the International Conference on Biodiversity Science and Governance. (Paris, France, January 2005).

MAJOR PUBLICATIONS (10 MOST RELEVANT)

In press Nakashima, D., Krupnik, I. and Rubis, J. (eds.). *Indigenous Knowledge for Climate Change Assessment and Adaptation.* Cambridge University Press and UNESCO Press (to be published in 2018)

In press Roué, M. and Nakashima, D., "Indigenous and local knowledge and science: Towards knowledge co-production". In: Callan, H. (ed.), *The International Encyclopedia of Anthropology,* John Wiley and Sons Ltd., Chichester.

In press Roué, M., Nakashima, D. and Krupnik, I. (eds.), *Coproduction of knowledge between Indigenous knowledge and science about climate change*, UNESCO Press, (to be published in 2018)

2016 Ford, J. D., Cameron, L., Rubis, J., Maillet, M., Nakashima, D., Willox, A. and Pearce, T. "Including indigenous knowledge and experience in IPCC assessment reports". *Nature Climate Change*, 6(4), 349–353.

2015 Nakashima. D. “Local and indigenous knowledge at the science–policy interface”. Pp. 15-17. In: *UNESCO Science Report: Towards 2030*, UNESCO: Paris.

2012 Nakashima, D., Galloway McLean, K., Thulstrup, H.D., Ramos Castillo, A. and Rubis, J.T. *Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation.* UNESCO/UNU: Paris/Darwin.

2009 UNESCO, *Climate Change and Arctic Sustainable Development: scientific, social, cultural and educational challenges.* D. Nakashima (coordinator), Paris, UNESCO. 376 pp.

2009 P. Bates, M. Chiba, S. Kube and D. Nakashima (eds.), *Learning and Knowing in Indigenous Societies Today.* UNESCO: Paris, 128 pp

2002 Roué, M. and Nakashima, D., “Knowledge and Foresight: The predictive capacity of traditional knowledge applied to environmental assessment”. *International Social Science Journal* No. 173 - Vol LIV. Issue on Indigenous Knowledge.

2002 Nakashima, D. and Roué, M, "Indigenous knowledge, peoples and sustainable practice", pp. 314-324. In: Peter Timmerman (ed.) *Social and Economic Dimensions of Global Environmental Change.* The Encyclopedia of Global Environmental Change. Vol. 5.

INSTITUTIONAL RESPONSIBILITIES

2011-2017 UNESCO house-wide focal point for indigenous peoples’ issues – responsible for coordination in-house and UNESCO’s engagement across the United Nations system.

2006 to 2017 UNESCO house-wide focal point for small island developing states (SIDS) – responsible for coordination in-house and UNESCO’s engagement across the United Nations system.

MOBILITY

An accumulated 8 years of residency in Arctic and Subarctic Canada (Kuujjuaq, Nunavik (Arctic Quebec); Sanikiluaq, Nunavut; Chisasibi and Whapmagoostui, James Bay Territory, Subarctic Quebec).

Samuel Roturier

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https://orcid.org/0000-0002-7936-3108
http://www.ese.u-psud.fr/article565.html?lang=en

Assistant Professor
UMR 8079 Écologie, Systématique, Évolution
Université Paris Sud, CNRS, AgroParisTech

EDUCATION

2009 PhD, Disputation date: Dec. 18, 2009. *Managing Reindeer Lichen during Forest Regeneration Procedures: Linking Sami Herders' Knowledge and Forestry*.
Doctoral degree in **Biology** (Swedish University of Agricultural Sciences, Dept of Forest Ecology and Management, Umeå, Sweden)
Doctoral degree in **Environmental Anthropology** (Muséum National d'Histoire Naturelle, Laboratoire d'ethnobiologie et éco-anthropologie, Paris, France)

2004 Master in Plant Sciences, AgroCampusOuest, Angers, France

CURRENT ACADEMIC POSITION

2012 – present: Maître de Conférences, non HDR (Assistant Professor) at AgroParisTech

AgroParisTech is the Paris Institute of Technology for Life, Food and Environmental Sciences. It is a higher education and research institute ("Grande Ecole") training > 2000 graduate students and > 300 PhD students.

TEACHING ACTIVITIES

2012 – present: 50% time commitment in classes, lectures and student supervision
Responsible for classes in Ethnoecology, ILK in Environmental Sciences, Restoration Ecology, Landscape Ecology, Biodiversity Management and Public Policies, Methods in Interdisciplinary Research
Tutor of > 60 graduate students

PREVIOUS SCIENTIFIC POSITIONS

2011 – 2012: Post-doctoral fellow at INRA (National Institute of Agricultural Research), *Livestock Systems Dynamics and Climate Change*
2010 – 2011: Research fellow, Sveaskog (Swedish National Forest Company), *Management of Reindeer Winter Pastures*
2010: Special consultant, LINKS Program, UNESCO, Climate Frontlines project, *Climate Change and Reindeer Husbandry in Northern Sweden*
2010: Research fellow, Swedish University of Agricultural Sciences, *Impact Assessment of a New Experimental Forest on Reindeer Husbandry*

CAREER BREAKS

2013 and 2015: Parental leaves, 1 month each.

RESEARCH GRANTS

2016 – 2019: Doctoral School ABIES, *Local and Scientific Knowledge about Fire Regimes in the Boreal Forest* (100 000 EUR)
2016 – 2019: AgroParisTech Special Support for Scientific Projects, *FIRE-B* (8 000 EUR)

2016: IDEEV Call for Tender, *Fire as a Tool for Ecological Engineering* (6 000 EUR)
2014 – 2016: French Polar Institute Paul-Emile Victor, *BRISK-OBS* (10 000 EUR, PI: A. Lavrillers)
2013 – 2016: ANR-12_SENV_0005, *BRISK-Bridging Indigenous and Scientific Knowledge in the Arctic* (520 000 EUR, PI: A. Lavrillers)
2010 – 2011: Sveaskog Stabben, *Samanställning project SSR, Sveaskog, Handölsdalen, Sirges och Malå* (200 000 SEK, PI: H. Winsa)
2008 – 2009: CNRS-IRSTEA Interdisciplinary Research Program "Ecological Engineering", *Lichen-rich Forests and Sami* (60 000 EUR, PI: M. Roué)

MOBILITY & RESEARCH FIELDWORKS
2011 – 2012: INRA, Clermont-Ferrand, France
2009 – 2011: SLU, Vindeln/Umeå/Kallix, Sweden
2008: Muséum National d'Histoire Naturelle, Paris, France
2005 – 2007: SLU, Vindeln/Umeå, Sweden

2018: Chile, Patagonia, 3 weeks fieldwork on forest history
2007 – today: > 20 anthropological fieldworks in Jokkmokk, Lule Sápmi, Sweden; > 10 ecological field-works in northern Sweden

REGULAR ENGAGEMENT WITH LOCAL STAKEHOLDERS
In Sweden with various reindeer herding communities, especially: Sirges sameby, Jåhkågasska sameby, Tuorpon sameby.
In Sweden with the Swedish National Forest Company, especially in the district of Tärendö.
In the board of dialogue between the forest industry and reindeer herding communities.

RESEARCH SUPERVISION
2016 – 2020: 1 PhD student (co-supervision with L. Östlund, SLU, Umeå)
2015: 1 Post-doc
2013 – today: 6 master students

MEMBERSHIPS & RECOMPENSES
Member of the UICN-France working group about Wilderness and Feral Nature
Member of the Society for Ecological Restoration

OTHER SCIENTIFIC EXPERT POSITIONS
2016: Expert in the IPBES/ Europe & Central Asia dialogue workshop on indigenous and local knowledge systems at UNESCO headquarters, Paris, France.
2014: Impact assessment of the Gállok mine project on Sami reindeer herding for Sirges, Jåhkågasska and Tuorpon reindeer herding communities.
2010: Impact assessment of a new experimental forest on reindeer husbandry for SLU.

2010-2017 Referee for Arctic, Environ. Manage., Polar Rec., For. Ecol. Manage., Restor. Ecol., Ecol. Restor., Rangifer, Silva Fenn.

PUBLICATIONS (10 MOST RELEVANT)
1. Roturier, S., Nutti, L.-E., Winsa, H. Bridging Sami herders' knowledge and forestry for ecological restoration of reindeer lichen pastures in northern Sweden (*Book Chapter, UNESCO Press*, *In Press*)
2. Roué, M., Nutti, L.-E., Utsi, N.-J., Roturier, S. Co-produced mapping to preserve indigenous land use (*Book Chapter, UNESCO Press, In Press*)

3. Fernandez-Manjarres, J., Roturier, S., Bilhaut, A.-G. (2018) The emergence of the social-ecological restoration concept. *Restoration Ecology* doi:10.1111/rec.12685
4. Roturier, S., Ollier, S., Nutti, L.-E., Bergsten, U., Winsa, H. (2017). Restoration of reindeer lichen pastures after forest fire in northern Sweden: seven years of results. *Ecological Engineering 108*, 143-151.
5. Cogos, S., Roué, M., Roturier, S. 2017. Sami place names and maps : transmitting knowledge of a cultural landscape in contemporary contexts. *Arctic, Antarctic, and Alpine Research 49(1)*, 43-51.
6. Rigolot, C., Roturier, S., Dedieu, B., Ingrand, S. 2014. Climate variability drives livestock farmers to modify their use of collective summer mountain pastures. *Agronomy for Sustainable Development 34*, 899-907.
7. Horstkotte, T., Roturier, S. 2013. Does forest stand structure impact the snow-conditions on winter grazing grounds of semi-domesticated reindeer (*Rangifer t. tarandus*)? *Forest Ecology and Management 291*, 162-171.
8. Roturier, S. 2011. Sami herders' classification system of reindeer winter pastures – A contribution to adapt forest management to reindeer herding in northern Sweden. *Rangifer 31(1)*, 61-69.
9. Östlund, L., Roturier, S. 2011. Forestry historical studies in the province of Västerbotten, northern Sweden: a review of Lars Tirén (1937). *Scandinavian Journal of Forest Research 26 (Special issue 10),* 91-99.
10. Roturier, S., Roué, M. 2009. Of forest, snow and lichen: Sami reindeer herders' knowledge of winter pastures in northern Sweden. *Forest Ecology and Management 258(9),* 1960-1967.

Duane Gerald Froese

Professor and Canada Research Chair in Northern Environmental Change
Department of Earth and Atmospheric Sciences
University of Alberta
Edmonton, Alberta CANADA
Researcher ID A-9507-2016, ORCID https://orcid.org/0000-0003-1032-5944
Personal web site: https://www.ualberta.ca/science/about-us/contact-us/faculty-directory/duane-froese

EDUCATION

2001 PhD Physical Geography, University of Calgary, Calgary Alberta, Canada
1997 MSc. Physical Geography, University of Calgary

CURRENT AND PREVIOUS POSITIONS

2014- Professor Department of Earth and Atmospheric Sciences, University of Alberta
2010-2020 Canada Research Chair in Northern Environmental Change
2009-2014 Associate Professor, Department of Earth and Atmospheric Sciences, University of Alberta
2013- Adjunct Professor, Department of Earth Sciences, Dalhousie University
2004- Adjunct Professor, Department of Earth Sciences, Simon Fraser University
2003-2009 Assistant Professor, Department of Earth and Atmospheric Sciences, University of Alberta
2001-2003 NSERC Post-Doctoral Fellow, Department of Earth Sciences, Simon Fraser University

AWARDS

2016 Elected to the College of New Scholars, Scientists and Artists, Royal Society of Canada
2013 Geological Association of Canada W.W. Hutchison Medal for 'recent exceptional advances in earth science research'
2011 Faculty of Science Research Award, University of Alberta (awarded to one faculty member/year in the Faculty of Science)
2010-2020 Canada Research Chair in Northern Environmental Change
2006 Alberta Ingenuity New Faculty Award ($300,000 cdn research funds)
2006 Canadian Geomorphology Research Group *J.Ross Mackay Award*

RESEARCH GRANTS (Total grants: 11.3M CDN of which ~6.5M CDN as PI)

2017-2022 Permafrost Archives Science Laboratory (PACS Lab) Canadian Foundation for Innovation Infrastructure Grant, 4.5M CDN (Lead PI)
2016-2021 Canadian Ice Core Archive (CICA) Canadian Foundation for Innovation Exceptional Opportunities Fund, 4M CDN (1 of 8 co-investigators, Martin Sharp, lead)
2010-2020 Canada Research Chair Program (1M: 100,000 CDN per year)
2014-2019 Natural Science and Engineering Research Council of Canada Discovery Grant $260,000 + $105,000 Northern Research Supplement
2009-2014 Natural Science and Engineering Research Council of Canada Discovery Grant $385,000 + $75,000 Northern Research Supplement
2004-2012 Natural Resources Canada Polar Continental Shelf Program (~$250,000 CDN in kind support for logistical costs in northern Canada)
2007-2009 International Polar Year project: Environmental Change and traditional use of the Old Crow Flats, northern Yukon ($1.8M CDN; co-PI, UofA portion $130,000 CDN)

2004-2009 Natural Science and Engineering Research Council of Canada Discovery Grant $151,000 + $70,000 Northern Research Supplement

SUPERVSIONS OF GRADUATE STUDENTS AND RESEARCH FELLOWS

2003-2017 5 Postdocs, 10 PhD, 15 Master Students

TEACHING ACTIVITIES

2003- 2 courses per year on average from: Earth and Atmospheric Sciences (EAS) 110 Field School; 225 Surface Processes and landforms; 324 Quaternary environments; 458 Arctic Environments; 553 Graduate Course Quaternary Environments

SCIENTIFIC RESPONSIBILITIES

2012- Editorial Board *Permafrost and Periglacial Processes*

2017-2019 Member, Nominations Committee, Geological Society of America

2015-2017 Member, Geological Society of America Penrose Conference Committee and Thompson Field Forums (Chair, 2017)

2015-2016 Member, Geological Society of America Student Research Grants Committee

2013 Chief Organizer, Canadian Quaternary Association-Canadian Geomorphology Research Group Biennial Meeting August 18-22, 2013 Edmonton Alberta

2013 Leader, Quaternary Geology of the Oilsands Region, NE Alberta: Field Excursion for Canadian Quaternary Association Field Trip : August 22-25, 2013

2010-2013 Member, NSERC Northern Research Supplement Evaluation Committee

2010-2011 President, Canadian Geomorphology Research Group

2007-2011 Member of INQUA (International Union for Quaternary Research) Committee on Earth Surface Processes

2007- Councilor, Canadian Quaternary Association (2007- present)

2005 Convener TephraRush: INQUA Sub-commission on tephrochronology and volcanism, Dawson City, Yukon Territory, July 31-August 8, 2005 (with J. Westgate and B. Alloway); Edited Special Issue of Quaternary International from Conference

2004 Organizing Committee Klondike Rocks: Geoscience Conference in Dawson City, YT on the origins of the Klondike placers and Field Trip, 2004, July 18-20, 2004 (with C. Hart, Yukon Geological Survey)

2003 Organizing Committee 3rd International Mammoth Conference, Dawson City, YT

2001 Organizer of 5 day Paleoenvironments of Eastern Beringia Field Tour for Canadian Quaternary Association (CANQUA) 2001, Whitehorse-Dawson City, YT, August 25-29, 2001

MAJOR COLLABORATIONS

Beth Shapiro Phylogeography, genetic diversity, paleogenomics / UC Santa Cruz

Hendrik Poinar Phylogeography, genetic diversity, arctic plants, environmental DNA / McMaster University

Eske Willerslev Phylogeography, paleogenomics, arctic plants, ancient environmental DNA / Copenhagen

Brian Lanoil Microbiology of permafrost soils

Grant Zazula Quaternary mammals and arctic biology

William Shotyk Contaminants in tundra and northern ecosystems

RESEARCH EXPEDITIONS

Yukon and Northwest Territories, Canada (>25), Alaska (>10),

INVITED LECTURES

2003-2017 More than 50, including Western University; Dalhousie University; University of Wisconsin, Madison; Pennsylvania State University Polar Science Centre Lecturer; Yukon Science Institute Public Lectures; Geological Association of Canada Hutchison Medal Lecture (~20 talks across Canada); Yale University; University of Alaska, Fairbanks; University of Alaska, Anchorage; Kyushu, Japan; University of Wales, Aberystwyth; U.S. Geological Survey, Denver, CO; AGU Annual Meeting; Geological Society of America, Penrose Conference.

TRACK RECORD

102 papers in ISI indexed journals, cited 3910 times and h-index 32 (Scopus); 5776 times h-index 37 (Google Scholar), Publication venues: *Nature* 5; *Science* 2 + 1 letter; *PNAS*: 7 + 1 Invited Commentary; *Quaternary Science Reviews:* 23, *Quaternary Research:* 8

PUBLICATIONS (10 MOST RELEVANT)

1. Froese, D., Stiller, M., Heintzman, P.D., Reyes, A.V., Zazula, G.D., Soares, A.E.R., Meyer, M., Hall, E., Jensen, B.J.L., Arnold, L.J., MacPhee, R.D.E., Shapiro, B., 2017. Fossil and genomic evidence constrains the timing of bison arrival in North America. *Proceedings of the National Academy of Sciences of the United States of America* 114, 3457-3462.

2. Froese, D., 2014. The curious case of the Arctic mastodons. *Proceedings of the National Academy of Sciences of the United States of America* 111, 18405-18406.

3. Froese, D.G., Westgate, J.A., Reyes, A.V., Enkin, R.J., Preece, S.J., 2008. Ancient permafrost and a future, warmer arctic. *Science* 321, 1648.

4. Graham, R.W., Belmecheri, S., Choy, K., Culleton, B.J., Davies, L.J., Froese, D., Heintzman, P.D., Hritz, C., Kapp, J.D., Newsom, L.A., Rawcliffe, R., Saulnier-Talbot, É., Shapiro, B., Wang, Y., Williams, J.W., Wooller, M.J., 2016. Timing and causes of mid-Holocene mammoth extinction on St. Paul Island, Alaska. *Proceedings of the National Academy of Sciences of the United States of America* 113, 9310-9314.

5. Haile, J., Froese, D.G., MacPhee, R.D.E., Roberts, R.G., Arnold, L.J., Reyes, A.V., Rasmussen, M., Nielsen, R., Brook, B.W., Robinson, S., Demuro, M., Gilbert, M.T.P., Munch, K., Austin, J.J., Cooper, A., Barnes, I., Möller, P., Willerslev, E., 2009. Ancient DNA reveals late survival of mammoth and horse in interior Alaska. *Proceedings of the National Academy of Sciences of the United States of America* 106, 22352-22357.

6. Heintzman, P.D., Froese, D., Ives, J.W., Soares, A.E.R., Zazula, G.D., Letts, B., Andrews, T.D., Driver, J.C., Hall, E., Hare, P.G., Jass, C.N., Mackay, G., Southon, J.R., Stiller, M., Woywitka, R., Suchard, M.A., Shapiro, B., 2016. Bison phylogeography constrains dispersal and viability of the Ice Free Corridor in western Canada. *Proceedings of the National Academy of Sciences of the United States of America* 113, 8057-8063.

7. Kuzmina, S., Froese, D.G., Jensen, B.J.L., Hall, E., Zazula, G.D., 2014. Middle Pleistocene (MIS 7) to Holocene fossil insect assemblages from the Old Crow basin, northern Yukon, Canada. *Quaternary International* 341, 216-242.

8. Schweger, C., Froese, D., White, J.M., Westgate, J.A., 2011. Pre-glacial and interglacial pollen records over the last 3 Ma from northwest Canada: Why do Holocene forests differ from those of previous interglaciations? *Quaternary Science Reviews* 30, 2124-2133.

9. Willerslev, E., Davison, J., Moora, M., Zobel, M., Coissac, E., Edwards, M.E., Lorenzen, E.D., Vestergård, M., Gussarova, G., Haile, J., Craine, J., Gielly, L., Boessenkool, S., Epp, L.S., Pearman, P.B.,

Cheddadi, R., Murray, D., Bråthen, K.A., Yoccoz, N., Binney, H., Cruaud, C., Wincker, P., Goslar, T., Alsos, I.G., Bellemain, E., Brysting, A.K., Elven, R., Sønstebø, J.H., Murton, J., Sher, A., Rasmussen, M., Rønn, R., Mourier, T., Cooper, A., Austin, J., Möller, P., Froese, D., Zazula, G., Pompanon, F., Rioux, D., Niderkorn, V., Tikhonov, A., Savvinov, G., Roberts, R.G., Macphee, R.D.E., Gilbert, M.T.P., Kjær, K.H., Orlando, L., Brochmann, C., Taberlet, P., 2014. Fifty thousand years of Arctic vegetation and megafaunal diet. *Nature* 506, 47-51.

10. Wolfe, B.B., Humphries, M.M., Pisaric, M.F.J., Balasubramaniam, A.M., Burn, C.R., Chan, L., Cooley, D., Froese, D.G., Graupe, S., Hall, R.I., Lantz, T., Porter, T.J., Roy-Leveillee, P., Turner, K.W., Wesche, S.D., Williams, M., 2011. Environmental change and traditional use of the old crow flats in northern Canada: An IPY opportunity to meet the challenges of the new northern research paradigm. *Arctic* 64, 127-135.

Beth Shapiro

Department of Ecology and Evolutionary Biology, University of California Santa Cruz
ORCID http:// orcid.org/0000-0002-2733-7776
http://pgl.soe.ucsc.edu

EDUCATION

DPhil (Zoology) Oxford University, 2003
MS (Ecology) University of Georgia, 1999
BS (Ecology) University of Georgia, 1999

CURRENT AND PREVIOUS POSITIONS

Professor, Ecology and Evolutionary Biology, UC Santa Cruz, (2016- present)
Director of Evolutionary Genomics, UCSC Genomics Institute, UC Santa Cruz (2015-preset)
Associate Professor, Ecology and Evolutionary Biology, UC Santa Cruz, (2012- 2016)
Shaffer Associate Professor, Department of Biology, The Pennsylvania State University (2011-2012)
Shaffer Assistant Professor, Department of Biology, The Pennsylvania State University (2007- 2011)
Director, Henry Wellcome Ancient Biomolecules Centre, Oxford University (2004-2007)
Royal Society University Research Fellow, Oxford University (2006-2007)
Wellcome Trust Research Fellow, Oxford University (2004-2006)

SELECTED HONORS AND AWARDS

Professor, Howard Hughes Medical Institute, 2018
Member, New York Academy of Sciences, 2016
Finalist, Blavatnik Awards for Young Scientists, 2016
Finalist, LA Times Book Award (*How to Clone a Mammoth*), 2016
AAAS/Subaru SB&F Prize for Excellence in Science Books (*How to Clone a Mammoth*), 2016
Packard Fellow, 2010
PopTech Science and Public Leadership Fellow, 2010
National Geographic Emerging Explorer, 2010
MacArthur Fellow, 2009
Searle Scholar, 2009
Visiting Fellow, Isaac Newton Institute for Mathematical Sciences, University of Cambridge, 2007
Smithsonian Young Innovator, 2007
University Research Fellow, The Royal Society, 2006
Research Fellow, Balliol College, University of Oxford, 2002-2007
Rhodes Scholar, 1999

PROFESSIONAL ACTIVITIES

Board of Reviewing Editors, *Science* (2018-present).
Associate Editor, *Journal of Heredity* (2017-present).
Board of Directors, Revive & Restore (not-for-profit conservation organization) (2017-present)
American Genetics Association, Council (2016-2019)
Member: Contamination Control and Planetary Protection Working Group; Mars 2020 Mission NASA. (2015-present)
Organizing Committee: Advances in Genome Biology and Technology meeting (2015-present)

Editorial Board, *STAR: Science and Technology of Archaeological Research* (2014-present)

Editorial Board, *PaleoAmerica* (2014-present).

Executive Committee Member: *Genome10K/Vertebrate Genome Project*. (2013-present)

Member: Public Interfaces of the Life Sciences Roundtable, The National Academies (2013-2015)

Panelist: *Molecular Evolution and Genomics* funding panel, Genes and Genome Systems Cluster, Division of Molecular and Cellular Biosciences, The National Science Foundation. 2012

Panelist: *Pub*lic *Interfaces of Science*, The National Academies. (2010).

US Co-Chair: *Indonesian-American Kavli Frontiers of Science, The National Academy of Science* (2010).

US Session Chair: *German-American Kavli Frontiers of Science, The National Academy of Science* (2009).

Associate Editor, *Molecular Biology and Evolution; /* (2007-present).

Reviewer for >30 peer-review journals including *Science, Nature, PLoS Biology, Current Biology, PNAS, Proc Roy Soc B, Biology Letters, Molecular Ecology*.

Public Understanding of Science: I am and have been involved with several organizations to promote the public understanding of science. More information and upcoming events can be found on my website and in the "Seminars" section of this document.

SUPERVISION OF GRADUATE STUDENTS AND RESEARCH FELLOWS

2003-2018: 12 postdoctoral scholars, 14 PhD students, 1 MSc student, 16 undergraduates

TEACHING ACTIVITIES

BIOE 137: *Molecular Ecology.* (2014-present)

BIOE 153A, B, C, *Arctic Ecology and Scientific Communication field quarter*, a 150-unit field course taught every other year beginning 2018.

Biology 110 (PSU) *Basic Concepts and Biodiversity*. I co-taught this large (~720 student) course (2008-2012)

Biology 439 (PSU) *Practical Bioinformatics*. I have developed a combined lecture/practical course to teach students current methods for the analysis of molecular sequence data. (2008-2012)

International Bioinformatics Workshop on Virus Evolution and Molecular Epidemiology. I have been part of the core faculty for this annual, week-long workshop in which students are introduced to the latest phylogenetic and genealogic methods to analyze molecular data from viruses.

Ethics in Genetics (Oxford University). I developed and taught an intensive four-week course in which students were challenged to tackle ethical dilemmas arising from modern scientific advances.

Biomolecular Evolution (Oxford University). I developed and taught a 3-week lecture/discussion course as part of the MSc in Archaeological Science, in which students are introduced to the basic concepts and application of ancient DNA.

CURRENT EXTERNAL RESEARCH SUPPORT

HHMI Professor (to B. Shapiro and R. Wayne, UCLA). eSIE: Environmental DNA for Science Investigation and Education. $1.5M (50% to UCSC). (01/01/2018-12/31/2022).

IMLS MG-30-17-0045-17. Advancing collections stewardship through development and dissemination of genomic technologies for biological collections. $490,799 (10/01/2017-09/30/2020).

UC President's Research Catalyst Award 20160713C. The UC Conservation Genomics Network. $1.76M; UCSC portion: $330,118 (01/01/2016-12/31-2018).

NSF ARC-1417036 Collaborative Research: Land bridges, ice-free corridors, and biome shifts: Impacts on the evolution and extinction or horses in ice-age Beringia. $423,025 National Science Foundation, Co-PI Dan Mann (UAF) (03//01/15-02/28/19).

NSF BCS-1523648 An evaluation of the timing, development, and scale of anthropogenic burning in Central California. K. Lightfoot (UC Berkeley) PI, $215,555 ($38,361 subaward to UCSC). 9/1/15-/31/18.

SELECTED INVITED LECTURES

Schrödinger at 75: What is life? The Future of Biology. Dublin, Ireland, September 2018.

James D. Woods Lecture. Butler University, Indianapolis, IN. 2016.

Australia Genomics Technologies Association annual meeting. Auckland, NZ. 2016.

Spring School in Bioinformatics, Université de Lausanne, Switzerland. 2016.

Cold Spring Harbor Lab. 12016.

The Future of Genomic Medicine, Scripps Institute, San Diego, CA 2016.

National Academy of Sciences Sackler Colloquium, "In the light of evolution X" 2016.

Royal Society*: "Dating species divergence using rocks and clocks."* London, 2015.

Harvard/Radcliffe Science Symposium: "The past, Present, and Future of DNA." 2015.

The Royal Institution Evening Lecture, London, 2015.

SELECTED PUBLICATIONS (OF 152)

1. Murray GGR, Soares AER, Novak BJ, [20 authors], Shapiro B. 2017. Natural selection shaped the rise and fall of passenger pigeon genomic diversity. *Science* 358: 951
2. Froese DG, Stiller M, Heintzman PD, Reyes AV, Zazula GD, Soares AER, Meyer M, Hall E, Jensen BKL, Arnold L, MacPhee RDE, Shapiro B. 2017. New fossil and genomic evidence constrains the timing of bison arrival in North America. *Proc Natl Acad Sci USA*. 114:3457
3. Heintzman PD, Froese DG, Ives JW, Soares AER, Zazula GD, Letts B, Andrews TD, Driver JC, Hall E, Hare G, Jass CN, MacKay G, Southon JR, Stiller M, Woywitka R, Suchard MA, Shapiro B. 2016. Bison phylogeography constrains dispersal and viability of the 'Ice Free Corridor' in western Canada. *Proc Natl Acad Sci USA*. 113: 8057
4. Graham RW*, Belmecheri S, Choy K, Cullerton B, Davies LH, Froese D, Heintzman PD, Hritz C, Kapp JD, Newsom L, Rawcliffe R, Saulnier-Talbot E, Shapiro B, Wang Y, Williams JW, Wooller MJ. 2016. Declining freshwater availability caused the extinction of the last North American mammoth. *remaining authors are in alphabetical order. *Proc Natl Acad Sci USA* 113: 9310
5. Mann DH, Groves P, Reanier RE, Gaglioti BV, Kunz ML, Shapiro B. 2015. Life and extinction of megafauna in the ice-age Arctic. *Proc. Natl. Acad. Sci. USA* 112: 14301
6. Ng TFF, Zhou Y, Chen L-F, Shapiro B, Stiller M, Heintzman PD, Varsani A, Kondov NO, Wong W, Deng X, Andrews TD, Moorman BJ, Meulendyk R, MacJay G, Gilbertson RL, Delwart E. 2014. Preservation of viral genomes in 700-year-old caribou feces from a subarctic ice patch. *Proc Natl Acad Sci USA* 111:16842
7. Lorenzen ED, Nogues-Bravo D, Orlando L, [55 authors], Shapiro B, Rahbek C, Willerslev E. 2011. Species-specific responses of Late Quaternary megafauna to climate and humans. *Nature* 479: 359
8. Haile J, Holdaway R, Oliver K, Bunce M, Gilbert MTP, Nielsen R, Munch K, Ho, SYW, Shapiro B, Willerslev E. 2007. Ancient DNA chronology within sediment deposits: is DNA leaching a factor? *Mol. Biol. Evol.* 24: 982
9. Shapiro B, Drummond AJ, Rambaut A, Wilson MC, Matheus P, Sher AV, Pybus OG, *et al*. 2004. Rise and fall of the Beringian steppe bison. *Science* 306: 1561
10. Willerslev E, Hansen AJ, Binladen J, Brand TB, Gilbert MTP, Shapiro B, Bunce M, Wiuf C, Gilichinsky DA, Cooper A. 2003. Diverse plant and animal genetic records from Holocene and Pleistocene sediments. *Science* 300: 791

Florian Markus Stammler

Arctic Centre, and Faculty of Social Sciences, University of Lapland
ORCID https://orcid.org/0000-0002-6243-773X
https://lacris.ulapland.fi/en/persons/florian-stammler(1cb39d40-1bd8-4c69-b058-56fd8e366f27).html

Education

- PhD, anthropology, MLU and Max Planck Institute for Social Anthropology, Halle (GER). Dissertation: "Reindeer Nomads meet the Market. Culture, Property and Globalisation at the 'End of the Land'" (published later in the distinguished Series "Halle Studies in the Anthropology of Eurasia, Litverlag, GER)
- Language skills: German (native), English (C2), Russian (C2), French (C1), Finnish (C1), Bulgarian (B2 passive only), Nenets (B2 passive only)

Adjunct professorships

- 13.03.2012 – today: Docent of social sciences, especially social anthropology, Faculty of Social Sciences, University of Lapland;

Present employment

- Research professor (01.10.2013 –), Arctic Centre, and Faculty of Social Sciences, University of Lapland
- The Arctic Centre of the University of Lapland is a national and international research centre of excellence and hosts the world's leading Arctic experts. Stammler established in 2006 the anthropology research team and leads it as a Research Professor.

Most important previous employment

- 2007-2008: Acting head of sustainable development research group, Arctic Centre, University of Lapland, Finland
- 2003-2005: Post-Doctoral Research Associate at Scott Polar Research Institute, University of Cambridge
- 2000-2003: Research Associate and PhD candidate at the Max Planck Institute for Social Anthropology, Halle, Germany

Most important visits abroad

- 2015, Oct-Dec: visiting Professor, North Eastern Federal University, Yakutsk, Russia
- 2009, Jan-July: Visiting Associate Professor for Social Anthropology, Centre for Northeast Asian Studies, Tohoku University, Japan

Besides academic visits, fieldwork (mostly in the Russian Arctic), is a key part of the professional life and method of an anthropologist. This has led to long-lasting research partnerships in the Arctic, as well as with in-depth acquaintance with life in the Arctic. It has also provided a crucial understanding of the merits of true interdisciplinarity, through joint fieldwork with biologists, geographers, political scientists and legal scholars. The sum of all fieldwork amounts to many years of field life together with reindeer herders, hunters, fishers, industry workers and administrators in the Arctic, during the following trips:

- 1998 Khanty-Mansiisk Autonomous Okrug
- 2000-2001, 02, 04, 05, 06, 07, 08, 10, 11, 12, 13, 14 Yamal-Nenets Autonomous Okrug
- 2003, 04, 05, 06, 07, 15 Nenets Autonomous Okrug
- 2006, 08, 10, 11, 12, 13, 14, 15 Murmansk Oblast
- 2005, 06, 08, 10, 11, 12, 13, 14, 15, 16, 17 Republic of Sakha/Yakutia
- 2007, 14 Kamchatka
- 2008 Greenland (2 week research trip with Piers Vitebsky, for developing teaching module)
- 2011 Finnish Lapland (Skolt Sami areas of Sevettijärvi and Nellim, exploratory trips and setting up project work, and several other trips between 2005-11 while based in Rovaniemi)
- 2015, 2016 Norway, Tysfjord

Most important scientific and academic administrative positions

- 2013-2016: project consultant and deputy project leader, joint research programme, University of Cambridge and North Eastern Federal University, Yakutsk, Siberia
- 2013-2016: special consultant, Arran Lulesamisk Senter, Drag, Norway, for the Norwegian MFA project "Indigenous Peoples and Resource Extraction in the Arctic –Evaluating Ethical Guidelines"
- 2011 onwards: leader, the University of the Arctic Thematic Network on Arctic Extractive Industries
- 2008: was elected as the first coordinator of the newly established 'Extractive Industries Working Group' within the International Association of Arctic Social Scientists (IASSA), the assembly of which elected him as a council member three times in 2008 and 2011 and 2014
- 2005 onwards: Institute Associate, Scott Polar Research Institute, University of Cambridge

Most important acknowledgements and memberships

- 2012: awarded the title of full member of the Russian Geographic Society (Yamal Branch)
- 2010-2013: was appointed as only foreign member of the scientific advisory council of the Russian Reindeer Herders' Union
- 2010 onwards: member of the European Association of Social Anthropology
- 2008 onwards: member of the Finnish Anthropological Society
- 2004 onwards, member of the International Arctic Social Sciences Association (2008 2017 as executive council member

Most important research funding

- 2018: Live, work or Leave? Youth-wellbeing and the viability of (post) extractive Arctic industrial cities in Finland and Russia, Finnish Academy, decision number 314471, **304,089 EUR**
- 2016: Challenges in Arctic Governance: Indigenous territorial rights in the Russian Federation (NOR-RUSS) Project Number: 257644, **4 million Norwegian Krone (NOK)**, project leader Gunhild Hoogensen-Gjørv
- 2014: Arctic Ark, Finnish Academy, consortium jointly with Prof Juha Kantanen, 2015-2018, decision number 286074, Arctic Centre part led by Florian Stammler, **318,725 EU**
- 2014a: Security, Geopolitical, and Governance Challenges in relation to Arctic Extractive Industries, Norwegian SIU grant, 2015-2018, **2 million NOK**, project leader Gunhild Hoogensen- Gjørv.
- 2012: Polaris, EU Marie Curie Mobility Action grant, coordinated by University of Versailles, 3 years mobility funding for anthropology research team fieldwork and exchange visits to Siberia and Patagonia, Arctic Centre part led by Florian Stammler **42,000 EUR**
- 2011b: Biomedical and ethnographic aspects of Arctic human breastfeeding: a literature review. Funded by Danone Research, Centre for Specialised Nutrition (6 months seed money, **8,500 EUR**)
- 2011a: ORHELIA. Finnish Academy, grant for a 4 year research project "Oral histories of Empires by Elders in the Arctic", decision number 251111 (www.arcticcentre.org/orhelia), **600,000 EUR**.
- 2009: Grant by NSF jointly with Boise State University, USA, organising the final BOREAS conferences in October 2009 in Rovaniemi, and "histories from the North: environments, movements, narratives" 142 participants (www.arcticcentre.org/boreasconf) **55,350 USD.**
- 2008: Grant by ESF for organising the BOREAS-MOVE conference in October 2009 in Rovaniemi on the role of the State in population movements in the world's periphery-regions, **35,000 EUR.**
- 2006 BOREAS MOVE-INNOCOM, Finnish Academy and European Science Foundation, grant for 4 year research project "Assessing senses of place, mobility and viability in industrial northern communities", decision number 118702, **250,000 EUR.**
- 2004-2005 Economic and Social Science Research Council of the UK (ESRC), grant for seminar series "Trans-sectoral Partnerships, Sustainability Research and the Oil and Gas Industry in Russia", with project leader Dr Piers Vitebsky, **£15,000**.
- 2004-2008. Raumnutzung (orientation in space), 4 year research project awarded by German Research

Foundation (DFG), joint application with Prof. Guenther Schlee (project leader) at the collaborative research centre 586 "difference and integration". **220,000 EUR**. Due to move to Cambridge, I did not take that fully salaried position, and instead appointed Kirill Istomin to carry out the work. The legacy of this project continued in the follow-up research (www.nomadsed.de)

♣ 2000-2003. Research Scholarship by the Max-Planck Society, Germany, connected to PhD project human-environment relations in West-Siberian reindeer herding **72,000 EUR.**

Research leaderships and supervision

- Supervision of doctoral students (currently three pre-defence).
  Most recent defended PhD students:
  - 20.5.2016, Nikolas Sellheim, Faculty of Law, University of Lapland, co-supervised with Prof Timo Koivurova (law and anthropology). "Legislating the blind spot: The EU seal regime and the Newfoundland seal hunt".
  - 03.12.2014, Alla Bolotova, Faculty of Social Sciences, University of Lapland. "Conquering Nature and Engaging with the Environment in the Russian Industrialised North."

- Acting as pre-examiner and opponent for doctoral dissertations abroad including:
  - Opponent: Kristina Sehlin-MacNeil. University of Umea, Ethnology, 17 February 2017, doctoral dissertation: "Extractive Violence on Indigenous Country: sami and Aboriginal Views on Conflicts and Power Relations with Extractive Industries"
  - Opponent: Elena Nuykina, University of Vienna, Department of Geography September 2014. Doctoral dissertation: Making a viable City in the Arctic;
  - Examiner/ second opponent: Vladislava Vladimirova, University of Uppsala. Doctoral Dissertation: "Just Labor" Labor ethic in a post-Soviet reindeer herding community"

Stammler is the founding member of the University of the Arctic's Pan-Arctic PhD programme in Arctic extractive industries and co-leader of the University of the Arctic Thematic Network with the same name, producing PhD programmes (http://uarctic.org/SingleArticle.aspx?m=1213&amid=13421)

Other scientific expert positions and scientific achievements

Editorial and publishing responsibilities

- member of the editorial board: International Journal of Arctic & Antarctic Circumpolar Sociocultural Issues; also Pastoralism: Research, Policy and Practice
- editor of special thematic issues: Nomadic Peoples; Sibirica, The Extractive Industries and Society.

Expert roles

- Consultancy for Oxford Analytica on mining projects in the Russian Arctic
- Leader, Impact-assessment feasibility study for Gazprom Dobycha Yamburg and DIEM consultants on indigenous fishermen in the Yamal and Taz area, Yamal-Nenets Autonomous Okrug.

Major conference presentations

- Close to 100 presentations all over the world, among which several keynote speeches.
- October 2015: Keynote speech at ETMU days conference, Rovaniemi
- September 2015: Plenary speech at the Arctic Energy Summit, Alaska, Fairbanks, US
- August 2015: Plenary speech at the Arctic Frost meeting, St Petersburg. RUS
- August 2015: Invited speech at the ICCEES conference, Makuhari, JP.
- June 2015: Invited speech at the Arctic Urban Sustainability conference, Washington
- November 2014: Invited speech at the Arctic Extractive Industries conference, Umea
- February 2014: Invited speech at the Responsible Mining conference, Oulu.
- October 2013: Keynote speech at the Abashiri Symposium, Abashiri, JP.

Scientific impact of research:
publication record (in English and Finnish): author of 1 monograph; editor in 3 edited special volumes, author and co-author of over 50 peer-reviewed articles and book chapters, all published internationally. Stammler's two most-covered publication topics is the social impacts of extractive industries in the Arctic, and human-animal relations in the Arctic.

societal impact: Stammler's research has had significant multiplier effects, most notably through its popularisation in global TV. He has worked as advisor, fixer, organiser and coordinator of several TV productions on the North, which reached an audience of hundreds of millions viewers worldwide, on BBC, ZDF, arte, France 2 and other channels.

Publications (5 most relevant)

- Laptander, Roza and **Stammler, Florian** (2017). Razmyshleniya o Budushchem Yamal'skogo Olenevodstva posle vspychki Sibirskoi Yasvy na Yamale Letom 2016 Goda. *Nauchnyi Vestnik Yamalo-Nenetskogo Avtonomnogo Okruga No. 1 (94)*, pp. 49-54.
- **Stammler, Florian** 2013. Narratives of Adaptation and Innovation: Ways of Being Mobile and Mobile Technologies among Reindeer Nomads in the Russian Arctic. Chapter 11 in Miggelbrink, J., Habeck, J.O., Mazzullo, N. and Koch, P. *Nomadic and Indigenous Spaces: Productions and Cognitions*. Farnham, Surrey: Ashgate, pp. 221-245.
- Bartsch, Annett; Kumpula, Timo; Forbes, Bruce; **Stammler, Florian** 2010. Detection of snow surface thawing and refreezing in the Eurasian Arctic with QuikSCAT: implications for reindeer herding. *Ecological Applications*, 20(8), 2010, pp. 2346–2358
- **Stammler, Florian** & Hiroki Takakura (eds) 2010. *Good to Eat, Good to Live with: Nomads and Animals in Northern Eurasia and Africa. Northeast Asia Studies Series 11.* Center for Northeast Asia Studies, Tohoku University, Sendai, Japan.
- **Stammler, Florian**, 2005: *Reindeer Nomads Meet the Market: Culture, Property and Globalisation at the End of the Land*. Muenster: Litverlag (Halle Studies in the Anthropology of Eurasia) vol. 6

Ulrike Herzschuh

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Polar Terrestrial Environmental Systems
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https://www.awi.de/nc/en/about-us/organisation/staff/ulrike-herzschuh.html

Professional Experience

10/17	Leader of the Research Group "Terrestrial Environmental Systems" at Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research
03/12 -	Full University Professor for "Statistical Integration of Palaeoenvironmental Data" at University of Potsdam, Germany
01/05 - 02/12	Junior Professor for "Statistical Integration of Palaeoenvironmental Data" at University Potsdam, Germany
01/05 -	Senior Scientist Alfred Wegener Institute Potsdam, Germany
03/04 - 12/04	Post-Doc University of Bergen, Norway
01/01 - 02/04	PhD Student Freie Universität Berlin, Germany
09/99 - 10/00	Postgraduate at University of Lanzhou, P.R. China

Education

06/2010	Certificate in **Management** from Helmholtz Management Academy (18 month training)
06/2004	**Dr. rer. nat.**, Freie Universität Berlin, "Late Quaternary vegetation and climate history of Northwest China (Alashan Plateau, Qilian Mountains) reconstructed from pollen spectra, plant macrofossils, and stable isotope data." supervised by H. Kürschner (summa cum laude)
08/1999	**Diploma in Biology**, Freie Universität Berlin "Palynologische Untersuchungen zur Vegetations- und Siedlungsgeschichte im Südosten Berlins", (mark: 1.1)
07/1997	**Pre-Diploma in Geography**, Freie Universität Berlin (mark: 1.4)
01/1997	**Pre-Diploma in Biology**, Freie Universität Berlin (mark: 1.4)
06/1994	**Abitur** at Humboldt-Gymnasium Leipzig (mark: 1.3)

Prizes and Awards

2017	ERC Consolidator Award Glacial*Legacy*
2010	Albert-Maucher-Prize 2010 (German Research Foundation, DFG)
2007	Young Investigator Prize of Research Ministry Brandenburg
2007	Young Investigator Prize of Leibnitz Kolleg Potsdam
2003	Bernd Rendel Prize (German Research Foundation, DFG)
2002	Humboldt-Ritter-Penck-Prize 2002 (Deutsche Gesellschaft für Erdkunde)
2004	Fellowship for Marie-Curie Training site at University of Bergen
2001	Doctoral Fellowship "Deutscher Akademischer Austauschdienst"
2001 – 2004	Doctoral Fellowship "Studienstiftung des Deutschen Volkes"
1999 – 2000	Graduate Fellowship "Deutscher Akademischer Austauschdienst"
1995 – 1999	Student Fellowship "Friedrich-Ebert-Stiftung"

Academic & Scientific services

Editorial board: Review of Palaeobotany and Palynology

Journal reviews (in total: >100): Geophysical Research Letters; Journal of Biogeography; Journal of Paleolimnology; Nature; Organic Geochemistry; Quaternary Science Reviews, among others.

Project reviews (total: 30) DFG Germany; NSF USA; NERC UK, Research Council of Norway

Mentor: mentoring for programms of MARUM Bremen, POGS Potsdam, Uni Kiel

Leading of field trips (with duration of more than 4 weeks)

6x Siberia, 4x Tibetan Plateau, 1x Mongolia

Publication record (2017/03/03, web-of-science)

Number of publications: 134

H-Index: 32

Total number of citations: 3398

Selected 10 publications

Zimmermann, H.H., Raschke, E., Epp, L., Stoof-Leichsenring, K., Schwamborn, G., Schirrmeister, L., Overduin, P., **Herzschuh**, U., 2017. Sedimentary ancient DNA and pollen reveal the composition of plant organic matter in Late Quaternary permafrost sediments of the Buor Khaya Peninsula (north-eastern Siberia). ***Biogeosciences*** 14, 575-596.

Herzschuh, U., Birks, H.J.B., Laepple, T., Andreev, A., Melles, M., Brigham-Grette, J., 2016. Glacial legacies on interglacial vegetation at the Pliocene-Pleistocene transition in NE Asia, ***Nature Communications***, 7, 11967.

Herzschuh, U., Borkowski, J., Schewe, J., Mischke, S., Tian, F., 2014. Moisture-advection feedback supports strong early-to-mid Holocene monsoon climate on the eastern Tibetan Plateau as inferred from a pollen-based reconstruction. ***Palaeogeography, Palaeoclimatology, Palaeoecology*** 402, 44-54.

Herzschuh, U., Pestryakova, L.A., Savelieva, L.A., Heinecke, L., Böhmer, T., Biskaborn, B.K., Andreev, A., Ramisch, A., Shinneman, A., L.C., Birks, H.J.B., 2013. Siberian larch forests and the ion content of thaw-lakes form a geochemically functional entity. ***Nature communications***, 10.1038/ncomms3408.

Herzschuh, U., Ni, J., Birks, H.J.B., Böhner, J., 2011. Driving forces of mid-Holocene vegetation shifts on the upper Tibetan Plateau, with emphasis on changes in atmospheric CO_2 concentrations. ***Quaternary Science Reviews*** 30, 1907-1917.

Herzschuh, U., Mischke, S., Meyer, H., Plessen, B., Zhang, C., 2010. Lake nutrient variability inferred from elemental (C, N, S) and isotopic (**$\delta^{13}C$; $\delta^{15}N$**) analyses of aquatic plant macrofossils ***Quaternary Science Reviews*** 29, 2161-2172.

Herzschuh, U., Birks, H.J.B., Ni, J., Zhao, Y., Liu, H., Liu, X., Grosse, G., 2010. Holocene land-cover changes on the Tibetan Plateau. ***The Holocene*** 20, 91-104.

Herzschuh, U., Birks, H.J.B., Mischke, S., Zhang, C., Böhner, J., 2010. A modern pollen-climate calibration set from the Tibetan Plateau and its application to a Late-Quaternary pollen record from the Qilian Mountains. ***Journal of Biogeography*** 37, 752-766.

Herzschuh, U., 2006. Palaeo-moisture evolution at the margins of the Asian monsoon during the last 50 ka. - ***Quaternary Science Reviews*** 25, 163-178.

Herzschuh, U., Tarasov, P., Wünnemann, B., Hartmann, K., 2004. Holocene vegetation and climate of the Alashan Plateau, NW China, reconstructed from pollen data. ***Palaeogeography, Palaeoclimatology, Palaeoecology*** 211, 1-17.

Jens-Christian Svenning

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http://pure.au.dk/portal/da/persons/jc-svenning(33c3c4e2-57ab-478c-889d-06c594e57b8b).html

PERSONAL DATA: Born 09 July 1970, Horsens. Married, 3 children. Citizen of Denmark.

PRIVATE ADDRESS: Jarlsmindevej 12, Stavtrup, 8260 Viby J, Denmark, tel (+45) 8738-1300.

WORK ADDRESS: Department of Bioscience, Aarhus University, Ny Munkegade 114, DK-8000 Aarhus C., Denmark, tel (+45) 8715-6571, fax (45+) 8715-4326, email: svenning@bios.au.dk. Home page: http://pure.au.dk/portal/en/svenning@bios.au.dk.

EDUCATION:

1999	PhD, Dept. Biol. Sci., Aarhus University
1990-99	Under- to postgraduate studies, Dept. Biol. Sci., Aarhus University
1989-90	Undergraduate studies, Indiana University, Bloomington, USA
1989	Matematisk Studentereksamen, Holstebro Gymnasium (high-school)

POSITIONS:

2013-	Professor, Dept. Bioscience, Aarhus University
2009-13	Professor (mso), Dept. Bioscience/Dept. Biol. Sci., Aarhus University
2005-08	Associate professor, Dept. Biol. Sci., Aarhus University
2002-05	Assistant professor, Dept. Biol. Sci., Aarhus University
2000-02	Postdoc, Smithsonian Tropical Research Institution, Panama
1999	Assistant professor, Dept. Biol. Sci., Aarhus University
1994-95	Field coordinator, *Yasuní Forest Dynamics Project* (Smithsonian Trop. Res. Inst., Pontificia Universidad Católica del Ecuador, Aarhus Univ.), Ecuador

Administrative posts:

2010-	Head, Section for Ecoinformatics & Biodiversity, Dept. Biosci., Aarhus University

Honorary appointments:

2008-18	MADALGO Associate, Dept. Computer Science, Aarhus University

RESEARCH INTERESTS: Macroecology, global change biology, landscape and community ecology, conservation biology, ecological restoration, physical and human geography, ecoinformatics.

HONORS & MEMBERSHIPS: Honors: Chinese Academy of Sciences' President's International Fellowship Initiative (PIFI): Distinguish Fellow, 2017; Queen Margrethe II's Science Award **(**Dronning Margrethe II's Videnspris; 100,000 DKK), Royal Danish Academy of Sciences and Letters, 2016; EliteForsk Prize (1,200,000 DKK), Danish Ministry of Higher Education and Science, 2014; Kraks Blå Bog, 2013-. International Association for Landscape Ecology, US Chapter (US-IALE), Outstanding Paper in Landscape Ecology Award – Honorable Mention, 2012 (Ecography, 2010, 93:1070-1080). Ebbe Nielsen Prize (€30,000), GBIF, 2011. **Elected fellowships:** *Royal Danish Academy of Sciences and Letters*, 2010-. *Danish Academy of Natural Sciences*, 2011-, *Young Academy of Europe (YAE)*, 2014-2017. **Other:** International Biogeography Society (lifetime member), Ecological Society of America (lifetime member).

MAJOR GRANTS RECEIVED (PI, principal investigator, Co-I, co-investigator; 2012-): VILLUM FOUNDATION: *VILLUM Investigator project "Biodiversity Dynamics in a Changing World"* **39,987,212 DKK**, 2017-2023 (PI); **AU Research Foundation:** *Guest researcher grant (Prof. John W. Williams)* **425,789 DKK**, 2017-2018 (PI); **Carlsberg Foundation: Semper Ardens** *Megafauna ecosystem ecology from the deep prehistory to a human-dominated future (MegaPast2Future)***13,777,082 DKK**, 2016-2020 (PI); **Danish Council for Independent Research | Natural Sciences:** *Tree diversity dynamics under cli-*

mate change (TREECHANGE) **2.587.678 DKK**, 2016-2018 (PI); Marie Skłodowska-Curie Individual Fellowship *Understanding Social-Ecological Systems (G. Watmough) 212,195 € 2015-;* **AU Research Foundation:** *Guest researcher grant (Prof. Mauro Galetti)* **356,191 DKK**, 2016 (PI); **EU H2020:** *Detecting changes in essential ecosystem and biodiversity properties – towards a Biosphere Atmosphere Change Index: BACI* **3,000,000 EUR**, 2014-2019 (co-I); **Carlsberg Foundation:** *New approaches for macroecology under disturbance and disequilibrium* **1,200,000 DKK**, 2015-2017 (PI); Marie Skłodowska-Curie Individual Fellowship *Understanding Social-Ecological Systems (G. Watmough) 212,195 € 2015-;* **AU Ideas:** *Centre for Biocultural History* **4,500,000 DKK**, 2014-2017 (co-I); **Danish Council for Strategic Research:** *DNMARK: Danish Nitrogen Mitigation Assessment: Research and Know-how for a sustainable, low-Nitrogen food production*, **20,000,000 DKK**, 2013-2017 (co-I); **Villum Foundation:** *Station Nord infrastructure – a sustainable Arctic environment in a changing climate*, **70,500,000 DKK**, 2013-2015 (co-I); **ERC Starting Grant:** *Macroecological Studies of Long-Term Historical Constraints on Functional Diversity and Ecosystem Functioning across Continents (HISTFUNC)* **1,499,930 EUR**, 2013-2017 (PI); **Danish Council for Independent Research | Natural Sciences (FNU):** *Paleoclimatic stability and the evolutionary ecosystem ecology of Earth's forests (STABFOR)* **5,759,643 DKK**, 2013-2015 (PI); **AU Ideas:** *Center on Informatics Research on Complexity in Ecology (CIRCE)* **4,000,000 DKK**, 2012-2016 (PI); **Danish National Research Foundation:** *Anthropocene: Discovering the Potential of Unintentional Design on Anthropogenic Landscapes* (AURA; Niels Bohr professorship to A. Tsing) **29,035,000 DKK**, 2013-2018 (co-I); **AU:** Centre for Integrated Register-based Research at Aarhus university (CIRRAU) **20,000,000 DKK**, 2012-2016 (co-I).

PUBLICATIONS: 300 peer-reviewed papers in international scientific journals, 40 other scientific publications, and 28 popular science and educational publications. **Citation statistics**: ISI Web of Science: 8954 citations, *H-index* = 50; Google Scholar: 14113 citations, *H-index* = 63; ResearchGate: score = 47.9, 101,040 reads. 1 paper in *Nature*, 1 in *Science*, 9 papers in *PNAS*, 3 in *Nature Climate Change*, 2 *Nature Communications*, 1 *Nature Plants*, 1 *Nature Ecology & Evolution*, and 10 *Ecology Letters*.

10 selected publications:

1. Steinbauer, M.J., Grytnes, J.-A., et. al., **Svenning, J.-C.**, et al. (accepted). Accelerated increase in plant species richness on mountain summits is linked to warming. *Nature*.
2. Galetti, M., Moleón, M., Jordano, P., Pires, M.M., Guimaraes, P.R., Pape, T., Nichols, E., Hansen, D., Olesen, J.M., Munk, M., de Mattos, J.S., Schweiger, A.H., Owen-Smith, N., Johnson, C.N., Marquis, R.J. & **Svenning, J.-C.** 2017. Ecological and evolutionary legacy of megafauna extinctions. *Biological Reviews*, DOI: 10.1111/brv.12374.
3. Ordonez, A. & **Svenning, J.-C.** 2016. Functional diversity of North America trees is codetermined by historical and contemporary environmental factors. Ecosphere 7:e01237.
4. Bakker, E.S., Gill, J., Johnson, C.N., Vera, F.W.M., Sandom, C.J., Asner, G.P. & **Svenning, J.-C.** 2016. Combining paleo-data and modern exclosure experiments to assess the impact of megafauna extinctions on woody vegetation. *Proceedings of the National Academy of Science USA* 113:847–855.
5. **Svenning, J.-C.**, Pedersen, P.B.M., Donlan, C.J., Ejrnæs, R., Faurby, S., Galetti, M., Hansen, D.M., Sandel, B., Sandom, C.J., Terborgh, J.W. & Vera, F.W.M. 2016. Science for a wilder Anthropocene: Synthesis and future directions for trophic rewilding research. *Proceedings of the National Academy of Science USA* 113:898-906.
6. Morueta-Holme, N., Engemann, K., Sandoval-Acuña, P., Jonas, J.D., Segnitz, R.M. & **Svenning, J.-C.** 2015. Strong upslope shifts in Chimborazo'svegetation over two centuries since Humboldt. *Proceedings of the National Academy of Science USA* 112:12741–12745.
7. Faurby, S. & **Svenning, J.-C.** 2015. Historic and prehistoric human-driven extinctions have reshaped global mammal diversity patterns. *Diversity & Distributions* 21:1155-1166.
8. Blach-Overgaard, A., Balslev, H., Dransfield, J., Normand, S. & **Svenning, J.-C.** 2015. Global-change vulnerability of a key plant resource, the African palms. *Scientific Reports* 5:12611.
9. **Svenning, J.-C.**, Eiserhardt, W.L., Normand, S., Ordonez, A. & Sandel, B. (2015). The influence of paleoclimate on present-day patterns in biodiversity and ecosystems. *Annual Review of Ecology, Evolution, and Systematics*, 46:551-572.
10. **Svenning, J.-C.**, Fløjgaard, C., Marske, K.A., Nógues-Bravo,D. & Normand, S. 2011. Applications of species distribution modeling to paleobiology. *Quaternary Science Reviews* 30:2939-2947.

INTERNATIONAL WORKSHOPS AND WORKING GROUPS (2015-): FRIPRO Toppforsk project *ECOGEN - Ecosystem change and species persistence over time: agenome-based approach*, 2016-2023; *Synthesis on the biodiversity Responses to Rewilding management on Abandoned Landscapes (sREAL)*, iDiv, 2016-2017; Megafauna, Doñana Biological Station (EBD-CSIC), 2016-2017; *Biotic interactions across space and time (sCircus)* workshop, Göttingen, 2015, *Macroecology workshop*, Institute of Botany, Chinese Academy of Sciences, 2014; *RAINBIO (Dynamique de la forêt tropicale en afrique : implications pour la conservation de la biodiversité tropicale) working group*, CESAB, 2013-2016**.**

TEACHING (select): *Biogeography & Macroecology* (10 ECTS, Dept. Biosci., Aarhus University, w/ F. Borchsenius, annual, 2006-). *Geospatial Ecology* 3.75 ECTS (w/ X.F. Song & P.K. Bøcher), Sino-Danish Center for Education and Research (SDC), Beijing, 2016, 2017); *Geospatial Ecology & Environmental Geography* (5 ECTS, SDC, Beijing, w/ A.-X. Zhu et al., 2013, 2014, 2015); *Journal Club in Ecoinformatics* (5 ECTS PhD course, all year, 2007-).

POSTDOCS (†main supervisor): 1: Julissa Roncal 2007-2009. **†**2: Jonathan Lenoir *2008-2011*. **†**3: W. Daniel Kissling 2010-2011. **†**4: Lars Bach 2010-2011. **†**5: Toke Høye 2011. **†**6: Brody Sandel 2010-2011. **†**7: Signe Normand 2010. **†**8: Pedro Abellán 2010-2012. **†**9: Christopher. J. Sandom 2011-2012. **†**10: Cicimol Alexander 2011-2013. **†**11: Mirkka Jones 2011-2013. 12: Leonard Sandin. **†**13: Diego Nieto Lugilde 2011-2013. **†**14: Søren Faurby 2012-2015. **†**15: Helen Wheeler *2012-2014.* **†**16: Jean-Yves Barnagaud *2012-2013.* **†**17: Tom Davidson *2012-2015.* **†**18: Alejandro Ordonez 2013-2017. **†**19: Wolf L. Eiserhardt 2013-2014. 20: Sandra Brucet 2013-2015. †21: Marco Giradello 2014-2016. 22: Blas M. Benito 2014-2016. **†**23: Meredith Root-Bernstein 2014-2016. **†**24: Vincent Pellissier 2014-2016. **†**25: Gary R. Watmough (MSCA IF) 2015-2017. **†**26: Jian Zhang 2015-2016. **†**27: Rob J. Lewis (incl. as MSCA IF) 2015-2019. **†**28: Manuel Steinbauer (incl. as MSCA IF) 2015-2017. **†**29: Isabelle Boulangeat 2015-2017. **†**30: Timo Conradi 2015-2017. **†**31: Anne Eskildsen 2015-2016. 32: Anne Mimet 2015-2016. 35: Robert Buitenwerf 2015-2017, †2018-2019. **†**36: Kristine Engemann Jensen 2016-2019. †37: Anne-Christine Monnet 2016-2017. †38: Anne Blach-Overgaard 2016-2017. **†**39: Andreas Schweiger 2016-2017. **†**40: Matt Davis 2016-2018. **†**41: José M. Serra-Diaz 2017-2019. †42: Silvia Ceausu 2017-2019. †43: Koenraad van Meerbek 2017-2019. †44: Scott Jarvie 2017-2019.

THESIS STUDENTS (*ongoing, †JCS: main supervisor):

— PhD, Aarhus University (or institution given in parentheses)*:* 1: Stine W. Bjorholm 2008. †2: Signe Normand 2010, received the Ministry of Science's **EliteForsk** travel stipend for PhD students, 2007. 3: Thea Kristiansen 2010. †4: Anne Overgaard 2012. †5: Jesper E. Moeslund 2012. †6. Camilla Fløjgård 2011. †7. Michelle Greve 2012 8. Wolf Eiserhardt 2011. †9. Naia M. Holme 2014, received the Ministry of Science's **EliteForsk** travel stipend for PhD students, 2011. †10. Ane K. Brunbjerg 2013. 11. Mette V. Odgaard 2014. 12: Tovaranonte Jantrararuk 2012. 13: Marija Mayer 2013. 14: Lars Dalby 2013. 15: Korhan Özkan 2013. 16: Rosemberg Menezes 2012**.** †**17: Allan Timmermann 2014**. 18. Kornkanok Tangjitman 2014 (Chiang Mai Univ.). 19: Viola Pavlova 2015. 20: Kent Olsen 2016. 21: Andrea O. Christensen. 22: Anders Juel 2014. †23: Kristine Engemann Jensen 2015. †24: Jonas Nüchel. 25: Katrine Turner 2015. *†26: Pil B.M. Pedersen, received the Ministry of Higher Education and Science's **EliteForsk** travel stipend for PhD students, 2014. †27: Feng Gang 2015. 28: Lærke Stewart. **†**29: Bastian Göldel 2016. **†**30: Ziyu Ma 2016. **†**31: Colin Hoag. ***†**32: Rasmus Ø. Pedersen, received the Ministry of Higher Education and Science's **EliteForsk** travel stipend for PhD students, 2016 ***†**33: Shuqing Teng. *†34: Ditte A. Jensen. *†35: Simon Schowanek, w/ Matt Davis. *†36: Emilio Berti, w/ Andreas Schweiger. *†35: Michael Munk. *†35: Oskar L.P. Hansen, , w/ Kent Olsen (Natural History Museum, Aarhus) & Toke T. Høye. *†36: Julia Mata. *†37: Vincent Fehr.

— Cand.scient. (MSc), Aarhus University (or institution given in parentheses): 1: Birgitte S. Windeballe 2003. 2: Karen R. Hansen 2004. 3: Rikke P. Thomsen 2004. 4: S.S. Bak 2005. 5: Adriana Sanjines A. 2005. 6: Narel Paniagua Z. 2005. 7: Tina Juul 2006. 8: Mette Nielsen 2006. 9: Anne Sandal 2006. 10: Jens Clausen 2006. 11: Marianne Sørensen 2006. 12: Rikke Rørby Graversen 2006. 13. Irina Levinsky 2006 (Copenhagen University). †14: Helle Ullmann Hansen 2008. †15: Hélène Hansen 2008. 16: Sandie L. Hansen 2009. 17: Helle Buur Pedersen 2009. †18: Tinne Gaardmand 2009. †19: Tommy Thorsteinsson 2010.

†20: Katrine Turner 2011. †21: Jannie K. Svendsen 2012. †22: Trine Jensen 2013. †23: Sandra R. Holm 2013. 24: Christoffer Plum 2013. †25: Pernille J. Naundrup 2014. †26: Joanna B. Olsen 2014. 27: Jakob Humaidan 2014. †28: Sigrid Ilsøe 2014. †29: Maria Dahm 2014. †30: Rehne B. Vokstrup 2015. †31: Jeppe Pilgaard 2016. †32: Maria Henriksen 2016. **†**33: Marie-Louise Grønne Nielsen 2016. **†**34: Sanne Thøgersen 2016. **†**35: Anne Cathrine Dalgaard 2016. **†**36: Emil Thøgersen 2016. **†**37: Michael Munk 2016. **†**38: Emma F. Vestergaard 2016. **†**39: Henrik Thers 2016. **†**40: Jessica Tengwall 2016. 41: Simon Schowanek (Wageningen University) 2016. **†**42: Jonathan B. Rasmussen 2017. **†**43: Steffen Larni Nielsen, 2017. **†**44: Klaus Berg 2017. **†**45: Line Guld 2017. **†**46: Mette Toft Fredriksen 2017. **†**47: Kasper Skjærlund 2017. **†**48: Tenna Lyck 2017. **†**49: Diana Olsen 2017. **†**50: Marie Warming 2017. **†**51: Cindy Sørensen 2017. †52: Stine L. Larsen 2017. 53: Anke Müller 2017 (Technical University of Munich). †54: Line B. Bang 2018.

EDITORIAL EXPERIENCE: *Deputy Editor-in-Chief,* **Ecography:** *2010-. Subject editor* (plants)*,* **Ecography***: 2005-2010. Associate editor,* **Journal of Biogeography***: 2007-. Subject editor (*macroecology, broad-scale biodiversity, and global change*), **Nordic Journal of Botany***: 2007-.*

ORGANISATORIAL ACTIVITIES (2015-): (17) Organizing committee, Organized Oral Session *New Perspectives for Ecology during the Anthropocene: New Paradigms, Technologies and Collaborations*, ESA Annual Meeting, Baltimore, USA, 2015; (16) Organizing committee, Royal Danish Academy of Sciences and Letters ***Tropical Plant Collections: Legacies from the past? Essential tools for the future?***, 2015; (15) **Organizing committee, *Biodiversitetssymposiet 2015*, 2015;** (14) Organizing committee, *World Palm Symposium 2015*, Quindío, Colombia, 2015**.**

ADMINISTRATION (2015-): (8) Directorate, Dept. Bioscience, Aarhus University (AU), 2013-; (7) PhD stipend committee, CIRRAU, 2013-. (6) Elected member, Institutforum ((Department Forum), Department of Bioscience, Aarhus University, 2011-2016; (5) Elected member of Academic Council, Faculty of Science and Technology, Aarhus University, 2012-2016.

EXTERNAL BOARDS & COMMITTEES: (10) *Biodiversity Atlas Sweden (BAS)* & *Swedish LifeWatch (SLW)*, joint steering committee, 2018-; (9) *IPBES Denmark*, steering committee, 2016-2017; (8) *Gothenburg Global Biodiversity Centre*, Advisory board, 2017-2019; (7) *Rewilding Mols Advisory board*, 2016-; (6) *Maasai Mara Science & Development Initiative*, Scientific Board (chair), 2015-2018, Board (chair), 2018-; (5) *Mara Elephant project Scientific Committtee*, 2015-2017; (4) *Rådgivende Udvalg for Lille Vildmosefredningen*, 2013-; (3) *Udvalget for Danmarks Naturkanon, 2009*; (2) *Forskningsfagligt Rådgiverpanel for Koordineringsenhed for Forskning i Klimatilpasning*, 2008; (1) *IUCN Species Survival Commission Palm Specialist Group*, 2005-.

EVALUATIONS (2015-): *Assessment committees:* *(15) Member, ERC* evaluation panel LS8 "Ecology, Evolution and Environmental Biology" for Starting Grant (StG), 2019; *(14) member, professorship in Earth System Sciences 2nd Professorial Chair, University of Zurich, Switzerland, 2017-2018; (13) External reference, tenure promotion committee, professor, Department of Biology, Kenyon College, US, 2017; (12) member, Associate professor, wildlife and conservation managenment, Department of Food and Resource Economics, University of Copenhagen, 2017; (11) member, Professor/førsteamanuensis, botanical diversity and ecological application of GIS, Museum of Natural History, University of Oslo, 2015-2016; (10) member, Associate Professor, Quaternary Palaeoecology, University of Bergen, 2015;* **External referee, promotion committees:** University of New South Wales (associate professor), 2016; *University of Edinburgh (senior lecturer), 2016;* University of Melbourne (associate professor), 2015; *University of North Carolina, 2015* (associate professor). **Examiner, *doctoral theses*: A.F. Rodriguez, National Museum of Natural History, University of Copenhagen, Denmark, 2016; A. Ronk, Institute of Ecology and Earth Sciences, University of Tartu, Estonia, 2016;** *C. Quintana, Department of Bioscience, Aarhus University, 2015;* G. Zuquim, University of Turku, Finland, 2015 (pre-examiner). **External examiner, *MSc theses*:** D.M. Truelsen, Natural History Museum of Denmark, University of Copenhagen, 2015; J.K. Sheard, Department of Biology, University of Copenhagen, 2015. **Referee, *grant applications*:** ERC, ERC StG applications (2), 2016; Philip Leverhulme Early Career Prize, 2016.

Hendrik Poinar

Departments of Biochemistry and Anthropology, McMaster Ancient DNA Centre
McMaster University, Hamilton ON, Canada
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https://adna.mcmaster.ca

Education

06/99 *Ph.D.* Biological Molecular Preservation and Evolutionary Genetics - *Lüdwig Maximillians Universität* München. Dr. Svante Pääbo

Present position

2016- present - Professor Department of Biochemistry McMaster University
2013- present - Professor Department of Anthropology McMaster University
2014 -present - Canada Research Chair in Paleogenetics McMaster University

Previous professional experience

01/00– 06/03 **Postdoctoral fellow**, *Postdoctoral fellow* Max Planck Institute for Evolutionary Anthopology, Leipzig Germany
07/99 – 01/00 **Postdoctoral fellow,** Oregon State University, Dept of Biology and Microbiology Principal supervisor: Prof. Steve Giovanonni.
07/03 – 06/06 – **Assistant Professor** of Anthropology, McMaster University
06/06- 06/13 – **Associate Professor** of Anthropology and Biology, McMaster University
06/06- 06/07- **Senator William McMaster Chair***,* in Paleogenetics
06/07 – 07/14- **Canada Research Chair** (Tier ii), McMaster University

Career break -NA

Grants and Awards (last 10 years)

2016-2017 CIFAR. The Microbiome of Colonialization. ($75,000).
2016-2011 CIFAR. The Human Microbiome Senior Fellow ($37,500).
2016 -2017 Red Wilson (Donation)/ Ontario Genomics (contract) - Population genomics of Beothuk and Maritime Archaic Indians. **$50,000**
2015 – 2020 *Natural Science and Engineering Research Council (NSERC) Discovery Grant* (Poinar) Mammoth population genomics and Pleistocene extinctions **$225,000**
2014-2015 *Fonds France Canada Pour la Recherche* (FFRC) –(Poinar and Dutour), **$15,000**.
2014-2017 *Social Sciences and Humanities Research Council (SSHRC).* A biomolecular archaeology study of prehistoric North Americans from Newfoundland and Labrador. (Grimes and Poinar), **$198.930**.
2014-2105 PIVOT, Investigating the ecology of endemic plague in Madagascar through genomic analysis of the main host reservoir, the black rat. (Poinar and Bliksa), **$35,000.**
2014-2017 *National Health and Medical Research Council (NHMRC)*, Genomics and evolution of the Black Death. (Holmes, Poinar, Irdell) **$510,129.50**.
2012-2017 *Canada Research Chairs Program*, **$500,000**
2012-2013 *Canadian Foundation for Innovation (CFI) Leaders Oppurtunity Fund (LOF)* **$744,000**
2011- 2013 *Canadian Police Research Centre's (CPRC) Proposal 2 grant* (Poinar and Fourney). Forensic DNA immortalization: Enhanced DNA Analysis on degraded biological samples and efficient long term storage of forensics DNA evidence. **$249,028**
2010- 2012. Centre National de Recherche Scientifique (CNRS- France). Evolution and timing of major Xenarthran radiations. (Delsuc and Poinar) **€ 45,000.00**
2010-2015 *Natural Science and Engineering Research Council (NSERC) Discovery Grant* (Poinar) Mammoth population genetics and Pleistocene extinctions **$175,000**
2010-2013 *Natural Science and Engineering Research Council (NSERC) Accelerator award* **$120,000**

2007-2008 *Natural Science and Engineering Research Council (NSERC),* Research Tools Instrumentation (RTI), **$41,000**. Computational hardware for bioinformatics analysis of high throughput sequecing. (Poinar, Golding)
2007-2012 *Canada Research Chairs* Program, **$500,000.** (Poinar)
2007-2009 *Discovery Quest Grant*, Discovery Communications Inc., **$25,000.** (Poinar)

Supervision of students – last 5 years

i) Undergraduates

Michael Klowak 2017 - preset
Juliana Stangroom 2015 – 2016
Priyanka Gogna 2014 – 2015
Emil Karpinski 2014 – 2015
Anson Huang 2013 – 2014
Abrar Hossain 2013 – 2014

ii) Masters

Madeline Tapson 2017 – present (supervisor)
Emil Karpinski 2015 - 2016 (supervisor)
Jonathan Hughes 2014 – 2016 (supervisor)
Katherine Eaton 2014 - 2015 (supervisor)
Jennifer Klunk 2012 – 2014 (supervisor)
Nathalie Mouttham 2012 – 2014 (supervisor)
Tara Sadoway 2012 – 2014 (supervisor

iii) Doctoral

Emil Karpinski 2016 – present (supervisor)
Samantha Price 2015 – present (co-supervisor)
Katherine Eaton 2015 - present (supervisor)
Jessica Hider, 2015 – present (co-supervisor)
Tyler Murchie, 2015 – present (supervisor)
Matthew Emery 2013 – present (co-supervisor)
Jennifer Klunk, 2014- present (supervisor)
Stephanie Marciniak, 2012 – 2016 (supervisor)
Jake Enk, 2008- 2014 (supervisor)
Allison Devault, 2008 – 2014 (supervisor)

iv) Post-Doctoral

Ana Duggan (Canada, Germany) 2015- present
Gillian Gibb (Australia) 2010 – 2012 (co-supervisor)

Teaching (every year 2-3 courses taught from the following pool)**.**

Anthropology 1Z03- *Becoming and being Human, an introduction to physical anthropology*: Lecture
Anthropology 2D03 – *Genetics in Anthropology*: Lecture and lab
Anthropology 2U03 – *Plagues and People*
Anthropology 3R03 – *DNA, migrations and ancestry*: Lecture and lab
Anthropology 4H03 – *Biomolecular Preservation and the Benefits of Time Travel*: Lecture/seminar
Anthropology 4J03 – *DNA and Society Lecture/tutorial*
Anthropology 4JJ3 - *Human Evolutionary Genetics*: Lecture/Seminar
Anthropology 711/721 – *Biomolecular preservation*

Departmental and other community activities

i) Department

-Department Chair – 07/16 – 01/17

- Representative of the Faculty of Social Sciences to the Faculty of Science
-Anthropology representative for open house

ii) Faculty
-Representative to the Dean on Interdisciplinary research

iii) University
-Representative for Board of Governors, February 17, 2005
- Alumni outreach lecture series (continous)
- Extended Education (continuous)

iv) Other
-High school tours of the lab, (Burlington, Hamilton, Oakville)
-Junior high school tours of the lab (Burlington, Hamilton)
-Science in the city lecture Hamilton Spectator September 14th, 2004
-Sponsored Chris Stringer visit for the Origins Institute lecture
-Guest lectures, (many courses) (15x)
-Guest lectures for extended education (3x)
-Guest lectures for Alumni Association (5x)

Reviewing experience
Journals: *Nature, Nature Communications, Nature Genetics, Nature Ecology and Evolution, Nucleic Acids Research, Molecular Ecology*, *Molecular Ecology Resources*, *Systematics, Lancet, New England Journal of Medicine, Molecular Biology and Evolution, Genome Research, Genome Biology, BMC (Various), PNAS, Royal Society (Various).*

Funding organisations: *NSERC, SSHRC, CIHR, Wellcome Trust, NSF, NIH, NSF (Switzerland, DFG.*

Invited talks and seminars – over 60 invited lectures since 2001

Field experience
2012, 2016 Lucca Plague Mass burial site , Lucca Italy
2010 Yukon field sites for mammoth and core collection (With Duane Froese and Grant Zazula).
2007 & 2008 Siberia (Khatanga), mammoth and core collection (Eske Willerslev, Ross MacPhee and Bernard Buiges).

Track record
91 papers in ISI indexed journals, cited 10,890 times, h-index 46.

Publications (10 most relevant)

Eleftheria Palkopoulou, Mark Lipson, Swapan Mallick, Svend Nielsen, Nadin Rohland, Sina Baleka, Emil Karpinski, Atma M. Ivancevic, Thu-Hien To, R. Daniel Kortschak, Joy M. Raison, Zhipeng Q[g], Tat-Jun Chin, Kurt W. Alt, Stefan Claesso[j], Love Dalen, Ross MacPhe[l], Harald Meller, Alfred L. Roca, Oliver Ryder, David Heiman, Sarah Young, Matthew Breen, Christina Williams, Bronwen L. Aken, Magali Ruffier, Elinor Karlsson, Jeremy Johnson, Federica Di Palma, Jessica Alfoldi, David L. Adelson, Thomas Mailund, Kasper Munch, Kerstin Lindblad-Toh, Michael Hofreiter, Hendrik Poinar and David Reich, . A comprehensive genomic history of extinct and living elephants. *Proceedings of the National Academy of Science* USA (in press).

Enk, J., Devault, A., Widga, C, Saunders, J., Spazk, P., Zazula, G., Macphee, R., Froese, D., Fisher, D., and H.N. Poinar, 2016. Complete mitogenome phylogeography of Mammuthus from southern North America suggests a deep interspecific chronology. *Frontiers in Ecology and Evolution* http://dx.doi.org/10.3389/fevo.2016.00042 (35%)

D'Costa, V., King, C., Kalan, L., Morar, M., Sung, W., Schwarz, C., Froese, D., Zazula, G., Calmels, F., Debruyne, R., Golding, B., Poinar, H.N. and Gerard D. Wright, 2011. Antibiotic resistance is ancient. *Nature*, doi:10.1038/nature10388

Anderson-Carpenter, L.L., McLachlan, J.S., Jackson, S.T., Kuch, M., Lumibao, C., and Hendrik N. Poinar, 2011. Ancient DNA from lake sediments: bridging the gap between palaeoecology and genetics. *BMC Evolutionary Genetics* 11:30 1-15.

Poinar H.N., Schwarz C., Qi J., Shapiro B., Macphee R.D., Buigues B., Tikhonov A., Huson D.H., Tomsho L.P., Auch A., Rampp M., Miller W., and S.C. Schuster, 2006. Metagenomics To Paleogenomics: Large-Scale Sequencing Of Mammoth DNA. *Science* 20; 311(5759):392-4

Willerslev, E., Hansen, A., & H. N. Poinar. Theoretical And Experimental Considerations On The Recovery Of DNA And Viable Organisms From Ancient Ice And Permafrost. *Trends in Ecology and Evolution* 2003, 19, 140-147.

Hofreiter, M., Mead, J. I, Martin, P. S. & H. N. Poinar. Molecular Caving. *Current Biology*, 2003, 13, R693-695.

Kuch, M., Lattore, C., Betancourt, J. L., Steppan, S. & H. N. Poinar, Molecular Analyses Of An 11,700-Year-Old Rodent Midden From The Atacama Desert, Chile. *Molecular Ecology*, 2002, 11, 913 – 924.

Poinar, H. N., Kuch, M., Sobolik, K., Barnes, I., Stankiewicz B. A., Spaulding, G., Bryant V., Cooper, A. and S. Pääbo. A Molecular Analyses Of The Dietary Diversity Of Three Archaic Native Americans *Proceedings of the National Academy of Sciences USA,* 2001, 98, 4317-4322.

Poinar, H. N., Hofreiter, M., Spaulding, G. S., Martin, P. S., Stankiewicz, A. B., Bland, H., Evershed, R. P., Possnert, G., & S. Pääbo. Molecular Coproscopy: Dung and Diet of the Extinct Ground Sloth *Nothrotheriops shastensis*. *Science* 1998, 281, 402-406.

VERA H. HAUSNER

Professor in Sustainability Science
UiT-The Arctic University of Norway Naturfagbygget, N-9037 Tromso, Norway
Born 13.06.1972, Norwegian.
vera.hausner@uit.no, + 4777645905, Mob +4792660064
Maternal leave, May 2009-January 2010, May 2011-January 2012.

URL for web site: www.arcticsustainability.com
http://en.uit.no/om/enhet/ansatte/person?p_document_id=41154&p_dimension_i

ACADEMIC POSITIONS

2018 – Professor in Sustainability Sciences, UiT-the Arctic University of Norway

2005 –2017 Associate professor in Sustainability Sciences, UiT-the Arctic University of Norway

2003 –2004 Project leader. Study program, Arctic Natural Resource Management, University of Tromsø, Norway

2002 –2003 Research Fellow, Norwegian Institute for Nature Research, Tromsø, Norway

FELLOWSHIPS

Sabbatical Fellowship NCEAS, University of California, August 2015- June 2016.

Visting Professor University of Queensland, November, 2014

Sabbatical Fellowship Saint Petersburg State University, March-April, 2010

Sabbatical Fellowship Simon Fraser University Lars Erikssen Grant, March-April 2010

Sabbatical Fellowship Université du Québec à Rimouski. Lars Eriksen Grant, July-August 2010

EDUCATION

2001 PhD, ecology-social sciences, University of Tromso

1996 Political sciences (60 ECTS)

1995 MSc, Environmental Science, University of Lancaster, England 1994 BSc, Biology, University of Tromsø

SUPERVISION OF PHD AND POSTDOCTORAL FELLOWS (last 5 years)

Sigrid Engen, **PhD, Main Supervisor**, *Attaining conservation impact through community-based management*: a geospatial approach 2015-2017; Lorena Munoz, **PhD, Main Supervisor**, Nature based tourism in protected areas: tradeoffs and synergies among cultural ecosystem services, 2015-2018, Flor Rivera López, **PhD, Main supervisor**, Conserving Biodiversity of Maize: Understanding a complex problem and developing participatory solutions, 2015-2017; Ann Eileen Lennert, **Postdoctoral fellow**, WP6: Community workshops: local perspectives on global changes in the Belmont Forum project CONNECT, 2017-2018; Claire Runge, **Postdoctoral fellow,** WP 2: Global connections -spatial land use and ecosystem services in the Belmont Forum project CONNECT, 2017-2018; Jennifer Irene Schmidt, **Postdoctoral fellow,** TUNDRA –Drivers of change in circumpolar tundra ecosystems, UiT-the Arctic University of Nor-

way, 2012-2014; Jennifer Stien, **Co-supervisor of survey adaptive management**, Nest predation in birds of conservation concern: Case studies of monitoring and management, UiT, 2012-2015.

TEACHING ACTIVITIES & FORMAL TRAINING (last 5 years)

Uit Course on research supervisioning at the PhD level, BIO-3004 Ecosystem management, Environmental management, 10, hrs lecture, BSc course, Jagiellonian University, BIO-2007 Ecosystem management, coordinator, 30 lectures, 30 seminars, BSc course, 10 ECTS

MAJOR COLLABORATIONS & GRANT RECORD (last 5 year)

Principle investigator

CONNECT - Global connectedness and changing resource use systems in the Arctic (*Belmont forum*, Arctic Observing and Research for Sustainability Program). 2015-2018. **RCONNECTED** The impact of extractive industries and tourism on socio-ecological dynamics in the Arctic. *MIKON*, *High North Research Centre for Climate and the Environment* (*FRAM*). 2016-2018. **ESArctic -** Taking into account heterogeneity in ecosystem services monitoring and climate change adaptation, *Terrestrial Flagship*, *FRAM*. **CultEs**- Assessing spatially explicit cultural ecosystem services for adaptive management in the Alpine North, Environment-2015, Norwegian Research Council, 2015-2017. **RipEffects**, incentive grant from **MIKON**, FRAM, **TUNDRA** - Driver of change in circumpolar tundra ecosystems, Environment-2015, Norwegian Research Council.

WP leader

MarES co-PI WP1 Description of a resource based economy in terms of ES dependence in MarES: Changing uses and values of marine ecosystem services in the Norwegian Arctic, PI: Margrethe Aanesen, Norwegian Fishery College), Marinforsk, (*Norwegian Research Council*) 2017-2020 **OHiT-**PI WP3 Public priorities and perception of Ocean Health. Ocean Health in Transition, PI: Fauchald, NINA, FRAM centre, 2016-2018. **LINKAGE** WP2 Digital versus non-digital PPGIS in Linking systems, perspectives and disciplines for active biodiversity governance, PI: Małgorzata Grodzińska-Jurczak, Jagiellonian University, Kraków, Polish-Norwegian Research Program. 2013-2017. **COAT** WP leader for monitoring socio-ecological systems in the Climate Observatory of Arctic Terrestrial systems (PI: Rolf Ims, UiT-Arctic University of Norway), 2010-

SELECTED SCIENTIFIC MEETINGS/COMMISION OF TRUST (last 5 years)

PI of workgroup meeting BW6 -Polar Regions and High Mountains in the Ecosystem Services Partnership. Antwerp, Belgium. Leader of the session Global changes in local ecosystem services in Alpine and Arctic regions in Europe, **European Ecosystem Services Conference**, Antwerp, Belgium, 22. September. **Invited plenary speaker at the session Arctic Ecosystem Services – Policy and Adaptive Decision Making" at the ACES conference 2014,** December 8-12, 2014**.** Invited speaker to the organized session Public Participation GIS (PPGIS): Applications for Environmental and Urban Planning **20th International Symposium on Society and Resource Management**; Hannover, Germany. Reviewer of application for the **Swiss National Science Foundation** - 10001A 172797, PI synthesis of Biological Diversity and Ecosystem Services research in the **Environment-2015 program, Norwegian Research Council**. Program committee for developing the new environmental research program, MILJØFORSK, Norwegian Research Council, 2015. **PI. WP4.** Ecosystem services, adaptive management and ecosystem-based approaches in the **Terrestrial Flagship** at High North Research Centre for Climate and the Environment (**FRAM**)

Peer-review publications (10 most relevant).

1. Fauchald, F. **Hausner, V.H** Schmidt, J., Clark, D. (2017). Transitions of socioecological subsistence systems in the Arctic. *International Journal of the Commons*, 11 (1),
2. Brown, G., Pullar, D., & Engen, S.; **Hausner, V. H**. (2017) Impact of local empowerment on conservation practices in a highly developed country. *Conservation Letters* 2017. Available online doi: 10.1111/conl.12369.
3. Fauchald, P., Park, T., Tømmervik, H., Myneni, R. **Hausner, V.H.** (2017) Arctic greening from warming promotes declines in caribou populations, *Science Advances*, vol 3, no 4, e1601365;
4. **Hausner, V.H**., Engen, S., Bludd, E.K. & Yoccoz, N. (2017) Developing policy indicators for use in conservation impact evaluations of protected area networks, Ecological Indicators, *Ecological Indicators* 75, 192-202;
5. **Hausner, V. H.** (2016). An empirical evaluation of spatial value transfer methods for identifying cultural ecosystem services. *Ecological Indicators*, 69, 1-11.
6. **Hausner, V.H**., Brown, G., and Lægreid, E. (2015). Effects of land tenure and protected areas on ecosystem services and land use preferences in Norway. *Land Use Policy* 49: 446–461.;
7. Brown, G., **Hausner, V.H.,** & Lægreid, E. (2015). Physical landscape associations with mapped ecosystem values with implications for spatial value transfer: An empirical study from Norway. Ecosystem Services. Volume 15, October 2015, Pages 19–34;
8. Muñoz, L. & **Hausner, V. H.** (2012). What Do the IUCN Categories Really Protect? A Case Study of the Alpine Regions in Spain. Sustainability, Volum 5. s. 2367-2388;
9. **Hausner, V. H**.; Fauchald, P.; Jernsletten, J.-L. 2012. Community-Based Management: Under What Conditions Do Sámi Pastoralists Manage Pastures Sustainably? PLoS ONE; Volum 7 (12);
10. **Hausner, V. H**.; Fauchald, P.; Tveraa, T.; Pedersen, E.; Jernsletten, J- L.; Ulvevadet, B.; Ims, R. A.; Yoccoz, N.; Bråthen, K. A. 2011. The Ghost of Development Past: the Impact of Economic Security Policies on Saami Pastoral Ecosystems. Ecology & Society; Volum 16 (3).;

Peer-reviewed conference abstracts (last 5 years)

Hausner**, V. H**.; Broderstad, E. G.; Fauchald, P. (2017). Participatory mapping of socio-cultural values in and outside the Varanger National Park in Norway. 24th International Symposium on Society and Resource Management; Umeå, Sweden, June 19-22, 2017; Lennert, A. E. and **Hausner, V. H.** (2017) Connecting cultures of knowledge, -enhancing adaptive and flexible management of marine resources in a time of global and environmental change., 24th International Symposium on Society and Resource Management; Umeå, Sweden, June 19-22, 2017; Engen, S. and **Hausner, V. H. 2017.** The Role Of Local Actors In Conservation And Development, 24th International Symposium on Society and Resource Management in Umeå, Sweden, June 19-22, 2017; Fauchald, P. and **Hausner, V. H.** (2017) Adaptive management of dwindling herds of Arctic caribou under climate change, 28th International Congress for Conservation Biology**,** Cartagena, Colombia, 23.-27th July, 2017; **Hausner, V. H.,** Fauchald, P. and Broderstad, E. G. (2017) Does local empowerment result in higher support to conservation decision makers? 28th International Congress for Conservation Biology**,** Cartagena, Colombia, 23.-27th July, 2017.**; Hausner, V. H.** & Rebish Hespanha, S. 2016. Identifying research gaps and needs in arctic ecosystem services research by modelling large textual datasets. European Ecosystem Services Conference, Antwerp, Belgium, 19.-23. September, 2016. Ehrich., D.E., Thuestad, A.E., Tømmervik, H., Fauchald, P. & **Hausner, V. H.** 2016. A circumpolar comparison of visible land use associated with socioeconomic conditions in six Arctic regions, conference proceeding, Arctic Frontiers, Tromsø, Norway 24.01.16 - 29.01.16; **Hausner, V. H**.; Ehrich, D.; Fauchald, P.; Schmidt, J. I. 2014. How does governance and socioeconomic conditions influence spatial use and priorities of local people in the Arctic? The ACES 2014 conference: linking science, practice and decision-making; Washington D. C. US, 8.-12th December – 2014. **Hausner, V. H**.; Schmidt, J. I.; Ehrich, D. 2014. Mapping ecosystem services in the Arctic by cross-cultural PPGIS. 20th International Symposium on Society and Resource Management; Hannover, Germany 9th-13th September.; Thuestad, A. E.; Tømmervik, H.; Fauchald, P.; Ehrich, D.; **Hausner, V. H.** Mapping land use and land cover in circumpolar tundra regions – a large scale comparative remote sensing study. 5th Nordic Geographers' Meeting, 11-14 June 2013, Reykjavik, Iceland; 13-14 June 2013, Reykjavik, Iceland; Fauchald, P.; **Hausner, V. H.** (2013) Indigenous subsistence harvest in the Arctic: a sustainable socio-ecological system? 26th International Congress for Conservation Biology; Baltimore, 21.-25. July, 2013; **Hausner, V. H.;** Bludd, E. K.; Haider, W.; Yoccoz, N. (2013) Managing human activities and eco-

system services in alpine protected areas in Norway and British Columbia, Canada. 26th International Congress for Conservation Biology, 21.-25. July, Baltimore, 2013;

Scientific Reports (last 5 years)
Engen, S. og **Hausner V.H.** 2015. Kartlegging av naturverdier og lokale forvaltningspreferanser i Jotunheimen, Breheimen, Sognefjorden og i Midtre-Nordland 2014/2015. Formidlingsrapport, 15 s, **Hausner, V. H**.; Lægreid, E. J.; Pietrzyk-Kaszyńska, A.; Olszańska, A.; Peek, B.; Grodzińska-Jurczak, M.; Brown, G. Development and evaluation of internet-based PPGIS. Report to National Center for Research and Development, Norway, 2015; **Hausner, V. H.** Lægreid, E., Pietrzyk-Kaszyńska, A., Olszańska, A., Peek, B., Grodzińska-Jurczak, M. & Brown, G.2015. Internet PPGIS tools for Norway and Poland. Development and evaluation of internet-based PPGIS. Report to National Center for Research and Development, Norway. **Hausner, V.H.** 2013. Socio-ecological system monitoring. Pp. 132-136 In the COAT Science Plan. Fram Centre Report Series No. 1 http://www.coat.no/science-plan;

Popular dissemination and community/stakeholder involvement (last 5 years)
Broderstad, E.G**; Hausner, V.H.** Finnmarkslandskap i endring; om utmarksbruk, ressurser og forvaltning på Varangerhalvøya. Community dialogue meeting: Varangerbotn**;** 21. June 2015**,** Berlevåg, 17. June, 2015**,** Båtsfjord, 16. June, 2015.**,** Nesseby, 15. June, 2015**,** Vestre Jacobselv, 14. June 2015; Lægreid, E; **Hausner, V.H**.; Munoz, Lorena. PPGIS leaflet, 2015; Munoz, L.; **Hausner, V. H**.; Lægreid, E. J..CultEs-presentasjon/møte med parkforvaltere i Varangerhalvøya nasjonalpark. Follow up meeting, 16.01. 2015.**, Hausner, V. H.;** Broderstad, E. G**.** Governing local ecosystem services in the Arctic Norway. Hunter and trapper's organization board meeting, Baker lake; 11.03.2013**,** Chesterfield; 13.03.2013**,** Whale Cove; 15.03.2013**,** Rankin Inlet; 17.03.2013**;** Broderstad, E. G.; **Hausner, V. H..** Naturbrukeres holdninger til Finnmarkseiendommen. *Ottar* 2014 (302) s. 81-86**;** Broderstad, E. G.; **Hausner, V. H.** 2014. TUNDRA: drivkrefter for miljøendringer i sirkumpolare tundraområder og arbeidspakke 2 i Finnmarkslandskap i endring: økosystemtjenester, ressursbruk og ressursavhengighet. Seminar hos Finnmarkseiendommen; 2013-11-20 - 2013-11-21**;** Broderstad, E.G.; **Hausner, V. H**.; Weines, J. 2014. Noen forhold ved forvaltninga av land og ressurser i Varanger. Åpent møte i Austertana; 26. June.**; Hausner, V. H.** Engen, S.; Munoz, L.; Lægreid, E. J. 2014. CultEs dialogmøte med: Nærøyfjorden verdensarvspark 9. september**,** Breheimen Nasjonalpark 10. September**,** Jotunheimen Nasjonalpark 11. september**; Hausner, V. H.;** Munoz, L.; Engen, S.; Lægreid, E.J. 2014, CultEs- Presentasjon for miljødirektoratet og parkforvaltere. Samling parkforvaltere Troms/Finnmark, Alta; 27th May**; Engen, S.;** Munoz, L.; Lægreid, E. J.; Hausner, V. H. **2014.** CultEs-dialogmøte med Midtre Nordland Nasjonalparkstyre. Dialogmøte; 19. September.**; Hausner, V. H**. TUNDRA Drivkrefter for miljøendringer i sirkumpolare tundraområder. FRAM dagen; 08.11.2013**; Hausner, V. H**.. 2013. Intern strid årsak til problemene i reindriften. Aftenposten [Avis] 2013-03-28**;** Broderstad, E.G.; **Hausner, V. H**. 2013. Derfor bor vi her. SESAM seminar; 2013-02-09**; Hausner, V. H.** 2012. Diagnosing CPR problems in the Saami pastoral system in Finnmark. Open presentation, UiT Tromsø March 2, 2012**; Hausner V. H.** 2012. Diagnosing CPR problems in the Sámi pastoral system in Finnmark, FRAM senteret, AMINOR skole, Tromsø, 23. Januar**; Hausner V. H.** og Broderstad, E.G. 2012. Hvorfor intervjuundersøkelser om økosystem tjenester i tundraområder? Vadsø kommune, 8. Juni **,** Båtsfjord kommune, 7. sept**,** Berlevåg kommune, 8. sept. **,**Tana kommune, 18. juli **,** Vardø kommune, 9. mai

Marie Roué

Eco-anthropology and Ethnobiology Laboratory, National Museum of Natural History (MNHN), Paris France
http://www.ecoanthropologie.cnrs.fr/IMG/pdf/roue_cv_francais.pdf

EDUCATION

1975 Ph.D. in Anthropology, University of Paris V, Sorbonne, Paris
Dissertation "Le vêtement des Lapons de Kautokeino" (Sami clothing in Kautokeino)

1997 Habilitation à diriger des recherches

CURRENT AND PREVIOUS POSITIONS

2015 -	Emeritus Research Director (DR1), National Centre for Scientific Research (CNRS)
2004 - 2012	Director, CNRS/MNHN Research Team 'Ecological anthropology of conservation'
1997-2002	Director of Research, CNRS Research Team 8575 APSONAT « Appropriation and Socialisation of Nature »
1980-97	Researcher, CNRS Research Team 8575 APSONAT « Appropriation and Socialisation of Nature »

MOBILITY

January-September 2011 Invited Professor at the National Museum of Ethnology (MINPAKU), Osaka, Japan

1996 - 2001 Invited Professor at University of Montréal (UdM) and Université du Québec à Montréal (UQUAM), lecturer at McGill University, consultant on Inuit Education for Makivik Corporation.

Fieldwork in Norwegian and Swedish Lapland since 1969, in arctic and subarctic Canada with the Inuit and Cree Indians of Quebec, and in France in the Cevennes

TEACHING ACTIVITIES

1995 - 2012, Director, Master Degree « Evolution, Natural Heritage and Societies (EDTS)
1995 – 2014, main course "Indigenous ecological knowledge and biodiversity"

SUPERVISION

13 Ph.D., 15 Master, and membership on 10 committees for Ph.D. and HDR (French diploma after the Ph.D.)

Direction of Research teams

INSTITUTIONAL RESPONSIBILITIES

2014 - Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES)

- Member of the IPBES Multidisciplinary Expert Panel (MEP)
- Member of the IPBES Indigenous and Local Knowledge Task Force

ACKNOWLEDGEMENTS AND INTERNATIONAL MEMBERSHIPS

Légion d'honneur, 2016 (Knight of the Order of the Legion d'honneur)

2010 - Member of the French Delegation, Convention on Biological Diversity (CBD), COP10, Nagoya 2010
- Keynote speaker at the International Conference "Cultural and biological diversity", CBD, Montréal

2005 - Member of the recommendations drafting committee, International Conference on Biodiversity, Science and Policies, Launch of the International Year of Biodiversity, UNESCO, Paris

2004 - Keynote speaker at the International Millennium Assessment Conference - Bridging Scales and Epistemologies, Alexandria

FELLOWSHIPS AND AWARDS

9 research grants in all from 1980

2010 – 2014 BRISK "Bridging Indigenous Knowledge and Science" ANR (National French Agency of Research), 211.142 Euros

TRACK RECORD

120 in all (11 books or scientific edition, 5 special issues of Journals, 2 of them translated in 6 languages, 2 IPBES ILK reports, 25 book chapters, 55 papers, 22 others)

PUBLICATIONS (10 MOST RELEVANT AND RECENT)

Cogos, S., Roué, M., Roturier, S. 2017. Sami place names and maps: transmitting knowledge of a cultural landscape in contemporary contexts. Arctic, Antarctic, and Alpine Research 49, 43-51.

Roué, M., Rankovic, A., Biagiotti, I., 2016, Roué, M., A. Rankovic, and I. Biagiotti. 2017. Making Room for Social Sciences in Global Expertise in Biodiversity. A Planet for Life. http://regardssurlaterre.com/en/making-room-social-sciences-global-expertise-biodiversity [Google Scholar]

Roué, M. and Molnar, Z. (ed.), 2016, Knowing our Lands and Resources, Indigenous and Local Knowledge of Biodiversity and Ecosystem Services in Europe and Central Asia, UNESCO/ IPBES : http://unesdoc.unesco.org/images/0024/002474/247462e.pdf

Roué, M., 2015. « Le paysage culturel sami. De la phénoménologie à la poésie », Nordiques, N° 30

Roturier, S. and Roué, M. 2015. « Le pâturage, c'est toute une science ! Savoirs écologiques sur la neige et représentation samie du pâturage ». Techniques et Culture 63, 92-109.

Roué, M. and Roturier, S. 2015. « Les Samis, sentinelles du changement climatique ». Billebaude, Revue du Musée de la Chasse et la Nature 7, 32-37.

Roué et al. (ed.), 2015, Knowing our Lands and Resources, Indigenous and Local Knowledge of Biodiversity and Ecosystem Services in Africa, UNESCO/IPBES http://unesdoc.unesco.org/images/0024/002474/247461m.pdf

Roué, 2014, « Chapitre 7. La théorie anthropologique au secours de la complexité. Comment penser et étudier les relations sociétés-natures ». Chernokian et Robert, Les interactions hommes –milieux : Quæ

Roturier, S. and Roué, M., 2009, Of forest, snow and lichen : Sami reindeer herders' knowledge of winter pastures in northern Sweden, *Forest Ecology and Management* 258, pp. 1960– 1967

Roué, M. 2006, «Cultural Diversity and Biodiversity: Epistemotologies of knowledge and cultural landscapes, the economics of localised knowledge, Indigenous youth and cultural diversity", Scientific direction of a special issue of International Social Science Journal published in 6 language edition, ISSJ 187, Paris.

Nigel Thomas Crawhall

Division of Science Policy and Capacity-building, Natural Sciences Sector
UNESCO (United Nations Educational, Scientific and Cultural Organization)

1. **Work Experience**

Chief of Section • Small Islands and Indigenous Knowledge, Natural Sciences Sector,
UNESCO • Oct 2017 – current

- Local and Indigenous Knowledge Systems manager, focus on pastoralist climate observation research and policy intervention;
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems Service, Technical Support Unit on Indigenous and Local Knowledge;
- Small Islands Developing States, UNESCO focal point unit;

Director of Secretariat • Indigenous Peoples of Africa Coordinating Committee • Jan 1998 – Sep 2017

- Established a Secretariat to support IPACC, the largest indigenous peoples' regional network;
- Development of IPACC's strategic direction on climate change and environmental governance;
- Technical and institutional support to gain the support of the Africa Group to vote in favour of the UN Declaration on the Rights of Indigenous Peoples;
- Support indigenous peoples' advocacy capacity in the UN human rights system and Multilateral Environmental Agreements;
- Manage staff, fund-raising, strategic planning and communications.

Senior Cultural Programme Manager • South African San Institute •
Jan 1996 – Sep 2003

- Southern Kalahari cultural inventory and auditing project in cooperation with Prof. Hugh Brody;
- Anthropological, linguistic and technical support to the ǂKhomani indigenous peoples land claim;
- Rediscovery of the near extinct N|uu language and language heritage rehabilitation project management

Director • South African National Language Project • Jan 1991 – Dec 1995

- Senior management and fund-raising for an educational and health language NGO during the South African transition to democracy;
- Immigrant and indigenous language policy research project with the South Africa Language Planning Task Group (LANTAG).

Post-Doctoral Lecturing – 2008

Erasmus Mundus European research & teaching scholarship recipient. Three month placement at the University of Tromsø & University of Roehampton. Theme: Self-determination & indigenous peoples in Africa. Feb – April 2008;

2. **Stakeholder Engagement**

Experience in stakeholder engagement, advisory process or design with:

UNFCCC International Indigenous Peoples Forum on Climate Change;

UNCBD International Indigenous Peoples Forum on Biodiversity;

UNCCD – IUCN working group on stakeholder engagement;

World Bank Forest Carbon Partnership Facility for indigenous peoples in Africa;

IUCN Theme on Indigenous Peoples, Local Communities, Equity and Protected Areas;

IUCN resolution on indigenous peoples' organisational membership in the Union;

Facilitator of stakeholder and governance processes for the CBD Programme of Work on Protected Areas;

Stakeholder engagement advice to Ramsar Wetlands Convention (March 2018);

Interfaith Liaison Committee member for the UNFCCC (2014-2017);

Guidance to UNCBD and UNCCD on faith-based stakeholder participation;

Support to the *Sommet des Consciences*, Fez, Morocco, Nov. 2016 on indigenous and faith based stakeholder engagement.

IUCN focal point on faith-based stakeholder engagement (Resolution 009/12)

3. **Education**

Doctor of Philosophy, Linguistics
Title: !Ui-Taa Language Shift in Gordonia and Postmasburg Districts, South Africa, unpublished thesis
Institution: University of Cape Town, South Africa; 2001 – 2004

Masters of Philosophy, Linguistics:
Title: A Critique of Code-switching with special reference to Harare, unpublished thesis
Institution: University of Zimbabwe, 1988 – 1993

Bachelor of Arts - Honours, Political Science
Focus: African comparative politics
Institution: McGill University, Canada, 1982 – 1985

4. **Publications**

Crawhall, N. (2016) An Introduction to integrating African Indigenous & Traditional Knowledge in National Adaptation Plans, Programmes of Action, Platforms and Policies. IPACC: Cape Town.

Crawhall, N. (2015) 'Social and economic influences shaping protected areas', in G. L. Worboys, M. Lockwood, A. Kothari, S. Feary and I. Pulsford (eds) Protected Area Governance and Management, pp. 117–144, ANU Press, Canberra.

Crawhall, N. (2014) Indigenous Knowledge in adaptation: conflict prevention and resilience building. Conflict-sensitive Adaptation: Use Human Rights to Build Social and Environmental Resilience. Brief 10: IPACC and IUCN CEESP.

N. Lopoukhine, N. Crawhall, N. Dudley, P. Figgis, C. Karibuhoye, D. Laffoley, J. Miranda-Londoño, K. MacKinnon and T. Sandwith (2012) *Protected areas: providing natural solutions to 21st Century challenges* in S.A.P.I.E.N.S 5.2 | 2012 : VOL.5 / N°2 - IUCN COMMISSIONS.

Crawhall, N (2009) *African Hunter-Gatherers: Threats and Opportunities for Maintaining Indigenous Knowledge Systems of Biodiversity*, in **Learning and Knowing in Indigenous Societies Today**. Edited by P. Bates, M. Chiba, S. Kube & D. Nakashima, UNESCO: Paris.

Crawhall, N. (2008) Heritage Education for Sustainable Development: Dialogue with Indigenous Communities in Africa; Project Results Assessment with Final Documentation and Reporting. UNESCO

Rambaldi, G. J. Muchemi, N. Crawhall and L. Monaci (2007) *Through the Eyes of Hunter-Gatherers: participatory 3D modelling among Ogiek indigenous peoples in Kenya* in Information Development, Vol. 23, No. 2-3, 113-128 (2007)

Crawhall, N. (2006). *Languages, Genetics and Archaeology: Problems and the Possibilities in Africa*. In: The Prehistory of Africa Ed. H. Soodyal. Jonathan Ball publishing.

Crawhall, N. (2005) *Story of !Ui: Causality and Language Shift in Africa*. In Creating Outsiders, Endangered Languages, Migration and Marginalisation. Proceedings of the Ninth Conference. Eds N. Crawhall and N. Ostler. Bath, UK: Foundation for Endangered Languages

Crawhall, N. (2004). African Indigenous Peoples' Workshop on Traditional Knowledge, Identity and Livelihoods. Cape Town: IPACC.

Peter Bates

Local and Indigenous Knowledge Systems (LINKS) programme, Natural Sciences Sector, UNESCO, Paris, France

Education

- PhD in Anthropology and Ecology, University of Aberdeen, 2007, 'Inuit knowledge and scientific knowledge of caribou migration patterns in Arctic Canada'

Present employment

- Local and Indigenous Knowledge Systems (LINKS) programme, UNESCO Natural Sciences Sector, Paris, France
- The LINKS programme focuses on the connections between indigenous knowledge, science and policy

Most important previous employment

- 2013-2017: Senior Researcher, Firelight Group, Vancouver, Canada: working with First Nations communities in northern Canada on traditional land use and traditional knowledge studies to support them in negotiations with industry and government
- 2010-2013: Science Officer, International Council for Science (ICSU), Paris, France: Coordinating the international natural and social science input to the United Nations Conference on Sustainable Development 2012 (Rio+20)
- 2010: Research Consultant, Intergovernmental Oceanographic Commission (IOC), Paris, France: Report on multi-stakeholder observing systems in the Arctic
- 2007-2010: Research Consultant, Local and Indigenous Knowledge Systems (LINKS) Programme, UNESCO, Paris, France
- 2007: Consultant, Gagos Social Analysts, Yellowknife, Northwest Territories, Canada, '2006 Update, State of Knowledge Report of the West Kitikmeot and Slave Study (WKSS) Area'

Most important field and research experience

- 2013-2017 (multiple field visits each year): Doig River First Nation**,** Northern British Columbia, Canada: Lead researcher, project manager, and author for traditional knowledge and use studies for moose management plans and cultural and environmental impact studies for a large hydro-electric dam
- 2013-2017 (multiple field visits each year): Saulteaux First Nations**,** Northern British Columbia, Canada: Lead researcher, project manager, and author for traditional knowledge and use studies for cultural and environmental impact studies for a gas pipelines, wind projects and a gold mine
- 2017: multiple communities in northern British Columbia, Canada: First Nations health needs, services and network studies
- 2015-2017 (multiple field visits each year): White River First Nation, Yukon, Canada: Lead researcher, project manager, and author for traditional knowledge and use studies on three gold mines
- 2016-2017: (multiple field visits each year): Buffalo River First Nation, Saskatchewan, Canada: Lead researcher, project manager, and author for traditional knowledge and cultural impact studies for a large military range
- 2003-2004: 18 months living in the Inuit community of Cambridge Bay, Nunavut, Canada doing ethnographic fieldwork and interviews with Inuit hunters and elders

Conferences/Workshops

1. Chief rapporteur and presenter, ICSU-UNESCO Rio+20 science and technology workshop for the Arab States, October 12-14, 2011, Cairo, Egypt.
2. Chair, workshop on sustainable development options and goals, United Nations Department of Public Information NGO conference, 3-5 September, 2011, Bonn, Germany.
3. Presenter, *UNESCO's work on climate change.* Presented at 'Indigenous Peoples' Global Summit on Climate Change', April 20-24, 2009, Anchorage, Alaska.

4. Conference paper, *Inuit approaches to uncertainty, prediction and climate change*, presented at: *'*Indigenous Knowledge and Changing Environments: Biological and cultural diversities in transition', UNESCO International Experts Meeting, 2007, Cairns, Australia.
5. Conference paper, *Traditional Ecological Knowledge: restructuring Inuit-animal relationships?* Presented at: 'Animals and Science: Anthropological Approaches', 2005, Manchester University, UK.

Relevent Publications

Journal articles, book chapters and edited volumes

- Peter Bates (ed.). 2009. *Climate Change and Arctic Sustainable Development.* UNESCO Publishing: Paris. Pp. 357.
- Peter Bates, Moe Chiba, Sabine Kube and Doug Nakashima (eds.) 2009. *Safeguarding the Transmission of Local and Indigenous Knowledge of Nature*. UNESCO: Paris. Pp. 256.
- Peter Bates. 2009. *The transmission of Inuit Knowledge in Nunavut.* In: Safeguarding the Transmission of Indigenous Knowledge of Nature. UNESCO: Paris.
- Peter Bates. 2008. Inuit and scientific philosophies about planning, prediction and uncertainty. *Arctic Anthropology*, vol. 44, no2, pp. 87-100, University of Wisconsin Press.

Other Publications

- Peter Bates et al. and the Firelight Group. 2013-2017. Multiple Traditional Knowledge and Use Study reports for indigenous communities in Northern British Columbia, Yukon, and Saskatchewan, submitted to communities and regulators.
- Peter Bates et al. and the Firelight Group. 2016. Caribou and moose management policy reports for communities in Northern British Columbia, submitted to communities.
- Peter Bates. 2011. Synthesis report of ICSU-UNESCO regional science and technology workshops. Report for International Council for Science (ICSU) at Rio+20.
- Gisbert Glaser and Peter Bates. 2011. *Enhancing Science-Policy Links for Global Sustainability*, paper for Stakeholder Forum at Rio+20.
- Peter Bates. 2010. *Why Monitor the Arctic Ocean? Services to society from a sustained ocean observing system.* A report on the ways that an ocean monitoring system in the Arctic can be tailored to the needs of user groups in the region, particularly indigenous peoples.
- *On the Frontlines of Climate Change.* 2009. A report on the work of an internet-based forum which gathers indigenous observations of climate change.

E. Proposed Data Management Approach

● Data sets of long-term value that will be produced in the FATE project

1. **Nucleotide sequence data**: in the FATE project we intend to produce DNA sequence data from about 500 environmental samples. Datasets will be both raw and processed sequencing data.
2. **Radiocarbon dates**: new AMS radiocarbon dates will be generated for about 80 samples from sediment cores.
3. **Geochemical and pollen data** from sediment cores.
4. **A common dataset of temporal vegetation assessments** from more than 200 herbivore exclosures collected over the last decades will be compiled.
5. **Data from anthropological field studies**: transcripts of interviews and discussion workshops, associated metadata.

● Management of the data during the life of the project

Upon acquisition and compilation, the datasets will initially be stored on servers of the respective participating institutions, where they will regularly be backed up. The individual task leaders will be responsible for management of the data at this stage. A common depository will be set up in the PANGAEA database (www.pangaea.de), to which all respective researchers will have access prior to open publication of the data. Here we will upload datasets that are ready for further analyses by more than one WP.

● Management of the data after project ends

Upon publication or within one year of the completion of project funding, whichever comes first, data collected and generated within the FATE project will be made freely available in public repositories by the team members. We will use the following repositories:

1. **Pangaea** (www.pangaea.de) is a digital data library and a data publisher for earth system science. Data can be georeferenced, both in time and space, and the data are archived with related metainformation in a relational database. Data are persistently identified through a DOI. Here, we deposit processed DNA data, radiocarbon dates, sedimentological analyses results, unpublished vegetation assessments from the ecological plots, as well as the compiled dataset, and data from the ethno-ecological field studies that can be published (see below on accessability).
2. **Neotoma** (https://neotomadb.org/) stores fossil and other stratigraphic data for the past 5 million years (the Quaternary and Pliocene). Metadata stored in Neotoma include site locations and descriptions, sediment descriptions, information about the original workers, publications, geochronologic data, and age models. In Neotoma, we will here deposit microfossil data and radiocarbon dates.
3. The **European Nucleotide Archive** (ENA) is a curated repository for DNA sequence data and part of the International Nucleotide Sequence Database Collaboration (INSDC). ENA entries receive Accession Numbers and can be searched and retrieved interactively and programmatically. We will submit the raw sequence reads from the sedimentary ancient DNA analyses here.

● Supporting documentation

Deposited data will be accompanied by a range of metadata, such as geographical coordinates, dates, taxonomic information and information on publications and authors. Additionally, we will provide read-me files for the data deposited.

● Accessability and reusability of the data

All data from WP1 and WP2 will be Open Access. For WP3 and WP4, data that is not protected by personal or indigenous intellectual property rights will also be available Open Access.

● Other types of material of long-term value

Sediment cores, DNA extracts and genetic libraries of DNA extracts for sequencing on an Illumina platform will be archived in the respective PIs' established repositories.

● Costs

We will use databases that do not charge any costs for deposition. Storage of material (sediment and DNA) will be enabled by the PIs' existing storage facilities.

F. Time schedule and working programme

FATE	Month 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
WP1: Sediment core DNA																																				
Task 1.1: Sediment cores from Northern Europe										M04			D05						M10									M15								D16	
Task 1.2: Sediment cores from Northern Siberia										M04			D05						M10									M15								D16	
Task 1.3: Sediment cores from North America										M04			D05						M10									M15								D16	
WP2: Identification of drivers																																				
Task 2.1: Assessing impact of herbivores in modern setting												D03																								
Task 2.2: Testing impact on paleoenvironmental data																	M06											M16						D14		
Task 2.3: Forecasting using niche modelling																															M19					D17
WP3: ILK on biodiversity and ecosystem changes																																				
Task 3.1 Field study Yamal peninsula																	M07								M14		D11			D12						
Task 3.2 Field study Yakutia						M01										M05		D08												D12						
Task 3.3 Field study Lule Sami region						M02											M08			M11	D09											D13				
Task 3.4 Field study Varanger peninsula							M03											M09			M12	D10										D13				
WP4: Scenario building																																				
Task 4.1 Understanding ILK scenarios																D07																				
Task 4.2 Develop and assess exploratory scenarios																								M13				M17								D18
Task 4.3 Coproducing multi-scale and multi-stakeholder scenarios																													M18			M20				D19
WP5: Coordination																																				
Task 5.1 Project coordination and communication				D01											D06																		D15			
Task 5.2 Risk assessment																																				
Task 5.3.Data management												D04																								D20
Task 5.4 Dissemination						D02																														D21

D Deliverable M Milestone

Curriculum vitae with track record for Inger Greve Alsos

ROLE IN PROJECT

Project manager ☐ Collaborator ☒

PERSONAL INFORMATION

Family name, First name: Alsos, Inger Greve
Date of birth: *18.06.1968*
Sex: Female
Nationality: Norwegian
Researcher unique identifiers: ResearcherID A-9507-2016, ORCID http://orcid.org/0000-0002-8610-1085
URL for personal web site:http://en.uit.no/ansatte/inger.g.alsos, http://www.researcherid.com/rid/A-9507-2016

EDUCATION

2003	PhD, Disputation date: 06.06.2003, Tromsø Museum, UiT – The Arctic University of Norway, Supervisors Torstein Engelskjøn and Christian Brochmann
1995	Master, Department of Plant Ecology, UiT – The Arctic University of Norway, in collaboration with Norwegian Institute for Nature Research (NINA) and the Zoological Laboratory, University of Groningen, The Netherlands

CURRENT AND PREVIOUS POSITIONS

2010-	Professor at Tromsø Museum, UiT – The Arctic University of Norway
2010-2010	Associate Professor UiT – The Arctic University of Norway
2010-2010	Associate Professor II, University Centre in Svalbard, Norway
2006-2009	Associate Professor, University Centre in Svalbard, Norway
2004-2006	Post doc, National Centre for Biosystematics, University of Oslo, Norway
2003-2003	Post doc, UiT – The Arctic University of Norway
2003-2003	Associate professor, UiT – The Arctic University of Norway
1998-2003	Research fellow UiT – The Arctic University of Norway
1992-1997	Scientific assistant, the Norwegian Polar Insts and UiT – The Arctic Univ. of Norway

ONGOING GRANTS (PI if not otherwise mentioned)

1993-2018	**Total grants: € 12.05 mill (11,42 mill NOK) of witch € 3.95 mill as PI**
2019-2022	Future ArcTic Ecosystems (FATE): drivers of diversity and future scenarios from ethno-ecology, contemporary ecology and ancient DNA – 0.35mill EUR, BiodivERsA
2016-2021	ECOGEN - Ecosystem change and species persistence over time: a genome-based approach, € 2.57 mill, The Research Council of Norway/UiT, Toppforsk,
2016-2020	REININ - Reindeer interactions from plants and birds to humans: balancing the odds of climate change, € 0.62 mill, The Research Council of Norway, (PI:Gusarova)
2016-2020	Climate History along the Arctic Seaboard of Eurasia (CHASE), € 0.72 mill, The Research Council of Norway, (PI: J.I. Svendsen)
2015-2020	Forbio - The Research School in Biosystematics, € 2,46 mill (PI DeBoer)
2014-2019	NorBOL - Norwegian Barcode of Life Network, (NorBOL.org). € 2.63 mill, The Research Council of Norway, (PI: Ekrem NTNU, http://www.norbol.org/)
Finished	31 grants of € 3.1 mill of which 25 of € 0.90 mill as PI

MOBILITY

2014-2014	Geography and Environment, University of Southampton, UK (Mary E. Edwards)
2000-2000	LECA, University Grenoble-Alpes/CNRS, France (Pierre Taberlet)
1993-1994	University of Groningen, The Netherlands (Rudi Drent)

SUPERVISION OF GRADUATE STUDENTS AND RESEARCH FELLOWS

2004-2018 5 Post docs (T Jørgensen, PJ Sjögren, DP Rijal, S Garcés Pastor, P Heintzman), 14 PhD (K Heggland, A Young, M Ariza, P. Chua, M. Mascarello M Kheilifi, Y Lammers, C Clark, K Loberau, DP Rijal, T Rämä, C Ware, E Müller, K Westergaard), 10 Master Students

TEACHING ACTIVITIES

2010- Board member of the Norwegian-Swedish Research School in Biosystematics (ForBio, http://www.forbio.uio.no/)

2011-2018 Lectures at U. Centre in Svalbard and Metabarcoding spring school (ForBio)

2009-2010 Completed the course "Teaching and Instruction in Higher Education" and developed a teaching portfolio, UiT – The Arctic University of Norway

2006-2009 Responsible for AB-210 Arctic Terrestrial Ecology and AB-326 Arctic Plant Ecology, also teaching on AB-329 Winter Ecology, and Arctic Nature Guide course, University Centre in Svalbard, Norway

1992-1995 Assistant teacher in Bio-103 Cell biology, Bio-105 Ecology, Bio-108 Botany and Bio-111 Botany II at the UiT – The Arctic University of Norway

ORGANISATION OF SCIENTIFIC MEETINGS

2019 9th Intern. Barcode of Life conference, committee member, Trondheim, Norway

2017 7th Intern. Barcode of Life conference, committee member and chair, South Africa

2017 5th PAGES Open Science Meeting, chair ancient DNA, 900 participants, Zaragoza, Spain, http://www.pages-osm.org/

2016 Island Biology conference 2016, chair, ca. 400 participants, Azores, Portugal (http://www.islandbiology2016.uac.pt/)

2015 6th Intern. Barcode of Life conference, committee member and chair, >600 participants, Canada (http://dnabarcodes2015.org/)

INSTITUTIONAL RESPONSIBILITIES

2016- Board member Society of Island Biology

2012- Deputy of Norwegian Barcode of Life/NorBOL, http://www.norbol.org/

2012- Leader of research group in taxonomy and biodiversity, Tromsø Museum, UiT

2010- Leader of molecular laboratory, Tromsø Museum, UiT

2010- Member of the Terrestrial Working Group of the International Arctic Science Committee (IASC)

2015-2015 Evaluator of species for red list of Svalbard, Norwegian Biodiversity Information Centre

2011-2013 Board member Tromsø Museum, UiT – The Arctic University of Norway

2009-2009 Evaluator of species for the black list of Svalbard, Norw. Biodiv. Inform. Centre

2009-2010 Member of the Circumarctic Flora and Fauna (CAFF) Flora expert group

COMMISSIONS OF TRUST

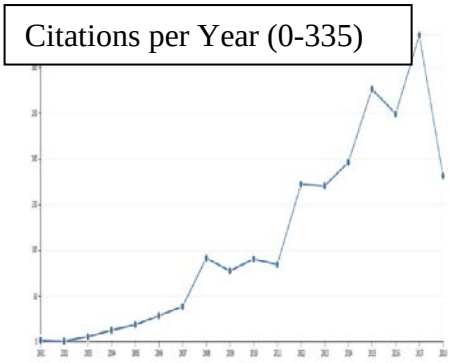
2002-2018 **Referee** for Biol. Let., Ecol. Let., Mol.Ecol., Global Ecol. Biogeo., J. Biogeo., Quat. Sci. Rev., Nat. Ecol. Evol., Boreas, J. Paleolimn., Plant Ecol., New Phytol., PlosOne, Sys. Biol., Front. Ecol. Evol., Can. J. Bot., Silvae Genet., Plant Ecol. Div., Plant Sys. Evol., AAAR, Ann. Bot., Funct. Ecol., Polar Biol., Flora, Int. J. Ecol., Polish J. Ecol., Folia Geobot. **Former subject editor** for Nordic Journal of Botany and **board member** of Flora. Currently **associated editor** for Arctic, Antarctic and Alpine Research, Frontiers. **Evaluator** for National Science Foundation USA, Rannís - The Icelandic Centre for Research, National Science Foundation Polen – OPUS, Deutsche Forschungsgemeinschaft - DFG.

CAREER BREAKS

12.04.1997-10.04.1998 and 10.01.2000-09.01.2001 Two maternal leaves, each 12 month

Track record

54 articles in ISI indexed journals, cited 3122/2023 times (-/1855 excluding self-citation, h-index 25/21, h10 index 4/- (Google Scholar/Web of Knowledge 7th of Sept. 2018), **6 book chapters, 29 scientific papers in national journals, 15 scientific reports**



10 selected papers, all except Willerlev et al. 2014 with me as either first or senior author and/or without my PhD supervisor Brochmann. Impact factors in brackets.

1. **Alsos, IG,** Lammers, Y, Yoccoz, NG, , Jørgensen, T, Sjögren, P, Gielly, L, Edwards, M. (2018). Plant DNA metabarcoding of lake sediments: How does it represent the contemporary vegetation. **PlosOne** 13(4): e0195403. https://doi.org/10.1371/journal.pone.0195403. (1 citation)
2. Parducci, L, Bennett, KD, Ficetola, GF, **Alsos, IG**, Suyama, Y, Wood, JR, Pedersen, MW. 2017. Transley Reviews: Ancient plant DNA from lake sediments. **New Phytol**. **(7.33)** 213:929-941. (14 citations)
3. Sjögren, P, Edwards, ME, Gielly, L, Langdon, C, Croudace, IW, Merkel, MKF, Fonville, T, **Alsos, IG**, 2017. Lake sedimentary DNA accurately records 20th century introductions of exotic conifers in Scotland. **New Phytol**. **(7.33)** 213, 929-941. (10 citations)
4. **Alsos, IG**, Landvik, JY, Sjögren, P, Gielly, L, Forwick, M. Coissac, E, Brown, AG, Jakobsen, LV, Føreid, MK, Pedersen, MW and Edwards, ME (2016) Sedimentary ancient DNA from Lake Skartjørna, Svalbard: assessing the resilience of arctic flora to Holocene climate change. **The Holocene (2.32)**: 26:627-642. DOI 10.1177/0959683615612563 (10 citation)
5. **Alsos IG**, Ehrich D, Eidesen PB. Solstad H, Westergaard KB, Schönswetter P, Tribsch A, Birkeland S, Elven R & Brochmann C (2015) Long-distance plant dispersal to North Atlantic islands: colonization routes and founder effect. **AoB Plant** 7: plv036. DOI: 10.1093/aobpla/plv036. (21 citations)
6. Pellissier L, Eidesen PB, Ehrich D, Descombes P, Schönswetter P, Tribsch A, Westergaard KB, Alvarez N, Guisan A, Zimmermann NE, Normand S, Vittoz P, Luoto M, Damgaard C, Brochmann C, Wisz MS, **Alsos IG**. (2016). Past climate-driven range shifts and population genetic diversity in Arctic plants. **Journal of Biogeography (4.25)** 43: 461-470. DOI: 10.1111/jbi.12657 (6 citations)
7. Willerslev, E, Davison, J, Moora, M, Zobel, M, Coissac, E, Edwards, ME, Lorenzen, ED, Vestergård, M, Gussarova, G, Haile, J, Craine, J, Bergmann, G, Gielly, L, Boessenkool, S, Epp, LS, Pearman, PB, Cheddadi, R, Murray, D, Bråthen, KA, Yoccoz, N, Binney, H, Cruaud, C, Wincker, P, Goslar, T, **Alsos, IG**, Bellemain, E, Brysting, AK, Elven, R, Sønstebø, JH, Murton, J, Sher, A, Rasmussen, M, Rønn, R, Mourier, T, Cooper, A, Austin, J, Möller, P, Froese, D, Zazula, G, Pompanon, F, Rioux, D, Niderkorn, V, Tikhonov, A, Savvinov, G, Roberts, RG, MacPhee, RDE, Gilbert, MTP, Kjær, KH, Orlando, L, Brochmann, C & Taberlet, P (2014) Fifty thousand years of arctic vegetation and megafaunal diet. **Nature (40.14)** 506: 47-51. DOI: 10.1038/nature12921 (152 citations)
8. Parducci, L, Jørgensen, T, Tollefsrud, MM, Elverland, E, Alm, T, Fontana, SL, Bennett, KD, Haile, J, Matetovici, I, Suyama, Y, Edwards, ME, Andersen, K, Rasmussen, M, Boessenkool, S, Coissac, E, Brochmann, C, Taberlet, P, Houmark-Nielsen, M, Larsen, NK, Orlando, L, Gilbert, MTP, Kjær, KH, **Alsos, IG** & Willerslev, E. (4 first are co-first authors and ***2 last are co-senior authors***) (2012) Glacial survival of boreal trees in northern Scandinavia. **Science (37.21)** 335: 1083-1086. Doi: 10.1126/science.1216043. (167 citations)
9. **Alsos, IG,** Ehrich, D, Thuiller, W, Eidesen, PB, Tribsch, A, Schönswetter, P, Lagaye, C, Taberlet, P & Brochmann, C (2012) Genetic consequences of climate change for northern plants. **Proceedings of the Royal Society B: Biological Science (4.94)** 279: 2042-2051. DOI 10.1098/rspb.2011.2363. (88 citations).
10. **Alsos, IG**, Eidesen, PB, Ehrich, D, Skrede, I, , Westergaard, K, Jacobsen, GH, Landvik, J, Taberlet, P and Brochmann, C 2007. Frequent long-distance plant colonization in the changing Arctic. **Science (37.21)** 316: 1606-1609. (210 citations)

Ability to lead research team and inspire young researchers
All five PhD student that have finished their PhD under my supervision are currently working within science: Dilli Prasad Rijal (2012-2016) my Post Doc on ECOGEN; Chris Ware (2011-2015) Experimental Scientist in the CSIRO (Australian Commonwealth Scientific and Industrial Research Organisation) Macroecology Modelling Team; Teppo Rämä (2010-2014) Post Doc at Norwegian College of Fishery Science; Eike Müller (2008-2011) Nature historian, Randfjordmuseet; Kristine Bakke Westergaard (2006-2010) Senior Researcher, Norwegian Institute for Nature Research. One of the two post docs that have finished now works as a researcher in our institute (Per Sjögren), whereas the other chose a different career due to family reasons (Tina Jørgensen). Four of my former master students did a PhD (Ware, Westergaard, Birkeland, Buras; the two former ones with me). In my current team I have three post docs (Heintzman, Rijal, Garcés Pastor) and two PhD (Loberau, K Heggland) on the ECOGEN project, and one PhD on the NorBOL project (Lammers). I also have one researcher (Galina Gusarova, ForBio) and two technicians (Merkel, Ivanova, NorBOL and ECOGEN, respectively). In addition, I am co-supervising six PhD student (Clark, PI Mary E Edwards, U Southampton; Kheilifi, PI Eric Coissac, U Grenobles Alpes; and Young, PI Eva Panagiotakopulu, U. Edinburgh, and M Ariza, P. Chua, M. Mascarello on https://www.plantid.uio.no/). All are on track with their work.

Invited presentations to peer-reviewed, internationally established conferences and/or international advanced schools: >30
Research expeditions: Svalbard (>30), Norway (>20), NW Russia/Polar Ural (2), Newfoundland and Gaspe Peninsula (1), The Alps (2)
Organisation of international conferences: 4 (see above) + 5 international conferences in Norway

INVITED LECTURES
Invited presentations to peer-reviewed, internationally established conferences and/or international advanced schools: >30 of which 10 are listed below:

1. Ancient DNA of Northwest Europe, Climate Impact Research Centre (CIRC) research symposium, Abisko field station, Sweeden, 26-28th Sept 2017
2. Environmental DNA taphonomy: How well is the flora represented in metabarcoding data? CHASE/PLOT workshop, University of Colougne, 8-10 Feb 2017.
3. Plant DNA in sediments: to which degree do they reflect the flora? SciLifeLab mini-symposium on "Biodiversity and evolution: Ancient Environmental DNA", Stockholm 10th of March 2016 .
4. Postglacial plant colonization of Northwest Europe. Origins and natural history of the Scandinavian biota, Natural History Museum Stockholm 7-8th of Nov 2016.
5. Postglacial plant colonization of Northwest Europe. Svenska Växtgeografiska Sällskapets annual meeting, Uppsala, Sweeden, 2016-11-08.
6. The use of sedimentary DNA in environmetal resonstructions. Celtic Crannogs project meeting, Edinburgh, 7th of April 2016.
7. Using DNA to learn from the past: how ancient DNA studies help reveal the past and predict the future distribution of species AGU fall meeting, 12-16th of Dec. 2015.
8. Effects of past and future climate change on plant colonization in the Arctic: insights gained from modern and ancient DNA. Joint Proxies of the North 2015-06-13 - 2015.
9. Re-examining palaeorecords of an arctic lake using sediment ancient DNA (sedaDNA) – new insight gained. Arctic Biodiversity Congress Trondheim 2-4th of December 2014.
10. The use of lake sedDNA as a proxy for reconstructing vegetation change: comparisons with afforestation history and macrofossils. COST Action FP1305 First annual meeting - What are we linking? Univ. of Reading, 5th of Nov. 2014.