

SENTER FOR GRUNNFORSKNING
CENTRE FOR ADVANCED STUDY

ÅRSMELDING 2016



Senter for grunnforskning ved det Norske Videnskaps-Akademi

Centre for Advanced Study at the Norwegian Academy of Science and Letters

ÅRSMELDING 2016

Senter for grunnforskning (CAS) er en stiftelse opprettet av Det Norske Videnskaps-Akademi i 1989, med virksomhet fra 1992. Senteret leier lokaler i Vitenskapsakademiets hus i Drammensveien 78, Oslo.

Hvert akademiske år er Senteret vertskap for tre internasjonale forskergrupper som representerer henholdsvis humaniora, samfunnsfag og naturvitenskap, og som arbeider med problemer innenfor grunnforskning. På grunnlag av innkomne forslag velges gruppene ut av styret i CAS etter at gruppeledere, foreslåtte internasjonale samarbeidspartnere og prosjektene har vært gjennom en omfattende internasjonal vurdering.

1. SENTERETS FORMÅL

Senterets formål er å fremme grunnforskning og tverrvitenskapelig teoretisk arbeid på høyeste faglig nivå, innenfor humaniora/teologi, samfunnsvitenskap/jus, og naturvitenskap/medisin/matematikk.

Senteret skal virke som en nasjonal institusjon og sørge for nært faglig samarbeide mellom norske og utenlandske forskere. I tillegg til å gi ledende norske forskere best mulig arbeidsbetingelser, er målet å legge forholdene til rette for samarbeid mellom norske og internasjonale forskningsmiljøer. Hensikten er å bidra til å styrke norsk grunnforskning gjennom økt internasjonalisering.

2. SENTERETS STYRE

Senteret ledes av et styre på seks medlemmer og varamedlemmer. Styret er stiftelsens øverste organ. Styrets sammensetning er regulert i vedtektenes § 4 og oppnevnes av Det Norske Videnskaps-Akademi (DNVA), Universitets- og høøgskolerådet (UHR) og Staten, ved Norges forskningsråd (NFR).

I 2016 var styret sammensatt av følgende medlemmer (oppnevning i parentes):

Professor Geir Ellingsrud, Universitetet i Oslo, Styreleder	(DNVA)
Rektor Mari Sundli Tveit, NMBU, Nestleder	(UHR)
Professor Ottar Hellevik, Universitetet i Oslo	(DNVA)
Professor Lena Liepe, Universitetet i Oslo	(DNVA)
Professor Nina Gunnerud Berg, NTNU	(UHR; til 30.09.16)
Professor Unni Langås, Universitetet i Agder	(UHR; fra 1.10.16)
Professor Marit Halvorsen, Universitetet i Oslo	(NFR; til 30.09.16)
Professor Toril Aalberg, NTNU	(NFR; fra 1.10.16)

Varamedlemmer:

Professor Tone Tønjum, Universitetet i Oslo	(DNVA; vara for Ellingsrud)
Rektor Dag Rune Olsen, Universitetet i Bergen	(UHR; vara for Sundli Tveit)
Professor Kenneth Ruud, Universitetet i Tromsø	(DNVA; vara for Hellevik)
Professor Øystein Elgarøy, Universitetet i Oslo	(DNVA; vara for Liepe)
Professor Bjørn Hjertager, Universitetet i Stavanger	(UHR; vara for Berg; til 30.09.16)
Professor Knut Helland, Universitetet i Bergen	(UHR; vara for Langås; fra 1.10.16)
Professor Håkon With Andersen, NTNU	(NFR; vara for Halvorsen; til 30.09.16)
Professor Anna Nylund, Universitetet i Tromsø	(NFR; vara for Aalberg; fra 1.10.16)

Observatør for DNVA på Senterets styremøter i 2016 var generalsekretær professor Øivind Andersen.

Kvinneandelen i styret utgjorde 67 % (inkluderes varamedlemmene, er kvinneandelen 50 %) ved utgangen av 2016.

Styret avholdt fire styremøter i 2016.

3. SENTERETS SAMARBEIDSPARTNERE

Senteret hadde ved utgangen av 2016 ti samarbeidspartnere:

Universitetet i Oslo (UiO)
Universitetet i Bergen (UiB)
Universitetet i Tromsø (UiT)
Norges teknisk-naturvitenskapelige universitet, Trondheim (NTNU)
Universitetet i Stavanger (UiS)
Norges miljø- og biovitenskapelige universitet (NMBU)
Universitetet i Agder (UiA)
Norges Handelshøyskole (NHH)
Handelshøyskolen BI, Oslo
Det teologiske Menighetsfakultet (MF)

Det er inngått samarbeidsavtaler med hver av disse institusjonene. Avtalene innebærer et vesentlig bidrag til CAS' økonomi ved at ansatte fra partnerinstitusjoner beholder sin lønn under oppholdet ved CAS, samtidig som oppholdet regnes som ekstraordinær forskningstermin for den enkelte forsker.

For hver av samarbeidspartnerne er det opprettet egne kontaktutvalg, som oftest er disse identiske med det sentrale forskningsutvalget e.l. ved vedkommende institusjon. Det har vært løpende kontakt mellom CAS og kontaktutvalgene i 2016.

4. ADMINISTRASJON OG DRIFT

Vitenskapelig leder (åremålsstilling) er faglig administrativ leder og har forskning som en del av sine arbeidsoppgaver. Administrasjonen forbereder saker for styret og sørger for at styrets vedtak blir gjennomført. Administrasjonen står for den daglige drift ved senteret.

Personale

Senterets administrasjon har i 2016 bestått av:

Vitenskapelig leder, professor Vigdis Broch-Due

Kontorsjef Maria M. L. Sætre

Rådgiver Rune Flaten

Førstekonsulent Karoline Kvellestad Isaksen

Førstekonsulent Maria Rundhaugen Tesaker (i permisjon 31.3-31.8.2016; sluttet 31.8.2016)

Førstekonsulent Karin Vaagland (vikariat fra 11.1-10.10.2016; fast stilling fra 1.9.2016)

Førstekonsulent Oda Joramo (midlertidig engasjement fra 27.9.2016)

Administrasjonen har ukentlige møter hvor alle saker av betydning for den løpende virksomheten drøftes og planlegges.

IT-tjenester

Dag Christian Bjørnsen ved Universitetets senter for informasjonsteknologi (USIT) har vært ansvarlig for drift av dataanlegget og assistanse til forskerne en og en halv ukedag, samt på heltid fra 15. august til 9. september.

Arbeidsmiljø

Det fysiske arbeidsmiljøet er stort sett tilfredsstillende. Senteret har begrenset kontorplass, utnyttelsesgraden av tilgjengelige arbeidsplasser er høy. For utenlandske gjesteforskere formidles legehjelp i tilfelle sykdom eller skader. I 2016 er arbeidet med brannsikringstiltak videreført, og det er lagt vekt på brannøvelser og informasjon til alle.

Senteret har en meget liten administrasjon sammenlignet med tilsvarende utenlandske sentre. Det er en utfordring å dekke mangfoldet av arbeidsoppgaver. Sykefraværet er lavt. Kvinneandelen i administrasjonen utgjorde 83 % ved utgangen av 2016.

Miljørapportering

Senterets virksomhet forurenser ikke det ytre miljøet.

Sosiale tiltak

Det er en del av senterets profil å kombinere den faglige aktiviteten med sosiale tiltak. Organiseringen av forskningsaktiviteten i grupper medfører at samtlige gjesteforskere ledes inn i et tett faglig miljø. Daglig felles lunsj i Tårnværelset bidrar til et godt sosialt miljø og skaper kontakt på tvers av forskningsdisiplinene. En mottagelse for forskerne markerer forskningsårets åpning i august, og det arrangeres fellesarrangement ved jul- og sommeravslutning. I løpet av høst- og/eller vårsemesteret gjennomføres felles dagsutflukter i østlandsområdet. Administrasjonen tilrettelegger for skoleplass for barn av tilreisende gjesteforskere, formidler kontakt med legetjeneste etc.

5. FORSKERGRUPPER OG FAGLIG AKTIVITET

De tre gruppene som startet sitt arbeid høsten 2015 og videreførte det våren 2016, arbeidet med følgende temaer:

- **Climate effects on harvested large mammal populations**
ved professorene Jon E. Swenson, NMBU og Atle Mysterud, CEES, UiO
- **Disclosing the Fabric of Reality - The Possibility of Metaphysics in the Age of Science**, ved professorene Frode Kjosavik, NMBU, og Camilla Serck-Hanssen, UiO
- **Arctic Domestication in the era of the Anthropocene**
ved professor Marianne Elisabeth Lien, UiO

For presentasjon av prosjektene, den faglige aktiviteten, seminarer og konferanser, samt foreløpige resultater/publikasjoner, se gruppens rapporter på CAS' hjemmesider.

Forskergruppene 2016/2017 startet sitt arbeid i august 2016. Temaene for disse gruppene er:

- **Several Complex Variables and Complex Dynamics**
ved professorene Erlend Fornæss Wold, UiO, og Berit Stensønes, NTNU
- **After Discourse: Things, Archaeology, and Heritage in the 21st Century**
ved professor Bjørnar Julius Olsen, UiT
- **Airborne: Pollution, Climate Change, and New Visions of Sustainability in China**
ved professor Mette Halskov Hansen, UiO

I august 2017 vil følgende grupper starte sitt arbeid i Senteret:

- **Molecules in Extreme Environments (MXE)**
ved professor Trygve Helgaker, UiO
- **SynSem: From Form to Meaning - Integrating Linguistics and Computing**
ved professorene Dag Trygve Truslew Haug og Stephan Oepen, UiO
- **The Nordic "Civil Wars" in the High Middle Ages in a comparative perspective**
ved professorene Jón Viðar Sigurðsson og Hans Jacob Orning, UiO

Styret sluttbehandlet i september 2016 valget av de forskergrupper som skal være ved CAS i 2018/2019.

Antallet innkomne forslag var 20, hvilket var 11 færre enn året før. Etter behandling i styret ble 13 forslag sendt til internasjonal fagfelleevaluering våren 2016. I alt ble det innhentet 39 evalueringsrapporter fra framstående internasjonale forskere. På dette grunnlag besluttet styret å invitere følgende forskergrupper til senteret i 2018/2019:

- **Homotopy Type Theory and Univalent Foundations**
ved professorene Marc Bezem og Bjørn Ian Dundas (UiB)
- **In Sync: How Synchronization and Mediation Produce Collective Times, Then and Now**, ved professorene Espen Ytreberg og Helge Jordheim (UiO)
- **The Demise of Religion**
ved professorene Michael Stausberg (UiB) og James Lewis (UiT)

Høsten 2016 ble det sendt ut utlysning vedrørende forslag til forskergrupper for 2019/2020, med søknadsfrist 16. januar 2017.

6. ØKONOMI

Statsbevilgningen til Senteret for 2016 var på 20 040 000 kroner, en økning fra foregående år på 560 000 kr., dvs. 2,87 %. Økningen kompenserte for prisvekst og lønnsjusteringer.

Senteret har stilt 3,5 millioner kroner til disposisjon for hver av de tre forskergruppene. Budsjettet skal dekke generelle prosjektkostnader, stipend (kompensasjon for ekstrautgifter under oppholdet), frikjøp av utenlandske forskere, samt bolig-, reise-, konferanse- og seminarutgifter. Ettersom de felles løpende utgifter til drift, vedlikehold, leie av forskerleiligheter og sosiale tiltak er økende, kreves det økning i bevilgningene for at tilskuddet til hver gruppe kan opprettholdes på dagens nivå.

Ressursrammene har vært for knappe til at man kan hente inn et større antall ledende internasjonale forskere til Norge, noe som er et uttalt mål. For å kunne frikjøpe ettertraktede utenlandske forskere for lengre forskningsopphold, vil hver prosjektgruppe ha behov for en økning i disponible midler på rundt 500 000 kroner i forhold til dagens nivå. Det vil si at hver gruppe på sikt bør gis et budsjett med utgangspunkt i dagens kroneverdi på rundt 4 millioner kroner.

Universitetsavtalene representerer en viktig tilleggsfinansiering idet gjesteforskere fra de norske universitetene, NHH, MF og BI beholder lønn fra sine respektive hjemmestitusjoner i den perioden de er ved CAS. Denne indirekte tilleggsfinansieringen representerte i 2016 rundt 9,5 årsverk. Oppholdet ved CAS regnes som ekstraordinær forskningstermin for den enkelte forsker.

Senterets resultatregnskap for 2016 viser et underskudd på driftsresultatet på kr. 182 939. Forskergruppene i 2016/2017 har dessuten overførbare øremerkede midler, til bruk i vårsemesteret 2017. Disse overføringene er et resultat av at det akademiske året ikke følger budsjettåret, og at gruppelederne selv velger hvor stor andel av totalbevilgningen som benyttes i henholdsvis høst- og vårsemesteret. Total ubenyttet saldo på gruppenes budsjett for høsten 2016 er kr. 1 296 809. Beløpet legges til i forskergruppenes budsjett for våren 2017.

Balanseregnskapet viser en balanse på kr. 9 714 135. Av dette er kr. 3 776 988 kortsiktig gjeld.

Regnskapet for 2016 er satt opp etter forutsetning om fortsatt drift. Etter styrets oppfatning gir det fremlagte årsregnskap et rettviseende bilde av utviklingen og resultatet av virksomheten ved Senter for grunnforskning per 31.12.2016. Regnskapet er revidert av revisjonsfirmaet Nitschke A/S.

Driftsfondet ved Senter for grunnforskning

Etter oppfordring fra det daværende Kirke-, utdannings- og forskningsdepartementet, opprettet CAS i 1993 et Driftsfond som har til formål å sikre den langsiktige driften av senteret. Senter for grunnforskning inngår forpliktende avtaler inntil tre år frem i tid, og Driftsfondet er etablert som en sikkerhet for disse langsiktige forpliktelsene. For nærmere informasjon og regnskap for 2016, se egen årsmelding for Driftsfondet.

7. RESULTATER

Forskningsaktiviteten

Forskningsaktiviteten ved Senteret har vært meget tilfredsstillende gjennom året. Gruppene gir selv meget gode tilbakemeldinger på oppholdet og arbeidsmulighetene ved CAS.

I løpet av 2016 har 56 forskere arbeidet i senterets 6 prosjekter. Av disse har 39 hatt lengre opphold ved CAS. Det internasjonale innslaget har vært stort. Totalt har 31 forskningsinstitusjoner fra 16 land (Australia, Canada, Kina, Danmark, Estland, Finland, Frankrike, Tyskland, Island, Italia, Norge, Slovenia, Sverige, Sveits, England og USA) vært involvert i forskningsprosjektene ved CAS. Senteret var arbeidsplass for 7 doktor- og postdoktorgradstipendiater. I tillegg bidro et stort antall eksterne forskere med konferanse- og seminar deltakelse.

Konferanser/workshops med bred nasjonal og internasjonal deltakelse er en naturlig del av den faglige aktiviteten i gruppene. I 2016 ble det arrangert 14 konferanser/workshops av denne typen, i tillegg ble det laget en utstilling «NyArktis» ved Kulturhistorisk museum i Oslo med bakgrunn i ett av senterets prosjekter. Ukentlige interne arbeidsseminarer, gjerne med innbudte gjester, har i tillegg vært en del av det løpende arbeidet i gruppene. Flere av gruppene har planlagt oppfølgingsmøter i kjølvannet av oppholdet ved CAS.

En rekke lunsjseminarer med tema av interesse på tvers av prosjektene er avholdt i samarbeid med gruppelederne.

Konferanser og seminarer kunngjøres på senterets nettsider.

Publisering av forskningsresultater

Den eksterne formidlingen av forskningsresultatene skjer gjennom de nasjonale og internasjonale publiseringskanaler som er aktuelle for hver av gruppene.

Publiseringsaktiviteten er gjennomgående høy og reflekterer det internasjonale nivå som aktiviteten ved CAS tilstreber.

Det akademiske året 2015/16 har allerede resultert i en rekke fagfelleverderte publikasjoner i form av internasjonale tidsskriftartikler og bøker. På grunn av lang trykningstid er det imidlertid ikke mulig å presentere fullstendig oversikt over resultatene av arbeidet i 2016 på det nåværende tidspunkt. Rapportene fra de tre forskergruppene i 2015/2016 viser at det foreløpige tallet på publikasjoner og/eller arbeider under bearbeiding allerede er oppe i 179, hvorav flere bøker.

Det daglige samarbeidet mellom norske og utenlandske forskerne, samt foredrag som de utenlandske gjestene har holdt ved norske universiteter og andre akademiske fora, bidrar til internasjonaliseringen av norsk forskning og er et betydelig resultat i seg selv, se grupperapportene i denne årsmeldingen.

Sammenfattende må man si at aktiviteten ved CAS gjennom året vesentlig har bidratt til organisasjonens mål om å styrke og internasjonalisere den frie grunnforskningen i Norge.

Vitenskapelig leder har holdt diverse foredrag og publisert egen forskning i egnede kanaler.

8. MÅL FOR 2017

- Videreutvikle og implementere CAS' nye kommunikasjonsstrategi.
- Gjennomføre et pilotprosjekt sommeren 2017 rettet mot talentfulle unge forskere.
- I september 2017 er det 25 år siden CAS startet opp sin virksomhet. Profilere senteret gjennom en rekke aktiviteter i jubileumsåret 2017/2018.
- Arbeide kontinuerlig for et optimalt arbeidsmiljø for forskerne som er tilknyttet CAS.
- Styrke kontakten med CAS' samarbeidspartnerne blant universiteter og høyskoler; holde kontakt med Kunnskapsdepartementet og fora for forskningspolitikk; være kontaktorgan for internasjonale søsterorganisasjoner.
- Senteret har en meget liten administrasjon. Evaluere og effektivisere administrasjonens arbeidsoppgaver kontinuerlig for å frigjøre tid til det daglige samarbeidet med forskerne.

Senter for grunnforskning, 28. februar 2017

Geir Ellingsrud, styreleder

Mari Sundli Tveit, nestleder

Ottar Hellevik

Lena Liepe

Unni Langås

Toril Aalberg

Driftsfondet ved Senter for grunnforskning ved det Norske Videnskaps-Akademi

ÅRSMELDING 2016

Senter for grunnforskning (CAS) er en stiftelse opprettet av Det Norske Videnskaps-Akademi i 1989, med virksomhet fra 1992. Senteret leier lokaler i Vitenskapsakademiets hus i Drammensveien 78, Oslo.

Driftsfondet ved Senter for grunnforskning

Etter oppfordring fra det daværende Kirke-, utdannings- og forskningsdepartementet, opprettet CAS i 1993 et Driftsfond som har til formål å sikre den langsiktige driften av senteret. Senter for grunnforskning inngår forpliktende avtaler inntil tre år frem i tid, og Driftsfondet er etablert som en sikkerhet for disse langsiktige forpliktelsene.

1. DRIFTSFONDETS FORMÅL

Fondets formål er å bidra til driften av Senter for grunnforskning.

2. DRIFTSFONDETS STYRE

Driftsfondet forvaltes av styret som består av seks medlemmer og varamedlemmer. Fondets styre har samme sammensetning som styret for Senter for grunnforskning. Styret er senterets og fondets øverste organ. Styrets sammensetning er regulert i § 4 i senterets vedtekter, og oppnevnes av Det Norske Videnskaps-Akademi (DNVA), Universitets- og høyskolerådet (UHR) og Staten, ved Norges forskningsråd (NFR).

I 2016 var styret sammensatt av følgende medlemmer (oppnevneende institusjon i parentes):

Professor Geir Ellingsrud, Universitetet i Oslo, Styreleder	(DNVA)
Rektor Mari Sundli Tveit, NMBU, Nestleder	(UHR)
Professor Ottar Hellevik, Universitetet i Oslo	(DNVA)
Professor Lena Liepe, Universitetet i Oslo	(DNVA)
Professor Nina Gunnerud Berg, NTNU	(UHR; til 30.09.16)
Professor Unni Langås, Universitetet i Agder	(UHR; fra 1.10.16)
Professor Marit Halvorsen, Universitetet i Oslo	(NFR; til 30.09.16)
Professor Toril Aalberg, NTNU	(NFR; fra 1.10.16)

Varamedlemmer:

Professor Tone Tønjum, Universitetet i Oslo	(DNVA; vara for Ellingsrud)
Rektor Dag Rune Olsen, Universitetet i Bergen	(UHR; vara for Sundli Tveit)
Professor Kenneth Ruud, Universitetet i Tromsø	(DNVA; vara for Hellevik)
Professor Øystein Elgarøy, Universitetet i Oslo	(DNVA; vara for Liepe)
Professor Bjørn Hjertager, Universitetet i Stavanger	(UHR; vara for Berg; til 30.09.16)
Professor Knut Helland, Universitetet i Bergen	(UHR; vara for Langås; fra 1.10.16)
Professor Håkon With Andersen, NTNU	(NFR; vara for Halvorsen; til 30.09.16)
Professor Anna Nylund, Universitetet i Tromsø	(NFR; vara for Aalberg; fra 1.10.16)

Observatør for DNVA på Driftsfondets styremøter i 2016 var generalsekretær professor Øivind Andersen.

Kvinneandelen i styret utgjorde 67 % (inkluderes varamedlemmene, er kvinneandelen 50 %).

Styret avholdt 3 styremøter i 2016.

3. ADMINISTRASJON OG DRIFT

Driftsfondet har ingen ansatte.

Miljørapportering

Virksomheten forurenses ikke det ytre miljøet.

4. ØKONOMI

Driftsfondet består av en grunnkapital, som er urørlig, og disponible midler. Det har ikke vært brukt midler fra Driftsfondet i 2016. Netto finansinntekter i 2016 var kr. 1 295 022, og disse er tillagt fondet slik at Driftsfondets samlede kapital ved årets slutt er kr. 22 332 408.

Driftsregnskapet for 2016 er satt opp etter forutsetning om fortsatt drift. Etter styrets oppfatning gir det fremlagte årsregnskap et rettviseende bilde av utviklingen og resultatet av virksomheten i Driftsfondet for Senter for grunnforskning per 31.12.2016. Regnskapene er revidert av revisjonsfirmaet Nitschke A/S.

Driftsfondet ved Senter for grunnforskning, 28. februar 2017

Geir Ellingsrud, styreleder

Mari Sundli Tveit, nestleder

Ottar Hellevik

Lena Liepe

Unni Langås

Toril Aalberg

Final report

Climate effects on harvested large mammal populations

Report by Jon E. Swenson and Atle Mysterud
Group leader 2015/2016

Abstract

The CAS year has been extremely productive and motivating. We have finalized 18 printed papers, 16 papers are submitted, but it is among the 13 titles “in preparation” we find our main achievements. Although our aim was to assess the total impact of climate in interaction with harvesting on bears, it was not until our start-up meeting we realized that the analytical framework termed *Integral Projection Models* (IPMs) provided the methodological platform we needed to achieve our ambitious aims. A main challenge at CAS has been to estimate the four empirical functions needed to put together this theoretical model. The IPM link individual processes at the level of life history to population level patterns in demographic rates determining dynamics, useful for addressing the overall impact of climate and harvesting at both ecological and evolutionary time scales. We have also produced a series of papers going in detail on the behavioural and physiological mechanisms on how climate and harvesting affect bears and selected other mammalian species. Our conference on migration has also provided a platform and network for future work not being possible without the CAS grant. We are overall extremely pleased with our stay at CAS. Our main advice for the future is not for improvements, but for keeping the CAS concept intact.

1. General Description

The principle objective of our efforts was to contribute towards a fundamental understanding of how climate affects large mammal populations directly and indirectly through food distribution and the harvesting process. The main novelty of our project has been to address indirect effects of climate change operating through food distribution and the harvesting process on large mammal populations in a coherent analytical framework. This topic has not been addressed at such a broad scale previously, and we expected that the collective efforts of these top researchers working with the excellent databases that we have amassed will result in a major leap in our understanding of the effects of climate change on large mammals.

We brought together internationally leading experts on the importance of climate variation on the life history and behavior of large mammals, and importantly with the theoretical and methodological tool kit required to achieve our ambitious goals.

We envisioned a fruitful and long-term cooperation resulting in an in-depth understanding of the effects of climate variation on life history and behavior that will allow us to predict

population responses of large mammals generally to ongoing climate change and human harvesting. We predicted that the combination of these strong researchers and their extensive datasets at CAS would result in a more comprehensive and integrated cooperation than would be possible through usual project cooperation. This cooperation strengthens the scientific environments of the participating Norwegian institutions.

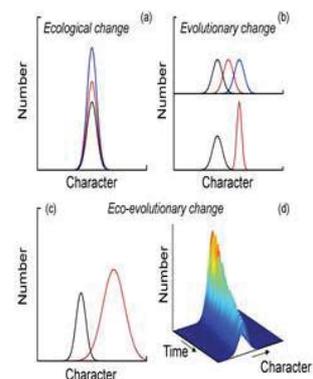
2. Participants and research activities

The core group consisted of bear ecologists Andreas Zedrosser and Richard Bischof from Swenson's group at NMBU and deer ecologists Leif Egil Loe and Inger Maren Rivrud from Mysterud's group at UiO, and our international partners Tim Coulson from Univ. of Oxford and Christophe Bonenfant and Aurelie Cohas from Univ. of Lyon, France.

Broadly speaking, we have had core research activities bringing the competences of the groups together alongside more ordinary work for each of the groups. Also the latter work has benefitted largely from CAS, by having the quiet atmosphere and the full dedication to science without the interruptions that are typical at the Universities. Most of the affiliated people were mainly involved in more group-specific work, but they have nevertheless benefitted greatly by the regular meetings of all the people involved in our CAS project.

A main output of the work

- Estimate the total impact of climate on bears
 - Short term (ecology, population dynamics)
 - Long term (selection)
- Integral projection models (IPMs)
- Consist of four class of functions
 - A **development** function
 - An **inheritance** function
 - A **survival** function
 - A **recruitment** function



One of the main core activities during our year at CAS is summarized briefly by this figure. Each of these functions poses considerable methodological challenges such as accounting for imperfect detection, changes in observation methodology, missing data etc.

3. Colloquia, workshops, seminars and excursions

We have had several workshops, often with a broader group than those being part of the core group – including also the affiliated PhDs, post docs and researchers.

- 31. August - 1. September 2015. Excursion. We initiated our CAS-year with a field trip to Dalarna in Sweden from where the main bear data derive. This was important to get an overview for all participants of the main ongoing activities, but also in order to let people meet in a relaxed setting to get to know each other. For this trip, we invited Prof. Joel Berger from USA, as he is a person with lots of ideas and useful for brainstorming in initial stages of the project. The stay at the field station included an overview of the research activity of the bear project, as well as presentations of the attendees. For the 2nd day, we visited a bear den to get a view of the typical habitat for brown bear.



Picture. Field excursion to Dalarna, Sweden, the main study area for brown bear in Scandinavia.

- 2.-3. September 2015. Start-up seminar for the larger group – including both core members and affiliate members. It was during this meeting we decided that the core aim of the group was to develop a general model of how bear respond to climate change and harvesting, both on a short-term, ecological and a long-term, evolutionary time scale. This class of models are known as Integral Projection Model (IPMs) and Prof. Tim Coulson in the core group is among those having developed the theoretical framework for IPMs. This modelling framework can be used to ask a broad range of questions. It consists of four empirically derived functions linking a given phenotypic trait (in our case body size) to survival and reproduction, how the trait changes through ontogeny, and how the trait is inherited from mother to offspring. For each of these four functions, there is a link to external factors such as climate and harvesting, our key focus. Developing each of these four functions is a considerable challenge in itself, and this is yielding valuable insight irrespective of the full IPM.

3.1. Discussions and seminars

- 9. September 2015. Progress meeting IPM. Revisiting by Tim Coulson to discuss what is needed for an IPM.
- 8. October 2015. Progress meeting IPM. Revisiting by Tim Coulson to discuss progress and directions.
- 18. February 2016. Progress meeting IPM. Revisiting by Tim Coulson to discuss progress and directions.

In addition, we have had many meetings to discuss progress with those present at CAS.



Picture. Progress meeting on the IPM. (Photo Atle Mysterud)

3.2. Luncheon seminars, CAS

We have given two luncheon seminars.

- 2. December 2015. The first luncheon seminar was given by Jon Swenson to describe our project and the overall topics.
- 28. April 2016. The last luncheon seminar presented specific work from CAS by Inger Maren Rivrud on "Migration in large herbivores - does management limit their opportunity to surf the green wave?" and Richard Bischof on "Range loss of brown bears in Europe during the past 12 000 years: the role of direct and human-mediated climate change effects".



Dr. Inger Maren Rivrud giving luncheon seminar (Photo Maria Sætre/CAS).

3.3. Guest lectures held by members of the group externally

Another was attendance of several core and affiliated group members to the International Bear Association conference in Anchorage, Alaska. We had the following presentations and posters:

Presentations:

Core themes:

Albright, Jörg, Kamil A. Bartoń, Nuria Selva, Robert S. Sommer, Jon E. Swenson and Richard Bischof. "Humans and climate change drove range loss of the brown bear in Europe during the Holocene."

Frank, Shane, Martin Leclerc, Richard Bischof, Jonas Kindberg, Jon E. Swenson, Andreas Zedrosser and Fanie Pelletier. "Home range change of a large carnivore in response to hunter harvest."

Hertel, Anne, Sam Steyaert, Andreas Zedrosser, Atle Mysterud and Jon Swenson. "Temporal effects of hunting on foraging activity and efficiency of Scandinavian brown bears."

Kindberg, Jonas and Jon Swenson. "The status of brown bear population monitoring in Europe."

- Leclerc, Martin, Jacinthe Gosselin, Andreas Zedrosser, Sam M. J. G. Steyaert, Jon E. Swenson and Fanie Pelletier. "Hunting promotes sexual conflict in brown bears."
- Ordiz, Andrés, Camilla Wikenros, Richard Bischof, Jonas Kindberg, Jon E. Swenson and Håkan Sand. "Kleptoparasitism of wolf kills by brown bears in Scandinavia."
- Rivrud, Inger Maren, Richard Bischof, Shane Frank, Atle Mysterud, Anne Hertel, Sam Steyaert, Tim Coulson, Snorre Hagen, Hans Geir Eiken, Fanie Pelletier, Jonas Kindberg, Jon Swenson and Andreas Zedrosser. "Heritability of body size in a wild mammal; the brown bear (*Ursus arctos*)."
- Sivertsen, Therese Ramberg, Birgitta Åhman, Sam M. J. G. Steyaert, Lars Rønnegård, Jens Frank, Peter Segerström, Ole-Gunnar Støen and Anna Skarin. "Spatiotemporal patterns of bear and reindeer habitat selection on the reindeer calving range cells."
- Steyaert, Sam, M. Leclerc, F. Pelletier, J. Kindberg, S. Brunberg, J. Swenson and A. Zedrosser. "Human shields mediate sexual conflict in a top predator."
- Tallian, Aimee. Competition between apex predators; brown bears decrease wolf kill rate.
- Van Manen, Frank, Jon E. Swenson, Mark A. Haroldson, Andreas Zedrosser, Cecily M. Costello and Jonas Kindberg. "Density dependence in brown bear populations; a review."

Associated themes:

- Bertile, Fabrice, A. Ziemianin, I. Chery, M. Arrivé, G. Tascher, S. Brunberg, A. Evans, J. Arnemo, J. Swenson, G. Gauquelin-Koch, M. Prost, E. Lefai, C. Simon and S. Blanc. "Oxidative stress in brown bears."
- Clapham, Melanie, Frank Rosell, Ronald R. Swaisgood, Megan Owen, Jon E. Swenson and Andreas Zedrosser. "Chemical communication in bears."
- Evans, Alina, Navinder Singh, Stéphane Blanc, Andrea Friebe, Jon E. Swenson, Tim Laske and Jon M. Arnemo. "Biologging in brown bears; filling in ecophysiology knowledge gaps."
- Frøbert, Ole, Johan Josefsson and Jon Swenson. "Bears as translational models for human disease."
- Giergiczny, Marek, Jon Swenson, Andreas Zedrosser and Nuria Selva. "Do brown bears and other large carnivores contribute to the recreational value of forests?"
- Jørgensen, Peter Godsk, Jon M. Arnemo, Alina Evans, Jon E. Swenson, Jan Skov Jensen, Lisbeth Høier Olsen, Søren Galatius and Ole Frøbert. "Understanding the hibernating brown bear's cardiovascular system by use of ultrasound."
- Lefai, Etienne, S. Chanon, B. Toubhans, I. Chery, G. Tascher, E. Meugnier, C. Durand, M. Robert, A. Evans, J. Arnemo, J. Swenson, G. Gauquelin-Koch, S. Blanc, C. Simon and F. Bertile. "Effects of winter serum on cultured human muscle cells."
- Nader, Gustavo, Ferdinand von Walden, Ole Frøbert and Peter Stenvinkel. "Tackling the overbearing burden of muscle atrophy; insights from hibernation."
- Overgaard, Michael Toft, Malene Brohus and the Scandinavian Brown Bear Research Project. "Insulin-like growth factor system adaptations in the free-ranging hibernating brown bear."
- Painer, Johanna, Carsten Hertwig and Frank Göritz. "Chronic stress evaluations in European brown bears; a new methodological approach using ultrasonography."
- Stenvinkel, Peter, Mathias Haarhaus, Björn Anderstam, Jon Swenson, Jon M. Arnemo, Ole Frøbert and Per Magnussion. "Biomarkers of insulin resistance and bone metabolism in hibernating brown bears."

Posters:

Core themes:

Arnemo, Jon M. “Capture-related mortalities in brown bears in Scandinavia 1984-2015; a review of 2,047 captures.”

Fuchs, Boris. “Physiological effects of human approach and hunting with dogs in Scandinavian brown bears (*Ursus arctos*).”

Lodberg-Holm, Hanna Kavli. “Impacts of human hunting on the foraging behavior of brown bears in Sweden.”

Milleret Cyril. “Do wolves avoid brown bears? Large-scale effects of humans and bears on wolf pair establishment in Scandinavia.”

Moen, Gro Kvelprud. “Do Scandinavian brown bears (*Ursus arctos*) avoid human-dominated habitats following encounters with humans?”

Van de Walle, Joanie. “When should maternal care terminate? The importance of offspring mass in the Scandinavian brown bear.”

Affiliated themes:

Bertile, Fabrice. “Bile acids during dormancy in brown bears.”

Cherry, Isabelle. “Lipid composition of free-ranging hibernating brown bears.”

Evans, Alina. “Metabolism of Eicosanoids in free-ranging hibernating brown bears.”

Naves, Javier. “Brown bear attacks on humans in Europe; an overview for the period 2000-2015.”

Norman, Anita. “Landscape relatedness; insights into contemporary structure of the Swedish brown bear.”

Sergiel, Agnieszka. “Testing the compatibility of laboratory procedures; stable isotopes and cortisol analyses in brown bear hair.”

Simon, Chantal. “Endogenous lipoprotein metabolism in free-ranging hibernating brown bears.”

Tascher, Georg. “Omics characterization of muscle responses to inactivity in brown bears during dormancy.”

3.4. Workshop(s)

- 19. April 2016. Migration – synthesis project. In connection with our conference (see below), a group of 9 people working with animal migration, including participants from USA, Canada and Italy met the following day (in Gabelshus). This was a very successful effort and has opened collaboration that will extend into the future, from which 2 papers are already planned with pagers with a clear objective. This meeting connected two of the groups from North America with the largest GPS-datasets of migratory deer; the one around Matt Kauffman and one around Mark Hebblewhite, with the leader of Eurodeer in Italy, Francesca Cagnacci and the group around Mysterud in Norway. The talented PhD student Ellen Aiken will apply for a travel grant to stay a year with Mysterud in Oslo, so this meeting really opens for considerable future collaboration.



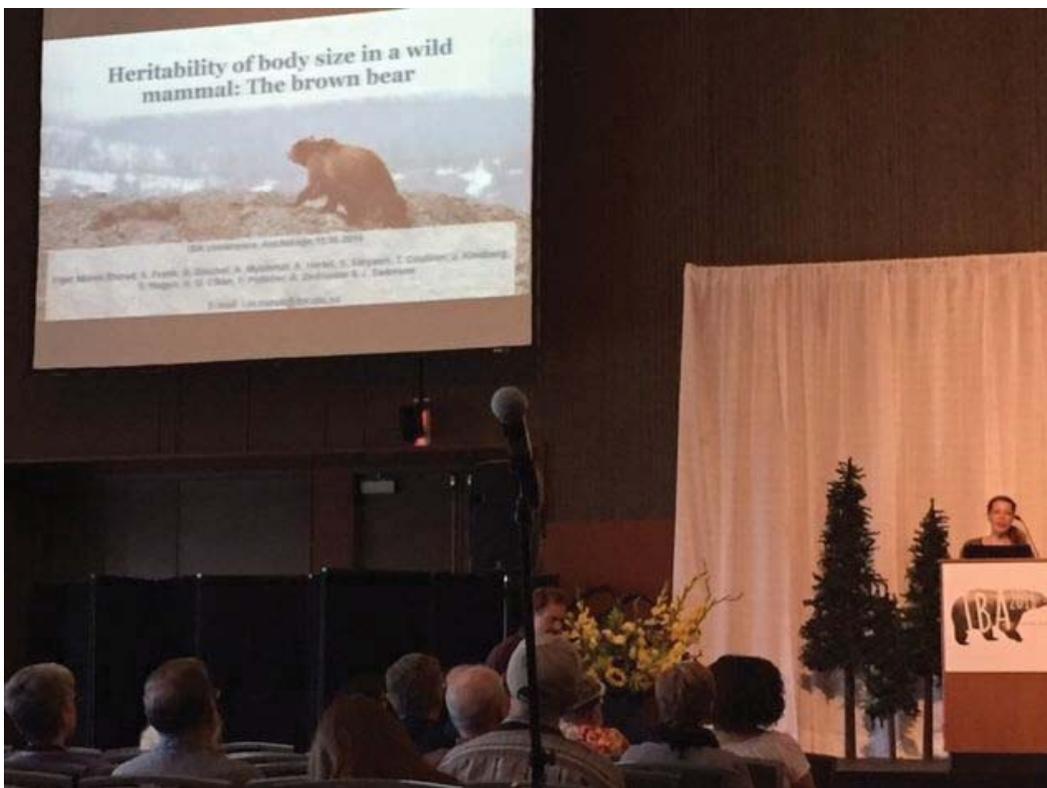
Picture. Workshop at Gabelshus. From left, CAS-fellow Inger Maren Rivrud, Prof. Matthew Kauffman and PhD student Ellen Aikens from University of Wyoming. (Photo Atle Mysterud)

3.5. Media and conferences

- 18. April 2016. We had a conference on “Large herbivore migration in the Anthropocene” with some 25 participants in the Academy of Sciences and Letters. For this conference, we brought together some of the key players in the field of deer migration. Also, we presented ongoing work and status at CAS. We received very positive feedback to the conference also from those working mainly with bears, as there were some clear advantages to the concepts and methods recently developed for deer. For example, Kauffman highlighted how resources waves in the landscape can be “green waves” as well known for herbivores, but also “red waves” of salmon in Alaska for bears.



Picture. Mark Hebblewhite from University of Montana, USA giving a lecture during our migration conference. (Photo Atle Mysterud)



Picture. Inger Maren Rivrud presenting results from CAS at the International Meeting of the Bear Association in Anchorage, Alaska, USA. (Photo Atle Mysterud)

4. Achievements and evaluation

The CAS year has been extremely productive and motivating. We have finalized 18 papers that are already printed (or in press), and we have 16 papers either submitted or resubmitted after revision. Nevertheless, it is among the 13 titles we list as “in preparation” that we find some of our main achievements and something that would not be possible without the conditions provided by CAS.

Although our aim was to assess the total impact of climate in interaction with harvesting on bears, it was not until our start-up meeting in early September we realized that the analytical framework termed *Integral Projection Models* (IPMs) provided the methodological platform we needed to achieve our ambitious aims. This was thus partly an unexpected outcome of our first initial meeting. One of our CAS fellows, Prof. Tim Coulson, has been one of the key researchers leading the theoretical developments of IPMs, and we have excellent data to test the framework. However, there have been considerable challenges to estimate the four empirical functions needed to put together this theoretical model.

Here we will summarize the work that we have done so far for bears and how important it has been for our project to get all the data into the IPM framework for future research. We refer to papers from the CAS year according to the list under point 6, with “a” referring to published/accepted papers, “b” to submitted manuscripts, and “c” to manuscripts in preparation, followed by the relevant number.

CAS-fellows Richard Bischof and Christophe Bonenfant have taken the lead on the model linking survival and reproduction to body size (the survival and recruitment functions; c1). This work has considerable interest in its own (apart from being necessary in the IPM). Knowledge of demographic rates is crucial for our understanding of population dynamics and thus wildlife management and conservation. For long-lived species, longitudinal individual-based monitoring studies represent potential goldmines for the extraction of demographic parameters, including survival and reproduction. However, monitoring studies lasting for decades tend to evolve in terms of approaches and technology, as well as change in intensity and focus, ultimately resulting in a patchwork of information posing a considerable analytical challenge to combine efficiently. In addition, although demographic parameters are constituents of the same population-level processes (e.g. population growth), most studies estimate vital rates through a series of separate analyses, thereby potentially missing interactions and tradeoffs between them. For example, high reproductive rates alone will positively affect population growth rates, but cost of reproduction may lead to lower survival negatively affecting population growth. A core part of our CAS-work has thus been to develop a Bayesian multi-state capture recapture model to analyze female brown bear monitoring data from our 30-year monitoring project in Sweden, combining information from physical captures, telemetry, re-sightings, and dead recoveries. We then used this model to jointly estimate cause-specific mortality and reproductive parameters, as well as the effects of various individual, temporal (such as climate), and spatial attributes on these quantities, including the effects of different harvesting regimes. The comprehensive estimation approach revealed pronounced influences of individual attributes and environmental characteristics on both survival and reproduction. Older females survive better during spring, reproduce more often (albeit with signs of a senescence effect), have larger litters, and their cubs have a higher

probability of surviving themselves. Females enjoy particularly high survival when they are accompanied by dependent cubs during the fall hunting season, because family groups are protected from legal hunting. On the other hand, the risk of being killed by hunters during the fall increases with age for solitary females. Furthermore, bears with a higher density of roads within their home range were exposed to higher hunting mortality. Management regimes and presumably changes in the density and configuration of the Swedish bear population during the past 3 decades are also manifested in shifting vital rates. Hunting mortality has grown drastically, in correspondence with increasing hunting pressure (quotas). In addition, a significantly greater proportion of litters remain with their mother for an extra year today, compared with the first decade of the project, where most females weaned their young one year after birth. Although humans seem to be the primary driver of individual and temporal variation in brown bear vital rates in Sweden, our analysis also revealed an effect of variable climatic conditions: cubs born in years following more severe winters experience a reduction in survival. This may be due to a link between winter severity and berry production in the fall, ultimately affecting the mother's condition during the pre- and post-natal periods. Our efforts revealed that long-term monitoring and joint inclusion of key vital rates into hierarchical estimation models can yield valuable quantitative and structural information about the processes driving the population dynamics of elusive species in a rapidly changing world.

The progress on one of the functions (the heritability function, c_2) was hampered somewhat by the late arrival of the full pedigree for the bear data. There was a tedious process of merging datasets from both scientifically captured bears and those harvested by hunters, as well as the use of three different machines in two different genetic labs for the DNA fingerprinting. Now the final analysis of these data is done, and CAS fellow Inger Maren Rivrud, who is leading this work, was in the process of writing this up before now having maternity leave. However, the functions needed for the full IPM is in place with Tim Coulson (c_3). The last function linking body mass through the ontogeny was already available before project stated by CAS fellow Andreas Zedrosser. Therefore, all of the functions that we use in this simulation model to assess how climate and harvesting might impact the bear population, given different climate change scenarios and different management regimes, are now with Tim Coulson. This is a very general framework for testing both ecological and evolutionary responses to different stressors (in addition to climate and harvesting).

The IPM is a model linking individual processes at the level of life history to population level patterns in demographic rates determining dynamics. However, the IPM alone does not go into the mechanisms of how or why climate affect a specific vital rate or life history trait in the bears. Therefore, we have also worked on a series of papers going more in detail on mechanisms. In our effort to further our understanding of the impact of climate on the life history of hunted bears, it was indeed necessary to document food habits and determine if hunting affected the bear's foraging efficiency, especially on berries in the period of hyperphagia, because predicted climate change is expected to affect berry production negatively. Our earlier work had shown that bears become more nocturnal after meeting a person and after the hunting season started. During the CAS year, we extended these analyses, showing that bears avoid human infrastructure and change their diurnal activity at large scales using movement data (a14) and at small scales, using heart-rate measurements (a2). We also

documented the habitat patterns of human-caused bear mortality (a8) and that bears show different personality traits when selecting habitats (a1). We further documented that bears prefer bilberries and how they switch their berry diet depending on the relative availability of berries (a6), how bears move in relation to bilberry occurrence on the landscape (c13), and how they successfully select patchily distributed berry resources (a4). We worked on elucidating the effects of hunting and harvest and foraging efficiency on berries and found that bears avoid hunter-mortality risk both temporally and spatially by reducing foraging efficiency and time and avoiding dangerous areas of high berry abundance (a15, c11). We have documented that climate can affect the duration of the period of hyperphagia, because bears enter their dens when snow arrives and ambient temperatures reach 0°C (a3). We also started investigating the effect of climatic variables on berry production and the effect of varying berry production on the bears' life history parameters (c11).

This more detailed work on foraging processes and physiological and behavioural responses has allowed us to successfully connect climate to berry production, to connect bear movements, foraging, and life history parameters to berry occurrence, and connect the risk of hunting mortality to the bears' foraging behavior, movements, and habitat use. This gives us an important empirical background on which to interpret results we will obtain from the IPM. The IPM approach has resulted in an unexpected dividend to the project, by compiling all of the data described above into a single format for this model work. We will continue to update this database, which will certainly be used by PhDs, post docs, and researchers in the bear project in years to come and for a multitude of scientific questions. Such an effort would have been extremely difficult without the CAS year. Another major achievement is the work and starting collaboration linked to our conference and workshop regarding animal migration. From this, we expect both collaborative papers as well as candidates to visit each other's labs. We are therefore certain that there is considerable added value of the CAS year for our future work.

5. Evaluation of CAS

We are extremely grateful and feel privileged for having such a fantastic academic year. The administration has been fantastic and extremely helpful in all aspects. On the first day, it took only 30 minutes before we were settled in and actively working in front of a computer. The facilities are excellent with a very quiet atmosphere. Our productivity has been great due to this. *We are overall extremely pleased with our stay at CAS*, and the following can be considered minute details.

It took a while to understand how the funding could be used for hiring post docs through our own institutions. We have also given advice to groups now applying, and this appeared unclear to them as well. Further, the possibility to rotate the team during the year was not entirely clear to us to begin with, and a possibility we likely would have planned better to include a couple more of the affiliated team members. Related to this, it could be very helpful for the PIs to have a master key to all offices of the group. This was a constant problem, partly because we were sometimes rotating a bit, because not all people could have permanent office space. As we also noted in an e-mail to begin with regarding contracts, we find the wording "agrees to participate in communicating/popularizing his research activities on the CAS

website on the request of the Scientific Director of CAS” unfortunate. “To request” such a thing is embarrassing when we are inviting world leading experts.

Again, we think the CAS-concept is a great one! Our main advice for the future is not for improvements, but for keeping the CAS-concept intact. Retain a small and effective administration without too ambitious plans for web-pages, and let CAS be a place for free academic thoughts in an excellent location without many of the constant pressures and disturbances we have at the Universities. The CAS-year has been a great privilege, motivating, and laid foundation for future work and collaboration to benefit from in coming years.

6. Publications

- a. Articles/books deriving from the project which are published/completed during the year at CAS, preferably with web links, or similar.
 1. Leclerc, M., E. Vander Wal, A. Zedrosser, J. E. Swenson, J. Kindberg, and F. Pelletier. 2015. Quantifying consistent individual differences in habitat selection. *Oecologia* 180:697-705. <http://link.springer.com/article/10.1007/s00442-015-3500-6>
 2. Støen, O.-G., A. Ordiz, A. L. Evans, T. Laske, J. Kindberg, O. Frøbert, J. E. Swenson, and J. M. Arnemo. 2015. Physiological evidence for a human-induced landscape of fear in brown bears (*Ursus arctos*). *Physiology and Behavior* 152A:244-248. <http://www.sciencedirect.com/science/article/pii/S003193841530127X>
 3. Evans, A. L., N. J. Singh, A. Friebe, J. M. Arnemo, T. G. Laske, O. Frøbert, J. E. Swenson, and S. Blanc. 2016. Drivers of hibernation in the brown bear. *Frontiers in Zoology* 13:7. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4750243/>
 4. Hertel, A., S.M.J.G. Steyaert, A. Zedrosser, A. Mysterud, H.K. Lodberg-Holm, H.W. Gelink, J. Kindberg, and J.E Swenson. 2016. “Bears and berries: species-specific foraging on a patchily distributed food resource in a human-altered landscape.” *Behavioural Ecology and Sociobiology* 70: 831-842. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4859851/>
 5. Loe, L.E., I.M. Rivrud, E. Meisingset, S. Bø, M. Hammes, V. Veiberg, and A. Mysterud. 2016. “Timing of the hunting season as a tool to redistribute harvest of migratory deer across the landscape.” *European Journal of Wildlife Research* 62: 315-323. <http://link.springer.com/article/10.1007/s10344-016-1004-2>
 6. Stenset, N. E., P. N. Lutnæs, V. Bjarnadóttir, B. Dahle, K. H. Fossum, P. Jigsved, T. Johansen, W. Neumann, O. Opseth, O. Rønning, S. M. J. G. Steyaert, A. Zedrosser, S. Brunberg, and J. E. Swenson. 2016. “Seasonal and annual variation in the diet of brown bears (*Ursus arctos*) in the boreal forest of southcentral Sweden”. *Wildlife Biology* 22:107-116. <http://www.bioone.org/doi/abs/10.2981/wlb.00194>
 7. Steyaert, S. M. J. G., M. Leclerc, F. Pelletier, J. Kindberg, S. Brunberg, J. E. Swenson, and A. Zedrosser. 2016. Human shields mediate sexual conflict in a top predator. *Proceedings of the Royal Society Ser. B* 283: 20160906. <http://rspb.royalsocietypublishing.org/content/283/1833/20160906>
 8. Steyaert, S. M. J. G., A. Zedrosser, M. Elfström, A. Ordiz, M. Leclerc, S. C. Frank, J. Kindberg, O.-G. Støen, S. Brunberg; and J. E. Swenson. 2016. “Ecological implications from spatial patterns in human-caused brown bear mortality”. *Wildlife Biology* 22: 144-152. <http://www.bioone.org/doi/abs/10.2981/wlb.00165>

9. Bichet C., S. Sauzet, L. Averty, P. Dupont, M. Ferrandiz-Rovira, C. Ferrari, I. Figueroa, M. Tafani, C. Rézouki, B.C. López, and A. Cohas. (2016). “Multiple geographic origins and high genetic differentiation of the Alpine marmots reintroduced in the Pyrenees”. *Conservation Genetics*, 17: 1157-1169. <http://link.springer.com/article/10.1007/s10592-016-0851-4>
 10. Berger V., J.F. Lemaître, P. Dupont, D. Allainé, J.M. Gaillard and A. Cohas. (2016) “Age-specific survival in the socially monogamous alpine marmot (*Marmota marmota*): evidence of senescence”. *Journal of Mammalogy*, XX: 1-9. online first <http://jmammal.oxfordjournals.org/content/early/2016/03/11/jmammal.gyw028>
 11. Canale C.I., A. Ozgul, D. Allaine, A. Cohas (2016) “Differential plasticity of structural size and mass in a hibernating mammal to environmental change”. *Global Change Biology* 22: 3286-3303. <http://www.ncbi.nlm.nih.gov/pubmed/26994312>
 12. Leclerc, M., J. Van de Walle, A. Zedrosser, J. E. Swenson, F. Pelletier (2016) “Can data from nonselectively harvested animals be used to estimate unbiased population parameters? A case study in brown bears”. *Biology Letters* 12:20160197. <http://rsbl.royalsocietypublishing.org/content/12/6/20160197>
 13. Gosselin, J., M. Leclerc, A. Zedrosser, S. M. J. G. Steyaert, J. E. Swenson, F. Pelletier (In press) “Hunting promotes sexual conflict in brown bears”. *Journal of Animal Ecology*. <http://onlinelibrary.wiley.com/doi/10.1111/1365-2656.12576/abstract>
 14. Ordiz, A., S. Sæbø, J. Kindberg, J. E. Swenson, O.-G. Støen (In press) “Seasonality and human disturbance alter brown bear activity patterns; implications for circumpolar carnivore conservation?” *Animal Conservation*. <http://onlinelibrary.wiley.com/doi/10.1111/acv.12284/full>
 15. Hertel, A., A. Zedrosser, A. Mysterud, O.-G. Støen, S. M. J. G Steyaert, and J. E. Swenson. “Temporal effects of hunting on foraging behaviour of an apex predator: Do bears forego foraging when risk is high?”. *Oecologia*: in press.
 16. Loe, L.E., B.B. Hansen, A. Stien, S. Albon, R. Bischof, A. Carlsson, J. Irvine, M. Meland, I.M. Rivrud, E. Ropstad, V. Veiberg, and A Mysterud. 2016. “Behavioral buffering of extreme weather events in a high-Arctic herbivore”. *Ecosphere* 7, e01374. <http://onlinelibrary.wiley.com/doi/10.1002/ecs2.1374/full>.
 17. Peters, W., M. Hebblewhite, A. Mysterud, D. Spitz, S. Focardi, F. Urbano, N. Morellet, M. Heurich, P. Kjellander, J.D.C. Linnell, and F. Cagnacci. “Migration in geographic and ecological space by a large herbivore”. *Ecological Monographs*: conditionally accepted.
 18. Rivrud, I.M., M. Heurich, P. Krupczynski, J. Müller, J., and A. Mysterud. “Green wave tracking by large herbivores: an experimental approach.” *Ecology*: conditionally accepted.
- b. Articles/books which are submitted.
1. Bischof, R., S. Steyaert, J. Kindberg. “Caught in the mesh: roads and their network-scale impediment to animal movement.” In revision (Ecography)
 2. Diekert, F., A. Richter, I.M. Rivrud, and A. Mysterud, A. “How constraints affect the hunter’s decision to shoot a deer.” (revision resubmitted to Proceedings of the National Academy of Sciences).
 3. Swenson, J. E., M. Schneider, A. Zedrosser, A. Söderberg, R. Franzén, and J. Kindberg. “Challenges of managing a European brown bear population; lessons from Sweden, 1943-2013”. Revision submitted to *Wildlife Biology*

4. Berger V., Lemaître JF., Allainé D., Gaillard JM., Cohas A. “Sex-specific responses of ageing to early and adult social environments”. Submitted.
 5. Bichet C., Allainé D., Sauzet S., Cohas A. “Faithful or not: direct and indirect effects of climate on extra-pair paternities in a population of Alpine marmots.” Submitted.
 6. Lardy S., Rey B., Cohas A. “Beneficial effects of group size on oxidative balance in a wild cooperative breeder”. Submitted.
 7. Saint Andrieux C., Calenge, C. & Bonenfant C. “Comparison of ecological, biological and anthropogenic causes of vehicle-wildlife collisions among three large mammalian species”. Submitted.
 8. Hemery A, Bonenfant C., Basille M. Gaillard J.M. & Marboutin E. “Landscape structure and traffic reliably predict the location of roadkills in Eurasian lynx (*Lynx lynx*)”. Submitted.
 9. Briggs-Gonzalez C., Bonenfant C., Basille M., Cherkiss M., Beauchamp J. & Mazzotti F. “Estimating survival and population growth of a long-lived reptile, the American crocodile (*Crocodylus acutus*)”. Submitted.
 10. Pellerin M., Bessièrè A., Maillard D., Capron G., Gaillard J.M., Michallet J. & Bonenfant C. “Saving time and money by using diurnal vehicle counts to monitor roe deer abundance”. Submitted.
 11. Dupke C., Bonenfant C., Reineking B., Hable R., Zeppenfeld T., Ewald M. & Heurich M. “Variation in habitat selection by a large herbivore at multiple temporal scales”. Submitted.
 12. Hurley M., Hebblewhite M., Lukacs P., Nowak J., Gaillard J.-M. & Bonenfant C. “Generality and precision of regional-scale models for predicting overwinter survival of juvenile ungulates”. Submitted.
 13. Mysterud, A., B.K. Vike, E.L. Meisingset, I.M. Rivrud. “The role of landscape characteristics for forage maturation and benefits of migration in red deer”. Submitted Journal of Animal Ecology.
 14. Peters, W., M. Hebblewhite, A. Mysterud, D. Eacker, S. Focardi, F. Urbano, B. Gehr, M. Heurich, M. Hewison, A. Jarnemo, P. Kjellander, M. Kröschel, D. C. Linnell, N. Morellet, L. Pedrotti, R. Sandfort, J. Signer, L. Sönnichsen, P. Sunde, and F. Cagnacci. “Plasticity in migratory behaviour of two large herbivores with contrasting species-specific traits”. Submitted Journal of Animal Ecology.
 15. Albrecht, J., K.A. Bartoń, N. Selva, R.S. Sommer, J.E. Swenson, and R. Bischof “Humans, climate change, and their interaction drove the 12,000-year decline of European brown bears.” Submitted.
 16. Coulson, T., B. Kendall, J. Barthold, F. Plaid, S. Schindler, A. Ozgul, J.-M. Gaillard. “Modeling adaptive and non-adaptive responses of populations to environmental change”. American Naturalist (to be revised).
- c. Articles/books which are in prep.
1. Bischof, R., C. Bonenfant, I.M. Rivrud, A. Zedrosser, A. Friebe, T. Coulson, J. Swenson, A. Mysterud. “A multi-state model for integrated estimation of survival and reproduction”.
 2. Rivrud, I. M., S. Frank, R. Bischof, A. Hertel, S. Steyaert, T. Coulson, J. Kindberg, S. Hagen, H. G. Eiken, F. Pelletier, A. Zedrosser, A. Mysterud, and J.E. Swenson. “Heritability of body size in a wild mammal: the brown bear (*Ursus arctos*)”.
 3. Coulson, T., Bischof, R., C. Bonenfant, I.M. Rivrud, L.E. Loe, A. Zedrosser, J.E. Swenson, and A. Mysterud. “An Integral Projection Model to assess how climate

- variation and human harvesting in concert affects ecology and evolution of brown bears”.
4. Rivrud, I. M., T. R. Sivertsen, A. Mysterud, O.G. Støen, and A. Skarin. “Do reindeer follow the green wave under different predation regimes?”
 5. Rivrud, I. M., L. E. Loe, E.L. Meisingset, and A. Mysterud. “A functional and dynamic classification of seasonal habitat for migratory ungulates”.
 6. Peters, W., I. M. Rivrud, C. Rolandsen, E.L. Meisingset, J. Milner, F. van Beest, E.J. Solberg, and A. Mysterud. “The seasonal niches of a guild of stationary and migratory large herbivores at northern latitudes”.
 7. Rézouki, C., A. Cohas, J.M. Gaillard, D. Allainé, A. Loison and C. Bonenfant. “Decreasing adaptive value of cooperative breeding with climate change in Alpine marmots”.
 8. Degioanni, A., C. Bonenfant, S. Cabut, and S. Conde mi. “Is demographic weakness the cause for the Neandertal demise?”.
 9. Van Ingen, L., E. Debenest, C. Bonenfant and V. Bretagnolle. “Sahel droughts compromise the conservation of Whiskered Terns *Chlidonias hybrida* breeding in the Brenne, France”.
 10. Aikens, E., F. Cagnacci, M. Hayes, M. Hebblewhite, J. Merkle, K. Monteith, M. Hurley, A. Mysterud, I.M. Rivrud, and M. Kauffman. “A multi-species comparison of the strength and determinants of green wave surfing across four migratory ungulates”.
 11. Lodberg-Holm, H. K., H. W. Gelink, S. M. J. G. Steyaert, A. G. Hertel, and J. E. Swenson. “When the hunter becomes the hunted: Impacts of hunting on the foraging behavior of the brown bear (*Ursus arctos*) in Sweden”.
 12. Hertel, A., R. Bischof, O. Langval, A. Mysterud, J. Kindberg, A. Zedrosser, and J. E. Swenson. “Interannual variation in climate modulated food availability affects life history traits of Scandinavian brown bears”.
 13. Hertel, A., S. M. J. G Steyaert, J. E. Swenson, and A. Zedrosser. “Movement patterns and resource selection of brown bears prior to hibernation”.

Appendix

List of all participating fellows:

Name Jon E. Swenson
Title Professor
Institution Norwegian University of Life Sciences

Name Atle Mysterud
Title Professor
Institution University of Oslo

Name Andreas Zedrosser
Title Ass. Professor
Institution University College of southeast Norway

Name Leif Egil Loe
Title Professor
Institution Norwegian University of Life Sciences

Name Richard Bischof
Title Dr
Institution Norwegian University of Life Sciences

Name Inger Maren Rivrud
Title Dr
Institution University of Oslo

Name Christophe Bonenfant
Title Dr.
Institution University of Lyon

Name Aurelie Cohas
Title Dr.
Institution University of Lyon

Name Tim Coulson
Title Professor
Institution Oxford University

Name Wibke Peters
Title Dr
Institution University of Oslo

Final report

Disclosing the Fabric of Reality - The Possibility of Metaphysics in the Age of Science

Frode Kjosavik and Camilla Serck-Hanssen 2015/2016

Date

02.10.2016

Short abstract

Questions of a metaphysical character have not been rendered obsolete by modern science. Rather, there remain pressing metaphysical issues both in dealing with foundational scientific problems – like the status of abstract objects in mathematics, or of the unobservable in physics, or of information in biology, and more generally, in dealing with problems that the human condition is entangled with, like the possibility of self-determination, the extent to which a social matrix of ideas is determined by “the Given” and the capability of our minds to grasp the inherent structure of reality. The entry point of our project is thus a firm belief that metaphysical questions are unavoidable even in the age of science and that the metaphysical aspects of scientific and other discourse ought to be made explicit and scrutinized. The aim of our project is to develop appropriate philosophical methods for doing so and to address specific metaphysical issues on that basis.

1. General Description

How are metaphysical questions to be *answered*? Do some answers lie partly or fully within the sciences themselves? Our project is intended as a systematical inquiry into both the enablements and constraints of a metaphysics that, unlike the classical metaphysics of the rationalists and idealists of the past, is neither dogmatic nor speculative. The metaphysics that is to be worked out is to be informed by modern science as well as to draw on the philosophical resources provided by three great thinkers that were all fully conversant with and actively engaged with the sciences of their day, namely, Kant, Husserl and Frege.

In the last decades, metaphysics has re-emerged as a hotly debated area within philosophy – with many competing schools and theories. Also, many metaphysical issues concerning the status of information (e.g., biological), structures (e.g., mathematical and physical), essences (fixed kinds to be found in nature) and constructions (social and contingent) are now seen as highly relevant to the foundations of particular sciences. Compared to other contemporary approaches to metaphysics, our project is unique in the very important role it assigns to science, in its attentiveness to methodological meta-issues, and in the rich resources it utilizes from different philosophical traditions. In our project work, we will be guided by the following **three main hypotheses**:

1. *Metaphysical questions require a philosophical treatment*
2. *Metaphysical questions can be given substantive answers*
3. *An ambitious metaphysics requires a meta-level investigation*

The **primary objective** of our project is to thus to address the issue of the possibility of metaphysics and to do so in a way which both centers on methodological issues and brings metaphysics and science together without replacing one with the other. Our project is hence both meta-metaphysical, in its overall aim of providing a framework for metaphysics, as well as metaphysical in its more concrete investigations of the issues at hand. Meta-metaphysics is the study of what metaphysics is and how metaphysical theories are to be established as justified. We believe that a systematically worked out meta-metaphysics will be a valuable and distinct addition to contemporary ambitious metaphysics and its meta-issues. We aim to learn from the methodological and metaphysical insights found in Kant, Husserl and Frege. Although these thinkers have been brought into contact with each other before, they have, as far as we know, never before been brought into dialogue with each other in a systematic attempt to develop an ambitious metaphysics. Since their positions have been used in the past both to inflate and deflate metaphysical claims, we will have to tread cautiously, in pursuing the middle path of a metaphysics that is neither over-ambitious and naive nor too modest. To avoid this, our metaphysics must be sufficiently guided by sound methodological principles.

A **secondary objective** of our project, closely linked to the primary objective, is to provide more careful interpretations of Kant, Husserl and Frege – interpretations that are sufficiently attentive both to their metaphysical insights as well as to their own sensitivity to science.

2. Participants and research activities

Professor **Christian Beyer** (University of Göttingen), his research at CAS focused on the philosophy of mind and personhood with the help of Husserl's philosophy.

Professor **Michael Lee Friedman** (Stanford University), his research at CAS focused on the very idea of a scientific philosophy, its starting point and inheritance from Kant.

Professor Em. **Dagfinn Føllesdal** (University of Oslo), his research at CAS focused on Husserl's theory of scientific philosophy and the role of philosophy in social science.

Professor **Leila Tuulikki Haaparanta** (University of Tampere), her research at CAS focused on the history of logic, phenomenology, philosophy of mind and metaphysics with a special emphasis on Husserl and Frege.

Postdoctoral Fellow **Mirja Hartimo** (Norwegian University of Life Sciences), her research at CAS focused on the metaphysical consequences of the development of sciences (including social science) for Husserl.

Postdoctoral Fellow **Toni Tapio Kannisto** (University of Oslo), his research at CAS focused on Kant's philosophy of modality, metaphysics and meta-metaphysics as well as on Frege's conception of existence.

Professor **Frode Kjosavik** (Norwegian University of Life Sciences), his research at CAS focused on the role of intuition ("Anschauung") in Kant, perceptual objectivity in Kant and

Husserl, actual infinity in Kant, interdisciplinarity in the sciences, scientific objectivity and the method of metaphysics.

Professor **Olli Koistinen** (University of Turku), his research at CAS focused on the relationship between Kant and Spinoza in their understanding of metaphysics and science.

Professor **Øystein Linnebo** (University of Oslo), his research at CAS focused on metaphysics, philosophical logic, philosophy of mathematics and philosophy of science with a special emphasis on Frege.

Professor Em. **Charles Parsons** (Harvard University), his research at CAS focused on Kant's theory of mathematics and its metaphysical implications.

Professor **Camilla Serck-Hanssen** (University of Oslo), her research at CAS focused on Kant's logic, methodology and meta-metaphysics and in particular his use of logic in the critique of earlier attempts to form metaphysical theories.

Professor **Houston Smit** (University of Arizona), his research at CAS focused on Kant's transcendental philosophy and its ambition to establish metaphysics as a science proper.

3. Colloquia, workshops, seminars and excursions

3.1. Discussions and seminars

For most of the year, there was a reading and discussion group on conceptions of the infinite. Kannisto, Kjosavik, Serck-Hanssen and Smit had a reading group on Kantian metaphysics. Apart from this, there were discussions of the central topics on a daily but informal basis.

3.2. Luncheon seminars, CAS

Conceptions of the infinite (24.11.15)

Intersubjectivity: Worlds and Objects (07.04.16)

3.3. Guest lectures held by members of the group externally

Beyer, Christian:

- “Husserl and Frege on Sense”, Centre for the Study of Mind in Nature (CSMN) Colloquium, March 2016. Invited. Oslo

Haaparanta, Leila

- “On Reflection”, January 2016. Invited. Helsinki

Koistinen, Olli:

- “Conceptual Actions in Kant”, February 2016. Invited. Pavia
- “A New Approach to Spinoza's Ethics”, April 2016. UCLA

Linnebo, Øystein:

- “What Is Non-Eliminative Structuralism”, June 2016. Invited. Prague
- “Plurals and Pure Extensionality”, June 2016. Invited. Leeds
- “Actual and Potential Infinity”, April 2016. Invited. Stockholm
- “Modality and Natural Language Metaphysics”, March 2016. Invited. Columbus, OH
- “Reference and Criteria of Identity”, November 2015. Invited. Uppsala
- “Williamson on Absolute Generality”, October 2015. Invited. Beijing
- “Potentialism about Set Theory”, September 2015. Invited. Vienna

- “Mathematics and Inference to the Best Explanation”, September 2015. Invited. Düsseldorf

Smit, Houston:

- “Kant’s Transcendental Insights”, June 2016. Invited. Turku

3.4. Workshop(s) and Conferences

Conference: Disclosing the Fabric of Reality - The Possibility of Metaphysics in the Age of Science (26.08.15-28.08.15)

Workshop: Spinoza and Metaphysics (with John Carriero, 13.10.15)

Conference: How Is Metaphysics Possible? (12.11.15-13.11.15)

Conference: The Possibility of Metaphysics: Where Did our Research Lead Us? (24.05.16-27.05.16)

Workshop: Kant’s System of Nature and Freedom (12.05.16, with Michael Friedman)

Workshop: Perception: Ground of Empirical Objectivity (24.05.16, with Tyler Burge)

Workshop: Husserl and Intersubjectivity (07.06.16-08.06.16, with Iso Kern, D. W. Smith etc.)

Workshop: Kant’s Conception of Analyticity (28.06.16, with Lanier Anderson)

4. Achievements and evaluation

Throughout the year, the participants worked both on their own papers and book manuscripts, related to metaphysics and epistemology, as well as on the two volumes that are to bring together contributions from the CAS members and others that are invited to contribute. Topics that were addressed by some of the participants in their individual work were infinity, including a discussion of various conceptions of infinity from the history of philosophy and mathematics, the status and criteria of objecthood and objectivity, both in perception and within the sciences, the relationship between logic and mathematics, the status of essences in scientific classifications and of causality in scientific explanations.

The discussion in part consisted in group members reading the papers of other members and commenting upon these. The interaction between the group members led to many new discoveries and insights when it comes to specific metaphysical issues, like those mentioned above. Interpretations of Kant, Frege and Husserl, as well as interpretation of some other philosophers, like Aristotle, Spinoza and Leibniz, were also brought together in a fruitful way, through daily discussions, workshops and conferences, in order to address metaphysical issues and the fundamental question concerning where there can be a common framework for doing metaphysics.

A general result in the group was that metaphysics can indeed be developed in a robust way as long as it is constrained in the right manner, just as the sciences are constrained through their methodology. There is an implicit metaphysical framework within the sciences themselves, which is a condition of their possibility. There is also continuity between science and metaphysics, and metaphysical work has to be carried out in close contact with developments within the sciences. The group also found that it is wrong to play down the metaphysical aspects of the philosophies of Kant, Frege and Husserl. It is precisely the metaphysical content of their philosophical theories, including their meta-metaphysical attempts to draw a line between meaningful and meaningless metaphysics, which provides us with resources for

handling specific metaphysical issues pertaining to contemporary science, even if the sciences themselves have moved on since their time.

One surprising result of the research was that the questions, aims, and methods turned out to have a potential for contributing to a new area within contemporary philosophy, so-called conceptual engineering (see below). Another surprise was that Kant's critique of traditional metaphysics was found to have quite a different textual foundation than previous scholars have assumed. This finding will have large implications for a proper reconstruction both of Kant's critique of metaphysics and for his own positive alternative. Moreover, it turned out that the new way of understanding Kant's critique of metaphysics could be used to solve some perennial problems in other parts of his theory.

The year at CAS made it possible to bring together different philosophical traditions between which there is not usually so much interaction. CAS had an excellent interdisciplinary working environment. Researchers could meet on a daily basis and work in a very focused way. This also enabled instances of co-authorship, which is not yet so common in philosophy, and the possibility of bringing together contributions to the overall project in the form of two volumes from the CAS group. Through the CAS work, an international network was built between philosophers addressing the same or related issues, working within the same or different traditions. There will be future meetings within this network, to continue the collaboration on philosophical issues related to the CAS project.

Additionally, Linnebo and Serck-Hanssen will continue their work together in a five year project "Conceptual Engineering" funded by the Norwegian Research Council (2016-2020). They are also in the final heat for establishing a Centre of Excellence; if this is granted Houston Smit will also take part, and most likely also Frode Kjosavik. The project is related to the work done at CAS in the following way: In the CAS project, we investigated how a number of concepts in metaphysics could be constructed and justified. "Conceptual Engineering" is a project that takes on much of the same task, namely that of analysing, criticizing, and improving concepts. But while our project "Disclosing the Fabric of Reality" limited itself to investigate metaphysical concepts' relation to reality and the role of the sciences in establishing such a relation, "Conceptual Engineering" has a wider scope. It investigates more concepts, draws on a wider range of philosophical theories and aims to propose a unified theory for conceptual change and improvement. The project will also have broader societal implications.

Various CAS members will organize workshops and conferences that are based on the work done at CAS. For example, Mirja Hartimo and Frode Kjosavik will organize an international conference at the Norwegian University of Life Sciences, which will have a focus similar to that of the CAS project, but limited to the philosophy of mathematics. Kjosavik will also continue his collaboration with CSMN (Centre of Excellence), UiO.

5. Evaluation of CAS

The CAS concept is excellent, as it allows researchers to carry out research in a completely independent and highly focused manner and offers them a very stimulating working environment for doing basic research. The facilities provided by CAS are also excellent for this purpose, including the very helpful CAS administration.

One suggestion for improvement would be the instalment of an elevator, which would greatly facilitate access to the top floor for elderly and physically challenged researchers and other guests.

6. Publications

- a. Articles/books deriving from the project, which have been published/completed during the year at CAS:

Beyer, Christian. Forthcoming 2017. "Husserl and Frege." In *Essays on Husserl's Logic and Philosophy of Mathematics*, ed. by Stefania Centrone. Berlin: Springer.

Føllesdal, Dagfinn. 2015. "Filosofien i Oslo". *Norsk filosofisk tidsskrift*, 50(3-4): 160-171.

————— ed. 2015. "Preface: Logic and Philosophy in Poland." *European Review*, 23(1): 97-98 (Special issue on Logic and Philosophy in Poland).

————— ed. 2015. *Mathematical Evidence*. Special issue of *Inquiry*, 58(1): 1-98.

————— 2015. "Ruth Marcus, Modal Logic and Rigid Reference." In *Modalities, Identity, Belief, and Moral Dilemmas. Themes from Barcan Marcus*, edited by Michael Frauchiger, 39-50. Berlin: De Gruyter.

————— 2015. "Etterord: Freges betydning og innflytelse." In *Frege: Utvalgte tekster*, 282-287. Oslo: Pax.

————— 2016. "Talking Seriously About God." In *Talking Seriously About God*, edited by Asle Eikrem and Atle O. Sjøvik, 77-89. Wien: LIT Verlag.

————— 2016. "Review of Richard Tieszen. *After Gödel. Platonism and Rationalism in Mathematics and Logic*." *Philosophia Mathematica*, 1-17.

Haaparanta, Leila and M. Capozzi. Forthcoming. "Ancient Logic from the Renaissance to the Birth of Mathematical Logic." In *Cambridge Companion to Ancient Logic*, edited by Luca Castagnoli. Cambridge: Cambridge University Press.

Haaparanta, Leila. Forthcoming. "The Method of Analysis and the Idea of Pure Philosophy: Common Themes in Husserl and Frege." In *Philosophy as a Discipline: Essays on the Very Idea*, edited by Leila Haaparanta.

Hartimo, Mirja. Forthcoming 2017. "Husserl and Hilbert." In *Essays on Husserl's Logic and Philosophy of Mathematics*, edited by Stefania Centrone. Berlin: Springer.

————— Forthcoming 2016. "Husserl's Scientific Context 1917-1938, a look into Husserl's private library." In *The New Yearbook for Phenomenology and Phenomenological Philosophy*, 15.

————— 2015. “Review of M. Van Atten. *Essays on Gödel’s Reception of Leibniz, Husserl, and Brouwer.*” *Journal for the History and Philosophy of Logic*, 37(3): 297-299. DOI 10.1080/01445340.2015.1084683

Hartimo, Mirja and Mitsushiro Okada. 2016. “Syntactic Reduction in Husserl’s Early Phenomenology of Arithmetic.” *Synthese*, 193(3): 937-969. DOI 10.1007/s11229-015-0779-0

Kannisto, Toni. Forthcoming. “Kant on the Necessity of Causal Relations.” *Kant-Studien*.

Koistinen, Olli. 2016. “Conceptual actions and objectivity in Kant.” In *E PLURIBUS UNUM: Scripta in honorem Eirik Lagerspetz sexagesimum annum complentis*, edited by Marko Ahteensuu, 76-82. Turku: University of Turku.

Linnebo, Øystein. Forthcoming. *Philosophy of Mathematics*. Princeton: Princeton University Press.

————— Forthcoming. “Plurals and Modals.” *Canadian Journal of Philosophy*, DOI 10.1080/00455091.2015.1132975

————— 2016. “Identity and Two Conceptions of Ontology.” *Filosofisk Supplement*, 2016(2).

b. Articles/books which are submitted or in preparation:

Beyer, Christian, Christel Fricke and Frode Kjosavik. Eds. In preparation. *Husserl and Intersubjectivity*, mainly based on the contributions to the 07.06.16-08.06.16 Husserl workshop at Rosendal.

Beyer, Christian. In preparation. “Husserl on Constitution.” In *Husserl and Intersubjectivity*, edited by Beyer, Christian, Christel Fricke and Frode Kjosavik.

————— In preparation. “Towards a Neo-Husserlian (Meta-)Metaphysics.” In *Disclosing the Fabric of Reality – The Possibility of Metaphysics in the Age of Science*, edited by Kjosavik, Frode and Camilla Serck-Hanssen.

————— In preparation. Revised version of “Edmund Husserl.” In *Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, <http://plato.stanford.edu/entries/husserl/>

Friedman, Michael. In preparation. *On the Idea of a Scientific Philosophy from Kant to Kuhn and Beyond*. Contract with Oxford University Press.

Føllesdal, Dagfinn. Forthcoming 2016. “Putnam and Husserl on Twin Earths.” In *Themes from Putnam*, edited by Michael Frauchiger. Frankfurt: Ontos Verlag.

————— Forthcoming 2016. “The Role of Arguments in Philosophy.” In *Proceedings of the 23. World Congress of Philosophy*.

- Forthcoming 2016. “Phänomenologie und Sprachphilosophie.” In *Proceedings of the XXIII. Deutscher Kongress für Philosophie*.
- Forthcoming. “Interpretation and Truth.” In *Proceedings of “Hans Georg Gadamer and Hermeneutics, fifty years after Gadamer’s Truth and Method,” 20th-22nd October 2010*.
- Forthcoming. ”Willard Van Orman Quine, 25 June 1908 – 25 December 2000.” Biographical Memoir for the National Academy of Sciences.
- Forthcoming. Two volumes with selection of my articles. Oxford: Oxford University Press.
- In preparation. “Husserl's constitutive Platonism”.
- In preparation. “Husserl on intersubjectivity”. In *Husserl and Intersubjectivity*, edited by by Beyer, Christian, Christel Fricke and Frode Kjosavik.
- Haaparanta, Leila. Under review. “Frege on ‘es gibt’ and Being in a Realm”.
- Under review. “Testimonies of Faith and Contemporary Theories of Assertion”.
- In preparation. Peirce, Husserl, and the Ethics of Assertion.
- In preparation. Frege, Carnap, and the Limits of Asserting.
- In preparation. Metaphysical Judgments and their Justifications.
- In preparation. On Knowing the Other’s Emotions. For “Husserl’s Years 1905 – 1907”. In *The Reception of Husserl’s Idealism*, edited by R. Parker.
- In preparation. *Judging, Judgment, and Being: Studies on How Humans Create Worlds*
- Hartimo, Mirja. In preparation. “Formal Ontology in *Formale und Transzendente Logik*.” In *Disclosing the Fabric of Reality – The Possibility of Metaphysics in the Age of Science*, edited by Kjosavik, Frode and Camilla Serck-Hanssen.
- In preparation. “Waismann’s influence on Husserl’s philosophy.” In a volume on Waismann, to be edited by Dejan Makevic and Stewart Shapiro. Palgrave MacMillan.
- Forthcoming. “Philosophie der Arithmetik“ to be published in *Husserl-Handbuch: Leben-Werke-Wirkung*. Edited by Sebastian Luft und Maren Wehrle, Verlag J.B. Metzler, Stuttgart/Weimar.
- Forthcoming. „Phänomenologie und Mathematik“ to be published in *Husserl-Handbuch: Leben-Werke-Wirkung*. Edited by Sebastian Luft und Maren Wehrle, Verlag J.B. Metzler, Stuttgart/Weimar.

———— Submitted. “On the Origins of Scientific Objectivity”, For *Husserl and Intersubjectivity*, edited by Beyer, Christian, Christel Fricke, and Frode Kjosavik.

———— Under review. “Husserl and Peirce and the goals of mathematics”.

———— Under review. “Husserl and Gödel’s incompleteness theorems”.

———— Under review. “Husserl on completeness, definitely.” (Revise and resubmit from *Synthese*, August 23, 2016)

Kannisto, Toni. Under review. “Kant and Frege on Existence”.

———— Under review. “The A Priori in Kripke’s A Posteriori Necessity”.

———— Under review. “Transcendental Paralogisms as Formal Fallacies”.

———— In preparation. “Freedom as a Kind of Causality in Kant”.

———— In preparation. “Kant’s Theory of Existence”.

Kjosavik, Frode. In preparation. *Kantian Intuitions*.

———— Under review. “Kant on the Perceptual Given”.

———— Under review. “Kant on Actual Infinity”.

———— Under review. “Husserl on Perception and Intersubjectivity”.

———— In preparation. “Kant on Method and Evidence in Metaphysics.” For *Disclosing the Fabric of Reality - The Possibility of Metaphysics in the Age of Science*, edited by Kjosavik, Frode and Camilla Serck-Hanssen.

———— In preparation. “Husserl on Scientific Objectivity.” For *Husserl and Intersubjectivity*, edited by Beyer, Christian, Christel Fricke, and Frode Kjosavik.

Kjosavik, Frode and Darley Jose Kjosavik. Under review. “Towards a Philosophical Framework for Interdisciplinarity in the Sciences”.

Kjosavik, Frode and Camilla Serck-Hanssen. Eds. In preparation. *Disclosing the Fabric of Reality – The Possibility of Metaphysics in the Age of Science*, based on the contributions to the CAS workshops at Lysebu and Kleivstua.

Koistinen, Olli. In preparation. *God, Mind, and Self*.

Linnebo, Øystein and Salvatore Florio. In preparation. *The Many and the One: A Philosophical Study*. Under contract with Oxford University Press

Linnebo, Øystein and Stewart Shapiro. Under review. “Actual and Potential Infinity”.

Linnebo, Øystein and Bob Hale. Under review. “Ontological Categories and the Problem of Expressibility”.

Parsons, Charles. In preparation. “Quine on Truth” In *Disclosing the Fabric of Reality – The Possibility of Metaphysics in the Age of Science*, edited by Kjosavik, Frode and Camilla Serck-Hanssen.

Serck-Hanssen, Camilla. In preparation. *From Nothing to Something: Kant’s Critique of Rational Metaphysics*.

————— In preparation. *Kant’s Metaphysical Deduction of the Ideas of Reason*.

Serck-Hanssen, Camilla and Houston Smit. In preparation. “Kant’s Schematism and Amphiboly.” Invited contribution to a collection of essays entitled *The Kantian Mind*, edited by Sorin Baiasu and Mark Timmons. Under contract with Oxford University Press.

Smit, Houston. In preparation. *Kant’s Theory of Cognitive Activity*, a book manuscript on the Transcendental Analytic of Kant’s *Critique of Pure Reason*.

Appendix

List of all participating fellows:

Professor **Christian Beyer** (University of Göttingen).

Professor **Michael Lee Friedman** (Stanford University)

Professor Em. **Dagfinn Føllesdal** (University of Oslo)

Professor **Leila Tuulikki Haaparanta** (University of Tampere)

Postdoctoral Fellow **Mirja Hartimo** (Norwegian University of Life Sciences)

Postdoctoral Fellow **Toni Tapio Kannisto** (University of Oslo)

Professor **Frode Kjosavik** (Norwegian University of Life Sciences)

Professor **Olli Koistinen** (University of Turku)

Professor **Øystein Linnebo** (University of Oslo)

Professor Em. **Charles Parsons** (Harvard University)

Professor **Camilla Serck-Hanssen** (University of Oslo)

Professor **Houston Smit** (University of Arizona)

Final report

Arctic Domestication in the Era of the Anthropocene

Report by Marianne Elisabeth Lien
Group leader 2015/2016
September 25th 2016

Short abstract

Domestication has captured the imagination of anthropologists, archeologists and historians for more than a century, but what questions did it respond to? What sort of orderings did it generate? And what can we learn from domestication in the Arctic and elsewhere?

The CAS project ‘Arctic Domestication in the Era of the Anthropocene’ challenges domestication as a foundational narrative of human civilization. Drawing on interdisciplinary scholarship, our aim was to rethink hegemonic narratives about domestication and to explore domestication a set of ongoing practices involving mutual, co-dependent relations between humans and animals and humans and plants. Questioning the notion of the domus, engaging the idea of more-than human sociality, and challenging the distinctions between natural history and cultural history, we explored alternative models and narratives of relational practices that can sustain human life on our planet.

1. General Description

A shared concern among participants in this project is how to describe and analyse ‘other-than-human’ relational practices in ways that capture the varied and dynamic worlds that human and non-human beings inhabit together. For a long time, the standard modes of description have been restricted, emphasizing utility, symbolic significance, or control. Such idioms are a corollary of the ideology of dominant forms of domestication such as agriculture and industrial farming, but fail to capture relational practices that exceed these modes. Thus, we find that other approaches are called for in order to understand the interrelations of humans and other beings in regions where conventional agriculture is less successful, such as in Arctic regions, in semi-arid landscapes and in rainforests, but also even in the ‘belly of the beast’ of industrial food production, such as in aquaculture and industrial farming.

Arriving at CAS with diverse disciplinary backgrounds and different fields of regional expertise, we aimed to cultivate a curiosity that embraces difference as a trigger, rather than as an obstacle to scientific achievement. Our aim was never to arrive at a singular definition of domestication or a broad project consensus around a specific analytical approach. Instead, we used domestication as a focus that generated sufficient thematic coherence for trans- and interdisciplinary conversations that in turn allowed us to explore and refine the arts of listening, of noticing and of crafting analytical texts. Some of us were concerned with colonizing practices in the Arctic, some were concerned with how science itself is a colonizing practice, others were more concerned with how, when and where specific domestication practices took or take place, and the implication of such findings for current theories in archeology, history or anthropology. Our CAS publications reflect these broad concerns, but also a shared commitment to challenge our own assumptions, and to ask entirely new questions. These are questions that would not have emerged without the privileged

opportunity to pursue a kind of ‘slow collaboration’, facilitated by the unique opportunities for prolonged conversations that CAS offers. Our scientific interventions are epistemological as well as ontological, they are about methods and how we see what we see, but also about worlds as such, and how we might, for example, carve out space for multiplicity in our scientific accounts.

2. Participants and research activities

Our CAS-project *Arctic Domestication in the Era of the Anthropocene* has brought together scholars with training in social anthropology, archeology, science and technology studies, environmental history, and animal behavior. These are fields with different modes of knowledge production, and different ideas about what counts as evidence. One of our key aims has been to work across difference in ways that truly push us to ask new questions, and that have the potential to transform how we think about issues of shared concern. In this way, our year at CAS has been a double act: on one level we have explored the theme arctic domestication in various and unexpected directions, on another level we have explored practices of interdisciplinary collaboration. In hindsight, we feel that both of these endeavors have been immensely rewarding and that they have yielded significant novel insight.

Our research group consisted of a thirteen *CAS fellows* who each spent between one and ten months at CAS, including a few who visited twice or three times during the CAS-year. In addition, our group has accommodated numerous shorter visits, and thus includes what we call *CAS guests*. These are more than 15 scholars who have spent from a couple of days to a couple of weeks at CAS, often self-funded, or with additional funding from CAS to cover minor travels or accommodation. Finally we created a category called *CAS affiliates* to accommodate 5-7 scholars at the University of Oslo who were regular participants at bi-weekly seminars, and who received email updates on key events. This organizational set up ensured a lively and dynamic group, and created a shifting set of interdisciplinary constellations around the core group of long-term fellows.

It was important for us to achieve a good balance between collective activities and quiet time for individual work. Weekly seminars, mostly with pre-circulated papers presented by CAS fellows or invited guests, allowed a cumulative conversation to develop and allowed for explorations of shared interest and intensive engagement with each other’s empirical work and theoretical concerns. In addition, we had a number of more concentrated events throughout the year.

We started off with an international opening conference in the Academy of Science and Letters in mid-September, with nearly all CAS fellows present, as well as a significant audience. This event was followed by an all-day brainstorm-workshop for CAS-fellows only, and together these events kick-started a number of conversations. Ideas from the workshop were developed in various directions over the next few months, and finally operationalized and concretized in three subsequent workshops, (pursuing different themes, see below) as well as a conference panel.

Last, but not least, an important collective event and planned outcome of the CAS project was the exhibition called *NyArktis* at the Museum of Cultural History. *NyArktis* which was curated by CAS-fellow Gro Ween, in collaboration with the CAS-team and colleagues at the Museum (more below). Through this exhibition we drew inspiration from active engagement with the public. The challenges of designing Ny Arktis provided us with an opportunity to

think more deeply about how to narrate human-animal relations in a (post)-colonial setting such as the Arctic, and we used the crafting of the exhibition as an arena for generating new questions.

3. Colloquia, workshops, seminars and excursions

3.1. Roundtable seminars

We conducted several informal half-day seminars triggered by special visitors such as:

“Evidentiary Practices”: with CAS guests Anna Tsing, Ben Orlove and Marisol de la Cadena (May 2016)

“How to talk and write about things that do not speak” with CAS guests Hugh Raffles, Andrew Mathews, Annemarie Mol (May 2016)

3.2 Workshops and panels

Based on ideas that emerged at our first brainstorm-workshop in September, but also from other interdisciplinary constellations, we arranged three workshops and a conference panel.

“*Reconsidering the Classics*” Workshop at CAS by Gísli Pálsson and Marianne Lien with a focus on rereading anthropological monographs about human-animal relations. The papers presented are currently revised for a special issue in *Ethnos*, with a few additional commissioned papers in prep. Participants: Gísli Pálsson, Marianne Lien, Kjersti Larsen, Neil Carrier, Michael O’Leary, Vigdis Broch-Due, Natasha Fijn, María Guzman-Gallegos. (February 3rd 2016).

“*Thinking through meahcci*” was convened in collaboration with scholars at the Sámi Allaskuvla, and took place at their premises in Kautokeino. The workshop was convened by Liv Østmo and Marianne Lien. The workshop established common ground for further collaboration. Participants: Gro Ween, Solveig Joks, John Law, Rob Losey, Britt Kramvig, Mikkel-Nils Sara, Lovisa Mienna Sjöberg, Inger Elisabeth Utsi Gaup, Heather Swanson. (March 5th and 6th 2016).

“*The making of Northern Resource Froniters; Scarcity, Abundance, fertility and extraction*”. Workshop at CAS by Frida Hastrup and Marianne Lien. The workshop explored how supposedly marginal resource landscapes come into their own through various practices of domestication. The workshop was a collaboration between the CAS project and Frida Hastrup’s research group in Copenhagen, on Natural Goods. Participants: Frida Hastrup, Marianne Lien, Nathalia Brichet, Kirsten Hastrup, Peter Loovers, James Maguire, Berit Kristoffersen, Gro Ween. (March 29th-30th 2016).

‘*Domestisering; kriser, muligheter og nye identitetsformasjoner*’. Panel at the Annual conference for Norwegian Anthropological Association. The panel was convened in the exhibition room *NyArktis* at the Museum of Cultural history. Participants: Gro Ween, Marianne Lien, Rune Flikke, Bente Sundsvold, Maria Kartveit, Marianne Steinkjer, Brynhild Granås, Catharina Sletner. (May 6th 2016).

3.3 Conference

The CAS opening conference *Arctic Domestication in the Era of the Anthropocene* took place on September 17th 2015, followed by a workshop for CAS fellows on the 18th. The opening conference served several purposes: It gathered all CAS fellows (including those who were not scheduled to arrive until later in the CAS-year), creating a sense of group affiliation from

the very beginning. It was an open event, and with many other participants as well (including scholars who later became CAS-affiliates), and in this way it was an opportunity to make our presence in Oslo widely known.

The workshop on the 18th involved a playful search for topics and themes that we might like to pursue during our CAS year. We allowed many ideas to flourish, discovered unexpected convergences and created a list of potential themes, noted who were interested and listed 'theme champions'. This brainstorm activity pushed us towards thinking collaboratively about concrete events (workshops) and future co-authoring/co-editing. Several of the workshops that were later arranged emerged from these themes. All themes were posted in a Dropbox folder called CAS commons (see below).

3.4 Exhibition

NyArktis was an experimental exhibition in the so-called 'red zone' at the Museum of Cultural History. Curated by CAS-fellow Gro B. Ween, and designer Åsmund Steinsholm, it was designed as part of the scientific output of the CAS-project on Arctic Domestication. The exhibition is an experiment in new ways of narrating the Arctic, using not only visual modes of narration, but also sound, tactile senses and smell. *NyArktis* drew the attention to people in the Arctic, many of whom have lived there for thousands of years, and to how colonial endeavours have defined the Arctic as 'wilderness'. The exhibition displayed the complexity of the knowledge and skills necessary to survive in the Arctic, and stressed the need to reflect upon the Arctic as inhabited landscape and the necessity of not evoking a Northern void. By using the Arctic as a starting point, *NyArktis* expanded the scope of domestication might entail. Several events were launched at the premises, including scheduled visits for groups of students from 'videregående skole', guided by CAS-fellows. (29th April-12th June 2016)

3.5 Guest lectures and weekly seminars

Throughout the CAS year we had weekly seminars in the Turret room. These usually involved discussions of pre-circulated papers by CAS-fellows and guests. Occasionally they featured invited guest speakers. Sometimes we screened films. CAS affiliates were always invited.

3.6. Luncheon seminars, CAS

Our research group was responsible for two lunch seminars for other CAS fellows, one in the spring, and one in the fall.

3.7. Guest lectures held by members of the group externally

Rob Losey. 'Domestication in the Siberian Arctic: Dogs and Other Species at Ust'-Polui, Yamal Peninsula'. Paper presented at *Domestication and Hybrid Communities* conference, Musée du Quai Branly and Museum National D'Histoire Naturel, Paris, France. April 14th-15th 2016.

Solveig Joks and John Law, 'Ontological suffocation: or the end of driftnet fishing?' Paper presented by invitation at the Lancaster University Centre for Science Studies workshop: 'Ontologies of The Biosphere, Sex, the Artificial and Autonomous', on Friday 24th June 2016.

John Law, Invited Honorary lecture and JD Bernal prize for contribution to the field of STS. 4S conference, Boulder, Colorado November 2016.

Marianne Lien, 'Salmon tales of dwelling and becoming'. Invited plenary paper at the Beyond Perception Symposium at the University of Aberdeen, Plenary on Humans, Animals and Environment. September 2nd 2015.

Marianne Lien, 'Domestication as generative practice'. Invited presentation at TIK (Centre for Technology, Innovation and Culture), University of Oslo, October 21st 2015.

Marianne Lien, 'Performing Nature – Dividing and uniting the nation'. Invited key note at the conference "Declare Independence, narratives and memories of an imagined region", University of Copenhagen, November 5th and 6th 2015.

Marianne Lien, 'Arktis under press: Landskap, livsbetingelser og kolonisering'. Presentation at UiO Arktisk Dag, Academy of Science and Letters, February 15th 2016.

Knut Nustad: 'Mediations, translations and practices of natures and natural resources in the Isimangaliso Wetland Park, South Africa', AAA, Denver, November 2015.

Knut Nustad: 'Creating Africas: struggles over nature, conservation and land. Institute seminar, Department of Geography, University of Western Cape'. Cape Town, August 2015

Heather Swanson: 'Trout Biopolitics: Living in the ruins of colonial fish introductions', co-authored presentation with Knut Nustad, Bios and Politics After Foucault conference, Aarhus University, Denmark, October 8-10, 2016.

Heather Swanson: 'The entrapment of a trap ban: How fixed gear fishing prohibitions have shaped fisheries practices in the lower Columbia River, United States.' European Association for Social Anthropology (EASA), July 20-23, 2016, Milan, Italy. "Anthropological Traps" panel organized by Alberto Corsin Jimenez and Rane Willerslev.

Heather Swanson. 'Landscapes, by comparison: Japanese environmental management in an uneven world,' Anthropology Departmental Seminar, University of Oslo, April 13, 2016.

Heather Swanson. 'Free-Range Fish Production: The Uncontained Consequences of North Pacific Salmon Ranching,'" at Gaia Strikes Back: Feral Landscapes of the Anthropocene panel, American Anthropological Association Annual Meeting, Denver, Colorado, November 2015.

Heather Swanson, Discussant, 'Arts of Noticing: Multispecies ethnography in anthropogenic landscapes,' Finnish Anthropological Society Biennial Conference, Helsinki, Finland, October 21-22, 2015.

Gísli Pálsson 'Eruption Stories', Seminar on 'Momentums: Histories, Localities and Futures in the Anthropology of Ruptures and Hope'. Department of Social Anthropology, University of Oslo, 6-7 October 2016.

Gísli Pálsson (With Heather Anne Swanson) 'Coming Home: The House and the Anthropocene'. Invited talk for a session in honor of S. Gudeman. Annual Meeting of the American Anthropological Association. Minneapolis, 16-20 November 2016.

Gísli Pálsson 'Anthropocenic Geopolitics: Domesticating Volcanoes'. Seminar series on the Anthropocene. Environmental Change Institute, Oxford University, 15 October.2015

Sverker Sörlin, 'Framtiden för Arktiska Framtider', Key note at UiO Arktisk Dag, Academy of Science and Letters, February 15th 2016.

Gro B. Ween, 'Mot et postkolonialt Arktis: Urfolk, makt og ressurser'. Presentation at UiO Arktisk Dag, Academy of Science and Letters, February 15th 2016.

3.8. Media and popular dissemination

Media:

Sörlin, Sverker, "Antropocent på jorden" [Anthropocene – late on the Earth], <http://www.svd.se/antropocens-politik-kommer-att-pragla-vart-sekel/om/svd-2-grader>, *Svenska Dagbladet*, cultural section 2015-11-21.

Sörlin, Sverker, "Vår kris är en tidens och tillitens kris" [article in DN/KTH series on the Environmental Humanities], *DN Kultur* [*Dagens Nyheter*, cultural section], 2015-11-30. <http://www.dn.se/kultur-noje/var-kris-ar-en-tidens-och-tillitens-kris/>

Sörlin, Sverker, "Därför bör också humanister studera den smältande isen", *DN Kultur* [*Dagens Nyheter*, cultural section], 2016-06-12. <http://www.dn.se/kultur-noje/kulturdebatt/darfor-bor-ocksa-humanister-studera-den-smaltande-isen/>

Marianne Lien and Anna Tsing, "Man kan inte tänka isär naturen och samhället". *DN Kultur* [*Dagens Nyheter*, cultural section], 2015-11-8 <http://www.dn.se/kultur-noje/man-kan-inte-tanka-isar-naturen-och-samhallet/>

Marianne Lien, Gro Ween and Sörlin, Sverker, "Tar knekken på myten om Arktis", interview on Arctic Domus project at the Center for Advanced Study, Oslo, *Apollon* 2016:2, pp. 54-57. http://www.apollon.uio.no/artikler/2016/2_arktis_domestisering.html

Rob Losey on domestication of dogs in NRK P2 Radio EKKO 18th June 2016 <https://radio.nrk.no/serie/ekko/MDSP31002516/18-06-2016>

Britt Kramvig on 'Tripping with whales' in NRK P2 Radio EKKO 25th January 2016

Rob Losey: University of Alberta, release of Youtube video highlighting research on human-dog bond. March 1, 2016. www.youtube.com/watch?v=281IIIbTBpY
www.youtube.com/watch?v=281IIIbTBpY

Britt Kramvig, Berit Kristoffersen and Brigte Dale, 'Det er ikke oljen som gjør at det går bra i nord'. Kronikk (featured article) in *Nordlys*, January 18th 2016. <http://nordnorskdebatt.no/article/ikke-oljen-gjor-gar-bra-i-nord>

Britt Kramvig, 'How to sense the Arctic landscape at the darkest time of year'. Blogpost with Margrethe Pettersen. <http://cas.oslo.no/news/blogpost-how-to-sense-the-arctic-landscape-at-the-darkest-time-in-the-year-article1711-974.html>

Gro Ween and Marianne Lien; Verdibørsen P2 from the exhibit Nyarktis 28th 29th May 2016. <https://radio.nrk.no/serie/verdiboersen/MKTR04002216/28-05-2016>

Public lectures:

Viten på Lørdag in 'Gamle Festsal' University of Oslo, 14th November 2015, popular science seminar for the general public: "Fra villfisk til 'fjølslaks': Norges nye husdyr" by Marianne E. Lien and Gro Birgit Ween.

Arctic Frontiers conference in Tromsø in January 2016, Side event: 'Post petroleum Futures; Knowledges, narratives and policies'. With Britt Kramvig and Berit Kristoffersen.

Arktisk Dag at UiO, held at Vitenskapsakademiet/Academy of Science and letters, February 15th 2016. Presentations by CAS fellows Marianne Lien, and Gro Ween, Key note by CAS fellow Sverker Sörlin (details above).

Films:

Fijn, Natasha., Losey, Rob., Nomokonova

Production of two short films for the Kulturhistorisk Museum, Oslo, Norway, temporary exhibit "Nyarktis".

Natasha Fijn, 'Yolngu Homeland'. Natasha Fijn's newest film, screened at CAS in January 2016 explores how a community in Arnhem Land, is connected with other beings - ancestors, animals and plants. Aboriginal people have lived in Arnhem Land for over 45,000 years. Over time they have developed a deep, spiritual connection with the land. Totemic beings of significance include the saltwater crocodile, crows, dogs, crabs, sea eagles, turtles, and yams. The film follows 'Yolngu time' where the pace is measured and not run according to the institutional timeframes of wider Australia. Garrthalala is a strong homeland community, where all ages venture out onto the coast and into the water to find food and to engage with the land. Three members of the community offer individual insights into different ways of being on Country.

Gísli Pálsson, Ari Trausti Guðmundsson and Valdimar Leifsson. "Culturing Lava: The Eruption on Heimaey, Iceland, in 1973".

Britt Kramvig and Rachel Gomez: '*Dreamland*'. Viewed through the camera lens of a philosopher, Dreamland is inspired by a line from "Dreamland" by romantic poet Edgar Allan Poe "...by a route obscure and lonely, haunted by ill angels only...". A journey through people-places in Arctic landscapes is made by the figure of a native anthropologist. She follows in the footsteps of many others, recounting experience. Viewers glimpse moments of a sublime, the subject of Poe's poem. The movie gives form to hopes for futures different than pasts. An essayistic documentary in the form of a twenty-first century Arctic road-movie by professor Britt Kramvig (UiT) and filmmaker Rachel Gomez (Tromsø). The film was screened for the first time at Arctic Film night in Tromsø, 28th January 2016.

<http://www.verdensteatret.no/arrangement/arctic-film-night>

3.9 Proposals submitted

Conservation After Nature: Environmental Humanities in the Anthropocene. Research proposal to Research Council Norway, SAMKUL. Submitted March 2016. (Knut Nustad PI, Marianne Lien, Heather Swanson, Gro Ween, Liv Østmo, Solveig Joks, Britt Kramvig, Sverker Sörlin). Not funded.

Global Trout: Investigating environmental change through more-than-human world systems, Young Researcher Talent Grant, Research Council Norway, Fripro. Submitted May 2016. (Heather Swanson PI, Knut Nustad, Rune Flikke). Under review.

REXSAC Resource Extraction and Sustainable Arctic Communities. Project proposal to Nordforsk program on Arctic Futures. Sverker Sörlin is PI. The proposal was funded as a 28 million NOK Nordforsk Center of Excellence, called REXSAC. The NCoE is hosted by the Division of History of Science, Technology and Environment at KTH Royal Institute of Technology in Stockholm with the Department of Social Anthropology at the University of Oslo as one of the Nordic partner institutions (including Marianne Lien, Gro Ween, Britt Kramvig and others). REXSAC started in the summer of 2016 and will be in operation for a minimum of five years.

3. 10 Miscellaneous

Book series editorship: Anderson, D.G., **Losey, Robert J.**, series editors.
Arctic Worlds. A new series to be published by Routledge.

4. Achievements and evaluation

Our project was broad from the very beginning and our achievements are similarly diverse. The most important collective achievements can be gleaned from the topics of ongoing collective publications, such as edited books and special issues that are the direct results of CAS workshops and CAS conversations. Below is a short summary of key themes:

What do we learn about human relations to plants and animals when we empirically explore those relations in places where conventional forms of agriculture have not been dominant? One answer is that most stories that link plant and animal domestication to the rise of agriculture have some serious flaws, such as assuming that control is a main paradigm organizing human-animal relations. Ethnographic and archeological studies show that human ways of living with other species are far more diverse than scholars have typically portrayed them. Another answer is that domestication is a multispecies relation, creating often unexpected ripple effects so that what appears as domestication of a single species may involve domestication of entire landscapes, far away. Domestication then, is not only about human control over a single species, or about confinement as such, but rather heterogeneous relational practices through which multiple landscape formations are generated. Some of these have become dominant, such as agriculture. The tensions and interrelations of such dominant forms and more subtle interspecies relations that co-exist with these are one of the topics of our edited book, *Decentering Domestication*, which explores domestication through selected ethnographic case studies. The volume is currently revised after positive preliminary reviews at Duke University Press.

Decentering domestication has also led us to revisit existing anthropological literature. The recent turn towards more-than-human sociality in anthropology begs the question of how earlier anthropologists paid attention to indigenous ways of knowing animals and plants, and to what extent non-human presences were made part of an analysis? This is the topic of a special issue for *Ethnos*, in which we revisit selected anthropological texts. We found, inter alia, that a keen interest in animals and plants is hardly new, but that their presence was rarely incorporated in the analysis beyond 'utility' or 'symbol'. There are, however, notable exceptions, and these are important sources of insight that can be re-analysed as well as re-interpreted as part of the history of the foundations of anthropological theory.

Another finding that emerges from studies of human-animal-plant relations in the Arctic is that vast and intricate knowledges are needed to engage with animals, (such as reindeer for example, or dogs), that are not confined and controlled like many other husbandry animals. Through our collaboration with Sami researchers, as well as CAS-fellows with in-depth knowledge of Northern livelihoods (Siberia, Alaska) we have learned to know Arctic regions as sites of multiple and layered landscapes. These landscapes can be known in different ways, not only through scientific knowledge, but also through the relational practices of daily life and through, for example specific Sami words and concepts that convey these realities in ways that Norwegian and English do not. Such multiple forms of knowing and relating to landscapes was one the topics of the exhibition *NyArktis*, and is also one of the topics of our co-authored and co-edited book that has the provisional title, *A Manual for a Postcolonial Arctic*.

A century after Nansen and Amundsen raced alongside other polar explorers, the Arctic is once more an arena for international rivalry. Melting ice has opened a new race for natural resources and scientific inquiry, and places the Arctic at the center of new forms of colonial conquest. This situation challenges our conceptual understanding of resources as such; what are they and how are they made? This was the topic of our workshops on Northern Resource Frontiers. Through detailed ethnographic stories of intricate practices of use, distribution and generation of resources in the north, we explored how specific places are made resourceful and thus how northern resource frontiers come to be what they are. Questions of ownership, mapping, and efforts to extend the nation from its center to its perceived peripheries are central to how resources shift as they are materialized differently. It is this changeability of resources that continuously defines what a frontier is – a place made as resourceful.

The image of melting ice brings us to the Anthropocene. When our climate itself is shaped by humans, there is no ‘pure’ or ‘untouched’ nature anywhere on the planet. How do we think and talk about these new forms of co-mingling of humans and nature? Our work shows that while the Anthropocene is indeed an amplification, human effects on nature are themselves far from novel, as we see through our attention to domestication, farming, and human-animal relations. An example is the Australian continent which was shaped by aboriginal landscape practices long before Europeans arrived. Such comparisons inform our notion of the Anthropocene, which is the topic of several articles by CAS-fellows.

These achievements are, to some extent, expected, given our initial project plan. In addition our CAS-year yielded many achievements, insights and publications that were neither planned nor anticipated. They emerged, for a large part, as a result of the way in which working together at CAS encouraged long-term conversations between people who had not worked together before, often from diverse disciplinary backgrounds. As mentioned, part of our aim was to explore ways of getting on well together across interdisciplinary difference. Our stay at CAS facilitated a kind of open-ended and slow collaboration, with plenty of time for reflection without a specific and defined outcome. Sometimes this took the form of semi-formal seminars. Other times it came out of the habit of meeting everyday around 2PM for a coffee at the nearby bakery, where we would engage, sometimes for an hour or more, in spontaneous conversations. In such situations we were mindful of the need to approach differences with care and curiosity and encouraged respect for each other’s stakes, commitments, and approaches. In hindsight, we succeeded in crafting an art of listening that doesn’t just filter everything through our own disciplinary perspectives, but that allowed us to

soften disciplinary boundaries in new ways. A result of this is that we cultivated new curiosities and new questions.

One example is how one of our archeologists, Rob Losey who conducts field explorations in Siberia, drew on the theoretical insights from multispecies anthropology; while at the same time, his research findings about dog domestication were transforming anthropologists' ideas about how social anthropologists might use data such as genetics and bone morphology to narrate human-animal relations. (see article in prep. by Losey, Fijn and Lien). Another example is how Heather Swanson and Gísli Pálsson, based on a shared interest in the anthropocene and how to talk about nature-culture relations, crafted an article that was entirely unplanned, about what they coin as 'geosocialities', which will soon appear in the journal *Environmental Humanities* (a second co-authored paper is underway). A third example is how historian Sverker Sörlin, with extended knowledge of Arctic geopolitics could enrich our understanding of subtle processes of colonization. Several other examples could be mentioned.

Another important outcome of our year at CAS was our collaboration with the Sámi Allaskuvla (Sami University of Applied Sciences) in Kautokeino. The generous office space at CAS allowed us to invite short term visitors (CAS guests) who were not initially part of the CAS group. Two of these were Liv Østmo and phd candidate Solveig Joks from the Sámi Allaskuvla. Working partly in Sami, and dedicated to cultivate an academic discourse in their native language, they taught us the importance of being attentive to the frictions of translation. These are common themes in anthropology but have rarely been problematized by Norwegian or English speaking scholars working in the Scandinavian North, or in Sápmi. Their visit resulted in a collaborative project proposal and a workshop, which we see as the beginning of further collaboration. This is further institutionalized by CAS-fellow John Law's recent appointment professor 2 at the Sámi Allaskuvla, and will be elaborated through planned co-authoring of the co-edited book *A Manual for a Postcolonial Arctic*.

Creating a sense of presence and belonging amongst such a large group of scholars, with half the group not at CAS at any given time, was an important challenge. In order to establish an arena for ongoing conversations for scholars who were in different parts of the world, we explored various web-based platforms for shared communication. We began by asking all CAS fellows to nominate four articles (two of their own, two by others) that they would like to share with the group as a whole. These were printed in three compendiums, distributed to CAS fellows upon arrival or in advance, and also as pdf's in a Dropbox folder. We also established a shared Dropbox folder called CAS commons, where we archived CAS presentations. The development of themes from our initial September workshop were also posted in the CAS commons folder, so that CAS fellows who were not present could take part in shaping the outcome, or announce their interest in collaborating. We also established a private domain, *Arctic Domestication*, where we announced upcoming events and publication projects. With CAS commons we achieved a certain transparency, and made sure that fellows not currently present at CAS were not left completely out of the conversation. Some of the folders in CAS commons are still active, even after the CAS-year is over.

In addition to the project proposals that have been funded (REXSAC) or are pending (Global Trout), and the collaboration that involves Sámi Allaskuvla, our co-edited volumes and special issues in prep ensure continuing collaboration at least for another academic year. Beyond this, there are numerous ongoing conversations that are likely to result in future collaborative workshops, co-authorships and co-editing. But a CAS-year is also a very short

time for the kind of interdisciplinary conversation we cultivated: the year ended in a burst of collaborative activities and projects, and in many ways it felt as we had just begun. At the moment, our first priority is to finalise what we have started. An opportunity to gather the group in about a year or two would be immensely useful as way to seize the momentum that has been created and to make sure that the potential is achieved.

5. Evaluation of CAS

The CAS concept is excellent, and CAS was absolutely crucial for this project. The most important added value is the arena it provides for spending time together. While our web-based conversations were helpful, they could never replace the value of what we have called 'slow collaboration'. This requires comfortable office premises that actually bring people together.

The flipside of this is that the CAS concept can be challenging for fellows who have their offices in home institutions nearby, institutions that are likely exert a 'pull' on CAS-fellows, formally or informally. We experienced that to fully benefit from the CAS-year, and to contribute 100% to the project requires 100% presence. This is something which is difficult to fully appreciate in advance, and it is therefore crucial that future project leaders and all fellows (perhaps especially those who are based in Oslo) are informed of this challenge in advance, and that they commit to this idea.

The office premises were mostly superb. A small friction came up around Christmas, when the telephone landlines were suddenly discontinued. This was unexpected and created problems for several overseas fellows who relied on the landline, both for practical matters in Norway, and for being available for colleagues and family overseas. The latter could to some extent be solved by using Skype, but Skype is also unreliable. We found, for example, that conducting interviews with journalists overseas was not easy on Skype (several CAS fellows had such needs). Finding practical and inexpensive solutions to such challenges should be high priority.

Generous funding made the planning of conferences and seminars easy, but budgeting in advance can be difficult. In our research group, we ended up spending less money than we had planned. The reasons for this are several: Most importantly, the post doc salaries in Aarhus turned out to be lower than in Norway, hence our salary expenses were lower than we budgeted. Secondly, one of our fellows had to postpone her stay by about two months for health-related reasons, inadvertently 'saving us' two months of expenses for accommodation. Finally, we decided during the year that small and focused workshops with only 10-12 participants were generally more productive than large conference-like events. This implied that we spent less money on workshops and conferences than we had intended. Collaborating with other institutions lowered our costs even further: It turned out that a number of the scholars we would like to invite for short visits or lectures were already invited to Oslo for other purposes. Hence, on several occasions we piggy-backed on other events, and ended up paying only a few extra nights in a hotel, for visitors whom we had budgeted extensive travel costs. In addition, we experienced considerable interest from high profiled scholars, who sometimes tried to arrange their travels in ways that allowed them to spend time with us at CAS. Apart from double checking Danish salary expenses, none of this could have been predicted in advance. This should not be taken as an indication that the CAS funding is too generous, but rather as a way of noting that collaboration with other institutions can sometimes cut the cost of activities.

6. Publications

6.1. Articles/books derived from the project - published/accepted during the CAS-year

Swanson, Heather, John Law, and Marianne Lien (forthcoming) “Modes of Naturing.” In Marsden, Terry et.al. (ed.) *Sage Handbook of Nature*. Sage Publishing.

Pálsson, Gísli and Heather Swanson (forthcoming 2016) “Down to Earth: Geosocialities and Geopolitics.” *Environmental Humanities*, Vol. 8 No. 2.

Kramvig, Britt and Helen Verran (forthcoming) Epistemic Practices of Story Telling for Reconciliation. Reflection on Violence, Storytelling and Gender in Sápmi. *Tidsskrift for kjønnsforskning* 3-4 2016.

Hastrup, Frida and Nathalia Brichet. 2016. Antropocæne monstre og muligheder. Kartoffler, samarbejdsformer og globale forbindelser i et dansk ruinlandskab, *Tidsskriftet Kulturstudier* 2016 (1) pp. 19-33. <http://tidsskriftetkulturstudier.dk/tidsskriftet/vol2016/1-juli/antropocaene-monstre-og-vidundere/>

Hastrup, Frida, Nathalia Brichet and Mai Mangaard. “Terrestrials in Ruined Landscapes. Potentials in an Anthropocene Era”, in Camilla Nørgård (ed.): *The Sundholm Collection*, Fabrikken Forlag 2015. <http://www.forskningsdatabasen.dk/en/catalog/2289430975>

Joks, Solveig, and **John Law** (2016, in the press), 'Sámi Salmon, State Salmon: LEK, Technoscience and Care, Sociological Review Monograph', in *Care and Policy Practices: Translations, Assemblages, Interventions*, ed. Vicky Singleton, Claire Waterton, and Natalie Gill, Chichester: Wiley-Blackwell.

Britt Kramvig and Hilde Methi. “Art: Science: Travelling assemblages – Intervention, Ethics and Enacting the politics of borders”. In preparation for: René van der Duim, Carina Ren and Gunnar Thór Jóhannesson. (eds.) . *Co-creating Tourism Research. Towards Collaborative Ways of Knowing*, London & New York: Routledge

Kramvig, Britt and Margrethe Petterson (in dialogue). “Living Land – Below”. A commission piece by Margrethe Pettersen for Dark Ecology, co-commissioned by Arctic Encounters. The soundwalk is performed outside Kirkenes, during the second journey of Dark Ecology. <http://sonicacts.com/portal/commissions/margrethe-iren-pettersen---living-land---below-as-above>

Law, John and **Marianne E. Lien** (forthcoming) “Denaturalising Nature”. In de la Cadena, M., Blaser, M. and Escobar, E. (eds.) *Indigenous Cosmopolitics*. Duke University Press.

Losey, Robert J., McLachlin, K., Nomokonova, T., Latham, K., Harrington, L. 2016. “Body mass estimates in dogs and North American gray wolves using limb element dimensions”. *International Journal of Osteoarchaeology*. DOI: 10.1002/oa.2528

Losey, Robert J., and T. Nomokonova (eds.) In press. *The Holocene Zooarchaeology of Cis-Baikal, Siberia*. German Archaeological Institute, Berlin. (Losey is author or coauthor of 8 of 9 chapters).

Pálsson, Gísli. 2016. *The man who stole himself; The slave odyssey of Hans Jonathan.* Chicago: University of Chicago Press.

Sörlin, Sverker, “Cryo-history: Exploring Ice and Snow in the Cold War”, in *Snow and Ice in the Cold War*, eds. Christian Kehrt & Julia Herzberg (New York: Berghahn Books, in press).

Ween, Gro B. and Marianne E. Lien 2016. “Indigenous land claims and multiple landscapes”. In: L.Head, K. Saltzman, G. Steen and M. Stenseke. *Nature, Temporality and Environmental Management. Scandinavian and Australian perspectives on peoples and landscapes.* London: Routledge (pp.133-149). <https://www.routledge.com/Nature-Temporality-and-Environmental-Management-Scandinavian-and-Australian/Head-Saltzman-Setten-Stenseke/p/book/9781472464651>

6.2 Articles/books derived (fully or partly) from the project in prep or under review

Joint publications – Co-edited Books or Special Issues:

Heather Swanson, Marianne Lien, and Gro Ween eds. *Decentering Domestication.* Duke University Press. (*under revision for final submission to Duke Oct 2016*)

Marianne Lien, Heather Swanson and Gro Ween. “Introduction: Naming the Beast – Exploring the Otherwise.” In *Decentering Domestication*, Under review at Duke University Press.

Heather Swanson. “Domestication Gone Wild: Disrupting the Domus.” In *Decentering Domestication*, Under review at Duke University Press.

Gro Ween, Kristin Asdal, and Heather Swanson. “How the Salmon Found its Way Home: Science, State Ownership, and the Domestication of Wild Fish.” In *Decentering Domestication*, Under review at Duke University Press.

Knut Nustad “Wilderness through domestication: trout, colonialism and capitalism in South Africa”. In *Decentering Domestication*, Under review at Duke University Press.

Lien, Marianne. “Ducks into houses. Reclaiming domestication as a reflexive tool”. In *Decentering Domestication*, Under review at Duke University Press.

Fijn, Natasha. 'Dog Ears and Tails: different relational ways of being in Aboriginal Australia and Mongolia' . In *Decentering Domestication*, Under review at Duke University Press.

Hastrup, Frida. “Natural Goods on the Fruit Frontier. Cultivating Apples in Norway”. In *Decentering Domestication*, Under review at Duke University Press.

Law, John and Marianne Lien (eds.). “A Manual for a Postcolonial Arctic”. In prep with contributions commissioned or under revision from CAS-fellows&guests, including Diane Gifford-Gonzalez, Andrew Mathews, Britt Kramvig, Sverker Sörlin, Liv Østmo, Marianne Lien, John Law, Marisol de la Cadena, Gísli Pálsson.

Hastrup, Frida and Marianne Lien (eds.) “The Making of Northern Resource Landscapes”. Special Issue in prep. (based on CAS workshop March 2015)

Hastrup, Frida and Marianne Lien. “Livable Landscapes in the North. Ethnographies of Resourcefulness”, Introduction in prep for Special issue: The Making of Northern Resource Landscapes. Special issue.

Hastrup, Frida “Natural Resources and their Units. Necessity, Self-sufficiency and Dependency in a Norwegian Fruit Landscape”. Under revision for The Making of Northern Resource Landscapes. Special issue.

Lien, Marianne. “From *meahcci* to nature reserve; The rise and fall of farming in Varanger. Under revision for The Making of Northern Resource Frontiers. Special issue.

Ween, Gro B. The King of fish in the High North. Under revision for The Making of Northern Resource Landscapes. Special issue.

Lien, Marianne and Gísli Pálsson (eds.) “Revisiting the other-than-human in ethnography”. Special Issue in prep. Proposed for *Ethnos* (based on CAS workshop February 2015)

Pálsson, Gísli and Marianne Lien. “Introduction”. In prep for Special Issue, Revisiting the other-than-human in ethnography” *Ethnos*.

Gísli Pálsson, Neil Carrier and Michael O’Leary: “Interspecies relations in the works of Paul T. W. Baxter”. In prep for Special Issue, Revisiting the other-than-human in ethnography”. *Ethnos*.

Fijn, Natasha: “Observations from visual Ethnography: Aboriginal connections with animals through the work of Donald Thomson and Ian Dunlop”. Submitted for Special Issue, Revisiting the other-than-human in ethnography”. *Ethnos*

Guzmán-Gallegos, María: Complicating ‘humanity’ in more-than-human relations: Philippe Descola’s Achuar and their Kichwa neighbors in Ecuadorian and Peruvian Amazonia. Submitted for Special Issue, Revisiting the other-than-human in ethnography”. *Ethnos*

Schroer, Sarah: Jakob von Uexküll: Animal subjects and the concept of *Umwelt*. Submitted for Special Issue, Revisiting the other-than-human in ethnography”. *Ethnos*

Gifford-Gonzalez, Diane. “Starry Sky’s Story of Pritchard”. Submitted for Special Issue, Revisiting the other-than-human in ethnography. *Ethnos*

(Articles in prep for the *Ethnos* special issue by Jon Henrik Zigler Remme, Frida Hastrup and Marianne Lien)

CAS - Co-authored articles/book chapters (not mentioned above)

Nathalia Brichet, **Frida Hastrup** and **Heather Swanson**. (*under review*) Curious Ecologies of Knowledge: Anthropologists engaging a Former Mining Site in Denmark. For edited volume titled: *Curiosity in Multidisciplinary Perspective*.

Law, John and **Marianne Lien** “The Ghost at the Banquet: Ceremony, Community and Industrial Growth in West Norway”. In *Anthropos and the material: Anthropological reflections on emerging political formations*. Penny Harvey, Christian Krohn-Hansen, **Knut G Nustad**. Submitted Duke July 2016

Losey, Rob.J., Marianne Lien and Natasha Fijn. In prep. “Critiquing Arctic Domestication: Implications for the Study of Dog and Reindeer Societies of the Circumpolar North”. *Journal of Anthropological Archaeology*.

Gísli Pálsson and John Law “Seismographs”. In preparation. 2017.

Swanson, Heather and **Gisli Palsson**. “Coming Home: The House and the Anthropocene.” Journal to be decided. Draft to be finished for workshop at AAA 2016.

Other single authored articles/book chapters, or co-authored/co-edited with others

Anna Tsing, **Heather Swanson**, Elaine Gan, and Nils Bubandt.(eds.) *Arts of Living on a Damaged Planet*. University of Minnesota Press, 2017.

Heather Swanson, Anna Tsing, Elaine Gan, and Nils Bubandt. “Bodies Tumbled into Bodies.” In *Arts of Living on a Damaged Planet*. University of Minnesota Press, 2017.

Elaine Gan, Nils Bubandt, Anna Tsing, and **Heather Swanson**. “Haunted Landscapes of the Anthropocene.” In *Arts of Living on a Damaged Planet: Stories from the More-than-human Anthropocene*. University of Minnesota Press, 2017.

Lien, Marianne. ‘Unruly Appetites; Salmon domestication all the way down’ In *Arts of Living on a Damaged Planet: Stories from the More-than-human Anthropocene*. University of Minnesota Press, 2017.

de la Cadena, Marisol, “Uncommoning Nature: Sotries from the Anthro-Not-Seen”. In *Anthropos and the material: Anthropological reflections on emerging political formations*. Penny Harvey, Christian Krohn-Hansen, **Knut G Nustad**. Submitted Duke July 2016

Fijn, Natasha & Argent, G. (in prep) Hoofprints: Initial reactions of Indigenous peoples to the domesticated horse.

Gifford-Gonzalez, Diane. “Deep Time Thinking as Decolonizing Practice: Archaeologists as Allies in Humanities”. Nature-Culture Challenges. Under Reveiw for *Environmental Humanities*.

Solveig Joks and **John Law**, ‘Ontological Suffocation: or the end of driftnet fishing?’ (Article in prep.)

Lien, Marianne “Salmon affinities and anthropomorphic affect: A retrospective account of a more-than-human ethnography. Under revision for *Environmental Humanities*.

Loovers, J.P., Robert Wishart, **Rob J. Losey**, (eds) In prep. *Dogs in the North*. Routledge, Oxfordshire. (book now under contract)

Losey, Rob.J.,L. Fleming, K. Latham, T. Nomokonova, and L. Harrington. In prep. Domestication and the Embodied Human-Dog Relationship: Archaeological Perspectives from Siberia. In *Dogs in the North*, edited by. J.P. Loovers, R. Wishart, R.J. Losey, Routledge, Oxfordshire.

Nustad, Knut. “Mediations, translations and practices of natures and natural resources in the Isimangaliso Wetland Park, South Africa”. Under review for *American Ethnologist*.

Pálsson, Gísli. *Volcanologues: The Eyjafjallajökull Eruption of 2010*. (monograph in prep).

Pálsson, Gísli. *Inn að kviku: Plús Ex stígur til jarðar* (In Icelandic; English translation is also anticipated, tentatively entitles *Magma: Down to Earth*). Book

Sörlin, Sverker. “Arctic Anthropocenes: Historiographies of a Liveable Arctic”, in: Nina Wormbs, ed., *The continuous production of competing Arctic futures: Voices, resources, governance* (under contract with Palgrave MacMillan).

Sörlin, Sverker, “Humanities of Transformation: From Crisis and Critique towards the Emerging Integrative Humanities”, *Research Evaluation* (in review)

Swanson, Heather. (under review) “Patterns of Naturecultures: The spatial redistribution of Pacific Salmon” *Frontier Assemblages: The Emergent Politics of Resource Frontiers in Asia*, eds. Jason Cons and Michael Eilenberg. Antipode Book Series.

Swanson, Heather. *Caught in Comparisons: Japanese salmon in an uneven world*. Single-authored monograph. To be submitted to Duke University Press in Fall 2016.

Swanson, Heather. “More-than-Human Relations in the Making of Difference: Salmon fisheries management in Hokkaido, Japan and the Columbia River Basin, United States” To be submitted to *Ethnos*.

Højrup, Mathilde and **Heather Swanson**. “On Unstable Ground: The shifting landscapes of Søby Brunkulslejer, Denmark.” For AURA special journal issue.

Ween, Gro B. Scientific Labour and working Nature. Field biology in Finnish Lapland. In *Anthropos and the material: Anthropological reflections on emerging political formations*. Penny Harvey, Christian Krohn-Hansen, **Knut G Nustad**. Submitted Duke July 2016.

Ween, Gro B. “Kevo Subarctic Research Station. Field Biology and working nature in Finnish Lapland”. In: Helena Ekerholm and Christer Nordlund (eds.) *Understanding Field Science Institutions*. Under review with Science History Publications, USA.

Appendix

CAS fellows:

Marianne Elisabeth Lien,
Professor,
Department of Social Anthropology,
University of Oslo.

Heather Swanson,
Assistant (now Associate) Professor,
Department of Social Anthropology,
University of Aarhus.

John Law,
Professor Emeritus.
Open University UK
(now Professor 2 at Sámi Állaskuvla /Sami University College Kautokeino).

Gro Ween,
Associate Professor,
Museum of Cultural History,
University of Oslo.

Knut Nustad,
Professor ,
Department of Social Anthropology,
University of Oslo.

Frida Hastrup,
Associate Professor,
SAXO Institute,
University of Copenhagen.

Gísli Pálsson,
Professor,
Department of Anthropology,
University of Iceland.

Britt Kramvig,
Professor,
Institutt for reiseliv og nordlige studier,
University of Tromsø /Norges Arktiske Universitet

Diane Gifford-Gonzalez,
Professor,
Department of Anthropology,
University of California, Santa Cruz

Natasha Fijn,
Researcher,

School of Archeology and Anthropology,
Australian National University.

Rob Losey,
Associate Professor,
Faculty of Arts,
University of Alberta.

Sverker Sörlin,
Professor of Environmental History,
KTH, Stockholm.

Kjersti Larsen,
Professor, Museum of Cultural History,
University of Oslo.

In addition we have hosted CAS guests for short visits, including:

Solveig Joks and Liv Østmo Sámi Állaskuvla, María Guzman-Gallegos University of Oslo, James Maguire IT University Copenhagen, Berit Kristoffersen University of Tromsø, David Turnbull University of Melbourne, Marisol de la Cadena UC Davis, Andrew Mathews UC Santa Cruz, Anna Tsing UC Santa Cruz and Aarhus University, Hugh Raffles New School NY, Annemarie Mol University of Amsterdam, Ben Orlove Columbia University NY, Peter Looovers and Sarah Schroer University of Aberdeen.