BIO-info

Nyheter fra Institutt for biologi

BIO-info 19/2012, 1. juni 2012 BIO: sakslister og møtereferater BIO-info arkiv
submission deadline to bio.info@bio.uib.no is Wednesday 16:00

Fra toppen!

Kjølig realfagsklima

Universitetsstyret valgte i sitt møte 31. mai å overhøre bekymringsmeldingene fra mat.nat.-miljøene om effektene av økte tilbakeførte dekningsbidrag til sentralleddet, slik vi skrev om i BIO-info i januar, og slik instituttlederne samlet skrev brev om nylig. I saksforelegget til Universitetsstyret er retorikken rettet mot eksternfinansiert forskning som en belastning for universitetet. Det hevdes at deler av universitetets felles midler er brukt til å delfinansiere den eksterne forskningen, fordi dekningsbidragene som har vært holdt tilbake sentralt har vært for lave.

Det universitetsledelsen glemmer, er at vi er helt avhengig av eksternfinansierte prosjekter for å kunne gjennomføre gode master- og doktorgradsprosjekter, som ofte koster 100-200.000 kroner eller mer å gjennomføre. Faktisk er det slik at enkelte kostbare laveregradskurs også er subsidiert av eksterne prosjekter, fordi det ikke er handlingsrom i instituttbudsjettene til å prioritere dette. Når 110% av instituttbudsjettet (ekskl. husleie) går til lønn, sier det seg selv at det er den eksternfinansierte virksomheten som subsidierer kjerneaktiviteter som undervisning, laboratoriedrift, utstyr til forskning og publisering, ikke omvendt.

Universitetsledelsen vet godt at man på nasjonalt nivå ikke bare har regnet på hva dekningsbidraget burde være, men også på hvor underfinansierte realfagsstudiene og PhD-stipendiatene i utgangspunktet er. Så istedenfor å ensidig gå etter fullfinansiering av forskningsdelen, kunne universitetsstyret se om ikke en viss skjevdeling av dekningsbidraget til de miljøene som henter inn eksterne penger faktisk er nødvendig for å kunne gjennomføre samfunnsoppdraget og oppnå de måltallene universitetet har gitt oss for bachelor-, master- og PhD-produksjon.

Alternativet er selvsagt at vi tydelig sier fra om hvor mange master- og PhD-studenter rammebevilgningen fra UiB gir oss rom for å ha, og setter opptakstaket der. Det ville kunne bli dramatisk!

Hilsen Anders

Ukens bilde

Nisesafari

Fotograf: **Anders Goksøyr**

Nisesafari i Bjørnefjorden.

You are invited to submit photos (electronically!) for "Ukens bilde". Please include a very short description and credit information. Picture can be of researchers / students in action, technology, organisms, field sites … Please send your pictures to bio.info@bio.uib.no

BIO-info

Nyheter fra Institutt for biologi

Innhold:

BIO-info

Nyheter fra Institutt for biologi

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Facebook BIO Facebook STIM Facebook UiB

VIKTIG INFORMASJON

Muligheter for støtte gjennom nytt UiB program, SPIRE

UiB utlyser midler gjennom sitt nye program SPIRE
SPIRE er UiB sitt nye strategiske program for internasjonal forsknings- og undervisningssamarbeid
Les om søknadsprosessen under «Nye utlysninger»

BIO-arrangement kommende uke

Dato	Handlinger, navn	Tid og sted
7 juni	**Horizons lecture** David Battisti, University of Washington Climate Change and Global Food Production	Egget, Studentsenteret 15:00
8.juni	Disputas Irene Roalkvam	Kl. 10:15 Stort Auditorium, HIB

NYHETER OG GENERELL INFORMASJON

BIO300 i upedblog: SAR Speaker Series;

BIO300 omtalt i upedblog
Karin Pittman og BIO300 omtalt i mai-utgaven av upedblog

(SAR) Speaker Series, høsten 2012
Som et prøveopplegg ønsker styringsgruppa i år å koordinere en felles SAR-Speaker Series, hvor vi legger til rette for besøk til flere av de norske medlemsinstitusjonene.

Hva er SAR - Speaker Series?
En Speaker Series består av besøk fra en SAR-støttet akademiker (SAR-scholar) til en eller flere medlemsinstitusjoner. Besøket kan inkludere en forelesning, deltakelse i en debatt/en panelsamtale, et formelt eller uformelt seminarinnlegg, en presentasjon eller lignende, og besøket kan vare fra noen timer til en eller flere dager. Institusjonen som mottar gjesten har økonomisk og administrativt ansvar for besøket. Vertsinstitusjonen må organisere et opplegg og finansiere reise, opphold (inkludert eventuelle arrangement) og et honorar til gjesten.

Vi anbefaler å knytte en forelesning fra en SAR – scholar til en ordinær forelesningsserie eller andre arrangement på institusjonen, og gjerne å inngå et samarbeid med studentgrupper og/eller andre. Der det finnes SAIH-lokallag kan disse kontaktes for samarbeid. Og de institusjonene som har lokale SAR-komiteer kan for eksempel bruke disse til å organisere besøket på sin institusjon. Mer info

Nytt konsept på forskningsdagene: «Forskningsdagene UNG»,
Oppfordring til miljøene fra Arve Aksnes

I forbindelse med forskningsdagene i Bergen kommende høst planlegges det et nytt konsept hvor vgs-elever (16-17 år) samles til en festival-preget kveld på Studentsenteret. Arrangementet kalles for Forskningsdagene UNG: fredag 28. september kl 18.00 - 23.00. Håpet er å samle nærmere 1000 vgs-elever.

Forskningsdagene UNG skal ha mange forskjellige forskningsrelaterte aktiviteter som workshops og forskningsstasjoner. Info om arrangementet finner dere her:

Det er i første rekke forskningsstasjoner som etterlyses nå, og fra overnevnte nettside siterer jeg: " Forskningstasjoner - etter modell fra Forskningstorget gjør vi Stundentsenteret om til et opplevelsesenter fylt til randen med interaktive forskningsstasjoner og formidlingsglade forskere. Om du lager noe helt nytt, eller tilpasser det du bruker på det vanlige Forskningstorget er opp til deg som bidragsyter. Tips: Tema og nivå på stasjonen må være tilpasset elever i første og andre klasse på videregående."

Fint hvis dere kan oppmuntre de mange flotte Matnatmiljøene til å kjenne sin besøkelsestid og melde seg på! Som dere ser kan de miljøene som deltar på Forskningstorget i stor grad bruke samme stasjon under Forskningsdagene UNG (som arrangeres uken etterpå). Frist for påmelding av en forskningsstasjon er 20 juni, og her er lenke til påmelding:

Disputas Irene Roalkvam: Mikroorganismer i metanrike sedimenter fra Nordsjøen

Irene Roalkvam disputerer fredag 8. juni for PhD-graden ved Universitetet i Bergen med avhandlingen: Diversity, stratification and *in situ* metabolism of anaerobic methanotrophic archaea in Nyegga cold seeps
Veiledere: Ida Helene, Tim Urich
Bedømmelseskomite: Professor Ruth Anne Sandaa, Førsteamanuensis Kirsten Silvia Habicht, University of Southern Denmark, Danmark, Seniorkjemiker Anne Gunn Rike, Norges Geotekniske Institutt
Leder av disputasen: Førsteamanuensis Kjersti Inga Sjøtun, Universitetet i Bergen
Tid og sted: Fredag 8. juni 2012, kl. 10.15,
Stort auditorium, Høyteknologisenteret, Thormøhlensgate 55
Alle interesserte er velkommen

Nyansatte

Velkommen til BIO

Vi ønsker følgende nye kolleger velkommen til Institutt for biologi:

Navn/Stilling	Ansatt dato	Forskningsgruppe
Anders Schouw/Stipendiat	16.01.2012	Geobio
Melanie Underwood/Stipendiat	07.05.2012	Fiskeriøkologi og havbruk
Øyvind Drivenes/Forsker	30.04.2012	Marin utviklingsbiologi
Irja Sunde Roiha/Avdelingsingeniør	13.03.2012	Marin mikrobiologi
Jeanette Yndestad Hansen/Forskn.tekn	16.04.2012	EECRG
Knut Magnus Persson/Forskningstekniker	01.02.2012	Fiskeriøkologi og havbruk

NYE UTLYSNINGER

Mer info om utlysninger inkl. løpende, dvs. uten frister finner du her

Husk å sende søknadsutkastet til post@bio.uib.no 1 uke i forveien (gjelder ikke mindre bevilgninger som legater og fonds)

SPIRE; Utlysning av samarbeidmidler mellom CMI og UiB; Årets utlysning HAVBRUK; arrangementsstøtte MILPAAHEL; PhD course Kristineberg

Utlysning av SPIRE - Strategisk program for internasjonalt forsknings- og undervisningssamarbeid

SPIRE er UiB sitt nye strategiske program for internasjonal forsknings- og undervisningssamarbeid

Det kan søkes om SPIRE-midler i tre kategorier:

(1) SPIRE midler for internasjonale nettverks-/partnerskapssamarbeid.

(2) SPIRE midler for internasjonal workshop og/eller etablering av samarbeid.

(3) SPIRE gjesteforskermidler

Søkerne bes å lese Retningslinjer for søker / Guidlines for Applicants og søker må benytte SPIRE søknadsskjema / SPIRE Application form

Merk at det kun er mulig å søke om midler fra én kategori av gangen.

Instituttene foretar vurdering og rangering av søknadene før søknadene sendes til fakultetet. Frist for å sende søknadene til fakultetet er 20. juni 2012. **Instituttet ber om at søknader sendes Anne Fjellbirkeland innen fredag 15 juni**

Fakultetsledelsen vil foreta en rangering av søknadene før oversending til Forskningsadministrativ avdeling.

Utlysning av samarbeidsmidler mellom CMI og UiB 2012

Chr. Michelsens institutt og Universitetet i Bergen har en langsiktig samarbeidsavtale som har som overordnet formål å styrke den utviklingsrelaterte forskningen i Bergen. For å fremme forskningssamarbeid inviteres det til søknader om forskningsmidler for 2012 fra vitenskapelig ansatte ved de respektive virksomhetene. Det er et krav til søknadene at de skal inkludere forskere fra begge institusjonene.
Samarbeidsmidlene skal primært disponeres til såkornmidler for prosjektutvikling. Det skal gå klart fram av søknaden i hvilken sammenheng tiltaket inngår i og hvordan tiltaket videre skal følges opp. De kan derfor også benyttes til å utvikle nettverkssamarbeid (for eksempel gjennom seminarer, workshops og annet). Det er ønskelig å motta søknader som også stimulerer til samarbeid med nye fagmiljøer.
Prosjektsøknader som inneholder delfinansiering fra moderinstitusjonen eller andre finansieringskilder ønskes velkommen. Der det er naturlig, oppfordres det til at aktiviteter legges til CMI og UiBs felles Ressurssenter for internasjonal utvikling i Jekteviken (Jussbygg 2). Dette gjelder blant annet seminarer og fellesaktiviteter.

Kortfattet prosjektbeskrivelse med budsjett (2 til 3 sider) samt CV for prosjektleder sendes til UiB på e-post post@fa.uib.no (tittel: Samarbeidsmidler-CMI-UiB) innen **20. juni 2012**. Tildelingene vil normalt ha en øvre ramme på NOK 150 000. Søknadene vil bli vurdert av Samarbeidsutvalget, oppnevnt av CMI og UiB.

Eventuelle spørsmål til søknadsprosessen kan rettes til prosjektsjef Steinar Hegre, CMI, steinar.hegre@cmi.no eller underdirektør Heidi A. Espedal, FA, UiB, heidi.espedal@adm.uib.no

Årets utlysning fra HAVBRUK er klar

Til sammen 90 million kroner til forskerprosjekter og innovasjonsprosjekter i næringslivet lyses ut med fortsatt fokus på bærekraft.

Forskerprosjekter kan søkes innenfor temaene frisk fisk, fremtidens fôr og samfunnsmessig bærekraft. I tillegg kan bedrifter søke innovasjonsprosjekter innenfor alle temaer beskrevet i programplanen. Det lyses også ut midler øremerket til internasjonalt samarbeid.

Nytt av året er at Havbruksprogrammet vil gi egne postdoktorstipender i tillegg til at ordningen med yngre toppforskere videreføres.

Kommer utlysning i avl og genetikk
En egen utlysning innenfor avl og genetikk vil bli lagt ut senere.
Mer info

Program for miljøpåvirkning og helse - arrangementstøtte og utenlandsstipend (MILPAAHEL) Les mer

PhD Course: Ecotoxicogenomics and Mechanisms of Toxicity

Course will be held at the Kristineberg Marine Field Station in August 13-17 this summer. More info

KOMMENDE MØTER OG SEMINAR

Mer info om kurs, møter, seminar og arrangement etc finner du her.

Horizons lecture; Nordisk mikroskop konferanse realfagbygget; workshop: How to coordinate and administer EU Framework projects

Horizons lecture Thursday 7 June at 15.00, in Egget, Studentsenteret

Climate Change and Global Food Production

David Battisti, University of Washington
The event starts with a snack and refreshments in advance of the lecture that starts at 15.15.
Details and more information

Scandem (Nordic Microscopy Society) konferanse på realfagbygget 12-15 juni.

Arrangeres av MatNat sin Elektronmikroskopisk felleslaboratorium. Mange interessante foredrag på forskning som benytter det nyeste innen mikroskoperingsteknikker. Bl.a. presentasjon fra vår egen Audrey Geffen. Mer info

Professional training workshop: How to coordinate and administer EU Framework projects.

This course is designed to develop skills of the participants so that they can coordinate or administer projects funded by the European Framework Programme for Research and Innovation. It is for newcomers and participants with basic knowledge about Framework programme (current or future project coordinators). It is relevant for staff of organisations involved in research and innovation (espacially for current or future project coordinators of projects). It also considers important changes in the next Framework Programme, Horizon2020.

You have following options to get this training:
Join our open workshop on 13 June 2012: Click here to book a place at the next open workshop on 13 June 2012 at Gustav Stresemann Institute, Bonn (2 hours by train from Brussels and Amsterdam)

Book a private webinar: Private webinar is delivered online by video and audio conference directly to your office at a suitable time to you. This saves time, travel costs and CO2 emissions. Click here to book a private webinar.

Request an in-house training: Click here to request an in-house training at your premises.

A major five-day *Forum on Science, Technology and Innovation for Sustainable Development* will be held on 11-15 June 2012 in Rio de Janeiro, Brazil, in the days just prior to the Rio+20 Conference. More info

Introduction Seminar for new employess at UiB 18. June 2012. For programme and registration, click here**.**

LEDIGE STILLINGER

Mer info finner du her. Stillinger utlyst på BIO finner du nederst til høyre på instituttets nettside .

NYE ARTIKLER

***A full listing of BIO's ISI publications can be found on BIO's internal web pages. Click here

Schei; Grytnes; Mangel; Erikstad; Jensen; Keen; Birkeland; Plotkin; Gerasimova; Rapp; Meineri; Vandvik; Nilsen; Willis; Kvifte; Bjune; Birks

Schei FH, Blom HH, Gjerde I, **Grytnes JA**, Heegaard E, Saetersdal M (2012) Fine-scale distribution and abundance of epiphytic lichens: environmental filtering or local dispersal dynamics? Journal of Vegetation Science 23:459-470

Abstract: Questions: How are the fine-scale spatial distribution and abundance of epiphytic lichens explained by factors related to environmental filtering and local dispersal? Are spatial distribution and abundance explained by the same underlying factors across sites for: (1) each species separately; or (2) groups of species with similar dispersal strategies? Location: Ten lowland deciduous forests at the southwest coast of Norway (60 N, 5 E). Methods: We investigated the spatial distribution and abundance, given occurrence, of 15 epiphytic Lobarion lichens in ten forest sites: six 1800-m 2 study sites and four 5000-m 2 study sites. We divided each site into a grid of 1-m 2 sampling units, marked all trees and recorded the abundance of individual lichen species. We assessed the relative impact of factors related to environmental filtering and local dispersal for each lichen species using multiple regressions and variation partitioning. Finally, to compare the results between species and between sites, we applied linearmixed effectmodels. Results: We found that the occurrence of lichen species on a tree is explained primarily by factors related to environmental filtering. The abundance of lichen

species that occur on a tree is explained by a combination of environmental filtering and local dispersal, but the relative importance of these factors was found to vary greatly between sites. We found no differences in this respect between species with different dispersal strategies. Conclusions: Our results indicate that both environmental filtering and local dispersal dynamics are important processes explaining the distribution and abundance patterns of Lobarion lichens at fine spatial scales. However, spatial variations in environmental factors within sites interact with propagule distributions to produce a range of inter-site variation. Accordingly, the relative importance of these two structuring mechanisms varies among sites, particularly in the case of abundance patterns. Since single-site patterns are not readily generalized, we emphasize the importance ofmultiple study sites for evaluation of the role of different processes in shaping the spatial distribution patterns of species

Dowling NA, Wilcox C, **Mangel M**, Pascoe S (2012) Assessing opportunity and relocation costs of marine protected areas using a behavioural model of longline fleet dynamics. Fish and Fisheries 13:139-157

Abstract: Increasing use of spatial management tools in fisheries requires an understanding of fleet response, and in particular to where displaced fishing effort is likely to move. We develop a state-dependent decision-making model to address the spatial allocation of effort in an Australian tuna longline fishery. We assume that fishers have an economic objective in deciding where to fish, but that decisions in any period are also influenced by the remaining quota held at the time of the decision. Key features of the model include endogenous price dynamics, a moving stock and a competitive pool of different vessel types operating from different port locations. We utilize this model to illustrate fleet responses to marine reserves and limits on fishing effort. The results illustrate that the model framework provides advantages over statistically based models in that decisions made in response to the imposition of a reserve are not consistent with a proportional reallocation of effort. Rather, the stochastic dynamic model yielded an overall profit level of similar to 4% higher relative to scenarios with no reserve. Incorporating the opportunity cost of a quota into the model resulted in an optimal utilization of effort, in which effort was concentrated in time periods and locations yielding maximized profit. Under a low level of effort relative to the season length, the model indicated an overall profit level 43% greater than the highest obtained when the same level of effort was applied solely within any given quarter of the season.

Erikstad HA, Jensen S, Keen TJ, Birkeland NK (2012) Differential expression of particulate methane monooxygenase genes in the verrucomicrobial methanotroph 'Methylacidiphilum kamchatkense' Kam1. Extremophiles 16:405-409

Abstract: Methane monooxygenases (MMOs) are oxygen-dependent enzymes that catalyze the oxidation of methane to methanol in the methanotrophic bacteria. The thermoacidophilic verrucomicrobial methanotroph 'Methylacidiphilum kamchatkense' Kam1 contains three complete and phylogenetically distinct copies of the gene cluster apparently organized as operons, each encoding all three subunits of particulate MMO (pMMO), and a truncated cluster encoding only two of the subunits. Two of the clusters are present as a tandem array, but the other clusters occur in isolation. Here, the expression of these clusters has been assessed using the four genes as targets in reverse transcriptase quantitative PCR analysis. One of the genes, designated , is at least 35-fold more strongly transcribed than the other copies. Growth at suboptimal temperature and pH conditions did not significantly change the transcription pattern, indicating that the cluster encodes the functional pMMO under methane-fuelled growth conditions. During growth on methanol, expression of was reduced approximately tenfold as compared to growth on methane, suggesting a role for the alternative carbon substrates in gene regulation.

Plotkin A, Gerasimova E, Rapp HT (2012) Phylogenetic reconstruction of Polymastiidae (Demospongiae: Hadromerida) based on morphology. Hydrobiologia 687:21-41

Abstract: Phylogeny of the sponge family Polymastiidae was reconstructed based on 25 morphological characters. Twenty-one polymastiid species and three suberitid species, Suberites domuncula as outgroup, Aaptos aaptos and A. papillata as sister groups, were included in the analyses. The reconstructions were done in PAUP* running heuristic search with the parsimony criterion. We analysed three possible evolutionary scenarios based on three alternative interpretations

of the body plan of Quasillina brevis and Ridleia oviformis: first-Ridleia possesses aquiferous papillae whereas Quasillina lacks them, second-both genera lack papillae and third-the body in both genera is a single hyperdeveloped papilla. All three scenarios excluded the secondary loss of the papillae in the polymastiid evolution. Scenario 2 also excluded the secondary loss of the regular choanosomal skeleton, while scenario 1 assumed its loss in Ridleia and scenario 3 admitted its loss in both Ridleia and Quasillina. We prioritised scenario 2 due to its maximal parsimony and rescaled consistency index and subsequently favoured the clustering of Ridleia and Quasillina separately from the monophyletic polymastiid clade. In all three scenarios Pseudotrachya hystrix clustered separately from other polymastiids in agreement with the molecular evidence, and thus the exclusion of Pseudotrachya from Polymastiidae was proposed. The relationships between A. papillata, Tentorium semisuberites, Polymastia uberrima, the clade Weberella bursa ? Polymastia boletiformis and the main polymastiid clade were ambiguous. Meanwhile, all scenarios showed the non-monophyly of Polymastia and Aaptos. Our hypotheses should be tested by reconstructions based on larger taxon sampling of hadromerid species and larger sets of morphological and molecular characters before any ultimate taxonomic decisions are taken.

Meineri E, Skarpaas O, **Vandvik V** (2012) Modeling alpine plant distributions at the landscape scale: Do biotic interactions matter? Ecological Modelling 231:1-10

Abstract: Species Distribution Models (SDMs) generally ignore biotic processes. However, it has been shown that biotic interactions from lowland flora contribute to shape the "rear edge" of alpine plant distributions. In this study, we explored the potential effect of accounting for interactions from dominant lowland congeners representative for the lowland flora for predicting landscape scale distribution (1 km grain) of two alpine plant species. Viola biflora and Veronica alpina.

In a first classical approach, we include the lowland species probabilities of occurrence as covariates in the alpine species landscape scale models (covariate models). In a second novel approach, we first used SDMs to predict the distribution of the two alpine plants at the landscape scale. We then searched for interactive effects with the lowland species, and used this information to re-predict the landscape parts where alpine and lowland species were previously predicted to co-occur (abiotic + biotic models).

Our 'abiotic + biotic' model improved model precision for both alpine species; but statistically significantly for Viola biflora only. In contrast, the classical covariate approach did not affect the prediction accuracy of Viola biflora and decreased the prediction accuracy for Veronica alpina. This seemed to be caused by collinearity between abiotic and biotic predictors, highlighting potential problems with the conventional method used to account for biotic interactions in SDM.

Including potential effects of biotic interactions can improve predictions of alpine species' ranges at the landscape scale. Ignoring biotic interactions in SDM may lead to biased predictions that are likely to overestimate realized climatic niches and so species distributions. The abiotic + biotic approach can constitute a robust method to account for biotic interactions in SDM

Krasnov A, Skugor S, Todorcevic M, Glover KA, **Nilsen F** (2012) Gene expression in Atlantic salmon skin in response to infection with the parasitic copepod Lepeophtheirus salmonis, cortisol implant, and their combination. Bmc Genomics 13

Abstract: Background: The salmon louse is an ectoparasitic copepod that causes major economic losses in the aquaculture industry of Atlantic salmon. This host displays a high level of susceptibility to lice which can be accounted for by several factors including stress. In addition, the parasite itself acts as a potent stressor of the host, and outcomes of infection can depend on biotic and abiotic factors that stimulate production of cortisol. Consequently, examination of responses to infection with this parasite, in addition to stress hormone regulation in Atlantic salmon, is vital for better understanding of the host pathogen interaction.

Results: Atlantic salmon post smolts were organised into four experimental groups: lice + cortisol, lice + placebo, no lice + cortisol, no lice + placebo. Infection levels were equal in both treatments upon termination of the experiment. Gene expression changes in skin were assessed with 21 k

oligonucleotide microarray and qPCR at the chalimus stage 18 days post infection at 9 degrees C. The transcriptomic effects of hormone treatment were significantly greater than lice-infection induced changes. Cortisol stimulated expression of genes involved in metabolism of steroids and amino acids, chaperones, responses to oxidative stress and eicosanoid metabolism and suppressed genes related to antigen presentation, B and T cells, antiviral and inflammatory responses. Cortisol and lice equally down-regulated a large panel of motor proteins that can be important for wound contraction. Cortisol also suppressed multiple genes involved in wound healing, parts of which were activated by the parasite. Downregulation of collagens and other structural proteins was in parallel with the induction of proteinases that degrade extracellular matrix (MMP9 and MMP13). Cortisol reduced expression of genes encoding proteins involved in formation of various tissue structures, regulators of cell differentiation and growth factors.

Conclusions: These results suggest that cortisol-induced stress does not affect the level of infection of Atlantic salmon with the parasite, however, it may retard repair of skin. The cortisol induced changes are in close concordance with the existing concept of wound healing cascade.

Gjerde I, Blom HH, Lindblom L, Saetersdal M, **Schei FH** (2012) Community assembly in epiphytic lichens in early stages of colonization. Ecology 93:749-759

Abstract: Colonization studies may function as natural experiments and have the potential of addressing important questions about community assembly. We studied colonization for a guild of epiphytic lichens in a former treeless heathland area of 170 km 2 in southwest Norway. We investigated if epiphytic lichen species richness and composition on aspen (Populus tremula) trees corresponded to a random draw of lichen individuals from the regional species pool. We compared lichen communities of isolated young (55-120 yr) and old (140-200 yr) forest patches in the heathland area to those of aspen forest in an adjacent reference area that has been forested for a long time. All thalli (lichen bodies) of 32 selected lichen species on trunks of aspen were recorded in 35 aspen sites. When data for each site category (young, old, and reference) were pooled, we found the species richness by rarefaction to be similar for reference sites and old sites, but significantly lower for young sites. The depauperated species richness of young sites was accompanied by a skew in species composition and absence of several species that were common in the reference sites. In contrast, genetic variation screened with neutral microsatellite markers in the lichen species Lobaria pulmonaria showed no significant differences between site categories. Our null hypothesis of a neutral species assembly in young sites corresponding to a random draw from the regional species pool was rejected, whereas an alternative hypothesis based on differences in colonization capacity among species was supported. The results indicate that for the habitat configuration in the heathland area (isolated patches constituting <0.4% of the area) lichen communities may need a colonization time of 100-150 yr for species richness to level off, but given enough time, isolation will not affect species richness. We suggest that this contradiction to expectations from classical island equilibrium theory results from low extinction rates

Levi T, Darimont CT, MacDuffee M, **Mangel M**, Paquet P, Wilmers CC (2012) Using Grizzly Bears to Assess Harvest-Ecosystem Tradeoffs in Salmon Fisheries. Plos Biology 10

Abstract: Implementation of ecosystem-based fisheries management (EBFM) requires a clear conceptual and quantitative framework for assessing how different harvest options can modify benefits to ecosystem and human beneficiaries. We address this social-ecological need for Pacific salmon fisheries, which are economically valuable but intercept much of the annual pulse of nutrient subsidies that salmon provide to terrestrial and aquatic food webs. We used grizzly bears, vectors of salmon nutrients and animals with densities strongly coupled to salmon abundance, as surrogates for "salmon ecosystem" function. Combining salmon biomass and stock-recruitment data with stable isotope analysis, we assess potential tradeoffs between fishery yields and bear population densities for six sockeye salmon stocks in Bristol Bay, Alaska, and British Columbia (BC), Canada. For the coastal stocks, we find that both bear densities and fishery yields would increase substantially if ecosystem allocations of salmon increase from currently applied lower to upper goals and beyond. This aligning of benefits comes at a potential cost, however, with the possibility of forgoing harvests in low productivity years. In contrast, we detect acute tradeoffs between bear densities and fishery yields in interior stocks within the Fraser River, BC, where biomass from other salmon species is low. There,

increasing salmon allocations to ecosystems would benefit threatened bear populations at the cost of reduced long-term yields. To resolve this conflict, we propose an EBFM goal that values fisheries and bears (and by extension, the ecosystem) equally. At such targets, ecosystem benefits are unexpectedly large compared with losses in fishery yields. To explore other management options, we generate tradeoff curves that provide stock-specific accounting of the expected loss to fishers and gain to bears as more salmon escape the fishery. Our approach, modified to suit multiple scenarios, provides a generalizable method to resolve conflicts over shared resources in other systems.

Bhagwat SA, Breman E, Thekaekara T, Thornton TF, **Willis KJ** (2012) A Battle Lost? Report on Two Centuries of Invasion and Management of Lantana camara L. in Australia, India and South Africa. Plos One 7

Abstract: Recent discussion on invasive species has invigorated the debate on strategies to manage these species. Lantana camara L., a shrub native to the American tropics, has become one of the worst weeds in recorded history. In Australia, India and South Africa, Lantana has become very widespread occupying millions of hectares of land. Here, we examine historical records to reconstruct invasion and management of Lantana over two centuries and ask: Can we fight the spread of invasive species or do we need to develop strategies for their adaptive management? We carried out extensive research of historical records constituting over 75% of records on invasion and management of this species in the three countries. The records indicate that governments in Australia, India and South Africa have taken aggressive measures to eradicate Lantana over the last two centuries, but these efforts have been largely unsuccessful. We found that despite control measures, the invasion trajectory of Lantana has continued upwards and that post-war land-use change might have been a possible trigger for this spread. A large majority of studies on invasive species address timescales of less than one year; and even fewer address timescales of >10 years. An understanding of species invasions over long time-scales is of paramount importance. While archival records may give only a partial picture of the spread and management of invasive species, in the absence of any other long-term dataset on the ecology of Lantana, our study provides an important insight into its invasion, spread and management over two centuries and across three continents. While the established paradigm is to expend available resources on attempting to eradicate invasive species, our findings suggest that in the future, conservationists will need to develop strategies for their adaptive management rather than fighting a losing battle.

Bhagwat SA, Breman E, Thekaekara T, Thornton TF, **Willis KJ** (2012) A Battle Lost? Report on Two Centuries of Invasion and Management of Lantana camara L. in Australia, India and South Africa. Plos One 7

Abstract: Whilst there are a number of mapping methods available for determining important areas for conservation within protected areas, there are few tools available for assessing the ecological value of landscapes that are 'beyond the reserves'. A systematic tool for determining the ecological value of landscapes outside of protected areas could be relevant to any development that results in a parcel of land being transformed from its 'natural' state to an alternative state (e.g., industrial, agricultural). Specifically what is needed is a method to determine which landscapes beyond protected areas are important for the ecological processes that they support and the threatened and vulnerable species that they contain. This paper presents the results of a project to develop a method for mapping ecologically important landscapes beyond protected areas; a Local Ecological Footprinting Tool (LEFT). The method uses existing globally available web-based databases and models to provide an ecological score based on :five key ecological features (biodiversity, vulnerability, fragmentation, connectivity and resilience) for every 300 m parcel within a given region. The end product is a map indicating ecological value across the landscape. We demonstrate the potential of this method through its application to three study regions in Canada, Algeria and the Russian Federation. The primary audience of this tool are those practitioners involved in planning the location of any landscape scale industrial/business or urban (e.g., new town) facility outside of protected areas. It provides a pre-planning tool, for use before undertaking a more costly field-based environmental impact assessment, and quickly highlights areas of high ecological value to avoid in the location of facilities.

Salmela, J., **Kvifte, G**. M. & More, A. (2012) Description of a new Psychoda Latreille species from Fennoscandia (Diptera: Psychodidae). Zootaxa, 3313, 34-43.

Abstract: Psychoda cultella sp. n. is described. The new species is characterized by 16-segmented antennae with the three apical flagellomeres globular, very short and partially fused; labellum with five terminal digital projections; aedeagus ca 1.7 times the length of gonostylus; distiphallus bipartite, composed of a ventral phallomere with a roundish blunt tip and a dorsal phallomere with pointed tip; basiphallus in lateral view sub-basally widened. The new species is known from Finland (29 localities) and Norway (6 localities), ranging from the southern boreal ecoregion to the subalpine zone.Psychoda cultella sp. n. is mainly found in Malaise trap samples collected from moist coniferous forests and spruce mires (riparian forests, springs) and rarely from fens and subalpine heaths. Two male specimens from Norway were reared from fruiting bodies of polypore fungi (either Fomes fomentarius or Piptoporus betulinus).

Helama, S., Seppä, H., **Bjune, A.E. & Birks, H.J.B**. (2012) Fusing pollen-stratigraphic and dendroclimatic proxy data to reconstruct summer temperature variability during the past 7.5 ka in subarctic Fennoscandia. Journal of Paleolimnology 48: 275-286. doi:10.1007/s10933-012-9598-1

Abstract: A new palaeoclimatic reconstruction of midsummer (July) temperatures for the last 7.5 ka in northern Fennoscandia is presented. It is based on two botanical proxies: spectra of fossil pollen and tree rings of Scots pine logs recovered from lacustrine sediments in the Arctic tree-line region. A newly developed method of proxy fusion is used to integrate the proxy-specific reconstructions of past summer temperature variability based on the pollen-stratigraphic and dendroclimatic data. The rationale behind the method is that the two proxies are likely to be connected to climate variability in a timescale-dependent fashion and, accordingly, the new reconstruction makes use of the low- and high-frequencies from pollen-stratigraphic and tree-ring data, respectively. The most prominent features of the new reconstruction are: (1) the long-term decline of temperatures by 2.0 degrees C over the past 7.5 ka, (2) the mid-Holocene warmth culminating between 5 and 4 ka as a deviation from the cooling trend, (3) the Little Ice Age cool phase between 0.7 and 0.1 ka, and (4) the subsequent warming during the past century. These periods are superimposed on year-to-year variations in climate as dated to calendar-year accuracy by dendrochronology. Within the modern period, the years 1934 and 1937 are among the warmest, and the years 1903 and 1910 are among the coldest summers in the context of the past 7.5 ka. On average, the reconstructed Holocene climate was approximately 0.85 degrees C warmer than the twentieth century.