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Teaching

Responsible for:

AB-203 Arctic Environmental Management

Teach on:

AB-201 Arctic Terrestrial Biology

AB-329 Arctic Winter Ecology

AGF-213 Polar Meteorology and Climate

UNIS contact:

AB-327 Arctic Microbiology

AB-325 Arctic Biotelemetric Methods

AB-329 Arctic Winter Ecology

Publications:

48 manuscripts published or *in press* in refereed journals; two book chapters:

Research Interests

Ecology of terrestrial polar invertebrates including:

- Overwintering strategies (physiological and behavioural)
- Polar Invertebrate biogeography
- Plant / insect interactions
- Dispersal, colonisation and ecosystem development

Employment:

- 2005 - Associate Professor: *terrestrial ecology*. UNIS (University Courses on Svalbard). Head of Department of Arctic Biology, June 2006 – October 2008.
<http://www.unis.no>
http://www.unis.no/35_STAFF/staff_webpages/biology/steve_coulson/default.htm
- 2003 - 2005 *Principal Officer: information*, - Metropolitan Borough of Wirral.
 2001 - 2003 *Lecturer in animal biology*, - Liverpool John Moores University.
 2000 - 2001 *Post-doctoral research fellow* - Liverpool John Moores University.
 1997 - 2000 *Post-doctoral research fellow* - University of Oslo.
 1996 - 1997 *Paramedic* - Surrey Ambulance Service.
 1995 -1996 *Lecturer in animal biology*, - Liverpool John Moores University.
 1994 - 1995 *Post-doctoral research fellow* - Liverpool John Moores University.
 1991 - 1994 *Post-doctoral research fellow* - Liverpool John Moores University.

Education:

- 1987 - 1990 *PhD* - 'Cold hardiness of the beech leaf mining weevil *Rhynchaenus fagi* L. and housefly *Musca domestica* L.' , University of Leeds, UK.
 1984 - 1987 BSc (Hons) Biological Sciences, University of Lancaster, UK.

Publications: (48 papers published or *in press* in referred journals; two book chapters)

- 1) **Coulson, S.J.**, Lorentzen, E., Strøm, H. Gabrielsen G.W. (in press) The parasitic tick *Ixodes uriae* (Acari: Ixodidae) on seabirds from Spitsbergen, Svalbard . *Polar Research*
- 2) Ávila-Jiménez, M. L., Fjellberg, A. & **Coulson, S.J.** (in press) First record of *Folsomia bisetosella* Fjellberg, 2005 (Hexapoda: Collembola) from High Arctic islands. *Norw. J. Entomol.*
- 3) **Coulson, S.J.** 2007 The terrestrial and freshwater invertebrate fauna of the High Arctic archipelago of Svalbard. *Zootaxa* 1448; 41-58.
- 4) **Coulson, S.J.** 2007 On the occurrence of *Oryzaephilus mercator* on Svalbard, Norway. *Norwegian Journal of Entomology*. 54, 21-22.
- 5) White, D.M., Hodkinson I.D., Seelen S.J. & **Coulson S.J.** 2007. Characterization of soil carbon from a Svalbard glacier-retreat chronosequence using Pyrolysis-GC/MS analysis. *Journal of Analytical and Applied Pyrolysis* 78; 70-75.
- 6) **Coulson, S.J.** & Refseth, D. (2004) The terrestrial and freshwater invertebrate fauna of Svalbard (and Jan Mayen), pp57-122 in A catalogue of the terrestrial and marine animals of Svalbard (eds. Prestrud, P. Strøm H. & Goldman H.). *Skrifter* 201. Norwegian Polar Institute, Tromsø. <http://miljo.npolar.no/mis/>
- 7) Cooper, E.J., Alsos, I.G., Hagen, D., Smith, F.M., **Coulson, S.J.** & Hodkinson, I.D. (2004) Plant Recruitment in the Arctic: Seedbank and

seeding emergence on Svalbard. *Journal of Vegetation Science* 15; 115-124.

- 8) Glasser, N.F., **Coulson, S.J.**, Hodkinson, I.D. and Webb, N.R. (2004) Photographic evidence of the return period of a Svalbard surge-type glacier: Pedersenbreen, Kongsfjord. *Journal of Glaciology*. 50(169); 307-308.
- 9) Hodkinson, I.D., **Coulson, S. J.** & Webb, N.R. (2004) Invertebrate community assembly along proglacial chronosequences in the high Arctic. *Journal of Animal Ecology* 73; 556-568
- 10) Hodkinson I.D. & **Coulson S.J.** (2004) Are high Arctic terrestrial food webs really that simple? - Bear Island revisited. *Oikos* 106; 427-431
- 11) Hodkinson, I.D., Bird, J.M. Cooper, E.J. & **Coulson, S.J.** (2004) The sexual morphs of the endemic Svalbard aphid *Acyrtosiphon calvulus* (Ossiannilsson), with notes on species biology. *Norwegian Journal of Entomology* 51; 131-135
- 12) Ims R.A., Leinaas, H.P. & **Coulson, S.J.** (2004) Spatial and temporal variation in patch occupancy and population density in a model system of an arctic species assemblage of Collembola. *Oikos* 105; 89-100.
- 13) Hodkinson, I.D., Neerup Buhl, P., **Coulson, S.J.** & Webb N.R. (2004) First record of *Dendrocerus bifoveatus* (Kieffer, 1907) (Hymenoptera: Ceraphronoidea) from Svalbard. *Norwegian Journal of Entomology* 50; 105-106.
- 14) Hodkinson, I.D., **Coulson, S. J.** & Webb, N.R. (2003) Community assembly on proglacial chronosequences in the high Arctic: vegetation and soil development in north west Svalbard. *Journal of Ecology* 91; 651-653
- 15) **Coulson, S.J.**, Hodkinson, I.D. Webb, N.R. & Convey, P. (2003) A high Arctic population of *Pyla fusca* (Lepidoptera, Pyralidae) on Svalbard? *Polar Biology* 26; 283-285.
- 16) **Coulson, S.J.**, Hodkinson, I.D. & Webb, N.R. (2003) Microscale distribution patterns in high Arctic soil microarthropod communities: the influence of the vegetation mosaic. *Ecography* 26; 801-809.
- 17) **Coulson, S. J.**, Hodkinson, I.D., & Webb, N.R. (2003) Aerial dispersal of invertebrates over a High Arctic glacier foreland: Midtre Lovénbreen, Svalbard. *Polar Biology* 26; 530-537
- 18) **Coulson, S. J.**, Hodkinson, I.D., Jussila R. & Webb, N.R. (2003) *Synodites lineiger* (Thomson, 1893) (Hymenoptera: Ichneumonidae) new to Svalbard, together with an updated list of the known ichneumonid species. *Norwegian Journal of Entomology* 50; 55-56

- 19) **Coulson, S. J.**, Hodkinson, I.D., Webb, N.R. & Harrison, J. A. (2002) Survival of saltwater immersion by terrestrial invertebrates. Implications for the colonisation of Arctic islands. *Functional Ecology* 16; 353-356
- 20) **Coulson, S. J.**, Hodkinson, I.D., Webb, N.R., Mikkola, K., Harrison, J. A. & Pedgley, D. (2002) Aerial colonisation of high Arctic islands by invertebrates: the Diamondback Moth, *Plutella xylostella* (Lepidoptera: Yponomeutidae) as a potential indicator species. *Diversity and Distributions* 8; 327-334.
- 21) Hodkinson I.D., **Coulson S.J.** and Bird J.M. (2002) Discovery of a rare alate morph of *Acyrtosiphon svalbardicum* Heikinheimo (Homoptera; Aphididae), a hitherto 'apterous' aphid species: description and implications for species ecology. *Norwegian Journal of Entomology* 49; 77-80.
- 22) Hodkinson, I.D. Webb, N.R. & **Coulson, S. J.** (2002) Primary community assembly on land: why are the predators and scavengers always there first? Are we missing a vital stage? *Journal of Ecology* 90; 569-577.
- 23) **Coulson, S. J.**, Hodkinson, I.D., Jussila, R., Webb, N.R. & Harrison, J. A. (2001) *Atractodes pusillus* Förster, 1876 and *Stenomacrus groenlandicus* Jussila, 1996 (Hymenoptera: Ichneumonidae), new records to Svalbard, Norway. *Norwegian Journal of Entomology* 48; 328
- 24) Hodkinson I.D. **Coulson, S.J.** Harrison J. & Webb N.R. (2001) What a wonderful web they weave: spiders, nutrient capture in early ecosystem development in the High Arctic - some counter intuitive ideas on community assembly. *Oikos* 95; 349-352
- 25) **Coulson, S.J.** & Birkemoe, T. (2000) Long term cold tolerance in Arctic invertebrates: recovery after four years at below -20°C. *Canadian Journal of Zoology* 78; 2055-2058.
- 26) **Coulson, S.J.**, (2000) A review of the terrestrial and freshwater invertebrate fauna of Svalbard, a High Arctic island group. *Norwegian Journal of Entomology* 47; 41-63.
- 27) **Coulson, S.J.**, Leinaas, H.P., Ims R.A. & Søvik G. (2000) Experimental manipulation of the winter surface ice layer: the effects on a High Arctic soil microarthropod community. *Ecography* 23; 299-314
- 28) Birkemoe, T., **Coulson, S.J.** & Sømme, L. (2000) Life cycles and population dynamics of enchytraeids (Oligochaeta) from the high Arctic. *Canadian Journal of Zoology* 78; 2079-2086.
- 29) Hodkinson I.D., Webb N.R., Bale J.S., **Coulson S.J.** & Strathdee A.T. (1998) Global change and high arctic ecosystems: conclusions and predictions from experiments with terrestrial invertebrates on Spitsbergen. *Arctic and Alpine Research*, 30; 306-313.

- 30) Webb, N.R., **Coulson, S.J.**, Hodkinson, I.D., Block, W., Bale, J.S. & Strathdee, A.T. (1998) The effects of experimental temperature elevation on populations of cryptostigmatic mites in high Arctic soils. *Pedobiologia*. 42; 298-308.
- 31) **Coulson S.J.** & Bale J.S. (1996) Supercooling and survival of the beech weevil *Rhynchaenus fagi* L. (Coleoptera: Curculionidae). *Journal of Insect Physiology* 42; 617-623
- 32) **Coulson S.J.**, Hodkinson I.D., Webb N.R., Block W., Bale J.S., Strathdee A.T., Worland M.R. & Wooley C. (1996) Effects of experimental temperature elevation on high-arctic soil microarthropod populations. *Polar Biology* 16; 147-153.
- 33) Hodkinson I.D., **Coulson S.J.** Webb N.R. & Block W. (1996) Can Arctic soil microarthropods survive elevated summer temperatures? *Functional Ecology* 10; 314-321.
- 34) Hodkinson I.D., **Coulson S.J.**, Webb N.R., Block W., Strathdee A.T., Bale J.S., Worland M.R. (1996) Temperature and the biomass of flying midges (Diptera: Chironomidae) in a high Arctic ecosystem. *Oikos* 75; 241-248.
- 35) **Coulson S.J.**, Hodkinson I.D., Block W., Webb N.R. & Worland M.R. (1995) Low summer temperatures: a potential mortality factor for high Arctic soil micro-arthropods? *Journal of Insect Physiology* 41; 783-792.
- 36) **Coulson S.J.**, Hodkinson I.D., Strathdee A.T., Block W., Webb N.R., Bale J.S. & Worland M.R. (1995) Thermal environments of Arctic soil organisms during winter. *Arctic and Alpine Research* 27; 365-371.
- 37) Strathdee A.T., Bale J.S., Strathdee F.C., Block W., **Coulson S.J.**, Hodkinson I.D. & Webb N.R. (1995) Climatic severity and the response to warming of Arctic aphids. *Global Change Biology* 1; 23-28.
- 38) Hodkinson I.D., Healey V. & **Coulson S.J.** (1994) Moisture relationships of the high arctic collembolan *Onychiurus arcticus*. *Physiological Entomology* 19; 109-114.
- 39) Block W., Webb N.R., **Coulson S.J.**, Hodkinson I.D. (1994) Thermal adaptation in a high arctic collembolan *Onychiurus arcticus*. *Journal of Insect Physiology* 40; 715-722.
- 40) **Coulson S.J.**, Hodkinson I.D., Strathdee A.T., Bale J.S., Block W., Worland M.R. & Webb N.R. (1993) Simulated climate change: the interaction between vegetation type and microhabitat temperatures at Ny Ålesund, Svalbard. *Polar Biology* 13; 67-70.
- 41) Hodkinson I.D., **Coulson S.J.**, Webb N.R., Block W., Strathdee A.T. & Bale J.S. (1993) Feeding studies on *Onychiurus arcticus* (Tullberg) Collembola: Onychiuridae) on West Spitsbergen. *Polar Biology* 14; 17-19.

- 42) Strathdee A.T., Bale J.S., Hodkinson I.D., Block W., Webb N.R. & **Coulson S.J.** (1993) Identification of three previously unknown morphs of *Acyrtosiphon svalbardicum* Heikinheimo (Hemiptera: Aphididae) on Spitsbergen. *Entomologica Scandinavica* 24; 43-47.
- 43) Strathdee A.T., Bale J.S., Block W.C., Webb N.R., Hodkinson I.D. & **Coulson S.J.** (1993) Extreme adaptive life-cycle in a high arctic aphid, *Acyrtosiphon svalbardicum*. *Ecological Entomology* 18; 254-258.
- 44) Strathdee, A.T., Bale, J.S., Block, W., **Coulson, S.J.**, Hodkinson, I.D. & Webb, N.R. (1993) Effects of temperature elevation on a field population of *Acyrtosiphon svalbardicum* (Hemiptera: Aphididae) on Spitsbergen. *Oecologia* 96; 457-465.
- 45) **Coulson S.J.** & Bale J.S. (1992) Effect of rapid cold hardening on reproduction and survival of offspring in the housefly *Musca domestica*. *Journal of Insect Physiology* 38; 421-424.
- 46) **Coulson S.J.**, Fisher J. & Bale J.S. (1992) A ³¹P NMR investigation of the energy charge of the housefly *Musca domestica* (Diptera: Muscidae). During rapid cold hardening and cold shock. *Cryo-Letters* 13; 183-192.
- 47) **Coulson S.J.** & Bale J.S. (1991) Anoxia induces rapid cold hardening in the housefly *Musca domestica* (Diptera: Muscidae). *Journal of Insect Physiology* 37; 497-501.
- 48) **Coulson S.J.** & Bale J.S. (1990) Characterisation and limitations of the rapid cold hardening response in the housefly *Musca domestica* (Diptera: Muscidae). *Journal of Insect Physiology* 36; 201-211.

Papers 19 and 25 (**Coulson** & Birkemoe, 2000 and **Coulson**, Hodkinson, Webb, & Harrison, 2002), were the subject of a News and Views article in *Nature* (Moore, P.D. 2002) Springboards for springtails. News & Views, *Nature*. 418; 381.

Paper 19 (**Coulson** et al. (2002)), was highlighted in the 2002 annual report of *Functional Ecology* as one of three papers making a significant contribution to raising awareness and potentially increasing the impact factor of the journal.

Book chapters:

1. Bale J.S., Hodkinson I.D., Block W., Webb N.R., **Coulson S.J.** & Strathdee A.T. (1997) Life history strategies of Arctic terrestrial arthropods, pp137-165 in Ecology of Arctic Environments (eds. Woodin, S.J. & Marquiss M.) *British Ecological Society Special Publication No. 13*. Blackwell Science.
2. Webb N.R., Hodkinson I.D., **Coulson S.J.**, Block W., Strathdee A.T. & Bale J.S. (1995) In Callaghan T.V., Oechel W.C., Gimmanov T., Holten J.I., Maxwell B., Molau U., Sveinbjörnsson B. & Tyson M (eds) Global change

and Arctic terrestrial ecosystems. Life history and ecophysiological responses to temperature in Arctic terrestrial invertebrates *Commission of the European Communities Ecosystem research Report*, Brussels, 329pp.