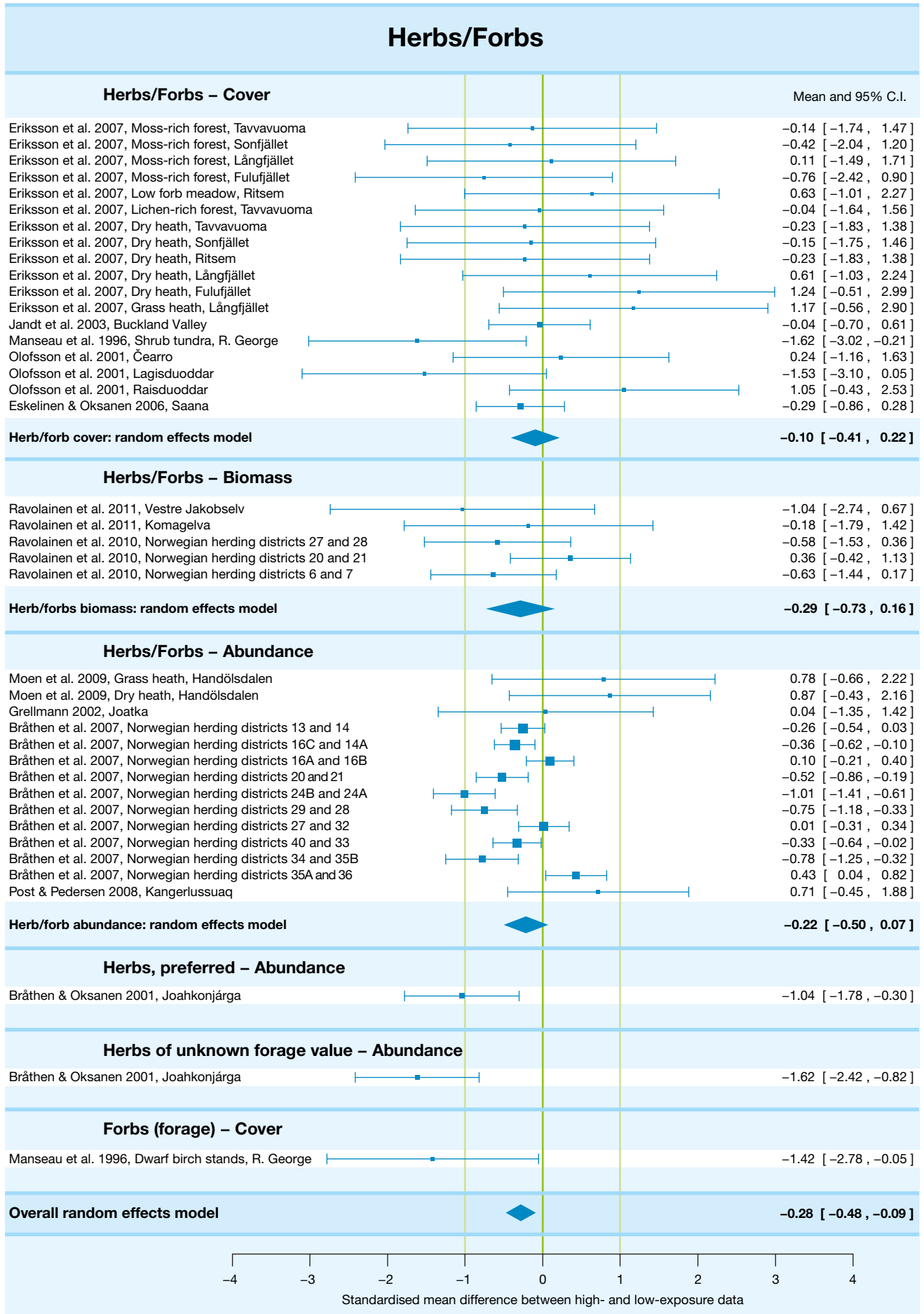


Additional file 6. Forest plots, cover/biomass/abundance.



Graminoids

Sedges/Rushes – Abundance

Brårthen et al. 2007, Norwegian herding districts 13 and 14	-0.28 [-0.56, 0.01]
Brårthen et al. 2007, Norwegian herding districts 16C and 14A	-0.19 [-0.45, 0.07]
Brårthen et al. 2007, Norwegian herding districts 16A and 16B	0.42 [0.11, 0.73]
Brårthen et al. 2007, Norwegian herding districts 20 and 21	-0.52 [-0.86, -0.19]
Brårthen et al. 2007, Norwegian herding districts 24B and 24A	-0.01 [-0.39, 0.36]
Brårthen et al. 2007, Norwegian herding districts 29 and 28	0.49 [0.08, 0.91]
Brårthen et al. 2007, Norwegian herding districts 27 and 32	0.41 [0.08, 0.73]
Brårthen et al. 2007, Norwegian herding districts 40 and 33	-0.08 [-0.39, 0.23]
Brårthen et al. 2007, Norwegian herding districts 34 and 35B	0.43 [-0.02, 0.89]
Brårthen et al. 2007, Norwegian herding districts 35A and 36	0.01 [-0.38, 0.39]

Sedges/rushes, abundance: random effects model 0.05 [-0.17, 0.27]

Sedges – Cover

Eriksson et al. 2007, Moss-rich forest, Tavvavuoma	-1.24 [-2.99, 0.51]
Eriksson et al. 2007, Moss-rich forest, Långfjället	1.28 [-0.48, 3.03]
Eriksson et al. 2007, Moss-rich forest, Fulufjället	-0.48 [-2.11, 1.14]
Eriksson et al. 2007, Low forb meadow, Ritsem	0.09 [-1.51, 1.70]
Eriksson et al. 2007, Lichen-rich forest, Tavvavuoma	-0.75 [-2.41, 0.90]
Eriksson et al. 2007, Dry heath, Tavvavuoma	0.93 [-0.76, 2.61]
Eriksson et al. 2007, Dry heath, Sonfjället	-0.45 [-2.07, 1.17]
Eriksson et al. 2007, Dry heath, Ritsem	1.56 [-0.26, 3.39]
Eriksson et al. 2007, Dry heath, Långfjället	0.32 [-1.29, 1.93]
Eriksson et al. 2007, Grass heath, Långfjället	0.42 [-1.20, 2.04]

Sedges, cover: random effects model 0.14 [-0.42, 0.70]

Sedges – Biomass

Ravolainen et al. 2011, Vestre Jakobselv	0.14 [-1.47, 1.74]
Ravolainen et al. 2011, Komagelva	0.54 [-1.09, 2.16]
Ravolainen et al. 2010, Norwegian herding districts 27 and 28	-0.52 [-1.46, 0.42]
Ravolainen et al. 2010, Norwegian herding districts 20 and 21	0.00 [-0.77, 0.77]
Ravolainen et al. 2010, Norwegian herding districts 6 and 7	0.33 [-0.46, 1.13]

Sedges, biomass: random effects model 0.04 [-0.40, 0.48]

Sedges – Abundance

Moen et al. 2009, Grass heath, Handölsdalen	0.45 [-0.95, 1.85]
Moen et al. 2009, Dry heath, Handölsdalen	-0.35 [-1.60, 0.90]

Sedges, abundance: random effects model 0.00 [-0.93, 0.94]

Grasses, silica-rich – Biomass

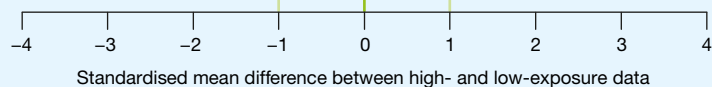
Ravolainen et al. 2011, Vestre Jakobselv	0.09 [-1.51, 1.69]
Ravolainen et al. 2011, Komagelva	1.08 [-0.63, 2.79]

Grasses, silica-rich, biomass: random effects model 0.55 [-0.62, 1.72]

Grasses – Cover

Eriksson et al. 2007, Moss-rich forest, Tavvavuoma	-1.25 [-3.00, 0.50]
Eriksson et al. 2007, Moss-rich forest, Sonfjället	-0.16 [-1.77, 1.44]
Eriksson et al. 2007, Moss-rich forest, Långfjället	0.26 [-1.35, 1.87]
Eriksson et al. 2007, Moss-rich forest, Fulufjället	0.17 [-1.43, 1.77]
Eriksson et al. 2007, Low forb meadow, Ritsem	-0.19 [-1.79, 1.42]
Eriksson et al. 2007, Lichen-rich forest, Tavvavuoma	-0.14 [-1.74, 1.46]
Eriksson et al. 2007, Lichen-rich forest, Fulufjället	0.28 [-1.33, 1.89]
Eriksson et al. 2007, Dry heath, Tavvavuoma	0.57 [-1.07, 2.20]
Eriksson et al. 2007, Dry heath, Sonfjället	0.06 [-1.54, 1.66]
Eriksson et al. 2007, Dry heath, Ritsem	-0.17 [-1.77, 1.44]
Eriksson et al. 2007, Dry heath, Långfjället	0.46 [-1.16, 2.08]
Eriksson et al. 2007, Dry heath, Fulufjället	-0.21 [-1.82, 1.39]
Eriksson et al. 2007, Grass heath, Långfjället	0.58 [-1.05, 2.22]

Grasses, cover: random effects model 0.03 [-0.42, 0.48]



Graminoids, continued

Grasses – Biomass

Ravolainen et al. 2011, Vestre Jakobselv		0.19 [-1.41 , 1.80]
Ravolainen et al. 2011, Komagelva		0.18 [-1.43 , 1.78]
Ravolainen et al. 2010, Norwegian herding districts 27 and 28		-0.51 [-1.44 , 0.43]
Ravolainen et al. 2010, Norwegian herding districts 20 and 21		0.01 [-0.75 , 0.78]
Ravolainen et al. 2010, Norwegian herding districts 6 and 7		0.68 [-0.13 , 1.50]

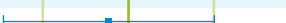
Grasses, biomass: random effects model		0.12 [-0.32 , 0.57]
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Grasses – Abundance

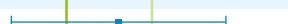
Moen et al. 2009, Grass heath, Handölsdalen		0.44 [-0.96 , 1.84]
Moen et al. 2009, Dry heath, Handölsdalen		1.00 [-0.31 , 2.32]
Grellmann 2002, Joatka		-0.19 [-1.58 , 1.20]
Bråthen et al. 2007, Norwegian herding districts 13 and 14		-0.24 [-0.52 , 0.04]
Bråthen et al. 2007, Norwegian herding districts 16C and 14A		-0.09 [-0.35 , 0.17]
Bråthen et al. 2007, Norwegian herding districts 16A and 16B		0.02 [-0.28 , 0.33]
Bråthen et al. 2007, Norwegian herding districts 20 and 21		-0.20 [-0.53 , 0.13]
Bråthen et al. 2007, Norwegian herding districts 24B and 24A		-0.86 [-1.25 , -0.47]
Bråthen et al. 2007, Norwegian herding districts 29 and 28		-0.51 [-0.93 , -0.09]
Bråthen et al. 2007, Norwegian herding districts 27 and 32		-0.20 [-0.52 , 0.13]
Bråthen et al. 2007, Norwegian herding districts 40 and 33		-0.22 [-0.53 , 0.09]
Bråthen et al. 2007, Norwegian herding districts 34 and 35B		-0.78 [-1.25 , -0.32]
Bråthen et al. 2007, Norwegian herding districts 35A and 36		-0.01 [-0.40 , 0.37]

Grasses, abundance: random effects model		-0.25 [-0.46 , -0.03]
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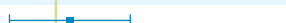
Graminoids (non-forage) – Cover

Manseau et al. 1996, Dwarf birch stands, Rivière George		-0.23 [-1.46 , 1.00]
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Graminoids (forage) – Cover

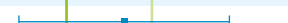
Manseau et al. 1996, Dwarf birch stands, Rivière George		0.61 [-0.65 , 1.86]
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Graminoids – Cover

Jandt et al. 2003, Buckland Valley		1.16 [0.45 , 1.86]
Nellemann et al. 2001, Nordfjella		0.57 [-0.33 , 1.47]
Manseau et al. 1996, Shrub tundra, Rivière George		0.87 [-0.41 , 2.15]
Tømmervik et al. 2012, Finnmarksvidda		-1.73 [-2.19 , -1.27]
Olofsson et al. 2001, Čearro		-0.15 [-1.53 , 1.24]
Olofsson et al. 2001, Siččajávri		0.60 [-0.47 , 1.68]
Olofsson et al. 2001, Lagisduoddar		0.20 [-1.19 , 1.59]
Olofsson et al. 2001, Raisduoddar		1.13 [-0.36 , 2.62]
Eskelinen & Oksanen 2006, Saana		0.39 [-0.18 , 0.96]

Graminoids, cover: random effects model		0.25 [-0.31 , 0.81]
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Graminoids – Biomass

Manseau et al. 1996, Shrub tundra, Rivière George		0.67 [-0.56 , 1.90]
Olofsson et al. 2001, Raisduoddar		3.85 [1.51 , 6.19]

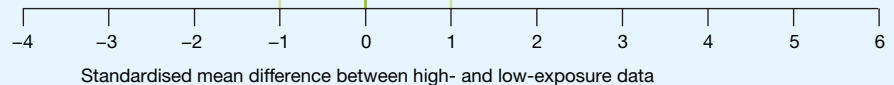
Graminoids, biomass: random effects model		2.10 [-1.00 , 5.20]
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Graminoids – Abundance

Grellmann 2002, Joatka		0.08 [-1.31 , 1.46]
Post & Pedersen 2008, Kangerlussuaq		1.54 [0.25 , 2.82]

Graminoids, abundance: random effects model		0.83 [-0.60 , 2.26]
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Overall random effects model		0.02 [-0.12 , 0.15]
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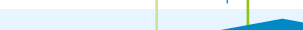
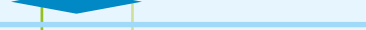


Woody plants

Trees, preferred – Abundance

Bråthen & Oksanen 2001, Joahkonjårga		-0.13 [-0.83, 0.56]
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Trees – Cover

Eriksson et al. 2007, Moss-rich forest, Tavvavuoma		-0.39 [-2.00, 1.23]
Eriksson et al. 2007, Moss-rich forest, Sonfjället		0.10 [-1.50, 1.70]
Eriksson et al. 2007, Moss-rich forest, Långfjället		-0.46 [-2.08, 1.16]
Eriksson et al. 2007, Moss-rich forest, Fulufjället		1.55 [-0.27, 3.38]
Eriksson et al. 2007, Lichen-rich forest, Tavvavuoma		0.43 [-1.19, 2.04]
Eriksson et al. 2007, Lichen-rich forest, Fulufjället		1.67 [-0.19, 3.52]
Eriksson et al. 2007, Dry heath, Sonfjället		-0.93 [-2.61, 0.75]
Eriksson et al. 2007, Grass heath, Långfjället		1.62 [-0.23, 3.46]

Trees, cover: random effects model		0.38 [-0.34, 1.10]
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Shrubs, evergreen – Biomass

Ravolainen et al. 2010, Norwegian herding districts 27 and 28		0.77 [-0.19, 1.72]
Ravolainen et al. 2010, Norwegian herding districts 20 and 21		-0.13 [-0.90, 0.64]
Ravolainen et al. 2010, Norwegian herding districts 6 and 7		0.61 [-0.19, 1.42]

Shrubs, evergreen, biomass: random effects model		0.37 [-0.17, 0.91]
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Shrubs, evergreen – Abundance

Bråthen et al. 2007, Norwegian herding districts 13 and 14		0.06 [-0.22, 0.34]
Bråthen et al. 2007, Norwegian herding districts 16C and 14A		0.32 [0.06, 0.59]
Bråthen et al. 2007, Norwegian herding districts 16A and 16B		-0.06 [-0.37, 0.24]
Bråthen et al. 2007, Norwegian herding districts 20 and 21		-0.14 [-0.47, 0.19]
Bråthen et al. 2007, Norwegian herding districts 24B and 24A		0.53 [0.15, 0.91]
Bråthen et al. 2007, Norwegian herding districts 29 and 28		1.00 [0.56, 1.43]
Bråthen et al. 2007, Norwegian herding districts 27 and 32		-0.60 [-0.93, -0.27]
Bråthen et al. 2007, Norwegian herding districts 40 and 33		-0.07 [-0.38, 0.24]
Bråthen et al. 2007, Norwegian herding districts 34 and 35B		-0.75 [-1.22, -0.29]
Bråthen et al. 2007, Norwegian herding districts 35A and 36		-0.20 [-0.59, 0.19]

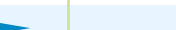
Shrubs, evergreen, abundance: random effects model		0.01 [-0.31, 0.33]
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Shrubs, deciduous – Cover

Eriksson et al. 2007, Moss-rich forest, Tavvavuoma		-0.85 [-2.52, 0.82]
Eriksson et al. 2007, Moss-rich forest, Sonfjället		0.35 [-1.27, 1.96]
Eriksson et al. 2007, Moss-rich forest, Långfjället		-0.33 [-1.94, 1.28]
Eriksson et al. 2007, Moss-rich forest, Fulufjället		1.32 [-0.44, 3.09]
Eriksson et al. 2007, Low forb meadow, Ritsem		-0.41 [-2.03, 1.21]
Eriksson et al. 2007, Lichen-rich forest, Tavvavuoma		-0.22 [-1.82, 1.39]
Eriksson et al. 2007, Lichen-rich forest, Fulufjället		0.15 [-1.45, 1.75]
Eriksson et al. 2007, Dry heath, Tavvavuoma		-0.63 [-2.27, 1.01]
Eriksson et al. 2007, Dry heath, Sonfjället		0.01 [-1.59, 1.61]
Eriksson et al. 2007, Dry heath, Ritsem		-0.48 [-2.10, 1.15]
Eriksson et al. 2007, Dry heath, Långfjället		-0.72 [-2.37, 0.93]
Eriksson et al. 2007, Dry heath, Fulufjället		-0.19 [-1.79, 1.42]
Eriksson et al. 2007, Grass heath, Långfjället		0.63 [-1.01, 2.27]

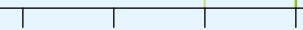
Shrubs, deciduous, cover: random effects model		-0.12 [-0.57, 0.34]
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Shrubs, deciduous – Biomass

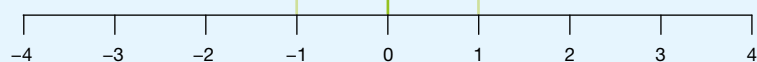
Ravolainen et al. 2011, Vestre Jakobselv		-0.74 [-2.39, 0.92]
Ravolainen et al. 2011, Komagelva		-0.12 [-1.72, 1.48]
Ravolainen et al. 2010, Norwegian herding districts 27 and 28		-0.68 [-1.63, 0.27]
Ravolainen et al. 2010, Norwegian herding districts 20 and 21		-0.98 [-1.80, -0.17]
Ravolainen et al. 2010, Norwegian herding districts 6 and 7		1.31 [0.44, 2.17]

Shrubs, deciduous, biomass: random effects model		-0.20 [-0.98, 0.58]
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Shrubs, deciduous – Abundance

Moen et al. 2009, Grass heath, Handölsdalen		-0.78 [-2.22, 0.66]
Moen et al. 2009, Dry heath, Handölsdalen		0.37 [-0.88, 1.62]
Bråthen et al. 2007, Norwegian herding districts 13 and 14		-0.17 [-0.45, 0.11]
Bråthen et al. 2007, Norwegian herding districts 16C and 14A		0.02 [-0.24, 0.28]
Bråthen et al. 2007, Norwegian herding districts 16A and 16B		0.69 [0.38, 1.01]
Bråthen et al. 2007, Norwegian herding districts 20 and 21		-0.99 [-1.34, -0.64]
Bråthen et al. 2007, Norwegian herding districts 24B and 24A		0.09 [-0.29, 0.47]
Bråthen et al. 2007, Norwegian herding districts 29 and 28		-0.23 [-0.64, 0.18]
Bråthen et al. 2007, Norwegian herding districts 27 and 32		-0.61 [-0.94, -0.28]
Bråthen et al. 2007, Norwegian herding districts 40 and 33		0.50 [0.19, 0.82]
Bråthen et al. 2007, Norwegian herding districts 34 and 35B		-1.08 [-1.57, -0.60]
Bråthen et al. 2007, Norwegian herding districts 35A and 36		-0.11 [-0.50, 0.28]
Post & Pedersen 2008, Kangerlussuaq		-1.90 [-3.26, -0.53]

Shrubs, deciduous, abundance: random effects model		-0.25 [-0.63, 0.13]
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Standardised mean difference between high- and low-exposure data

Woody plants, continued

Shrubs (non-forage) – Cover

Manseau et al. 1996, Dwarf birch stands, Rivière George	0.55 [-0.70 , 1.80]
Manseau et al. 1996, Shrub tundra, Rivière George	-2.28 [-3.83 , -0.72]

Shrubs (non-forage), cover: random effects model -0.82 [-3.59 , 1.94]

Shrubs (forage; total cover) – Cover

Manseau et al. 1996, Shrub tundra, Rivière George	0.47 [-0.78 , 1.71]
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Shrubs (> 0.3 m, forage) – Cover

Manseau et al. 1996, Dwarf birch stands, Rivière George	-2.34 [-3.91 , -0.77]
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Shrubs (> 0.3 m) – Biomass

Manseau et al. 1996, Dwarf birch stands, Rivière George	-3.47 [-5.30 , -1.63]
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Shrubs (< 0.3 m, forage) – Cover

Manseau et al. 1996, Dwarf birch stands, Rivière George	-0.37 [-1.61 , 0.87]
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Shrubs (< 0.3 m) – Biomass

Manseau et al. 1996, Dwarf birch stands, Rivière George	-1.38 [-2.71 , -0.06]
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Shrubs – Cover

Jandt et al. 2003, Buckland Valley	0.53 [-0.13 , 1.20]
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Shrubs – Biomass

Manseau et al. 1996, Shrub tundra, Rivière George	0.02 [-1.18 , 1.22]
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Evergreen woody plants – Abundance

Grellmann 2002, Joatka	0.94 [-0.52 , 2.40]
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Ericoids, less preferred – Abundance

Bråthen & Oksanen 2001, Joahkonjärja	0.03 [-0.66 , 0.73]
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Ericoids, deciduous – Abundance

Bråthen et al. 2007, Norwegian herding districts 13 and 14	-0.03 [-0.31 , 0.25]
Bråthen et al. 2007, Norwegian herding districts 16C and 14A	-0.01 [-0.27 , 0.25]
Bråthen et al. 2007, Norwegian herding districts 16A and 16B	0.39 [0.08 , 0.70]
Bråthen et al. 2007, Norwegian herding districts 20 and 21	-0.58 [-0.91 , -0.24]
Bråthen et al. 2007, Norwegian herding districts 24B and 24A	-0.10 [-0.47 , 0.28]
Bråthen et al. 2007, Norwegian herding districts 29 and 28	-0.04 [-0.45 , 0.37]
Bråthen et al. 2007, Norwegian herding districts 27 and 32	-0.44 [-0.77 , -0.11]
Bråthen et al. 2007, Norwegian herding districts 40 and 33	0.09 [-0.22 , 0.40]
Bråthen et al. 2007, Norwegian herding districts 34 and 35B	-0.78 [-1.25 , -0.31]
Bråthen et al. 2007, Norwegian herding districts 35A and 36	-0.46 [-0.86 , -0.07]

Ericoids, deciduous, abundance: random effects model -0.18 [-0.40 , 0.04]

Dwarf shrubs, evergreen – Abundance

Moen et al. 2009, Grass heath, Handölsdalen	0.00 [-1.38 , 1.39]
Moen et al. 2009, Dry heath, Handölsdalen	-0.65 [-1.92 , 0.62]

Dwarf shrubs, evergreen, abundance: random effects model -0.35 [-1.29 , 0.59]

Dwarf shrubs – Cover

Olofsson et al. 2001, Čearro	-0.52 [-1.93 , 0.89]
Olofsson et al. 2001, Siččajávri	-0.56 [-1.63 , 0.51]
Olofsson et al. 2001, Lagisduoddar	0.47 [-0.94 , 1.87]
Olofsson et al. 2001, Raisduoddar	-0.90 [-2.35 , 0.55]

Dwarf shrubs, cover: random effect model -0.40 [-1.05 , 0.25]

Dwarf shrubs – Biomass

Olofsson et al. 2001, Raisduoddar	-2.99 [-5.00 , -0.97]
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Woody plants – Cover

Tømmervik et al. 2012, Finnmarksvidda	0.71 [0.30 , 1.11]
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Deciduous woody plants – Abundance

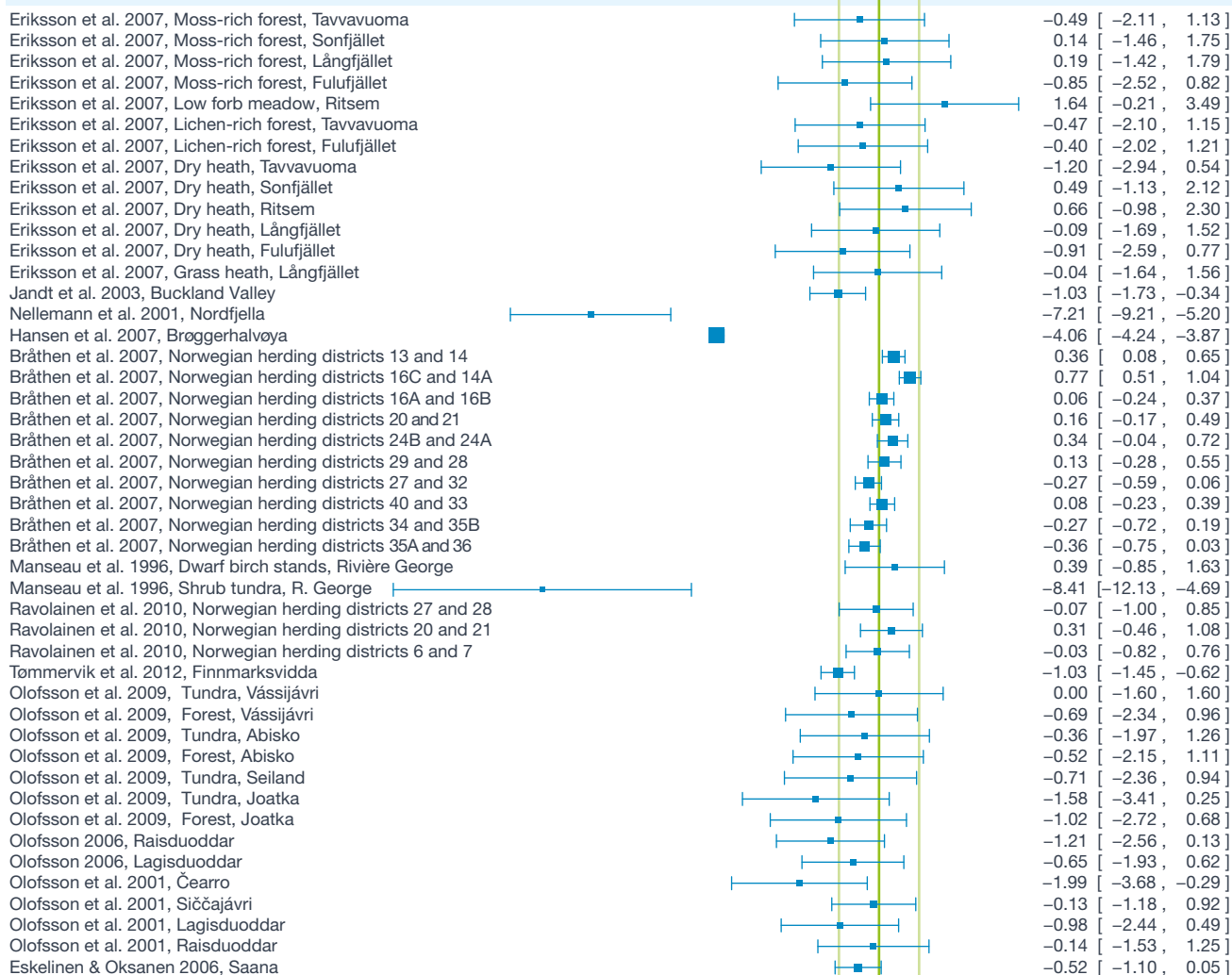
Grellmann 2002, Joatka	-0.17 [-1.56 , 1.22]
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Overall random effect model -0.14 [-0.32 , 0.03]



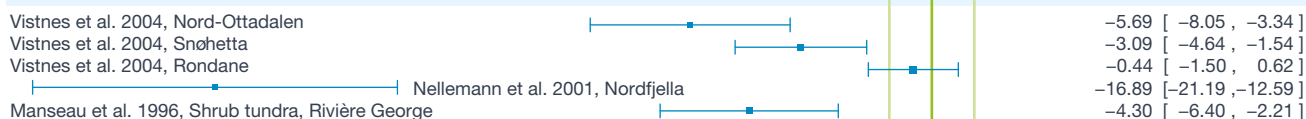
Lichens

Cover



Cover: random effects model -0.58 [-1.08, -0.07]

Biomass

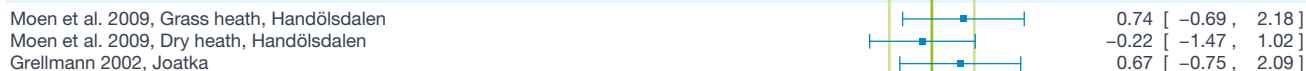


Biomass: random effects model -5.87 [-11.42, -0.31]

Productivity

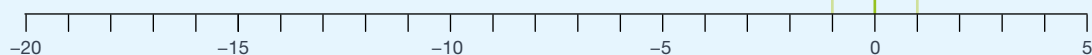


Abundance



Abundance: random effects model 0.34 [-0.45, 1.12]

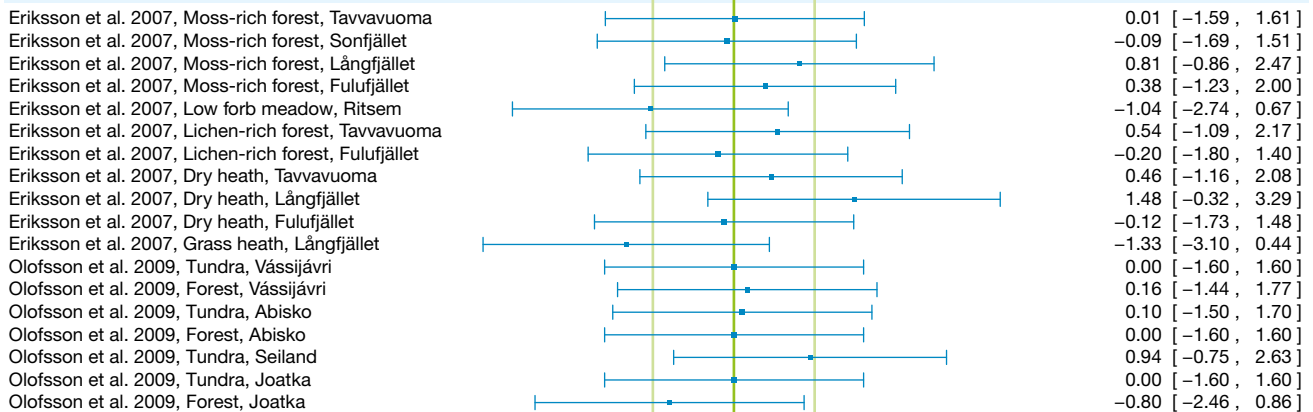
Overall random effects model -1.14 [-2.03, -0.25]



Standardised mean difference between high- and low-exposure data

Bryophytes

Liverworts – Cover



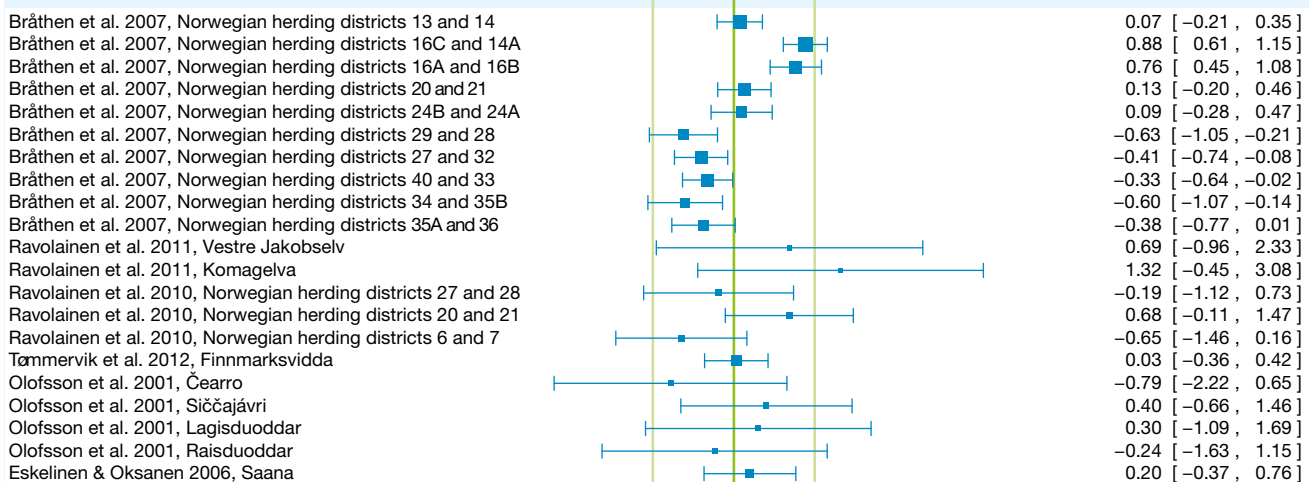
Liverworts – Abundance



Bryophytes – Height



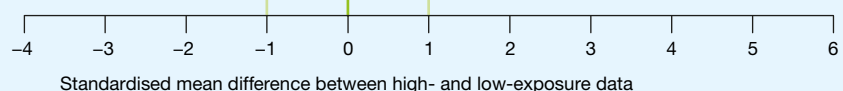
Bryophytes – Cover



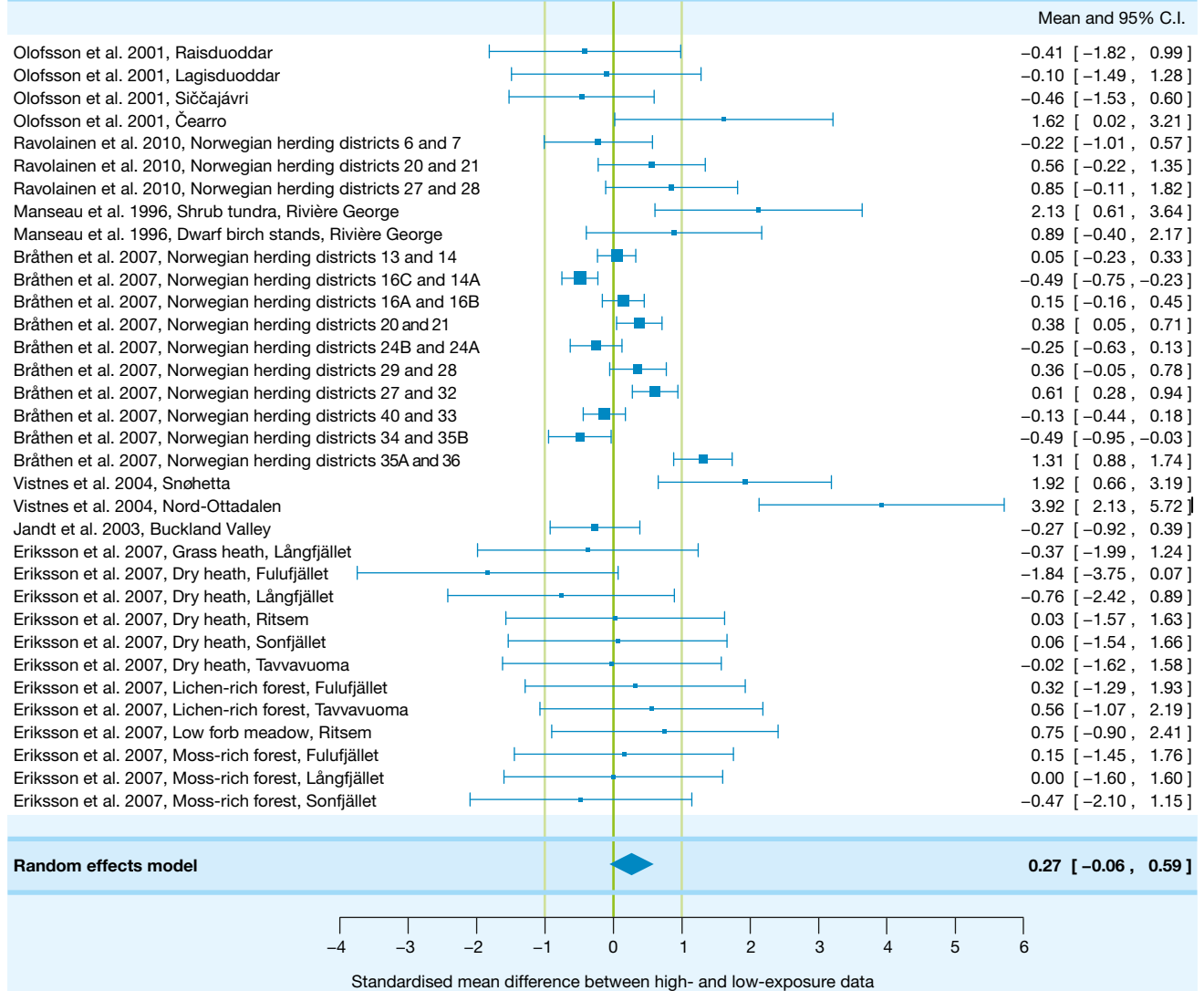
Bryophytes – Biomass



Bryophytes – Abundance



Bare ground cover



See Additional file 5 for full citations of included articles.