

Appendix S4. Details of the studies reporting the impacts of increases of N supply on ecosystem K cycle.

Site and species	Study type	Effects	Reference
England, shrubland	Field N fertilization	Increased K soil leaching	Alfaro <i>et al.</i> (2004)
Scotland, <i>Calluna vulgaris</i> shrubland	Field N fertilization	Increased foliar N:K ratios	Britton <i>et al.</i> (2008)
Italy, <i>Sphagnum</i>	Field N fertilization	Increased K limitation	Gerdol <i>et al.</i> (2007)
Canada, <i>Acer saccharum</i>	Field N fertilization	Increased K limitation	Gradowski & Thomas (2008)
Metadata analysis of N fertilization experiments (n=107) under field conditions	Field N fertilization	Decreased soil K concentration and increased K leaching	Lucas <i>et al.</i> (2011)
Canada, <i>Acer saccharum</i>	Field N fertilization	Decreased foliar K concentration	Moore & Houle (2009)
Spain, semiarid shrubland	Field N fertilization	Decreased soil K concentration	Ochoa-Hueso <i>et al.</i> (2013)
Switzerland, <i>Eriophorum vaginatum</i>	Field N fertilization	Increased K limitation	Siegenthaler <i>et al.</i> (2013)
<i>Picea glauca</i>	Field N fertilization	Decreased foliar K concentration	Van Den Driessche & Ponsford (1995)
Romania, forest ecosystem	Field observation	Decreased soil K concentration	Badea <i>et al.</i> (2012)
Norway, diverse forests and grasslands	Field observation	Decreased soil K concentration	Bjornstad (1991)
Netherlands, <i>Pinus sylvestris</i> forest	Field observation and field N fertilization	Increased K soil leaching	Boxman & Roefols (2006)
Various sites in Europe, <i>Sphagnum</i>	Field observation	Increased K limitation and foliar N:K ratios	Bragazza <i>et al.</i> (2004)
Wales, <i>Picea sitchensis</i>	Field observation	Increased K limitation	Harrison <i>et al.</i> (1995)
Various sites in northern Europe, <i>Sphagnum</i> and diverse vascular plants	Field observation field N fertilization	Increased K limitation	Hoosbeek <i>et al.</i> (2002)
China, various forests	Field observation	Decreased soil K concentration	Huang <i>et al.</i> (2012)
Central-eastern Europe, <i>Sphagnum</i>	Field observation	Increased foliar N:K ratios	Jirousek <i>et al.</i> (2011)
France, <i>Picea abies</i>	Field observation	Decreased soil K concentration	Jonard <i>et al.</i> (2012)
Sweden, various forest stands	Field observation	Decreased soil K concentration	Larsson <i>et al.</i> (1995)
France, forests	Field observation	Decreased soil K concentration	Lévy <i>et al.</i> (1996)
Wales, <i>Picea sitchensis</i>	Field observation	Increased K soil leaching	Reynolds <i>et al.</i> (2000)
United Kingdom, <i>Calluna vulgaris</i>	Field observation	Plants increased K uptake	Rowe <i>et al.</i> (2008)
Sweden, 42 stands of <i>Picea abies</i>	Field observation	Increased foliar N:K ratios	Thelin <i>et al.</i> (1998)
Bulgaria, <i>Pinus sylvestris</i>	Field observation	Decreased K concentration in leaves	Tzvetkova & Hadjiivanova (2006)

China, various ecosystems	Field observation	Increased K soil leaching	Vogt <i>et al.</i> (2006)
Poland, forest ecosystem	Field observation	Increased K soil leaching	Walna <i>et al.</i> (2000)
Metadata analysis of observational experiments (n=17) under field conditions	Field observation	Increased K soil leaching	Watmough <i>et al.</i> (2005)