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

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