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PART 1:

Journal Name:	**International Journal of Plant & Soil Science**
Manuscript Number:	**2013_ IJPSS 4233**
Title of the Manuscript:	**Role of soil nitrogen for the conifers of the boreal forest: a critical review**
Type of the Article	**Review Paper**

General guideline for Peer Review process is available in this link:
(http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline)

- This form has total 7 parts. Kindly note that you should use all the parts of this review form.

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PART 2: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments	Conifers dominate the circumpolar boreal forests. In this paper, Lupi et al. review the importance of a significant limiting variable on ecosystem productivity, namely soil nitrogen supply, and in the process describe the relationship between conifer performance from the perspective of plant nutrition and recent increases in disturbance, especially N deposition. They also discuss some of the methodological and inferential limitations of previous studies of soil N – vegetation interactions in boreal forests and provide suggestions for future research. I found this paper to be well organized and comprising a great deal of interesting information pertaining to plant physiology and ecology in the boreal forest. Whereas much of this information has been reviewed elsewhere, one very valuable contribution of the paper, however, pertains to the increasingly relevant issue of atmospheric N deposition. The authors touch upon the mechanism of canopy N uptake and the role of tree lichens in	

	scavenging atmospheric N. In this context it would have been useful to address the broader issue of N pollution (which at least in Europe this issue pertains to) in making note of other aspects of atmospheric chemistry which usually accompany increased N deposition (e,g., changes in precip pH, increased S deposition etc). Another aspect of increases in N deposition omitted in this review pertains to changes in soil N composition. Given the apparent variable physiological capacities exhibited by boreal conifers to absorb different species of N (as covered in this review), it would seem relevant to visit more broadly the consequences of changing soil N composition on plant nutrition and plant performance. Moreover, such considerations should also have motivated some discussion of climate change, the magnitude of which is especially being felt in boreal (and arctic) ecosystems. In this context I was disappointed in the absence of any discussion of changes in fire regimes and the sustainability of conifer forests. There is a rather substantial body of research, from detailed physiological experiments on individual plant roots to spatially explicit modeling scenarios of entire landscapes, which singly and in combination, provide much food for thought regarding plausible trajectories in the boreal forest. Much of the conclusions drawn from these studies can be traced back to the relationship between conifers and the shifting soil	

	N supply. Thus, I feel this paper unfortunately missed out on a great opportunity to examine the relationship between evolved traits pertaining to growth and resource acquisition in the context of rapidly changing environmental conditions. If such considerations could be incorporated in a revised review, I think the contribution of all the other interesting facets of this paper would be much enhanced.	

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Minor REVISION comments	Abstract: 3rd sentence regarding "reduced availability of N (especially organic N)" – this caveat doesn't make sense in this context. The juxtaposition of the last two sentences in Abstract represents a non sequitur. Revise. Table 2 need better balance of characteristics for AA, NH4 and NO3. The way the table is organized does not lend itself to clear comparisons among N species. Please reorganize.	
Optional/General comments		

Reviewer Details:

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