

Interactive comment on “Unusually negative nitrogen isotopic compositions ($\delta^{15}\text{N}$) of mangroves and lichens in an oligotrophic, microbially-influenced ecosystem” by et al.

et al.

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Response to Reviewers Comments:

Three reviews and one comment were received on this manuscript. The primary author thanks all for their helpful suggestions, which have been largely adopted in the revision.

Reviewer #1:

1. Suggested change: refer to other mangrove and papers. This has been done. 2. Materials and Methods section: P fertilization experiment: I am highlighting only 3 of the treatments in this revision: control, 1 cm fertilization, and 1 m fertilization. I deleted reference to the P spraying treatment, which was not as controlled as it might have

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been if the study area were nearby. Changes were made in the Methods, Results, and the figure. 3. Section 2.4-2.6: More information was added to strengthen the descriptions of ammonia measurements. 4. Results: data was listed negative isotopic values first, then positive values. 5. Defined floc zone in the methods section. 6. Section 4: Major rewriting of this section adding %N data and correlations between P, N:P, %N. Also added the sedimentary data. 7. Discussion: references to carbon isotopes were added where appropriate. 8. I added several sentences regarding the relationship between added P, root biomass, and N isotopes. 9. Table 1: recruits were collected from all zones. Added to the table. 10. Table 6: I corrected the data for the $\delta^{15}\text{N}$ fractionation measured with our ammonium standard. This explanation has been moved out of the table to the methods section. 11. The difference between Figures 1 and 2 in terms of Rhizophora data: in Figure 1, the growth form is known and characterized. In Figure 2, for Rhizophora data, growth forms were not specified. No fertilization data is included in this figure. 12. Figure 4: Foliar spray data removed. 13. Figure 5. Units are $\text{NH}_3\text{-hour}$, unusual yes, but correct. Explanation of why values might vary are located in the methods section. 14. Figure 7: Changed legend to $\delta^{15}\text{N}$;Diagram

Reviewer #2: 1. Specific comments on the text sent directly to M. Fogel: >90% of the suggested changes were made. 2. Hyphenated adjective-noun pairs. 3. P Values were calculated for lines and correlations referred to in the text. New statistics are added throughout the paper. 4. Introduction: A concluding sentence was added to the first paragraph. 5. The Amundson et al reference was added as requested. 6. Table 1: standard deviation for transition trees corrected. 7. Table 4: P, N, and C were explained.

Reviewer #3: 1. A paragraph on isotopic mass balance was added to the discussion. An equation introduced by Vallano and Sparks was used to give an estimate of foliar N importance as outlined in their paper. 2. For a measurement to be a proper flux, one needs to have an estimate of the area: rate or change per unit area over time. With the

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ammonia badges, we did not use a defined area, so we are not able to report a true flux. We did do a true flux experiment with cores, and that data is reported in flux units. 3. A paragraph on the microbial influence was added. 4. Figure 5: we did not calculate the flux from this data; for our calculations we used data from a flux experiment with isolated cores as described in the methods section.

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5, S1914–S1916, 2008

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