1. **What is the scientific question you are addressing?**

This paper asks: “What is the role of nitrogen availability and nitrogen acquisition strategy on leaf and whole-plant responses to elevated CO2?”. The manuscript reports findings from a growth chamber experiment that reconciles conflicting evidence regarding the role of nitrogen availability and acquisition strategy on plant responses to elevated CO2.

1. **What is/are the key finding(s) that answers this question?**

Leaf-level photosynthetic responses to elevated CO2 were independent of soil nitrogen availability, while whole-plant responses to elevated CO2 were enhanced with increasing soil nitrogen availability. Inoculation with symbiotic nitrogen-fixing bacteria did not modify leaf or whole-plant responses to elevated CO2 due to similar investment in nitrogen fixation between CO2 treatments.

1. **Why is this work important and timely?**

Photosynthesis is commonly modeled in terrestrial biosphere models as an indirect function of changes in soil nitrogen availability. Our results show that leaf responses to elevated CO2 were independent of nitrogen availability, providing important and timely findings that will aid in next-generation terrestrial biosphere model development.

1. **Does your paper fall within the scope of GCB; what biological AND global change aspects does it address?**

This paper reconciles a longstanding question about the role of nitrogen availability on plant responses to elevated CO2. Specifically, the paper addresses plant photosynthetic and growth responses to elevated CO2 – key biological processes that largely determine the magnitude of the land carbon sink due to increasing atmospheric CO2 concentrations.

1. **What are the three most recently published papers that are relevant to this question? This information will assist the Editors in selecting reviewers**

**Cui E, Xia J, Luo Y**. 2023. Nitrogen use strategy drives interspecific differences in plant photosynthetic CO2 acclimation. Global Change Biology **29**, 3667–3677.

**Gardner A, Jiang M, Ellsworth DS, *et al.*** 2023. Optimal stomatal theory predicts CO2 responses of stomatal conductance in both gymnosperm and angiosperm trees. New Phytologist **237**, 1229–1241.

**Terrer C, Vicca S, Stocker BD, Hungate BA, Phillips RP, Reich PB, Finzi AC, Prentice IC**. 2018. Ecosystem responses to elevated CO2 governed by plant–soil interactions and the cost of nitrogen acquisition. New Phytologist **217**, 507–522.