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**Title:** Forest structural diversity is linked to soil microbial diversity

Ashley K. Lang<sup>\*1</sup>, Elizabeth A. LaRue<sup>2</sup>, Stephanie N. Kivlin<sup>3</sup>, Joseph D. Edwards<sup>3</sup>, Richard P. Phillips<sup>1</sup>, Joey Gallion<sup>4</sup>, Nicole Kong<sup>5</sup>, John D. Parker<sup>6</sup>, Melissa K. McCormick<sup>6</sup>, Grant Domke<sup>7</sup>, Songlin Fei<sup>8</sup>

<sup>1</sup>Department of Biology, Indiana University, Bloomington, IN, USA

<sup>2</sup>Department of Biological Sciences, The University of Texas at El Paso, El Paso, TX, USA

<sup>3</sup>Department of Ecology and Evolutionary Biology, University of Tennessee, Knoxville, Knoxville, TN, USA 37996

<sup>4</sup>Indiana Department of Natural Resources, Indianapolis, IN, USA

<sup>5</sup>Purdue University Libraries, Purdue University, West Lafayette, IN, USA

<sup>6</sup>Smithsonian Environmental Research Center, MD, USA

<sup>7</sup>U.S. Department of Agriculture, Forest Service, Northern Research Station, St. Paul, MN, USA

<sup>8</sup>Department of Forestry and Natural Resources, Purdue University, West Lafayette, IN, USA

\*Corresponding author: [al40@iu.edu](mailto:al40@iu.edu)

To Whom it may Concern:

We submit for consideration a manuscript of original research assessing the potential for characterizing soil microbial communities using remotely-sensed information about forest canopy structure. We calculated LiDAR-derived metrics of structural diversity as well as a suite of stand and soil properties from hardwood forests across Indiana, USA to test whether forest canopy structure is linked with the community richness and diversity of four key soil microbial groups: bacteria, fungi, arbuscular mycorrhizal fungi, and ectomycorrhizal fungi.

We found that the density of canopy vegetation is positively associated with the taxonomic richness of EM fungi, and that structural diversity metrics are associated with the overall community composition of bacteria, EM, and total fungal communities. Based on these results, we conclude that remotely sensed metrics of forest structural diversity may be used to estimate the richness and community composition of soil microbial groups. This finding may allow us to better identify links between structural and microbial diversity and facilitate the detection of belowground biodiversity hotspots across the globe.

We believe this work is well-suited to the aims and subject matter of *New Phytologist*, and thank you for your consideration.



Ashley Lang