

## PlantNE: a global database of plant biomass from nitrogen-addition experiments

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**Abstract.** The growth of terrestrial plants and the production of terrestrial ecosystems are highly dependent on the availability of nitrogen (N). During the past decades, the rate of global atmospheric N deposition has shown an increasing trend, greatly relieving N limitation on terrestrial plant growth. Thus, whether and how plant biomass will respond to increasing N deposition in the future is particularly important with regard to the function of terrestrial ecosystems. The N-addition experiment is a major approach to study the ecological responses of plant species occurring in natural terrestrial ecosystems under N enrichment. In recent decades, many N-addition experiments have been conducted across various plant functional types and terrestrial ecosystems, but their data on plant biomass have yet to be synthesized into a single database. Here, we present an open-access database of measured plant biomass in N-addition experiments (PlantNE) collected from available publications in Web of Science. The reported mean, standard deviation, and sample size of plant biomass in both control and treatment plots were collected in each publication. As a result, the PlantNE database records 519 plant species from 4,599 observations in 348 published studies. It covers a wide geographical range (54.75° S–69.66° N; 157.80° W–175.30° E) and a broad natural climate zone (–10°C to 27.6°C; 94–7,000 mm) over the past three decades (1982–2018). Information related to the experimental site (i.e., latitude, longitude, country, ecosystem, experimental condition, temperature, and precipitation), biotic factors (i.e., species, plant category, plant age, planting pattern, and plant part), and N treatment (i.e., N dose, treatment interval and duration, and N addition with other treatments) is included in this database. We expect that the PlantNE database can contribute to the understanding of ecosystem productivity and biodiversity under increasing atmospheric N deposition and provide empirical data for model studies. There are no copyright restrictions; personal or noncommercial use of this database by researchers and teachers is encouraged. Researchers are requested to cite this paper if using all or part of the database. As we intend to keep this database up to date on GitHub (see Metadata S1 for details) and Zenodo (<https://doi.org/10.5281/zenodo.3359810>), researchers are encouraged to inform us of the applications of this database.

*Key words:* biomass; global; growth; nitrogen addition; plant; species.

The complete data sets corresponding to abstracts published in the Data Papers section in the journal are published electronically as Supporting Information in the online version of this article at <http://onlinelibrary.wiley.com/doi/10.1002/ecy.2840/supinfo>.