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## Data Article

# Tree traits and canopy closure data from an experiment with 34 planted species native to Sabah, Borneo



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## ABSTRACT

The data presented in this paper is supporting the research article "Life history traits predict the response to increased light among 33 tropical rainforest tree species" [3]. We show basic growth and survival data collected over the 6 years duration of the experiment, as well as data from traits inventories covering 12 tree traits collected prior to and after a canopy reduction treatment in 2013. Further, we also include canopy closure and forest light environment data from measurements with hemispherical photographs before and after the treatment.

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## 1. Specifications table

Subject area	Biology
More specific subject area	Tropical rainforest restoration and biodiversity
Type of data	Tables, figure

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How data was acquired	<i>Tree traits inventories; field surveys, wood density data from literature values, sulphuric acid–hydrogen peroxide procedure, atomic absorption spectrometer. Hemispherical photographs with the Canon 50D digital SLR camera and a Sigma EX DC 4.5 mm F2.8 circular 180° fisheye lens.</i>
Data format	<i>Raw</i>
Experimental factors	<i>34 native tree species (including 20 from the dipterocarp family) with 20 replicates each were planted in a lowland dipterocarp rainforest.</i>
Experimental features	<i>Tree height and mortality data was collected every year from planting in November 2008. A canopy reduction treatment was performed 50 months after planting. Tree species' traits were noted at inventories 1 year before and after the treatment.</i>
Data source location	<i>Data collected in the Sg. Tiagau Forest Reserve (Tawau) in southeast Sabah, Malaysian Borneo (4°36'N, 117°12'E)</i>
Data accessibility	<i>Data is with this article</i>

## 2. Value of the data

- This data set on 12 traits for 34 dipterocarp and non-dipterocarp species native to Sabah, Borneo can serve as benchmark data for conservation, ecological restoration and commercial forestry.
- Twenty randomized replications of each of the 34 species along an environmental gradient make the data interesting for studies on relationships between species traits and environmental factors, particularly to limiting light conditions at the rain forest floor.
- The study can also be used as model system for studies on ecological interactions and drivers for biodiversity. For example interactions between tree species and between tree species and other organisms, e.g. invertebrates or lichens.
- Future repeated yearly measurements will also make the study valuable for climate change effects on tree traits and phenology.

## 3. Data

This article is based on two kinds of data; tree species growth, survival and traits data, and canopy closure and forest light condition data before and after a canopy reduction treatment ([Supplementary Table 1](#)). The height growth and survival data was monitored every year over the 6 years duration of the experiment, while the species traits were measured on two occasions – one year before and after the canopy reduction treatment. The canopy closure and light environment in the forest were measured with the help of hemispherical photographs, which gave values of visible sky, leaf area index and global site factor. In-depth analyses of the data is presented in the associated research article [3].

## 4. Experimental design, materials and methods

### 4.1. Experimental design

The 3 ha experiment area is part of the INIKEA Sow-a-Seed Project situated in the Sg. Tiagau Forest Reserve in southeast Sabah (4°36'N, 117°12'E), Borneo ([Supplementary Table 2](#)). The site had been selectively logged during the 1970s when drought induced forest fires hit during the El Niño event in the early 1980s. The site had at the initiation of the experiment a secondary forest with a broken

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