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## Data Article

# Data on overstory and understory trees in aspen-dominated boreal mixedwood stands over 20 years after partial harvesting

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## ABSTRACT

Growing demand for non-timber forest ecosystem services has resulted in increased use of partial harvesting in boreal forests. Since the 1990s, multiple studies have yielded short-term responses to partial harvesting. Here we present an inventory of longer-term (20 years) responses of overstory and understory trees to partial harvesting in aspen-dominated boreal mixedwood stands. Pre- and post-harvesting overstory trees were mapped and measured for total height and diameter at breast height (DBH); understory trees were measured for total height. Codes identify tree species, treatments, and years since harvest. Data are stored in separate Microsoft Excel spreadsheets: overstory trees, understory trees, and years after harvesting.

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## Specifications Table

Subject area	<i>Forest ecology</i>
More specific subject area	<i>Tree inventory data</i>
Type of data	<i>Table</i>
How data was acquired	<i>Field measurements</i>

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Data format	<i>Raw, filtered</i>
Experimental factors	<i>Harvesting, forest tent caterpillar defoliation</i>
Experimental features	<i>Unharvested, partially harvested, and clear cut</i>
Data source location	<i>40 km east of Cochrane, northeastern Ontario, Canada</i>
Data accessibility	<i>With this article</i>
Related research article	<i>Yang, H., and Man, R. Effects of partial harvesting on species and structural diversity in aspen-dominated boreal mixedwood stands. For. Ecol. Manage. (2018) 409:653–659.</i>

### Value of the data

- Overstory and understory tree data assessed at 0, 1, 3, 5, 11, and 20 years post-harvesting.
- Potential to analyze long-term dynamics of boreal forests following partial harvesting and forest tent caterpillar outbreaks.
- Opportunity to link short and long-term responses and assist resource managers in projecting long-term stand density, composition, and yield.
- Opportunity to study stand-scale mortality and ingrowth processes using mapped tree locations.

## 1. Data

The overstory and understory tree data presented here were the basis for the research article by Yang and Man [1] and the method documented by Man and Yang [2]. The raw data analyzed by Yang and Man [1] are available as Microsoft Excel spreadsheets in the [Supplementary Material](#). An excerpt of the overstory data (Partial cut\_Overstory) is shown in [Table 1](#) and the understory data (Partial cut\_Understory) in [Table 2](#). Note: Each year's data is stored in a separate worksheet. Previously reported post-harvesting data includes 5- and 11-year regeneration analyses [3,4] and 11-year responses of overstory trembling aspen to harvesting and forest tent caterpillar defoliation that occurred 3 to 5 years after harvesting [5].

## 2. Experimental design, materials and methods

Data presented here is from a partial harvesting experiment established in the early 1990s. The initial design was a randomized complete block with 4 harvesting treatments replicated 4 times. The study was originally designed to remove 0 (unharvested), 36 and 68% (partially harvested), and 100% (clearcut) of the merchantable overstory basal area (BA) of all trees  $\geq 10$  cm DBH. During application,

**Table 1**  
Excerpt of overstory data provided in the [Supplementary Material](#).

Overstory plot #	Section	Tree #	Species code	Distance (m)	Azimuth (°)	DBH (cm)	Height (m)	Survival code
1	1	1	2	6.70	16.7	16.7	17.70	2
1	1	2	4	8.80	16.7	20.8	22.70	1
1	1	3	3	10.40	22.5	17.1	11.70	1
1	1	4	4	10.70	19.0	27.4	23.30	1
1	1	5	11	12.10	25.6	28.7	27.60	1
1	1	6	11	14.80	4.6	31.4	24.90	1
1	2	1	2	5.60	37.6	23.0	17.90	1

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