Data Article

Data: Inventory of trees in five fragments of temperate evergreen forest located on the eastern slope of Chile’s coastal mountain range

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Abstract

The data set comes from a tree inventory conducted in an evergreen forest fragment (dominated by Laureliopsis philippiana and Eucryphia cordifolia) and four fragments dominated by Nothofagus obliqua. The forests are located in an agroforestry matrix landscape of the Coastal Mountain Range of the Chilean Lake District. The data collection was carried out using line transect sampling, which was traced through the core of each fragment oriented towards its longest axis. Data provide taxonomic identity, diameter at breast height (DBH), overstory canopy cover, condition (e.g. live or snag), some height samples, and the estimate of the vertical stratification (e.g. canopy or understory) of 462 trees belonging to 19 species. The data also shows a record of 50 woody debris. The geographical location of each forest fragments is also included. Inventories are fundamental for knowledge of species diversity and provide the foundation for more com-

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plex analytical studies, such as the distribution of plant assemblages in the landscape; determine the conservation status of species, and research into biogeographical or macro-ecological areas of interest.

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Specifications table

| Subject                          | Agricultural and Biological Sciences                                      |
|---------------------------------|------------------------------------------------------------------------------|
| Specific subject area           | Plant science. Currently, this discipline has diversified in order to understand how plants respond in natural and human-made ecosystems. |
| Type of data                    | Table                                                                        |
| How data were acquired          | Line transect sampling. Quadrants of 25 m² (5 x 5 m) were established on each transect, separated from each other by five meters. Instruments: diametric tape, densiometer and hypsometer. |
| Data format                     | Raw                                                                          |
| Parameters for data collection  | All trees and shrubs with a DBH equal or greater than 5 cm, and woody debris, in two types of forest fragments, one evergreen and four secondary *Nothofagus obliqua* forests. |
| Description of data collection  | (i) Taxonomic identity, (ii) diameter at breast height (DBP), measured with a diametric tape, (iii) condition (i.e. broken live tree, coarse woody debris, discomposing stump, fallen log, live, snag, snag – missing a top, stump), and (iv) overstory canopy cover, measured with densiometer. Furthermore, some records of tree height (measured with a hypsometer) and canopy stratification were taken (i.e. canopy, emergent, midstorey, understory). |
| Data source location            | Institution: Unidad Católica de Temuco                                       |
| City/Town/Region                | Purranque/Los Lagos Region                                                   |
| Country                         | Chile                                                                        |
| Latitude and longitude (and GPS coordinates) for collected samples/data: | 40°51’59” S and 73°33’01” W and 40°55’13” S and 73°25’19” W |
| Data accessibility              | Submitted with the article                                                   |
| Related research article        | Pincheira-Ulbrich J, J R Rau & F Peña-Cortés (2009). *Tamaño y forma de fragmentos de bosque y su relación con la riqueza de especies de árboles y arbustos*. Phyton-International Journal of Experimental Botany 78: 121–128. |

Value of the data

- Species Inventories provide essential information for more complex analytical studies, such as research into biogeographical or macro-ecological areas of interest.
- Scientists and researchers, as well as decision-makers from local government and rural communities, can benefit from these data.
- Data can be used to compare species diversity in different spatial contexts and to implement local conservation policies.
- Data represent the diversity of trees and shrubs species in a gradient of patch sizes and different habitat structure, which may support studies on species/area relationships, controlling by habitat structure; pattern poorly studied in temperate forests.

1. Data description

The data set shows the results of a tree inventory conducted in an evergreen forest fragment (dominated by *Laureliopsis philippiana* and *Eucryphia cordifolia*) and four fragments dominated by *Nothofagus obliqua* localized in an agroforestry matrix landscape of the Coastal Mountain Range.
of the Chilean Lake District. Table 1 describes the list of tree species, their botanical family and the recorded abundance for each forest patch. Table 2 describes the classification of trees according to their condition for each forest patch, which includes live trees and seven categories for woody debris. Table 3 describes some representative species of each forest patch, classified according to the crown position in one of the five categories of the vertical stratum. The raw data of the inventory are included in this article.

2. Experimental design, materials, and methods

The study area is located approximately 65 km southwest of the city of Osorno, in the commune of Purranque, Los Lagos Region, Chile. Forest patches (Table 4) are located in an area of transition between the Intermediate Depression and the Coastal Range (foothills), with a hilly

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**Table 1**

Trees abundance recorded in five native forest fragments on the Coastal Range of Chile’s Los Lagos Region. Evergreen forest: 55 ha; *Nothofagus obliqua* forest = 12 ha, 6 ha, 1.6 ha and 0.6 ha. Snag are not included.

| Species                          | Family               | Patch size (ha) | Total abundance |
|----------------------------------|----------------------|----------------|-----------------|
|                                  |                      | 55  | 12  | 6   | 1.6 | 0.6 |                |
| Aristotelia chilensis Stuntz     | Elaeocarpaceae       | 13  | 4   | 5   | 1   |     | 23             |
| Amomyrtus luma (Molina) D.Legrand & Kausel | Myrtaceae   | 3   |     |     |     |     | 3              |
| Amomyrtus meli (Phil.) D.Legrand & Kausel | Myrtaceae | 2   |     |     |     |     | 2              |
| Aextoxicum punctatum Ruiz & Pav. | Aextoxicaceae       | 1   | 3   | 1   | 2   |     | 7              |
| Calcluvia paniculata D.Don       | Cunoniaceae          | 2   | 12  | 1   | 15  |     |               |
| Embothrium coccineum J.R.Forst. & G.Forst. | Proteaceae | 2   |     |     |     |     | 2              |
| Eucryphia cordifolia Cav.        | Cunoniaceae          | 31  | 5   | 19  | 6   | 2   | 63             |
| Gevuina avellana Molina          | Proteaceae           | 24  | 16  | 2   | 42  |     |               |
| Luma apiculata (DC.) Burret      | Myrtaceae            | 2   | 8   | 2   | 12  |     |               |
| Lomatia ferruginea R.Br.         | Proteaceae           | 7   |     |     |     |     | 7              |
| Lomatia hirsuta (Lam.) Diels ex J.F.Macbr. | Proteaceae | 3   | 3   |     |     |     | 6              |
| Laureliopsis philippiana (Looser) Schodde | Monimiaceae | 31  |     |     |     |     | 31             |
| Laurelia sempervirens (Ruiz & Pav.) Tul. | Monimiaceae | 3   |     |     |     |     | 3              |
| Myrcuegina planipes O.Berg       | Myrtaceae            | 14  |     |     |     |     | 14             |
| Nothofagus obliqua (Mirb.) Oerst. | Nothofagaceae        | 34  | 61  | 32  | 33  |     | 160            |
| Raukaua laetevirens (Gay) Frodin | Araliaceae           | 3   |     |     |     |     | 3              |
| Persea lingue (Miers ex Bertero) Nees | Lauraceae           | 22  | 9   |     |     | 5   | 36             |
| Rhaphithamnus spinosus (Juss.) Moldenke | Verbenaceae   | 2   | 14  | 9   | 5   | 1   | 31             |
| Weinmannia trichosperma Cav.     | Cunoniaceae          | 1   | 1   |     |     |     | 2              |

**Abundance**

|          | 122 | 111 | 132 | 48 | 49 | 462 |
|----------|-----|-----|-----|----|----|-----|
| Richness | 12  | 9   | 12  | 4  | 9  | 19  |

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**Table 2**

Trees classified according to their condition.

| Condition              | Patch size (ha) | Total abundance |
|------------------------|-----------------|-----------------|
|                        | 55  | 12  | 6   | 1.6 | 0.6 |       |
| Broken live tree       | 2   | 1   |     |     |     | 3     |
| Coarse Woody debris    | 3   | 1   | 4   | 1   |     | 9     |
| Discomposing stump     | 1   | 5   |     | 1   |     | 7     |
| Fallen log             | 5   |     |     |     |     | 5     |
| Live                   | 117 | 101 | 129 | 46  | 44  | 437   |
| Snag                   | 4   | 10  | 3   | 2   | 5   | 24    |
| Snag – missing a top   | 1   |     |     |     |     | 1     |
| Stump                  | 2   | 1   | 2   |     |     | 5     |
| Abundance              | 132 | 120 | 138 | 51  | 50  | 491   |
Table 3
Example of common trees and their position according to the crown position in the vertical stratum. na= not applicable.

| Stratification   | Patch size (ha) | 55     | 12     | 6      | 1.6    | 0.6    |
|------------------|----------------|--------|--------|--------|--------|--------|
| Canopy           | E. cordifolia  | N. obliqua | N. obliqua | N. obliqua | N. obliqua |
| Emergent         | L. philippiana | E. cordifolia | na | na | na |
| Middle-canopy    | E. cordifolia  | na | na | na |
| Sub-canopy       | L. ferruginea  | N. obliqua | E. cordifolia | E. cordifolia | N. obliqua |
| Understory       | L. philippiana | P. lingue | L. apiculata | na | P. lingue |

Table 4
Geographical location of forest patches.

| Patch size (ha) | Latitude           | Longitude           |
|-----------------|--------------------|---------------------|
| 55              | 40°53′12.31″S      | 73°31′11.30″O       |
| 12              | 40°53′8.22″S       | 73°29′29.69″O       |
| 6               | 40°53′50.07″S      | 73°26′41.61″O       |
| 1.6             | 40°53′46.23″S      | 73°31′5.22″O        |
| 0.6             | 40°53′29.62″S      | 73°26′34.73″O       |

topography that varies between 220 and 310 m.a.s.l. (slope eastern part of the Coastal Mountain Range).

The data comes from a sampling carried out in 22 days, between July and December 2005, with a non-random design [7]. Tree selection was by transect sampling [1], designed in order to cross the center of the forest patch. In each transect, quadrants measuring 25 m² (5 × 5 m) were established, separated from each other by at least five metres. This sampling resulted in 95 quadrants distributed in all fragments. All trees with a DBH greater than or equal to 5 cm were sampled in two types of forest patch, one evergreen and four Nothofagus obliqua forests. Within each quadrat, four types of data were recorded: (i) Taxonomic identity, followed the criteria established in the publications of Marticorena and Rodríguez [2–5], (ii) diameter at breast height (DBH), measured with a diametric tape, (iii) condition (i.e. broken live tree, coarse woody debris, discomposing stump, fallen log, live, snag, snag – missing a top, stump), according to Enrong et al. [6], and (iv) overstory canopy cover, measured with a densitometer. Furthermore, some records of tree height (measured with a hypsometer) and canopy stratification were taken (i.e. canopy, emergent, midstorey, understory). The taxonomic nomenclature was based on The International Plant Names Index [8].

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**Conflict of Interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.
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