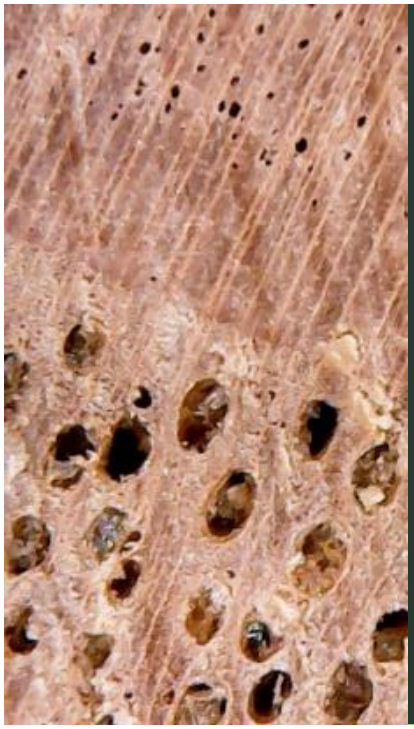


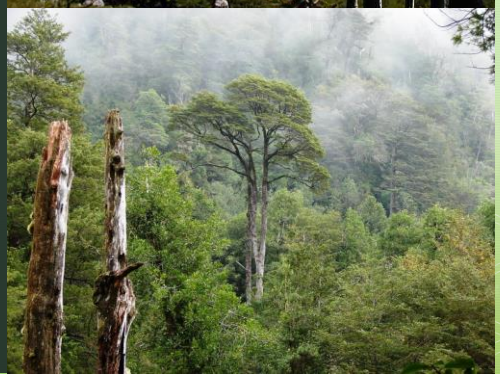
Native woods and their resistance to pest attack in heritage buildings

Yerko Andrés Quitral
Museum of Chemistry and Pharmacy
University of Chile
biologiacyr@gmail.com

MuseumPests.net
Integrated Pest Management for Cultural Heritage

1

Geographical location



2

Native trees

Nothofagus alpina (Rauli)

Nothofagus obliqua (Roble)

Nothofagus dombeyi (Coihue)

Nothofagus pumilio (Lenga)

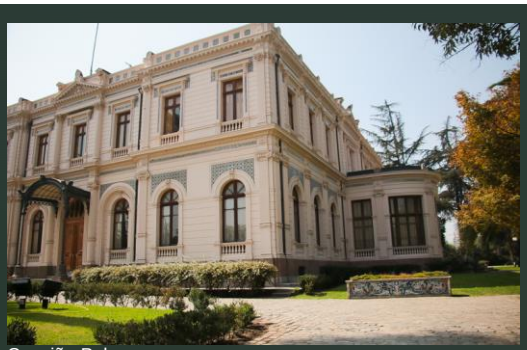
Persea lingue (Lingue)

Laureliopsis philippiana (Tepa)

3

Architectural use

Morande Campino Palace



Cousiño Palace

Iñiguez Palace

Santiago Central Post Office

4

Environmental factors

Valdivia. Región de los Ríos. Chile

5

Museum

6

Historic building (1900)

7

Collecctions care

8

Building Evaluation – Deterioration Index

Quantitative factors

- % RH and temperature variation
- Microbiological contamination
- Pollution
- UV-IR radiation

Cualitative factors

- Landslides
- Leaks
- Earthquakes
- Fires
- Vandalism
- etc

27-room of the building

9

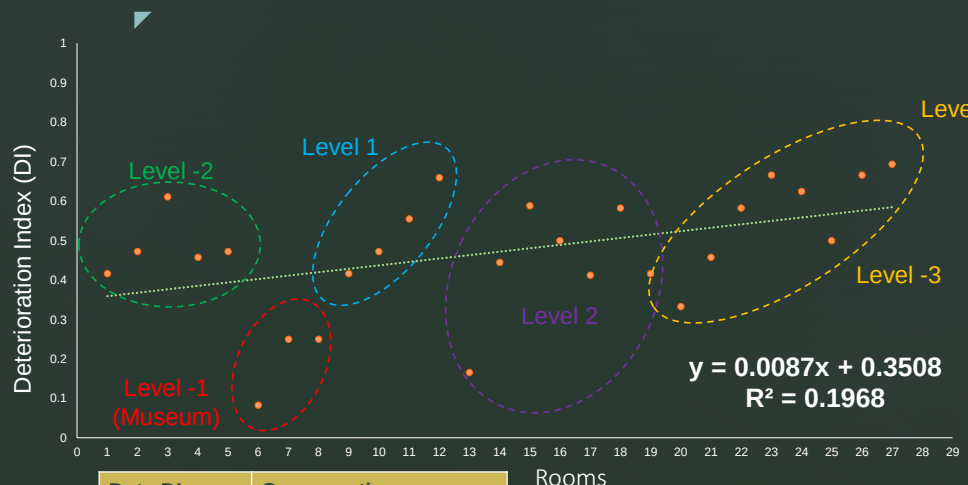
Study context

10

Study context

11

Data Analisis DI- total rooms



Data DI	Conservation
0- 0,25	very good
0,25 – 0,5	good
0,5 -0,75	regular
0,75 – 1,0	bad

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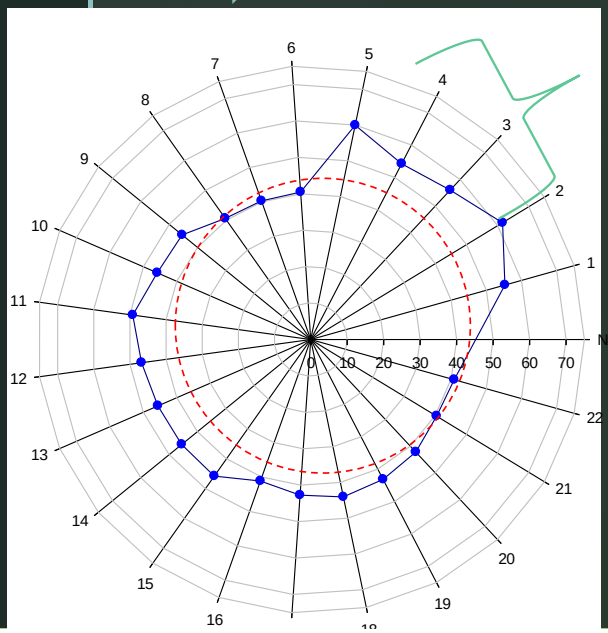
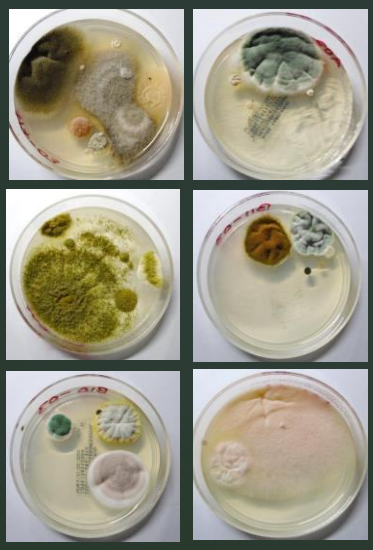
Relative Humidity – association with microbiological contamination



Level -1



Humidity variation %
(40%HR+/-20%)

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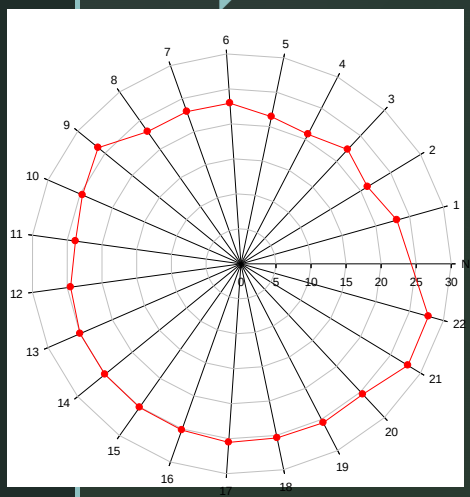
Temperature – Pests infestation



Temperature °C
(25°C+/-5°)

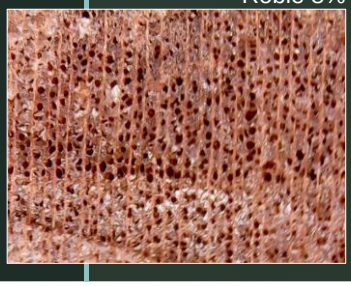
14

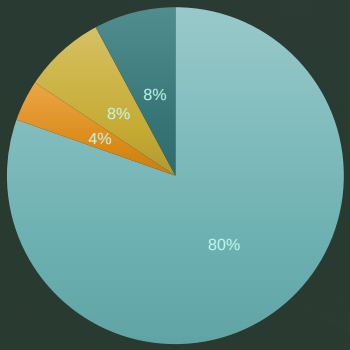
Wood species in the building

50 samples total

Lingue 80%

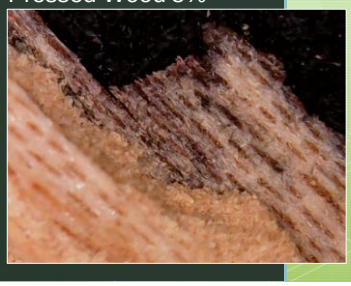
Roble 8%





Pino insigne 4%

Pressed Wood 8%



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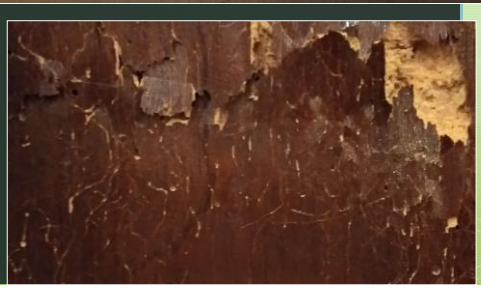
Infested area



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Physical characteristics

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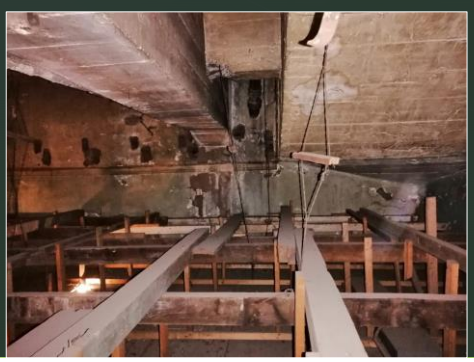
"In situ" pests evaluation



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Fumigation process

19

20

Specific treatments

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Conclusions

- ✓ The identification of wood species present in a historic building helps to understand biodeterioration processes or pest attack.
- ✓ The use of native species with resistance characteristics help the physical and mechanical stability of historic buildings.
- ✓ The identification of wood species helps the proper selection by conservators and restorers for the intervention of heritage buildings.
- ✓ The selection of resistant woods helps to delay normal processes of biodeterioration and infestation.

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