# **GR** Urban trees & housing intensification A spatial conflict?

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# THE ISSUE



# **RESEARCH OBJECTIVES**

To identify and quantify the loss of existing trees from private residential land in Christchurch between 2015 and 2021.

- To assess the relationship between tree loss and residential housing intensification
- 3. To determine whether the loss of trees from housing intensification has been offset by new plantings on private and public land
- To evaluate whether **regulation** is an effective approach for protecting urban trees from housing intensification

**STUDY AREA** 



# **RESEARCH QUESTIONS**

1: Tree loss	2: Housing intensification	3: Planting offsets	4: Regulation effectiveness
<ul> <li>Total tree loss in Christchurch (2015 to 2021)?</li> <li>Distribution of loss on private vs public land?</li> </ul>	<ul> <li>Relationship between tree loss and intensification?</li> <li>Impact of density and/or form of intensification?</li> </ul>	<ul> <li>Has tree loss been offset by on-site planting?</li> <li>Is suburb-wide loss offset by public planting?</li> </ul>	<ul> <li>Does regulatory protection prevent removal?</li> <li>Are there other more effective alternatives?</li> </ul>
PROPOSED METHODS			
Aerial       Aerial         015       Aerial         020       Deep Learning	Existing property         Intensification         Redevelopment of an existing residential         property that increases the density of	Focus = sites and suburbs where housing intensification has resulted in tree loss (Output from previous stages)	<section-header></section-header>



# housing on that property



#### Summary of steps

I. Identify location and form/density of residential intensification based on council records (e.g. consents)

2. Compare housing intensification to tree loss

3. Statistical analysis to evaluate relationship and answer research questions

Private landPublic landProperty scaleNeighbourhood scale

#### Summary of steps

I.Gather data about number and species of trees planted on public/private land

Site visit observations
Council planting records
Aerial imagery (supplementary)

2.Calculate potential canopy gains from planted trees

3. Compare potential gains to loss to assess value of offsets

Spatial comparison of: protected trees / intensification / tree loss

• How many protected trees were removed?

- Was removal related to housing intensification?
- Were protected sites less likely to be intensified?

### Developer survey



Influence of trees on site selection / design?
Influence of regulatory protection?
Alternatives to encourage retention?

# **RESEARCH IMPLICATIONS**

Understand scale and extent of the issue
Recent tree loss on private residential land
Influence of housing intensification

Evaluate potential solutions
Role of replanting (public and private)?
Effectiveness of regulation?

Anticipate and plan for the future
How to achieve urban tree objectives with continued housing intensification



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