LiDAR for Ecosystem Management

A short overview of my MSc research

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What I am going to talk about?

- Why high resolution remote sensing data is important

- LiDAR – How it works

- My project: Modeling marbled murrelet nesting habitat
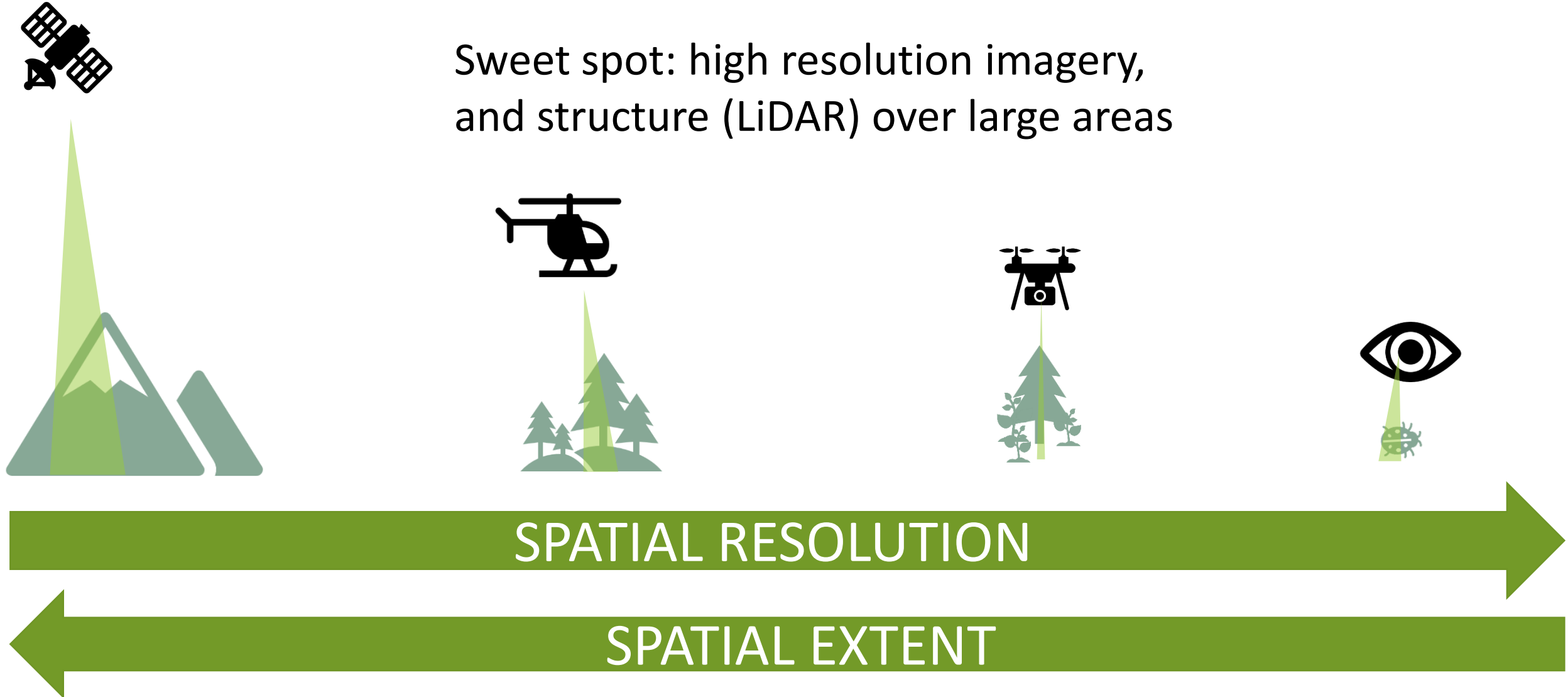
- How LiDAR can be used to support their management

Resolution matters

Satellite images are 'flat and coarse' and cannot capture the most relevant ecosystem variables.

This is a problem. We need finer-scale data to observe ecosystems appropriately.

New tech: bridging the data 'gap'

Sweet spot: high resolution imagery, and structure (LiDAR) over large areas

SPATIAL RESOLUTION

SPATIAL EXTENT

LiDAR – How it works

Inventaire écoforestier du Québec méridional
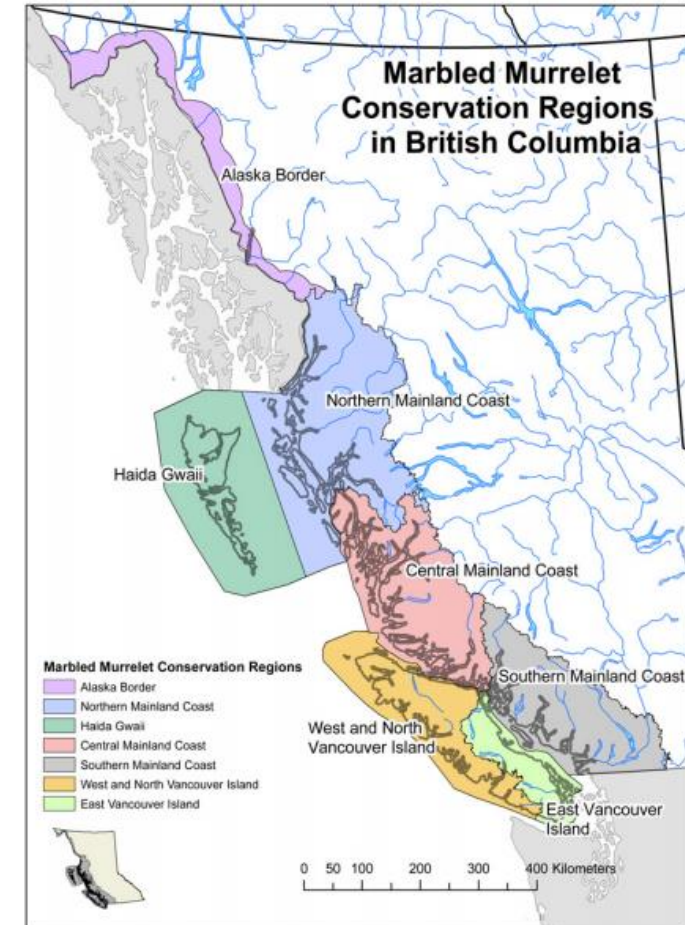Disponibilité des produits dérivés du LiDAR

LiDAR can collect fine-scale structural data. We can now resolve individual trees and their structure over large areas.

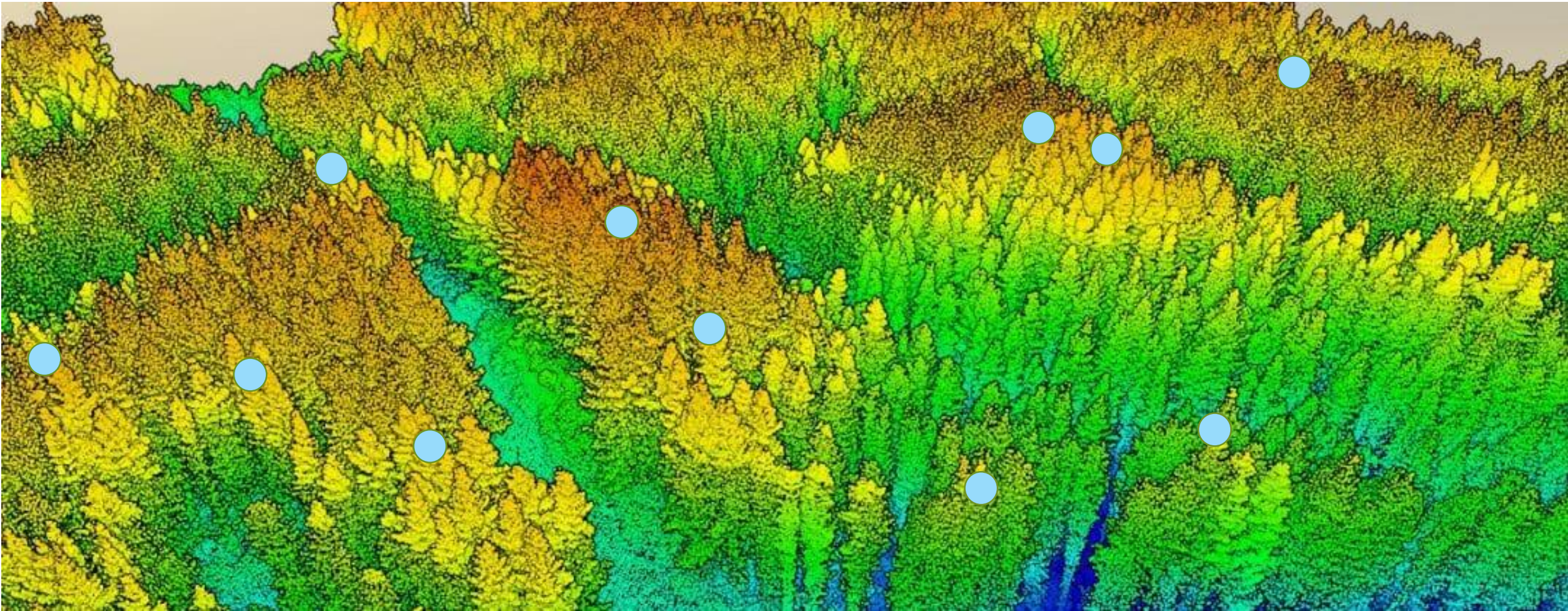But how can it be used for management?

Application: Marbled Murrelets

Can we use LiDAR to identify suitable nesting habitat to inform forest management?

LiDAR informed habitat model

Outcomes

Provide data that can be used for land management decisions. Specifically, areas left un-harvested by timber companies.

Improved sustainability for forestry on the west coast.

Can also be used to monitor habitat condition and change over time.

With good management, BC government can meet its legal obligations to protect species and facilitate business.

Productive forestry and marbled murrelets can co-

To conclude

New fine-scale remote sensing technology like LiDAR can help us model environmentally relevant variables, such as tree structure.

Range of ecosystem management uses, but its full potential hasn't been explored. I am using it to address a hot topic in BC conservation.

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