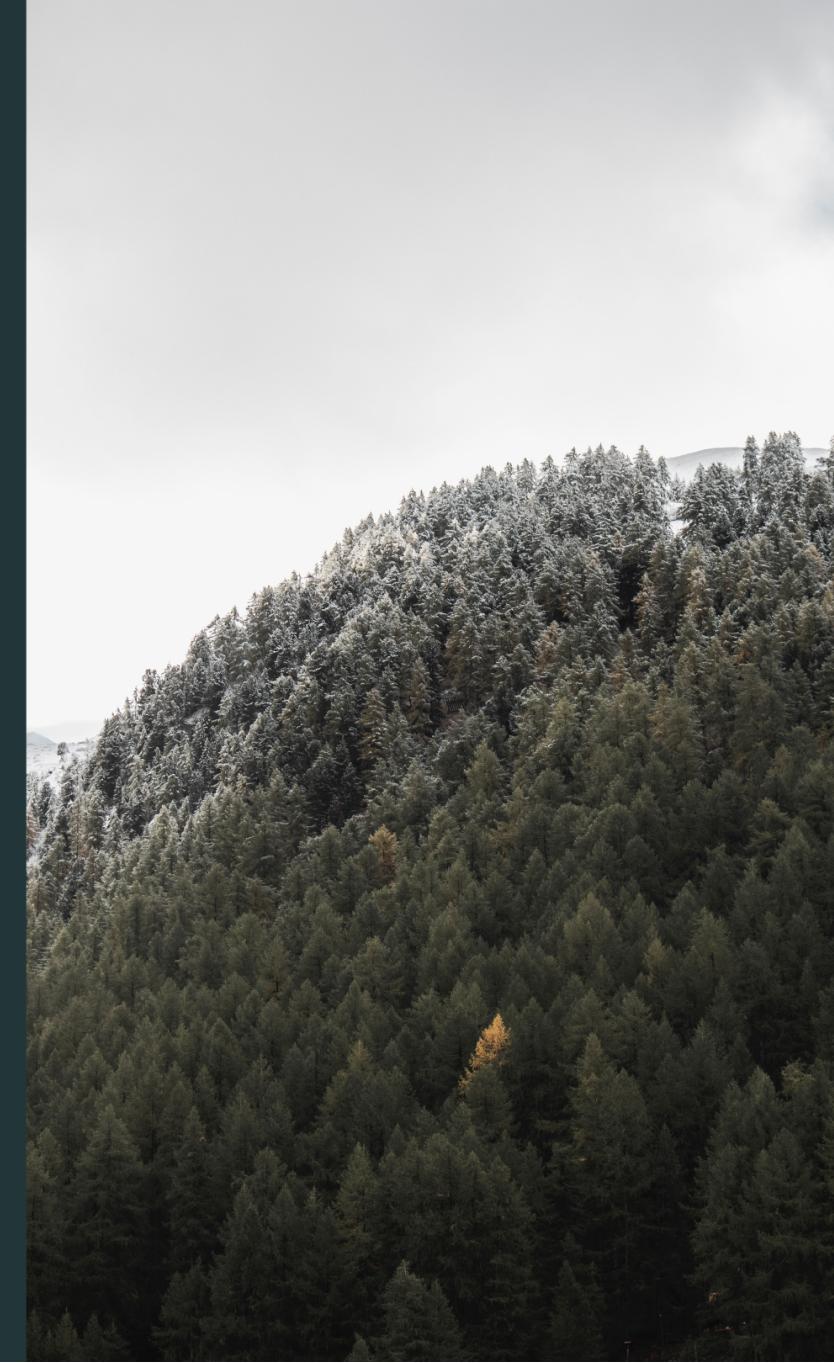


Distributions are more than habitat amount

The metapopulation structure is a vital element to distribution change

Victor Cameron

June 2022

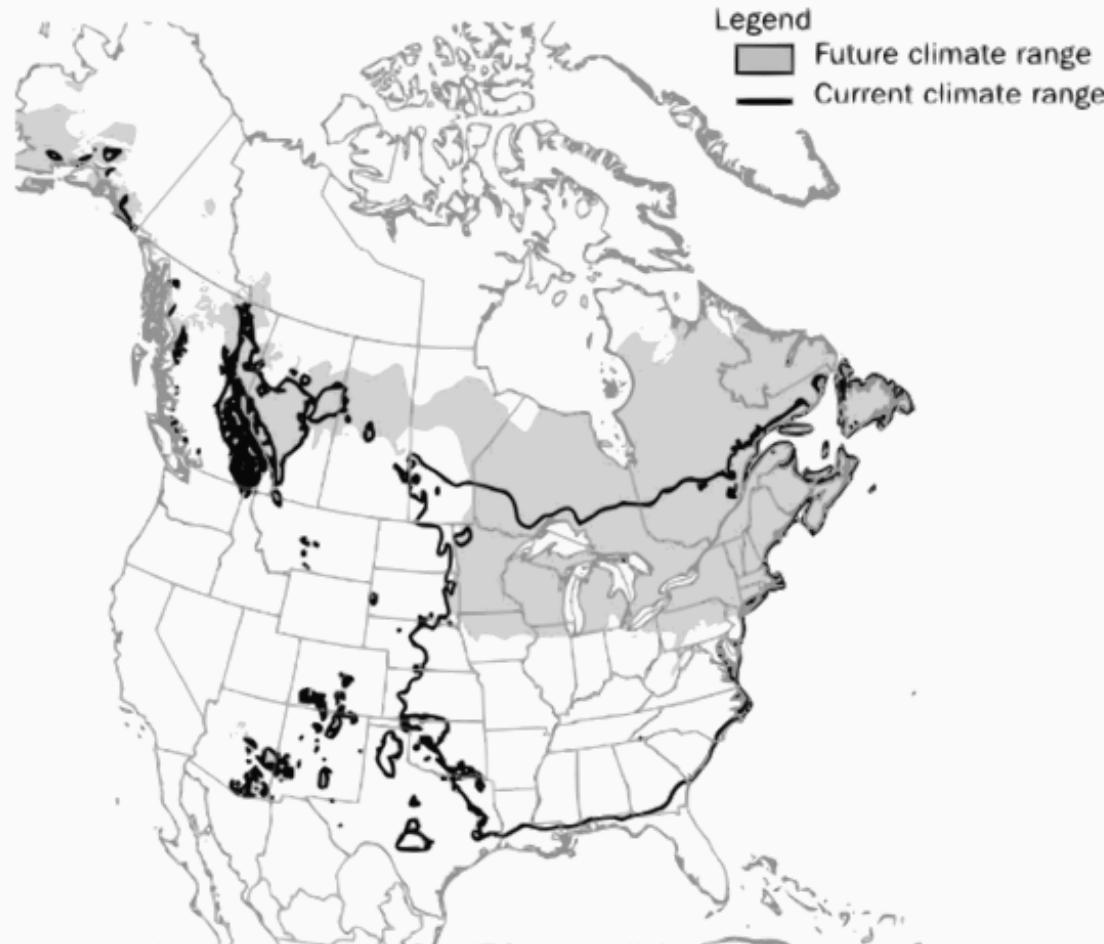




Corridor Appalachien

Non-equilibrium dynamics

Sugar maple



McKinney et al. 2007 BioScience.

Complexity of bottom-up systems

The Bicknell's thrush (*Catharus Bicknelli*)

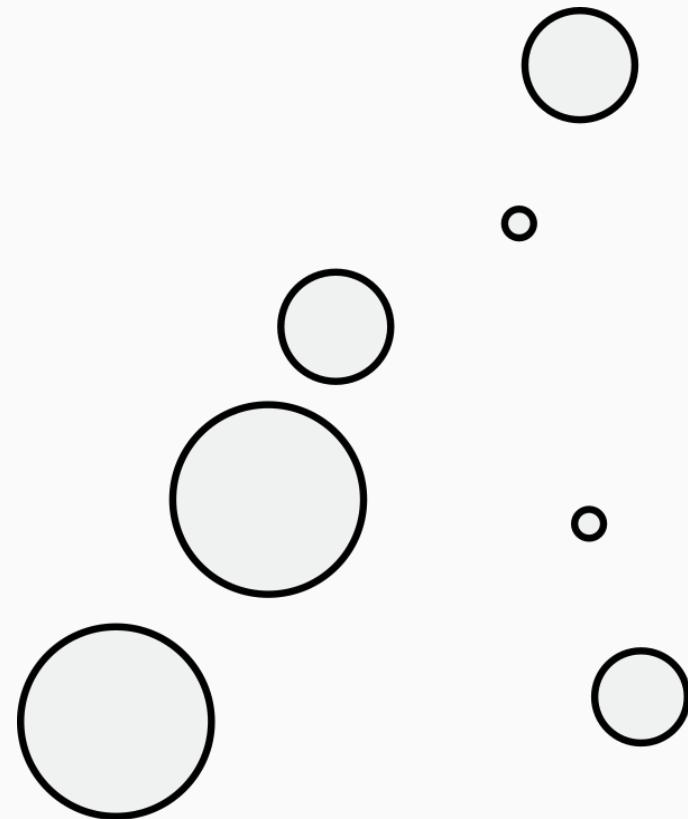


Threatened in Canada

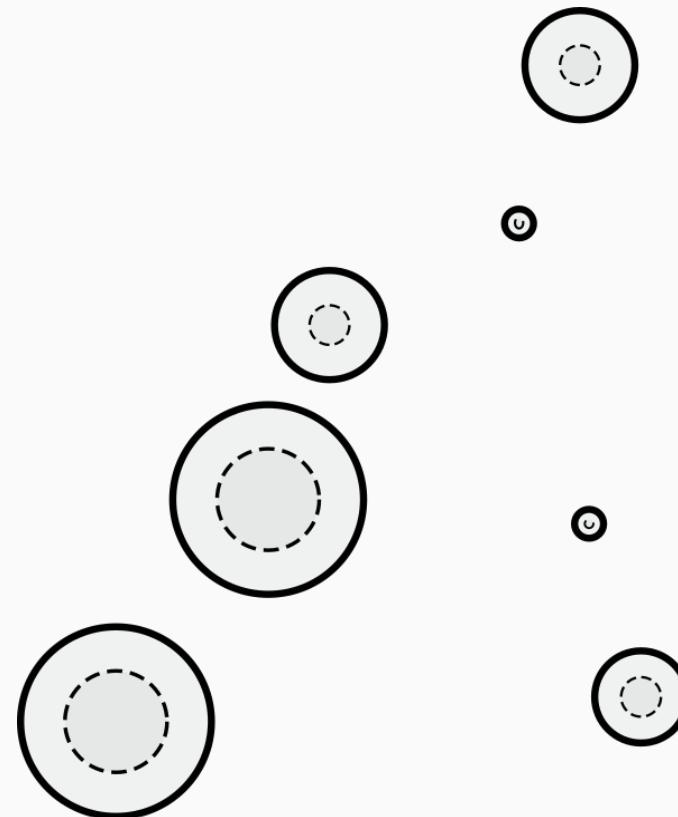
Specialist of cold, high elevation Balsam fir forests

Patchy distribution

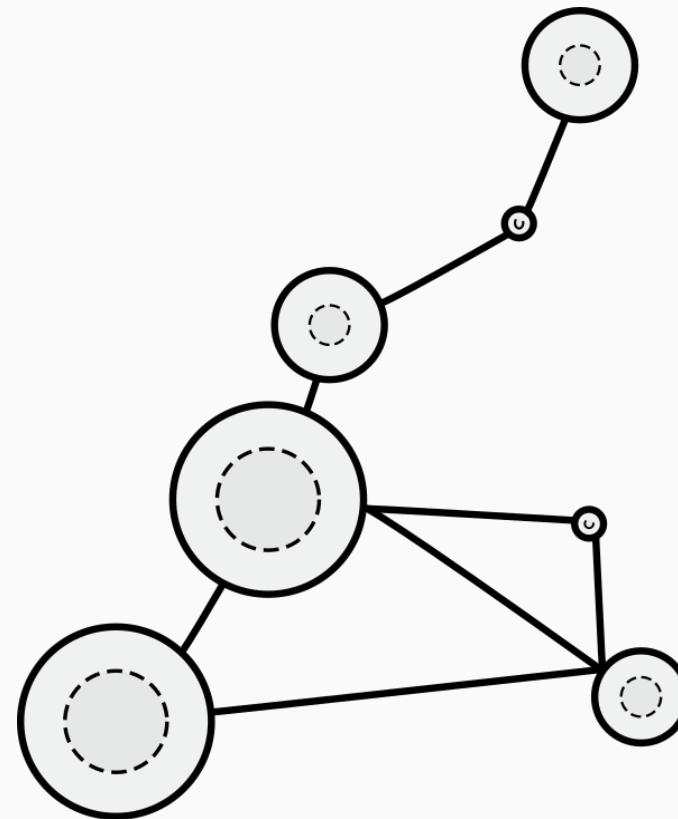
Regional distribution and metapopulation dynamics



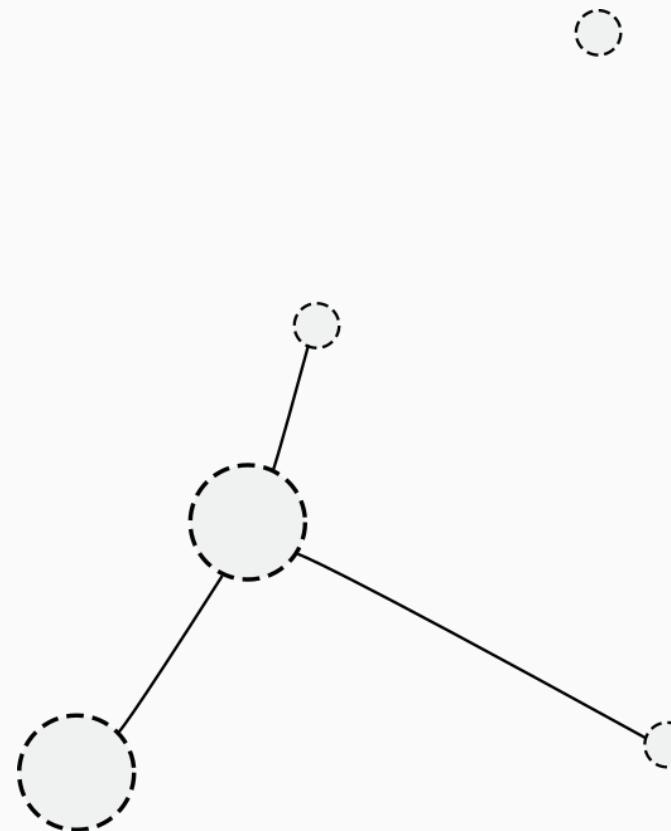
Regional distribution and metapopulation dynamics



Regional distribution and metapopulation dynamics



Regional distribution and metapopulation dynamics

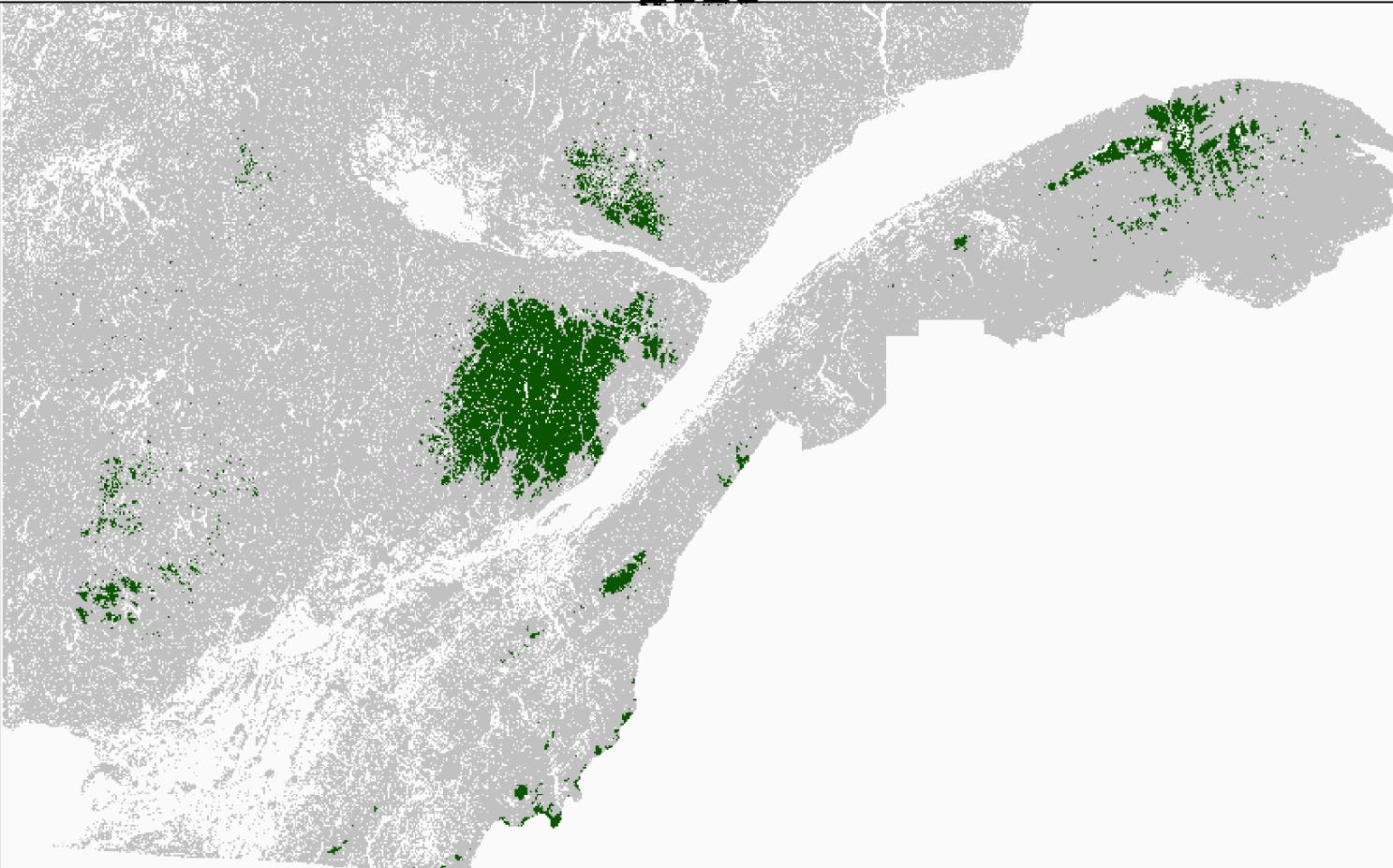


Metapopulation dynamics

The landscape's **spatial structure** and species **dispersal** abilities affect **connectivity** and **occupancy**

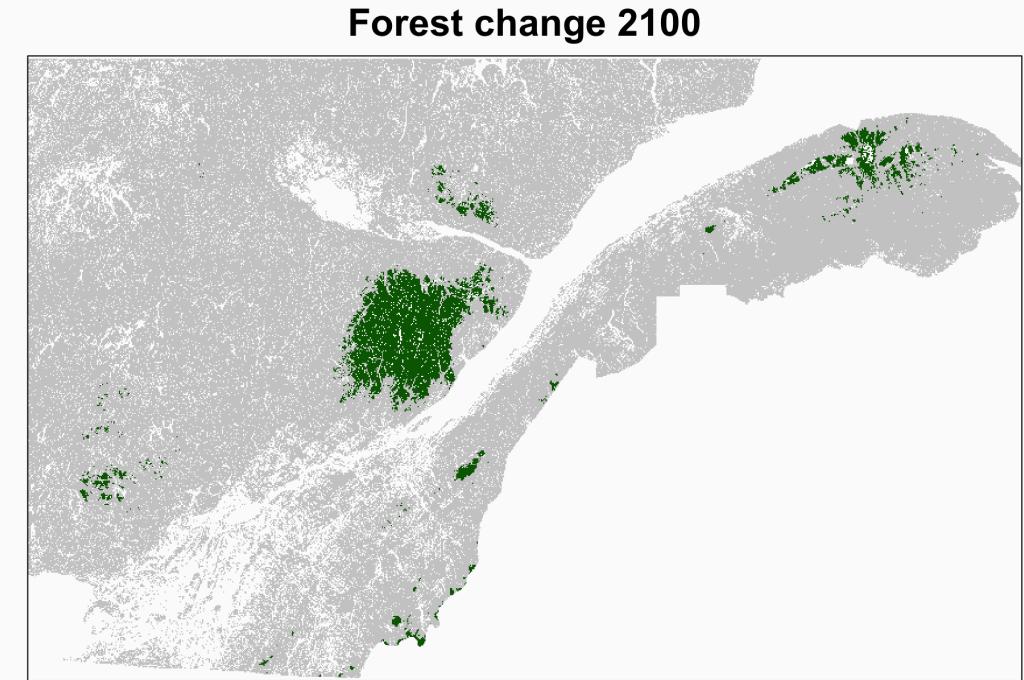
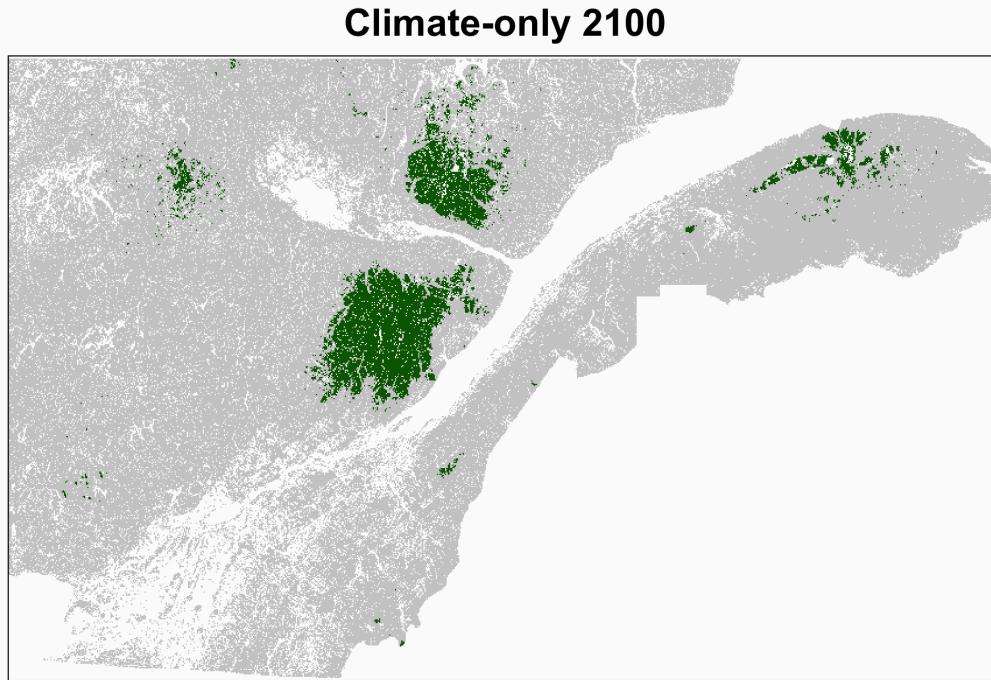
Distribution dynamics

2020



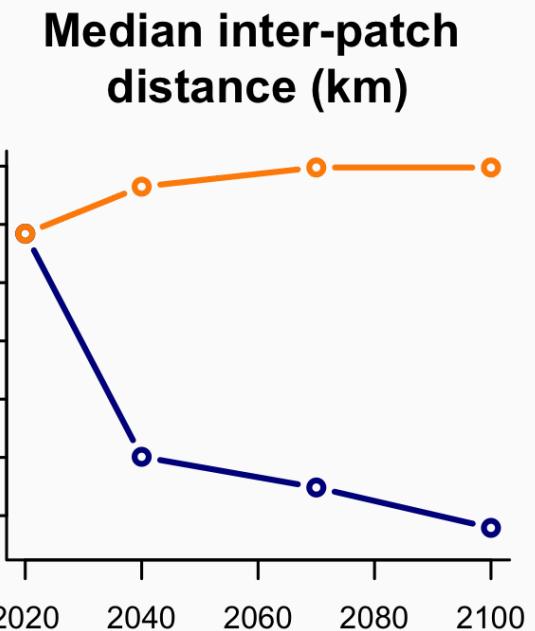
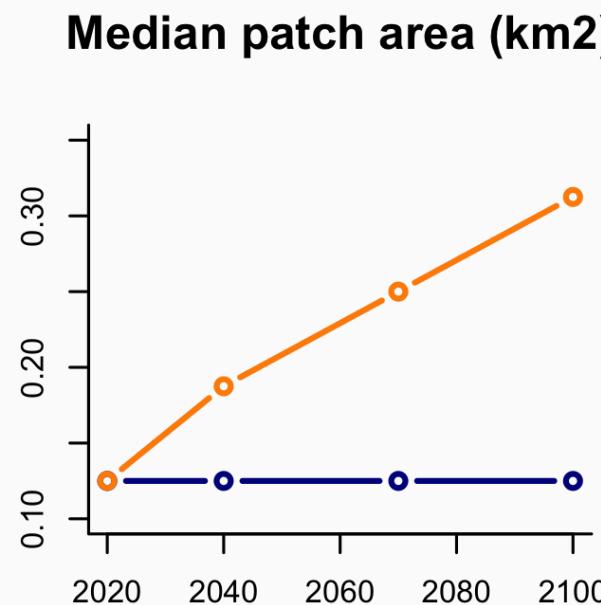
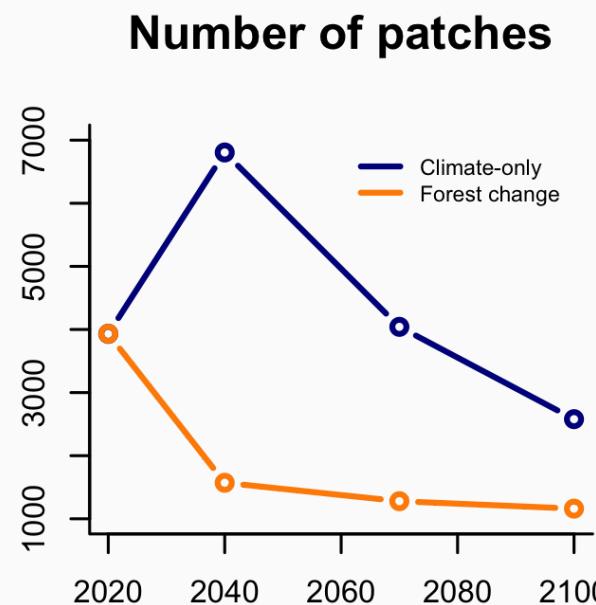
Distribution dynamics

Favorable landscape shifts predict non-equilibrium dynamics



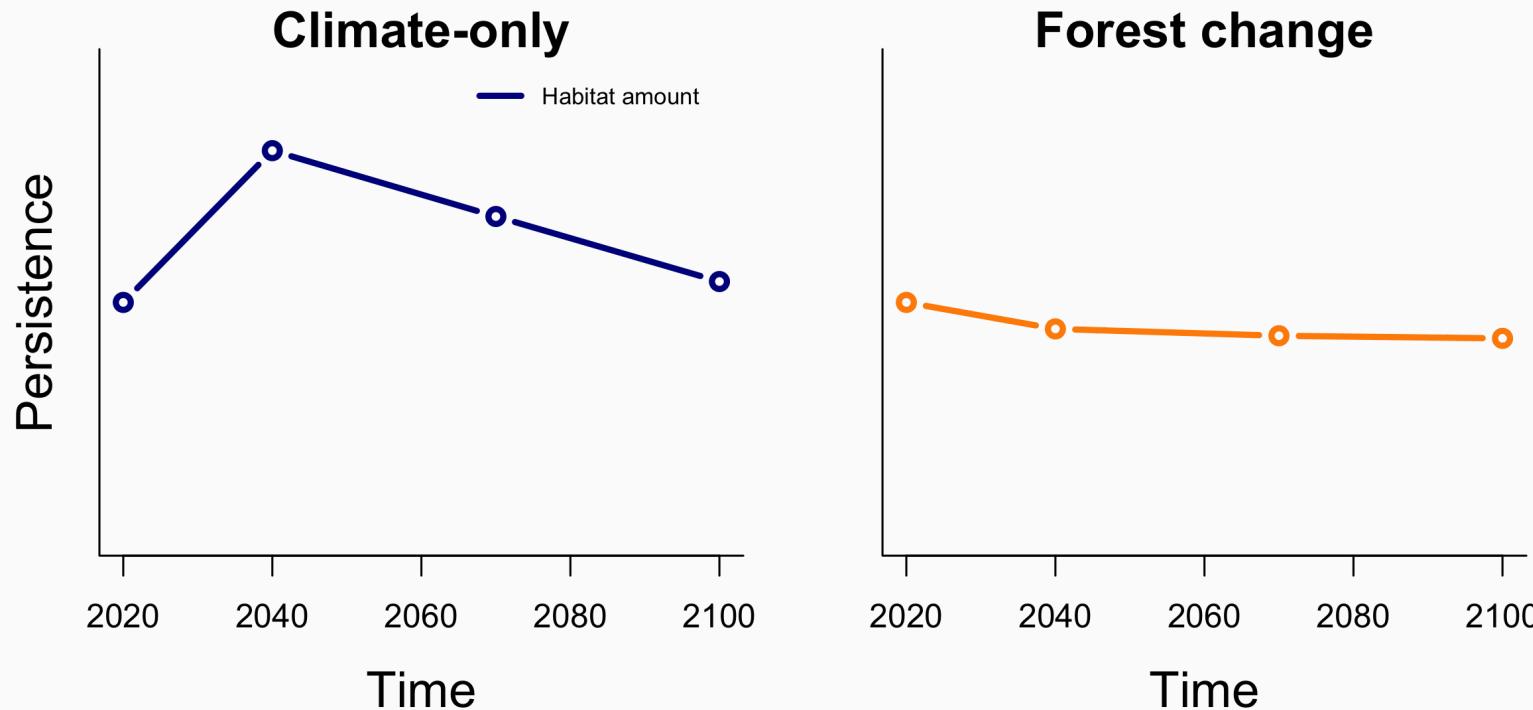
Distribution dynamics

Spatial structure is affected by climate change



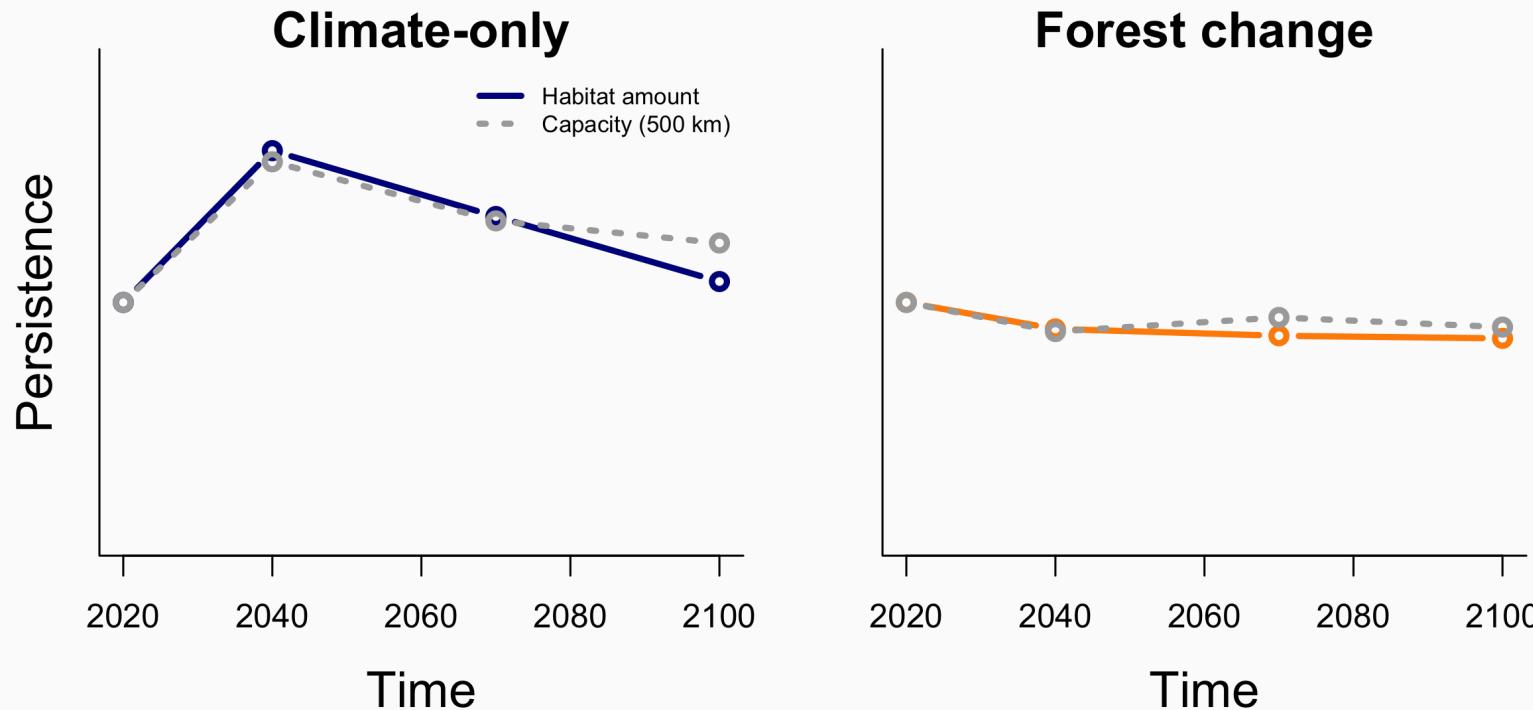
Distribution dynamics

Persistence is impacted by the ability to use available habitat



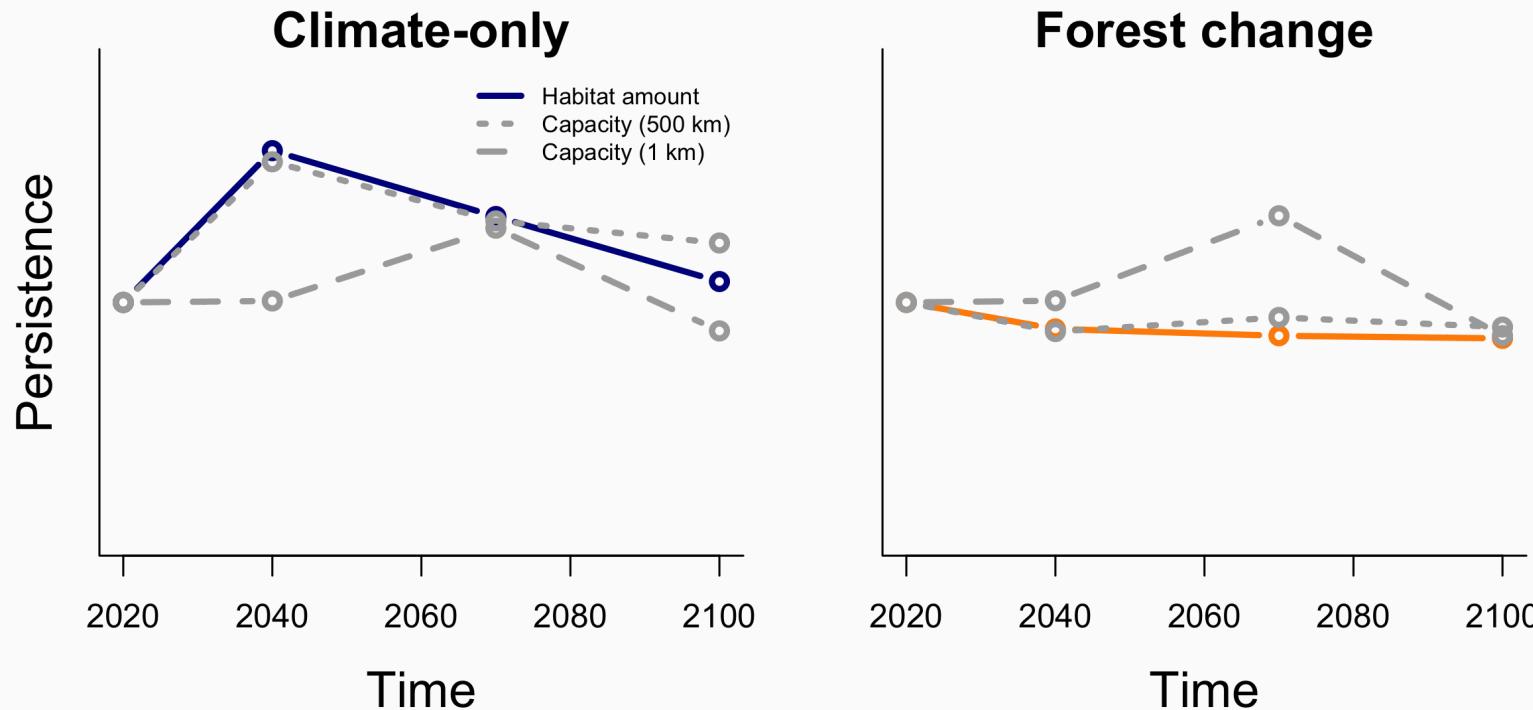
Distribution dynamics

Persistence is impacted by the ability to use available habitat



Distribution dynamics

Persistence is impacted by the ability to use available habitat



Take home messages

1. Habitat mismatch affects species distribution shifts
2. Metapopulation dynamics may precipitate species decline

THE METAPOPULATION STRUCTURE IS A VITAL ELEMENT TO DISTRIBUTION CHANGE

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