

# **Beaver and Cottonwoods in Columbia Wetlands**

BY

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**CWSP AGM**

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# Climate change is occurring now & likely to get more severe in future

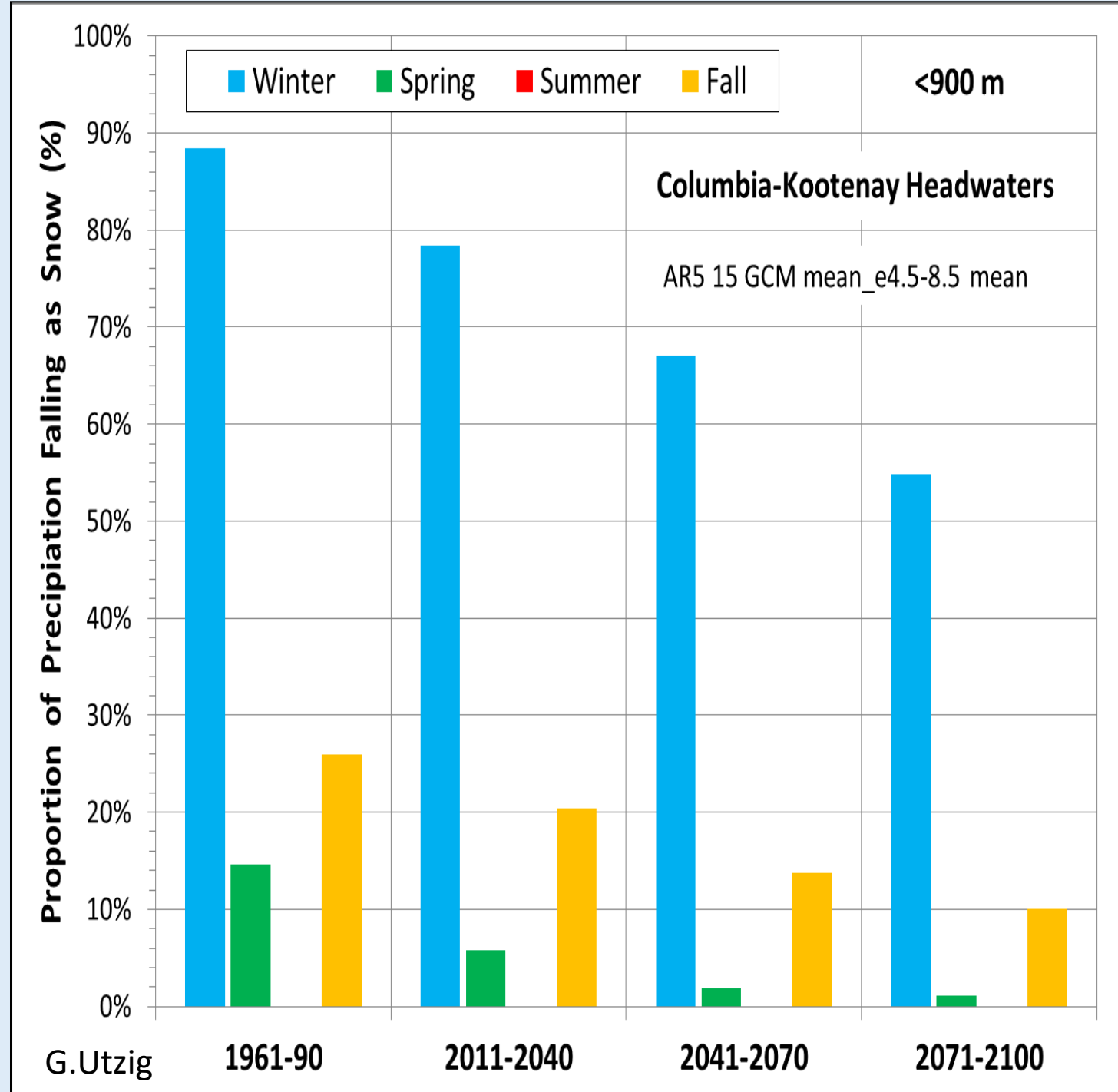
- + 5° C projected increase in summer temperatures
- + 3.5° C projected increase in winter temperatures





# Changes in precipitation are occurring

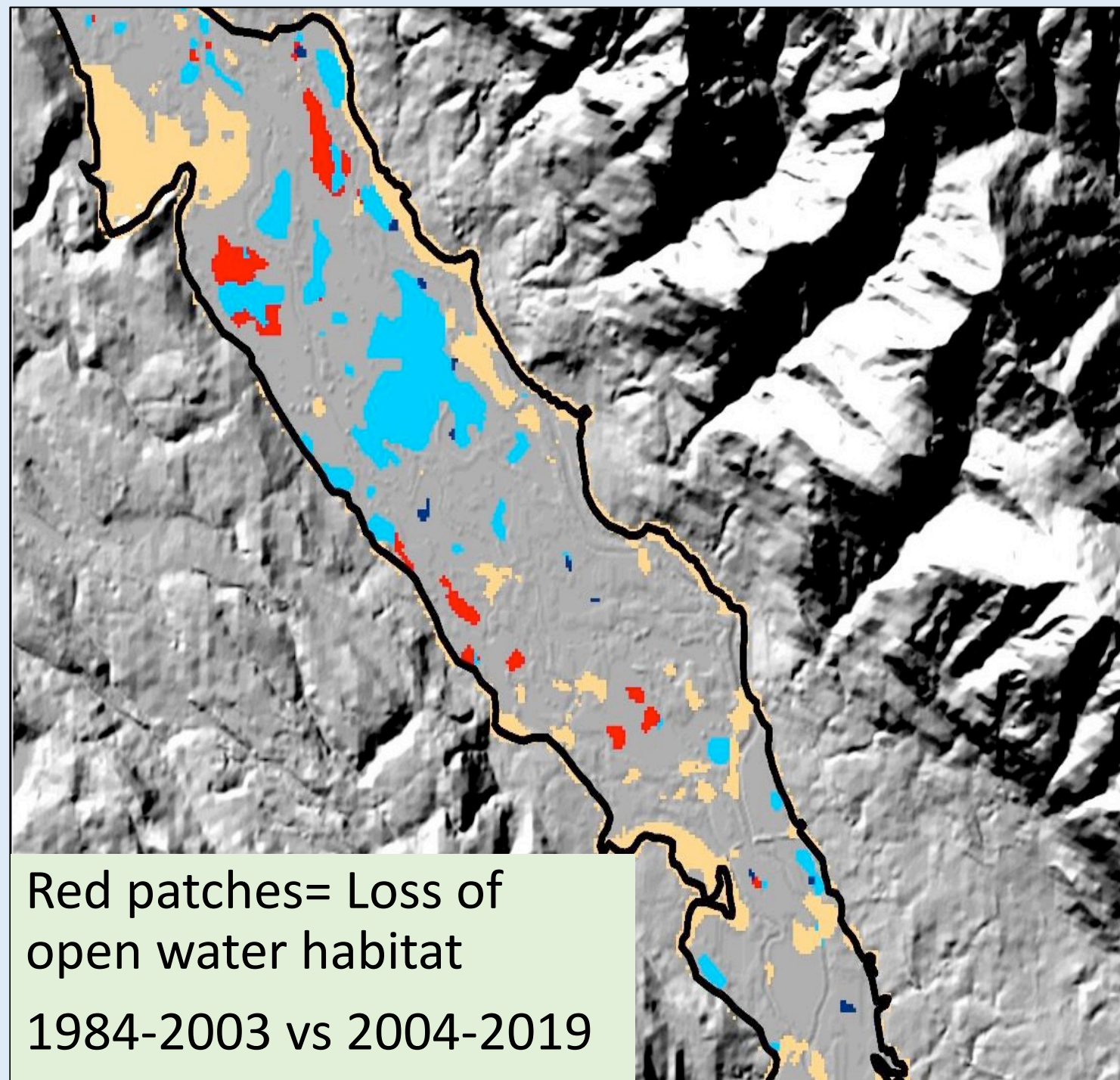
- Less winter snow
- Less spring runoff



# Climate Impacts in Columbia Wetlands 1984- 2019

The Columbia  
Wetlands are losing  
open water habitat  
in the summer

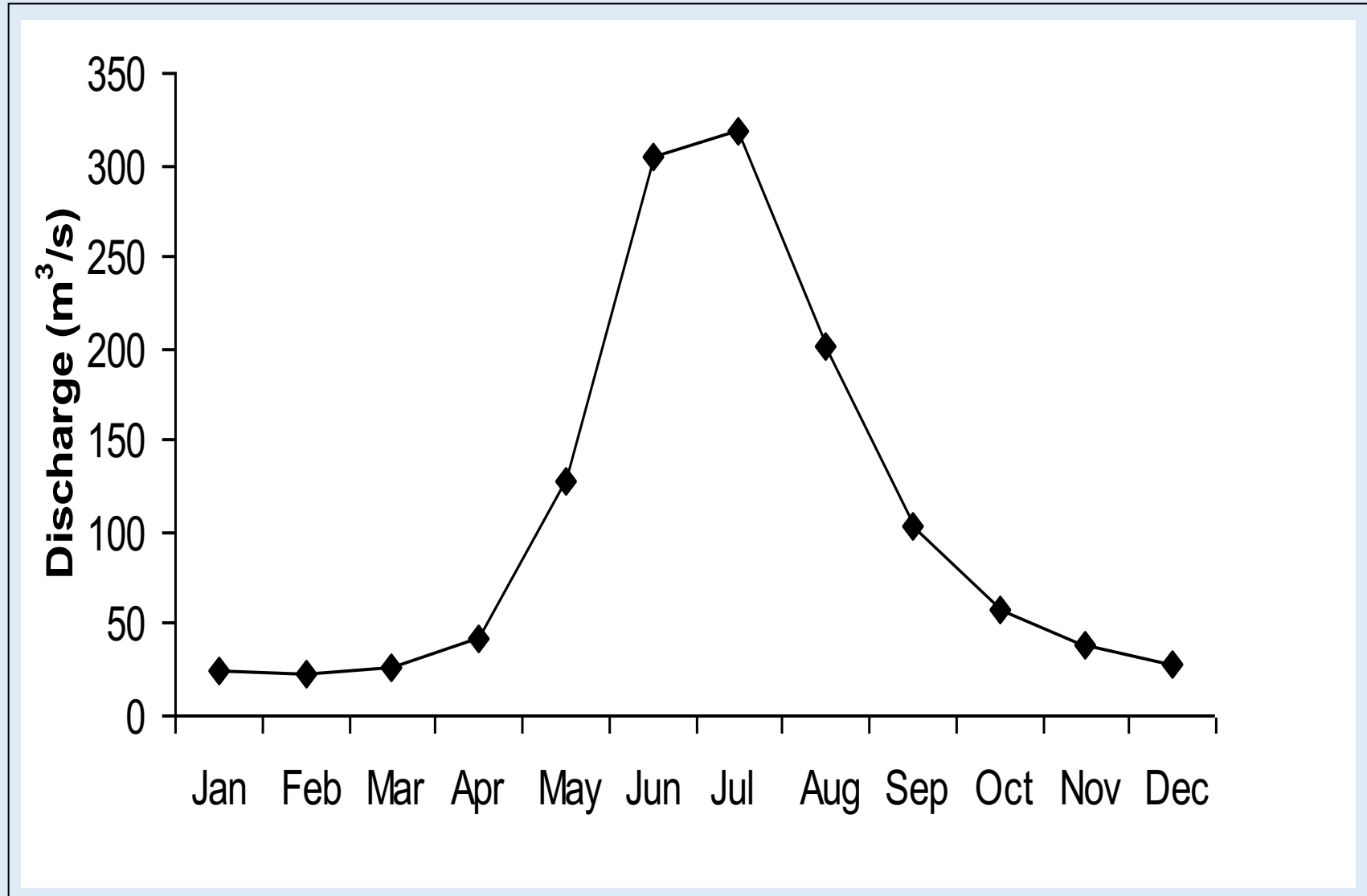
Hopkinson et al. 2020



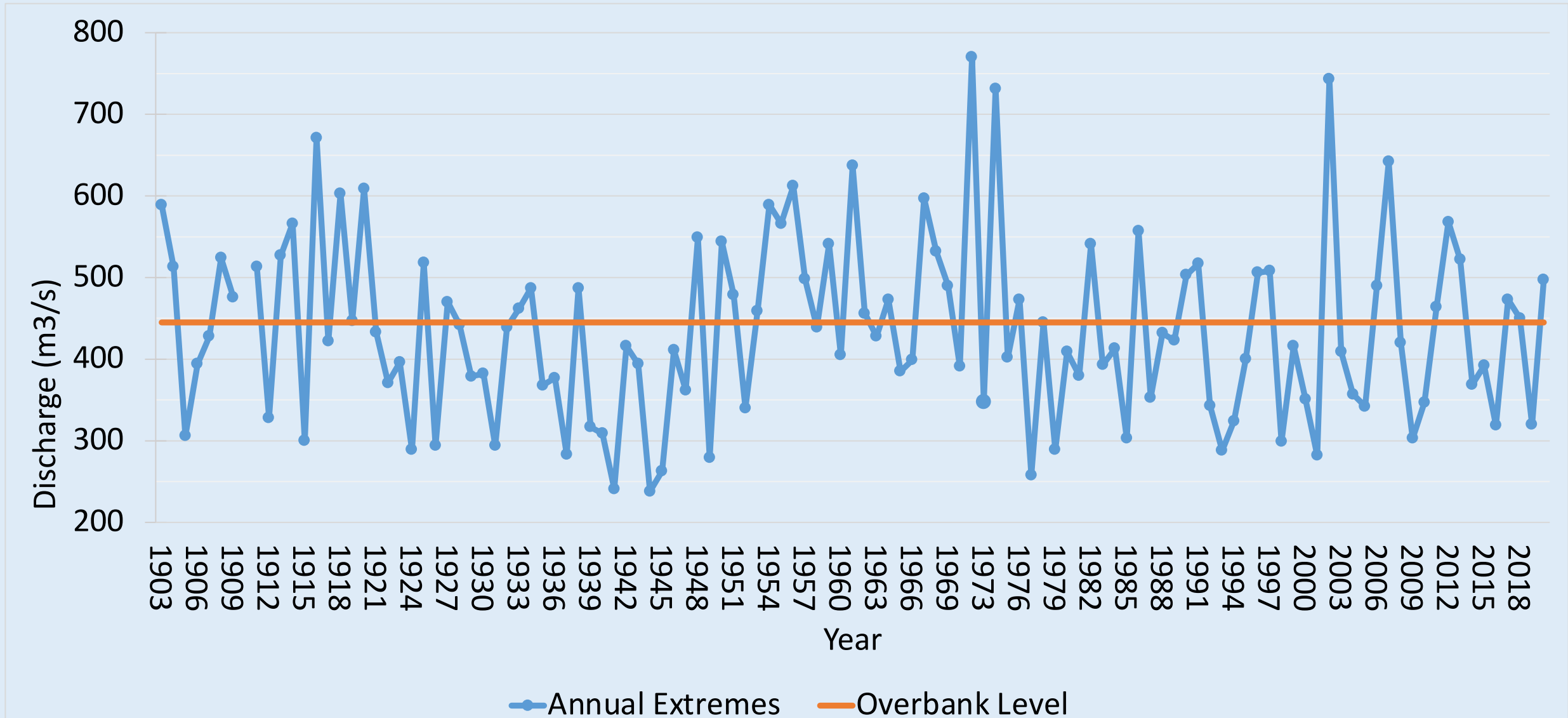


# The Columbia Wetlands are controlled by:

- Floodpulse
- Sediment
- Beavers

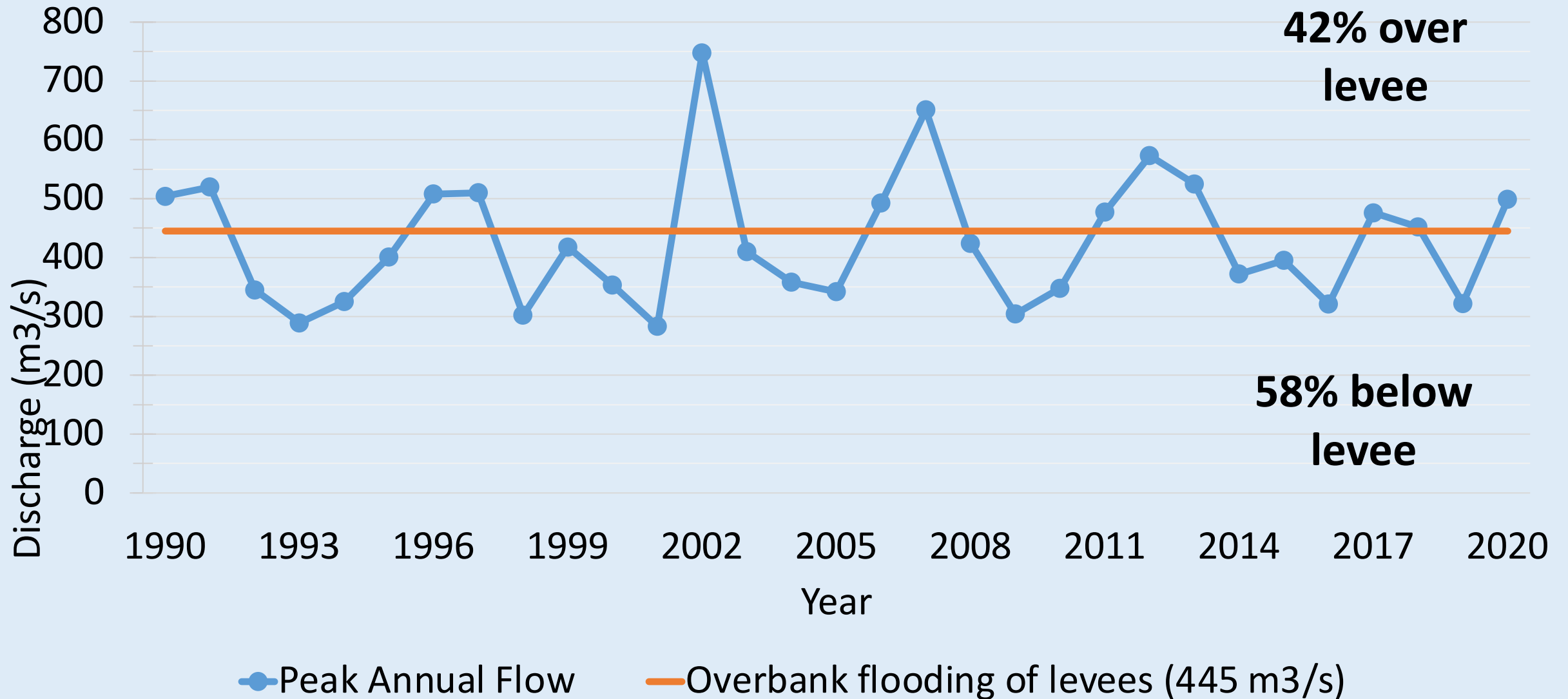


# Peak Annual Flow at Nicholson 1903-2020





# Peak Annual Flow at Nicholson 1990-2020





# Sediment from the river forms natural levees creating wetlands



**Made of silty sand & silty clay**



**Floodwaters must go over the levees or through  
gaps in the levees**





**Over levee flow  
from Columbia  
River**

















# There Are Many Beaver Dams In The Columbia Wetlands

- 273 beaver dams within 30m of 38 study wetlands
- Measured 76 beaver dams



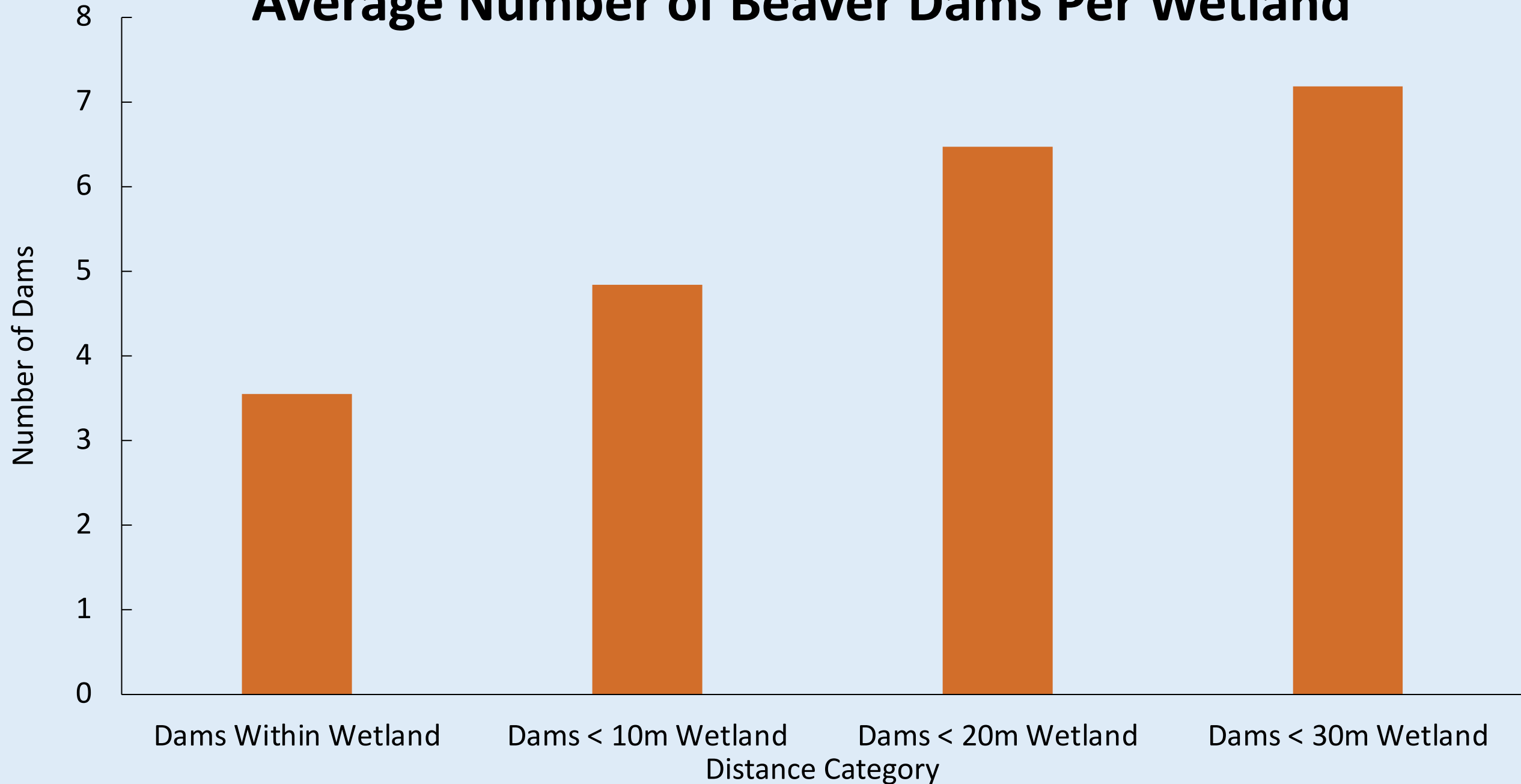
2021/06/02







# Average Number of Beaver Dams Per Wetland





# The Roles Of Beaver Dams

- Allow water over dams during summer flooding
- Keep water within the wetlands over winter
- Provide aquatic habitat year round
- Support migratory bird, SAR, and aquatic ecosystems
- Mitigate climate warming





# Wetland water levels controlled by the River





# Wetland water levels controlled by the River

Wetland #30 in April



Wetland #30 in August





# Wetland water levels controlled by beaver dams

Wetland #49 in April



Wetland #49 in August





# Wetland water levels partially controlled by beaver dams

Wetland #132 in April



Wetland #132 in August





# Wetland water levels controlled only by levees

Wetland #137 in May

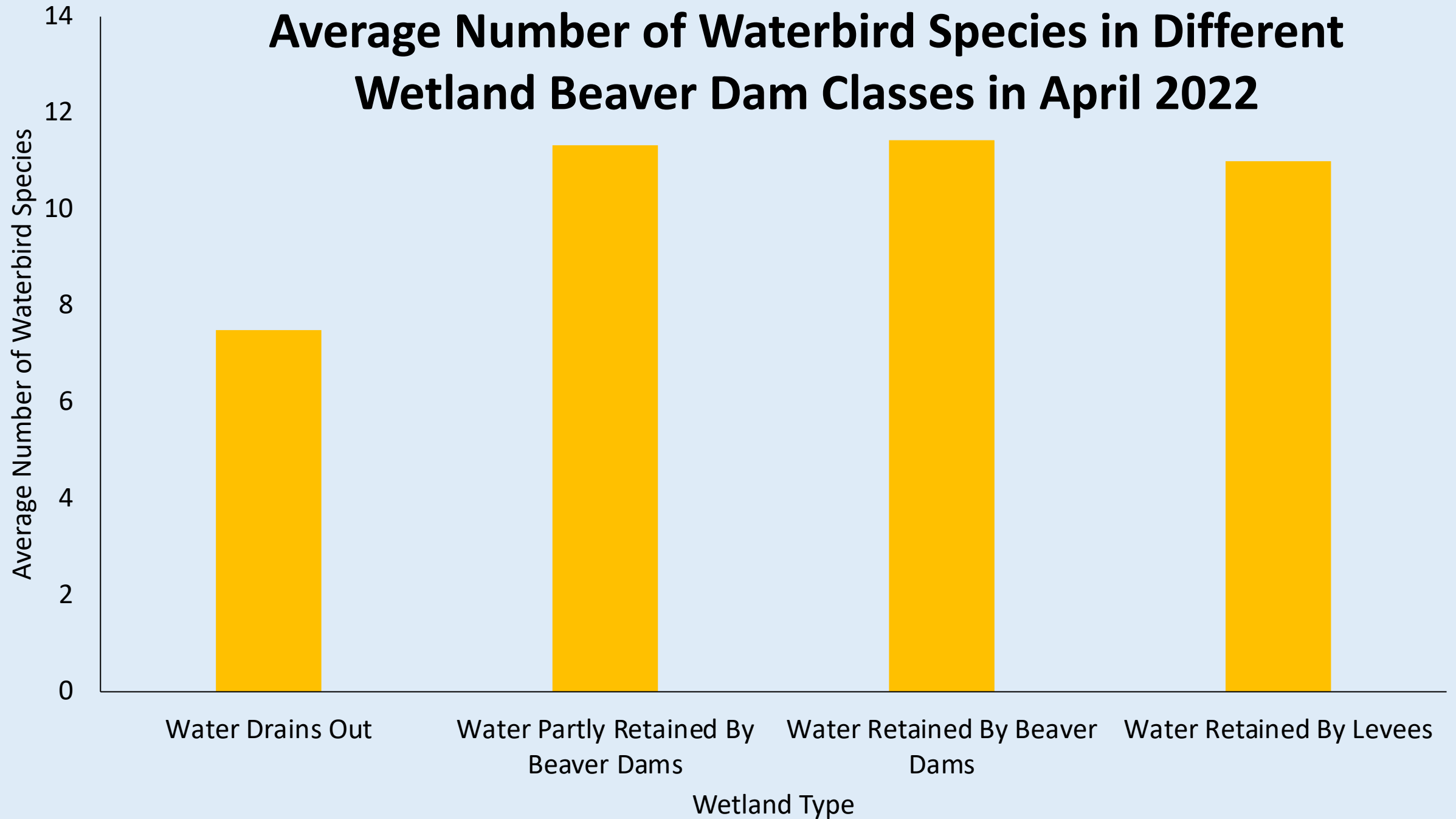


Wetland #137 in August





# Average Number of Waterbird Species in Different Wetland Beaver Dam Classes in April 2022





# Beaver dams highly dynamic & provide water in wetlands for Species at Risk



May 06, 2021



June 14, 2021



Sept. 16, 2021



# Can we use artificial beaver dams to mitigate climate change: only in a few places









# Restored 54 ha of open water habitat for migrating birds & SAR





# Beaver eat cottonwood trees important for birds







S. Morgan



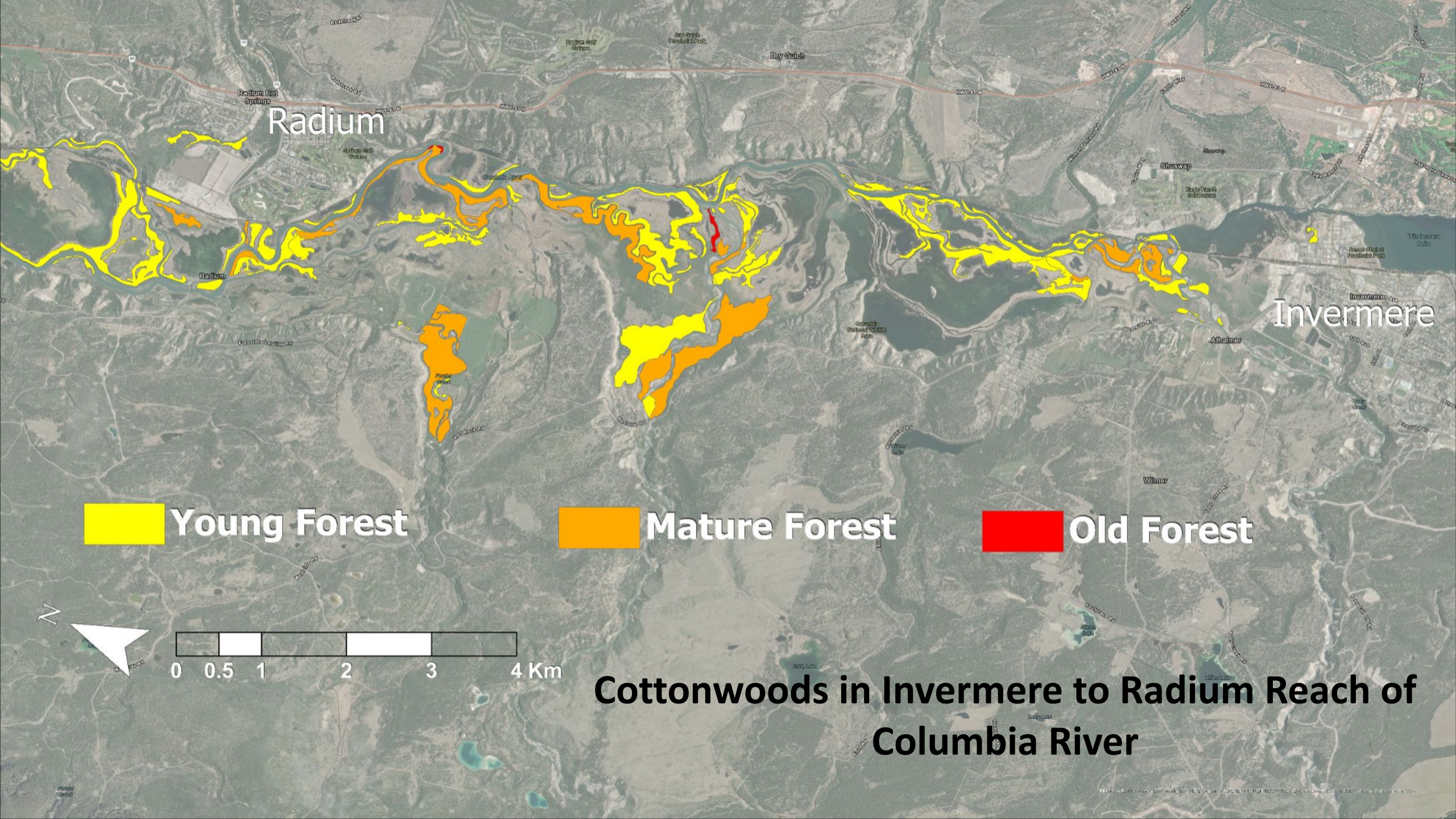


# CWSP & LLC surveyed 77km of Columbia River

- Location
- Snag class (using BC's wildlife tree classification system)
- Observed wildlife use (cavities, nests, perching or notable bird species sighted)
- Access (poor, moderate, good-river or road)
- Beaver activity (type and proximity)
- Stand size, circumference of trees









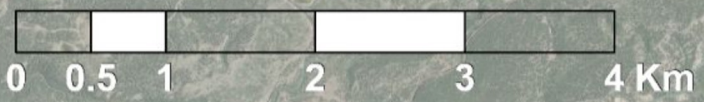
Radium

Invermere

 Young Forest

 Mature Forest

 Old Forest



**Cottonwoods in Invermere to Radium Reach of  
Columbia River**



**Installed  
Wire Guards  
on 45 large  
cottonwood  
trees**









**Living Lakes  
Canada, and  
Wildsight YCC  
team posing  
for group  
photo during  
wire guard  
installation  
field days**





# Thank you

Questions?

