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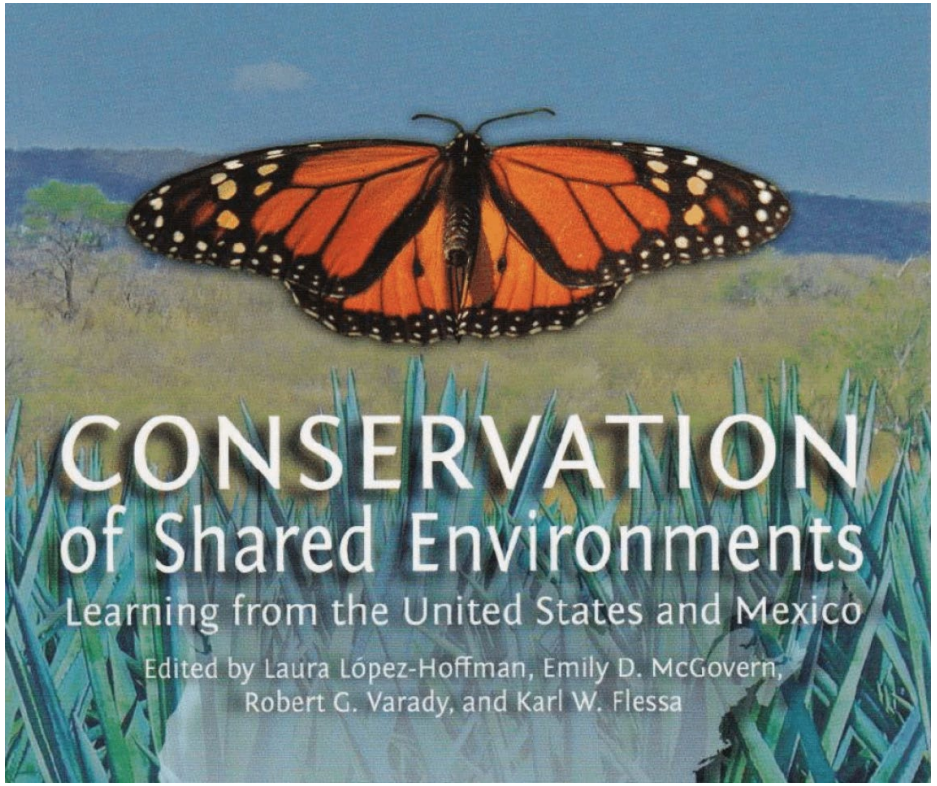
Especies Migratorias y Gobernanza Respetuosa de sus Ambientes • Equitable Governance of Migratory Species and their Habitats

16 years ago, our question was …

How do you conserve migratory species across borders?



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11 Universities
- 25+ senior researchers
- 36 undergraduates
- 5 graduate students
- 2 post-docs

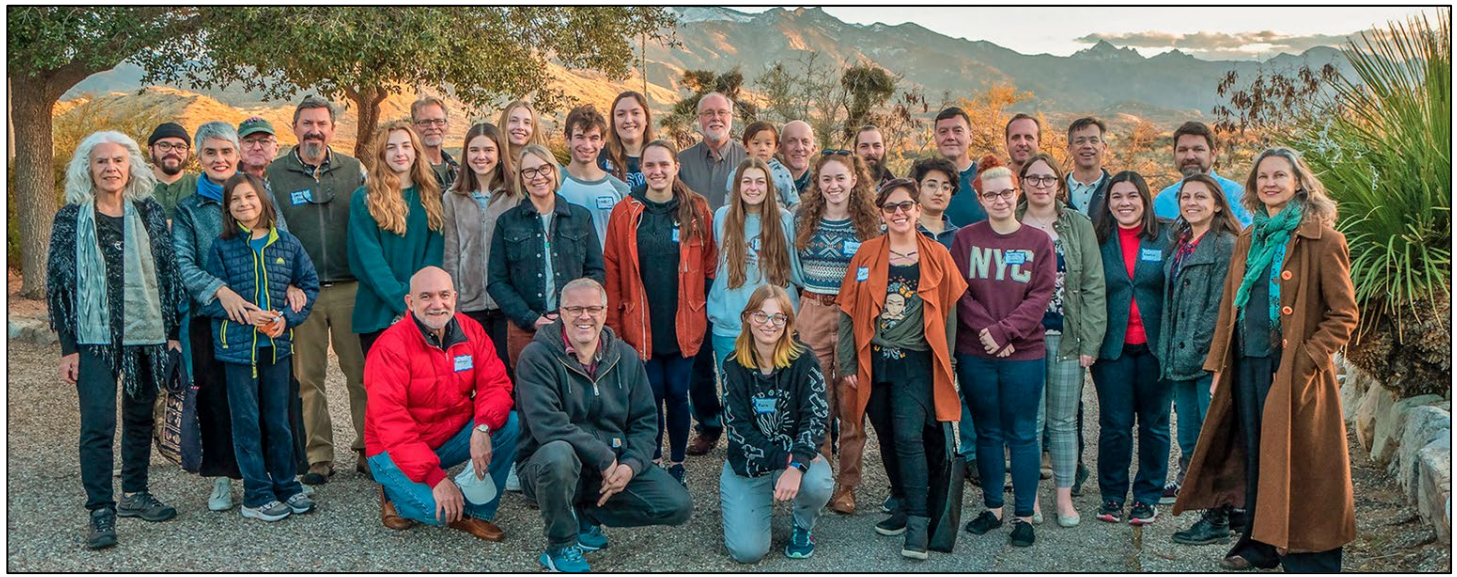
5 Countries

3 NGOs

2 Federal Agencies

7 Disciplines
- Conservation biology
- Cultural anthropology
- Ecology
- Economics
- Environmental politics
- Geography
- Physical science

Funding
- NSF
- NIMBioS
- SESYNC
- USGS



Our question has become…
What are the key design principles for the sustainable and equitable governance of migratory species across borders?

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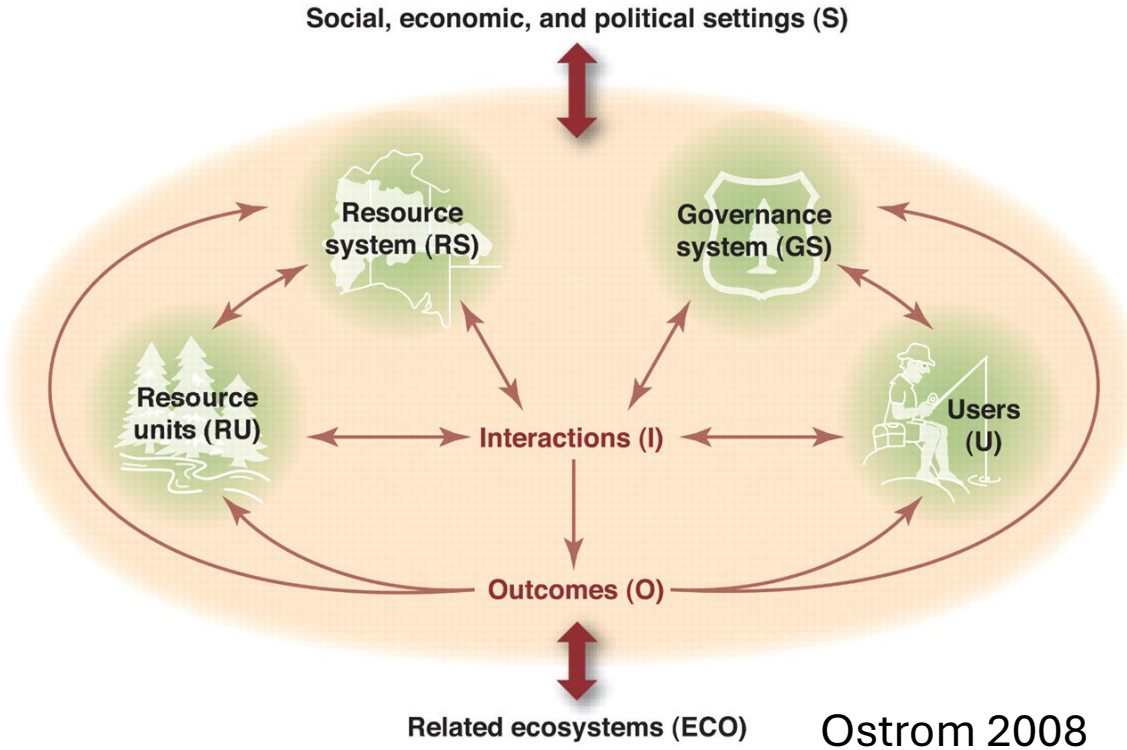

Ostrom 2008

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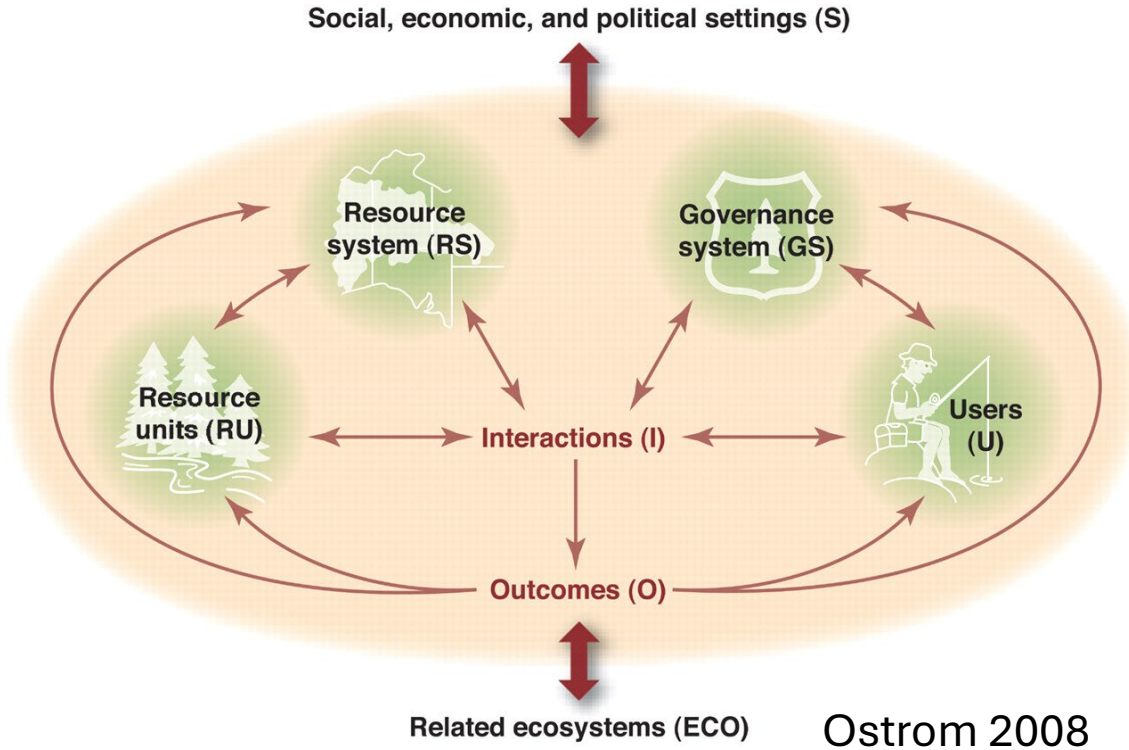
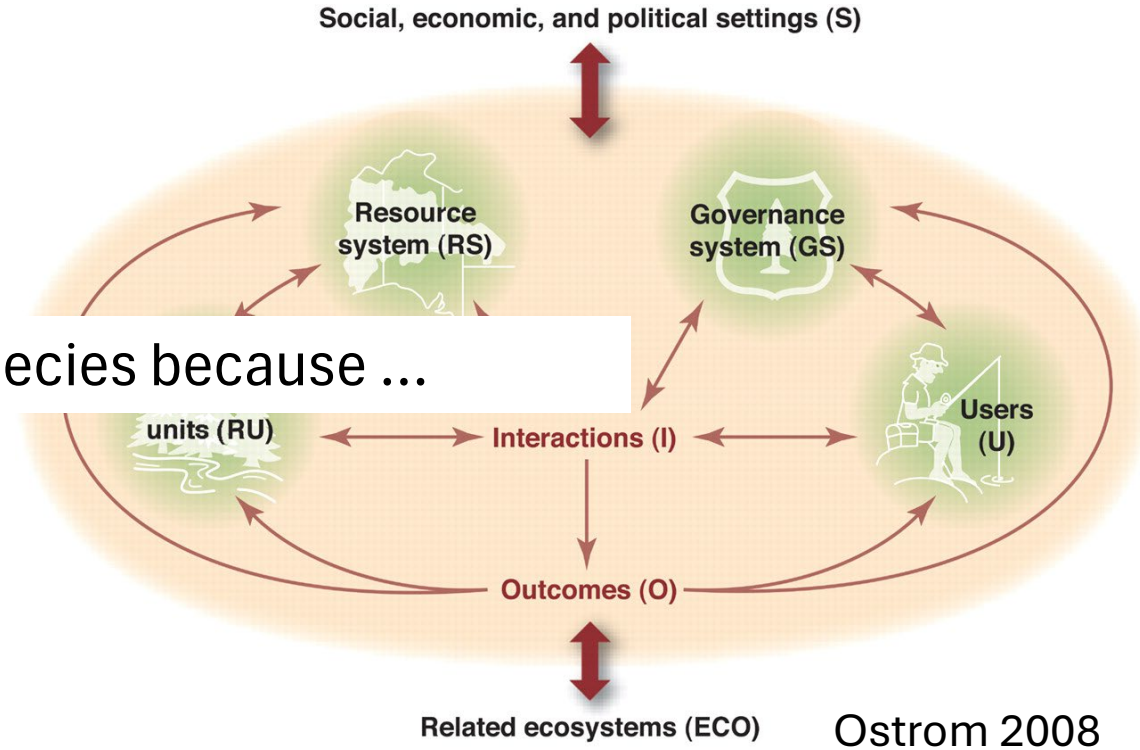
What are the key design principles for the sustainable and equitable governance of migratory species across borders?



Ostrom 2008

Our question has become…
What are the key design principles for the sustainable and equitable governance of migratory species across borders?

Which doesn't fit migratory species because …



Ostrom 2008

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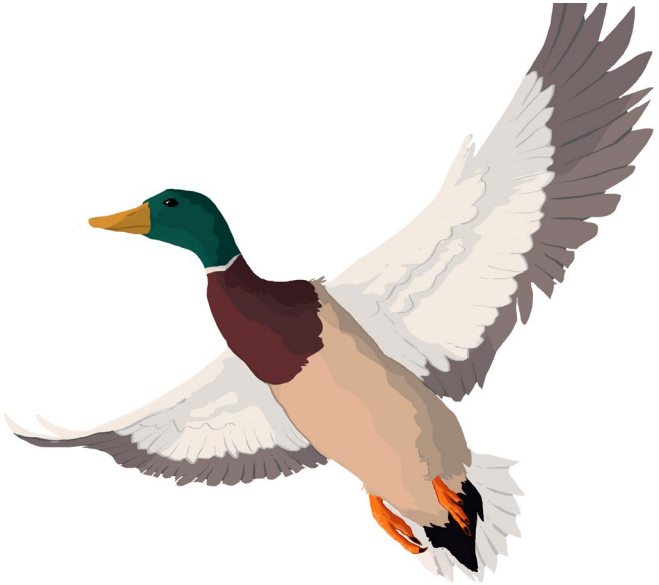
Our question has become…
What are the key design principles for the sustainable and equitable governance of migratory species across borders?

… Migratory species **move**!



Across:

- Habitat/seasons
- Countries/Governments
- Cultures/economies

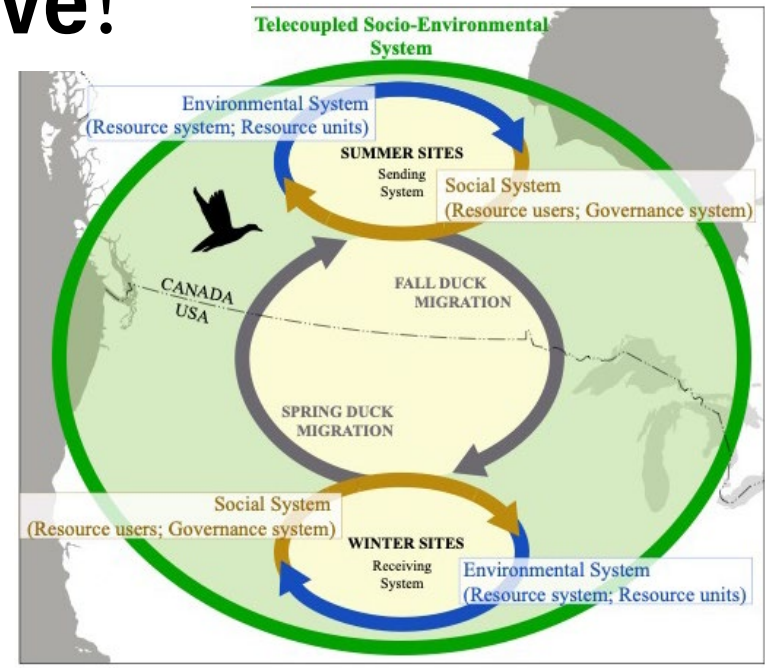


Fig 1. Conceptual diagram of the northern pintail duck telecoupled socio-environmental system

Our question has become…
What are the key design principles for the sustainable and equitable governance of migratory species across borders?

BOTTOM-LINE WORKING ANSWER:
Governance systems for species that move across space need also to connect **people** across space.

5 Take-aways

1. Migratory species need habitat across their range
2. Migratory species connect human well-being across space
3. People are aware of these connections and care about migratory species that connect them across space
4. Governance fails to account for take-aways #1-3
5. Successful governance accounts for how people are connected via migratory species

To arrive at these take-aways, we realized that we needed to change our research approach

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Take-away #2
Migratory species connect human well-being across space: Spatial subsidies

We formalized this with an approach we called "Spatial subsidies"

- Migratory species depend on **habitat** throughout their ranges
- Migratory species provide **ecosystem services**
- Some **locations** (within migratory range) receive more ecosystem services than others
- They are in effect **subsidized** by habitat in other locations

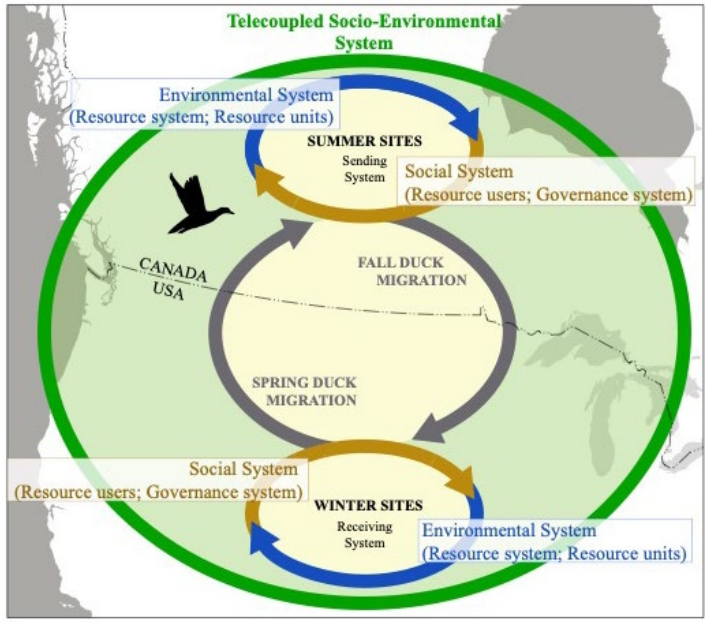

Fig 1. Conceptual diagram of the northern pintail duck telecoupled socio-environmental system

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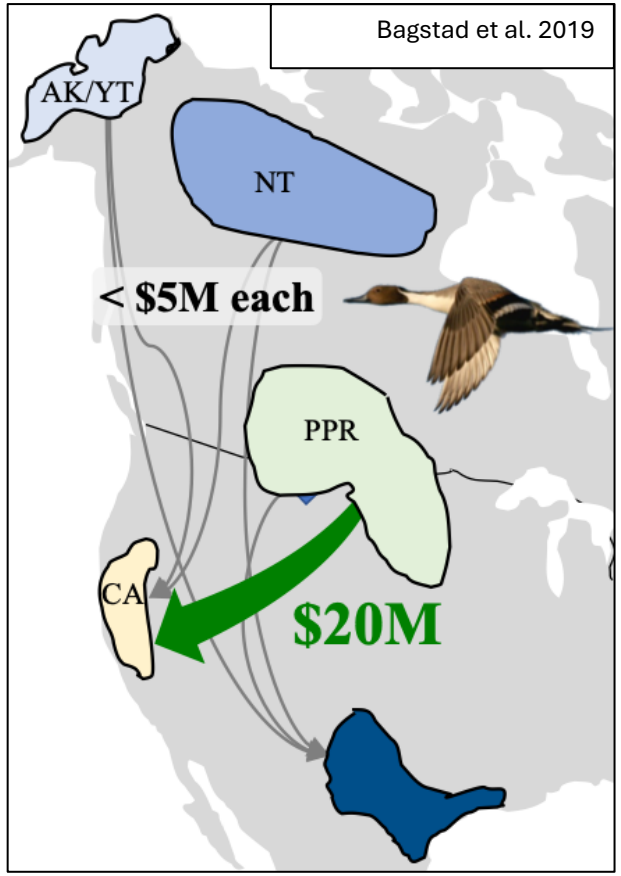
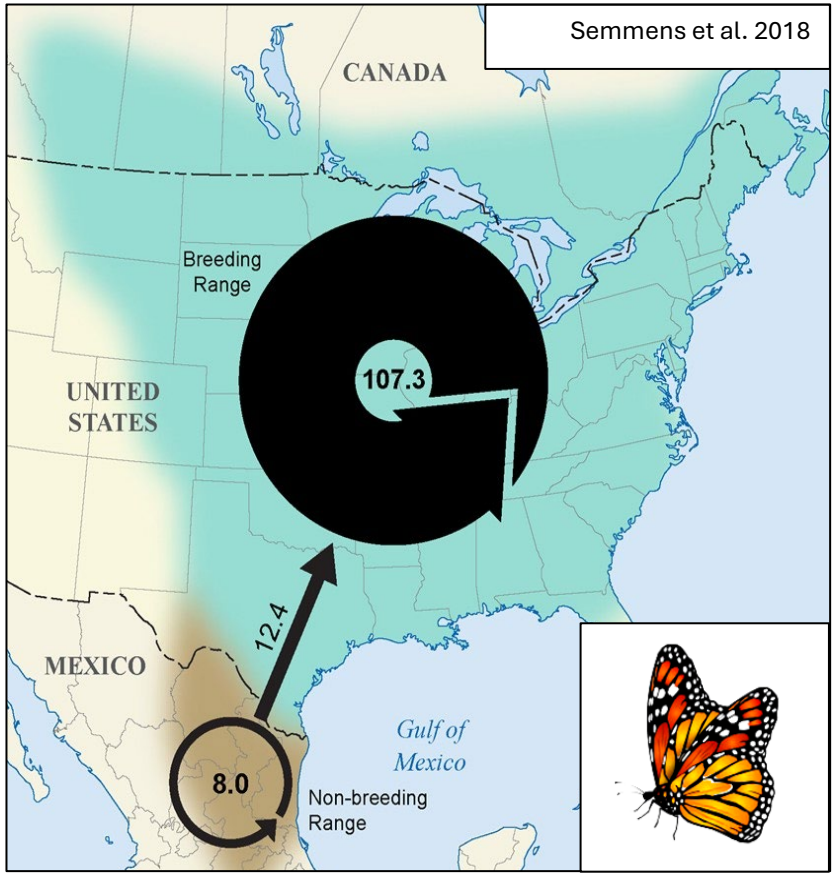
Take-away #2

Migratory species connect human well-being across space: Spatial subsidies



Recreational hunting



Cultural services

Pest control

Take-away #3

People are aware of and care about migratory species connections across space

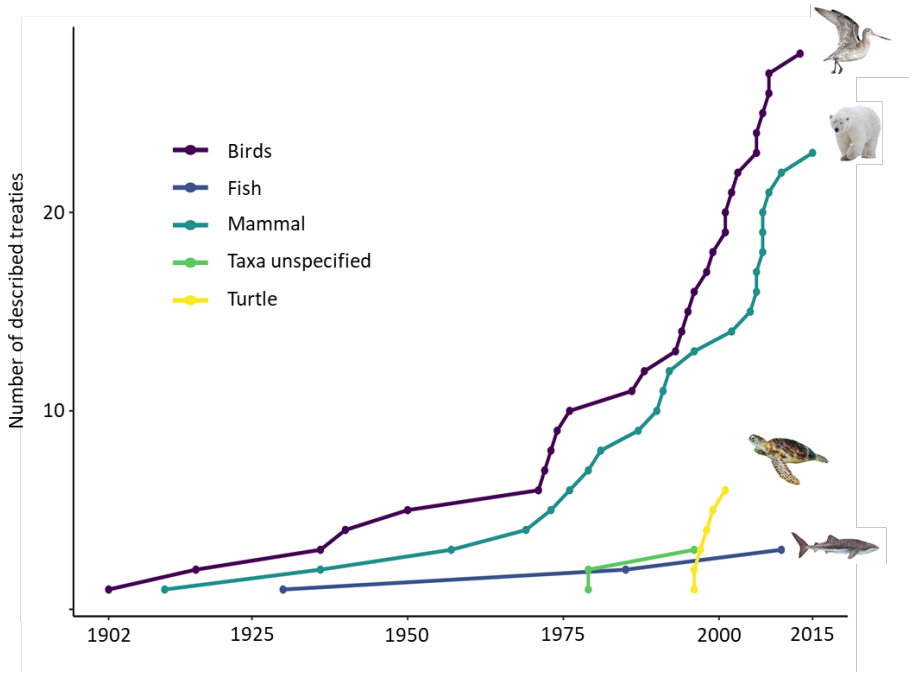
Willingness to pay for conservation

- Monarchs
  - US households one-time WTP $4.8-6.6 billion
- Mexican free-tailed bats
  - Mexican & US households are willing to pay for habitat conservation in each other's countries
  - Mexican WTP was 17% higher than US, based on average salary

Take-away #4
Governance fails to account for take-aways #1-3

International treaties:

- While most cite ecosystem services as motivation & recognize species connect people across space…
- taxonomic and regional gaps exist



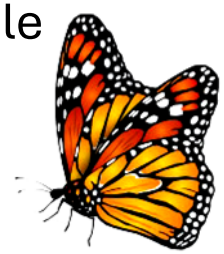
Take-away #4
Governance fails to account for take-aways #1-3

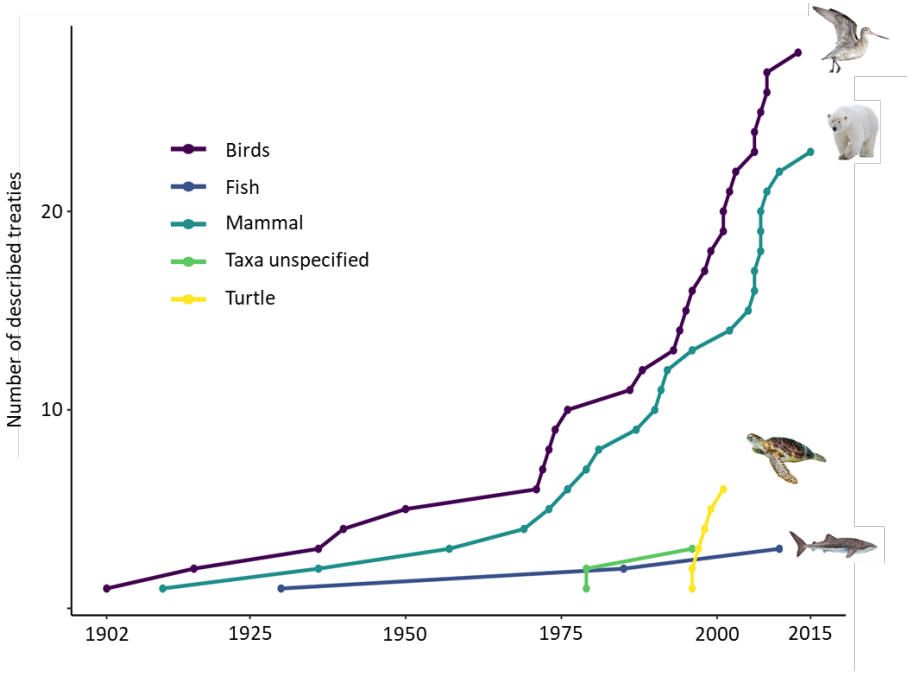
International treaties:

- While most cite ecosystem services as motivation & recognize species connect people across space…
- taxonomic and regional gaps exist

We surveyed 928 N American species:

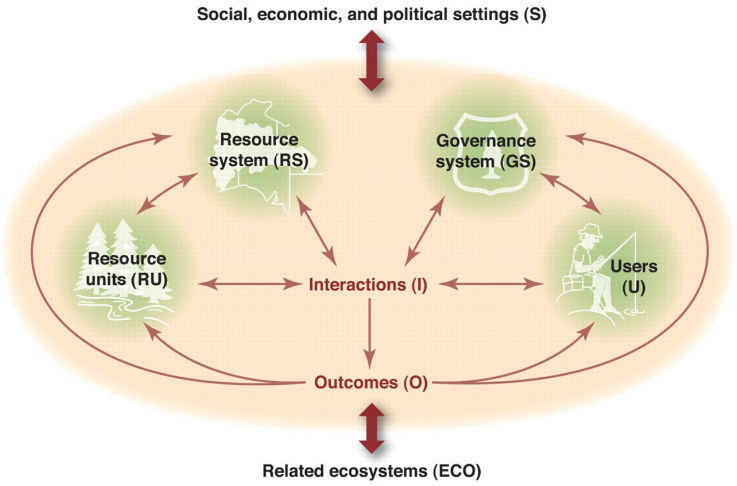
- 40-96% provide ecosystem services
- 38% of species have management plans
- Only a handful of plans consider transboundary habitat needs and connections amongst people





Take-away #5

Successful governance accounts for how people are connected via migratory species



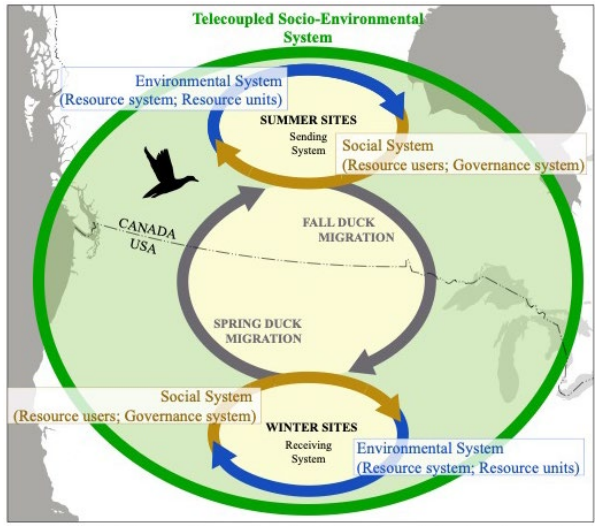


Fig 1. Conceptual diagram of the northern pintail duck telecoupled socio-environmental system

From our fieldwork, we've found that local people:

- Understand species' transboundary habitat needs
- Understand how species connect people across space
- Appreciate the value of the species to other communities across the species' range.

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We came to this understanding because we decided to do research in a different way.

Conservation & Cultural Research Fellows

Take-away #5
Successful governance accounts for how people are connected via migratory species

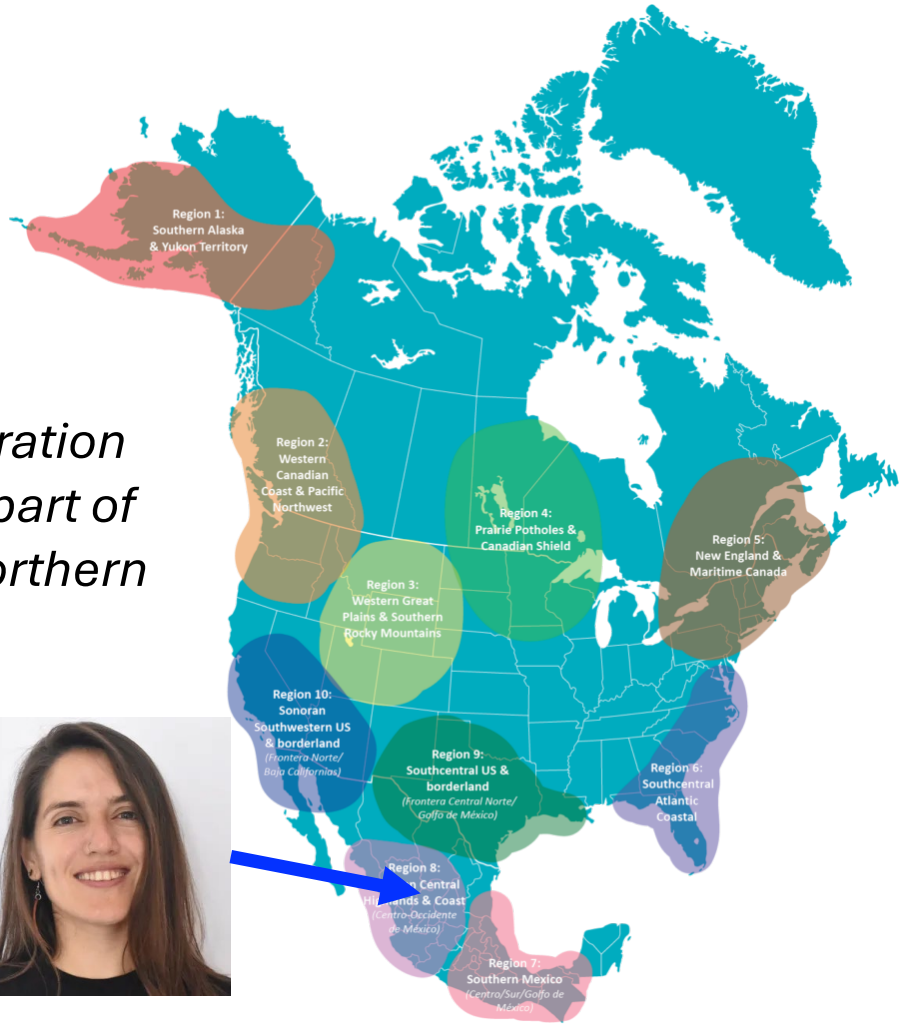
Sockeye salmon fisherman, British Columbia

"I was excited to participate in this interview. Because I was hoping that I would be connected to the global stories of how humans relate to these other species."

Take-away #5
Successful governance accounts for how people are connected via migratory species

Local actor, Jalisco, Mexico

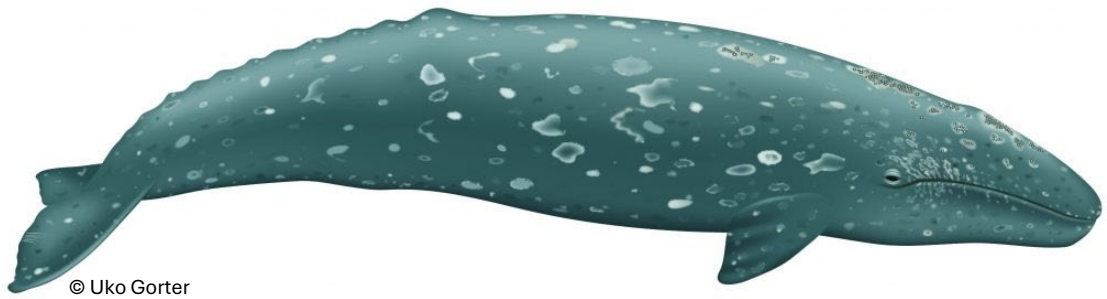
"We'd like to know more about migration patterns, like, from which specific part of the United States or Canada the northern ducks come."



Take-away #5
Successful governance accounts for how people are connected via migratory species

Whale-watcher guide, Baja Sur, Mexico

"I care about whales because I make money, but I know they're culturally important to [the] other people, and that matters to me."



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Take-away #5
Successful governance accounts for how people are connected via migratory species

… all of which suggests that a key design principle might be to facilitate these connections between people across space.

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