

OFFSETTING IN THE CANADIAN CONTEXT EXPERIENCE AND POTENTIAL

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Market Based Instruments for Conservation

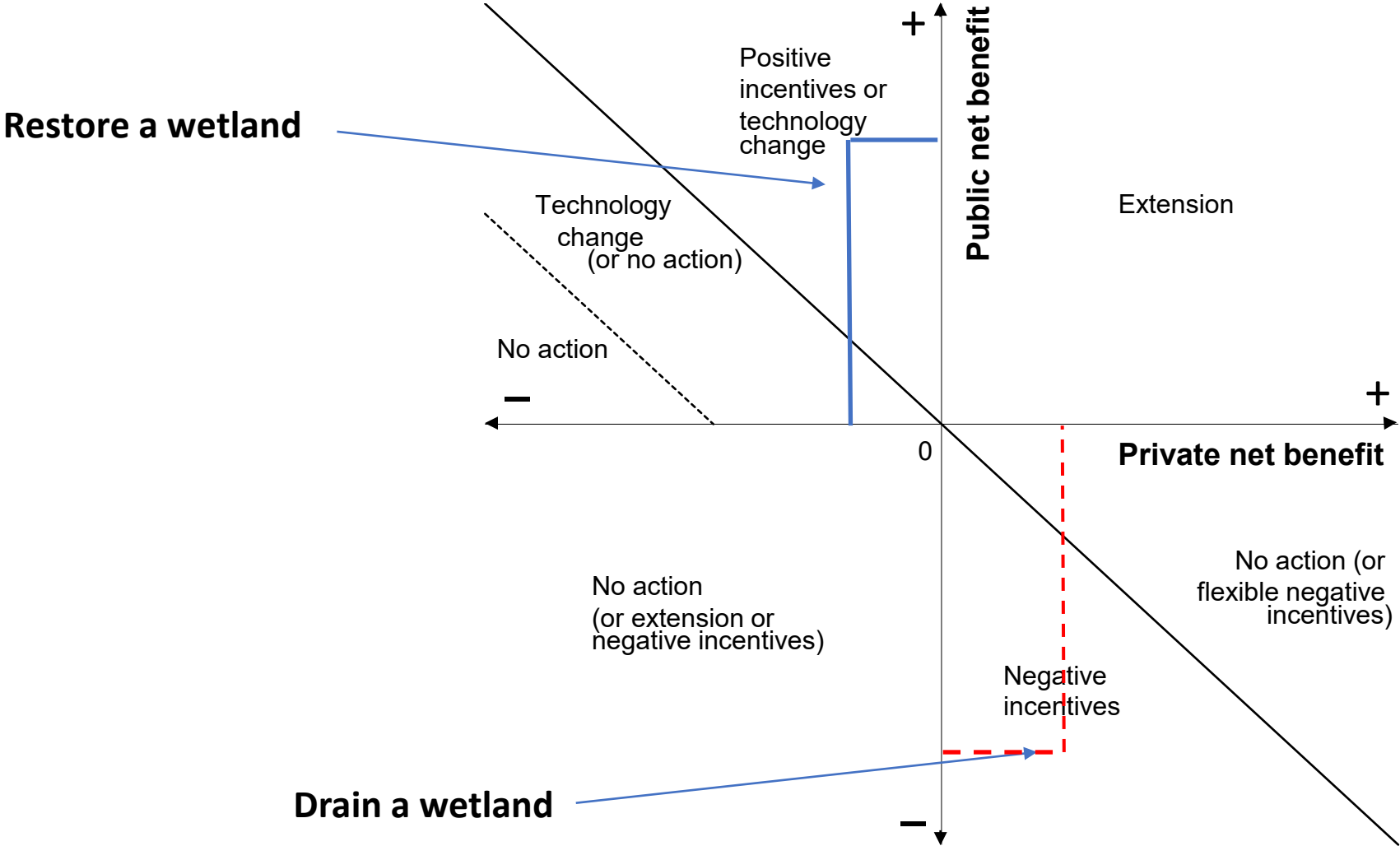
- Designing “markets” to help achieve conservation goals, reflect values of environmental goods / services in economic decisions (address “negative externalities”), and provide incentives for improved environmental **outcomes**. (MacEachern, 2013, Cons. Ontario; Uwaterloo.ca/implementing-sustainable-community-plans/dissemination/market-based-instruments)
- Instruments for conservation
 - Payments for ecosystem services (“subsidy programs”)
 - Development impact fees (“tax programs”)
 - Certification schemes (“market friction programs”)
 - Tradable land use permits
 - Performance bonds
 - Offsets



Four Considerations in PES Markets (Adamowicz et al, PNAS, 2019)

1. Willing buyers (someone who will pay for the **service**; could be a government; how much can they pay? The **benefits** of the service)
2. A way to change land use / practices (**infrastructure**) that generates the increase in services (**ecological production function, additionality**)
3. Willing sellers (someone who will change their land use / practices to provide the services in exchange for funding, the **costs**) and the **institutional framework** to facilitate the payments from buyers to sellers (voluntarily; least cost?).
4. A consideration of **co-benefits**, and **alternatives** that could be used instead of the ecosystem service approach.

Public: Private Benefits Framework: Simple version



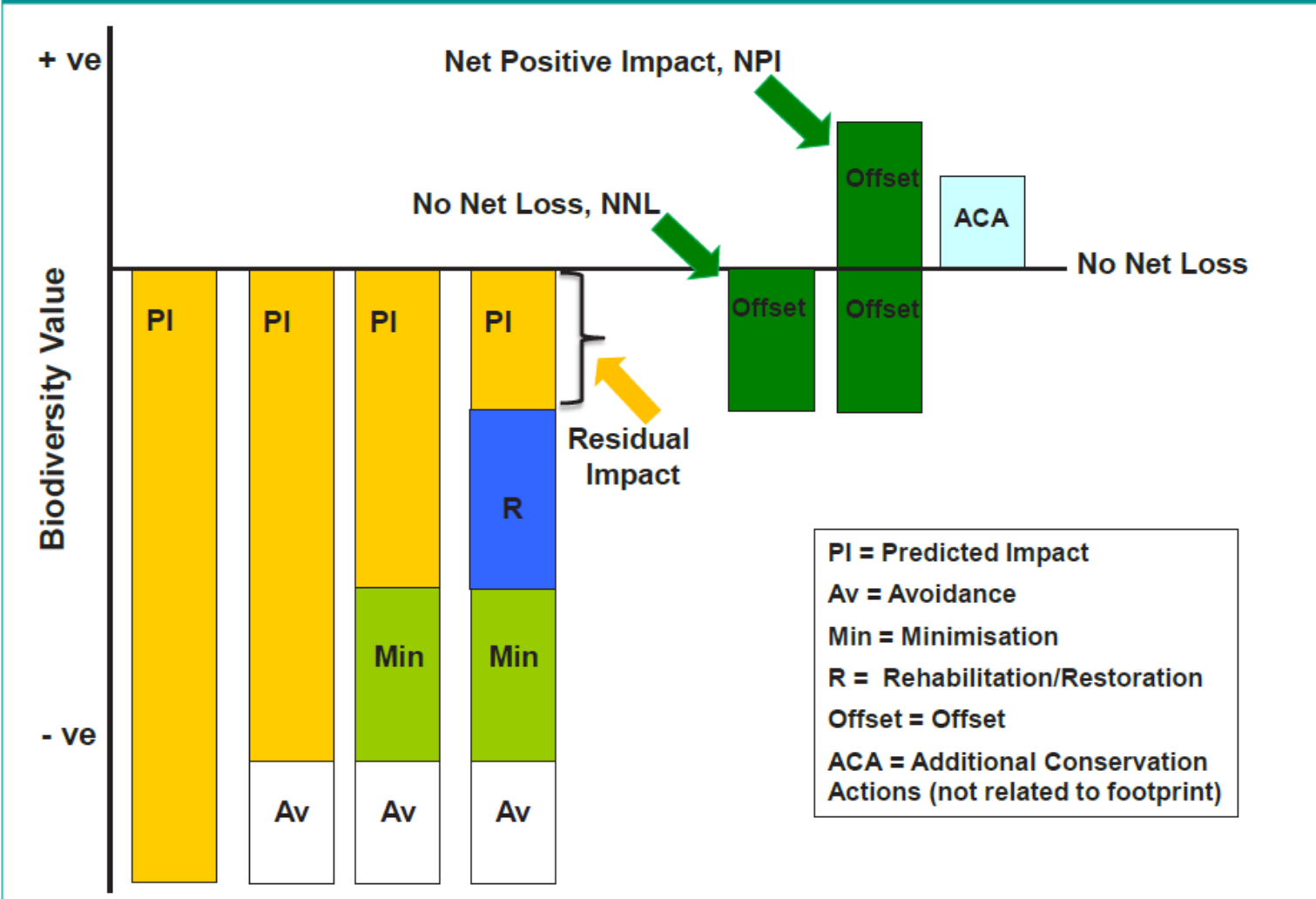
Pannell, D.J. (2008). Public benefits, private benefits, and policy intervention for land-use change for environmental benefits, *Land Economics* 84(2), 225-240.

Offset Programs

“Biodiversity offsets are defined as measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken.” (Poulton, 2014; BBOP 2013)

1. Mitigation hierarchy (avoid, mitigate, restore/offset)
2. **Scarcity** or **demand** created by regulation (e.g. NNL) or other institutions
3. A way to generate **supply** of offsets (and measurable “value”)
4. Assuring equivalence given values, timing of impacts, location, etc.
5. Monitoring and enforcement

Figure 1: The Mitigation Hierarchy



Adapted from Rio Tinto & Government of Australia

Offset Types

- Project based
- Banking
- In-lieu fees

Offset Elements

- Scarcity (NNL, etc.)
- Measuring equivalence, currency
- Additionality (but....)
- Avoiding leakage
- Timing / duration
- Uncertainty
- Cost effectiveness
- Stakeholder involvement
- Monitoring and evaluation



Provincial Policies

British Columbia

- Environmental Mitigation Policy (2014) – voluntary and regulatory guidance

Alberta

- *Alberta Land Stewardship Act* (no policy or regulations yet)
- Alberta Wetland Policy (2013)

Saskatchewan

- Policy under development
- Agricultural Water Management

Manitoba

- Wetland compensation program for infrastructure
- No net loss of water retention

Ontario

- *Endangered Species Act*
- Wetland policy proposed (2017)

Quebec

- Wetland compensation legislation (2017), policy (2019)

New Brunswick

- Wetland Policy

Prince Edward Island

- Wetland Conservation Policy

Nova Scotia

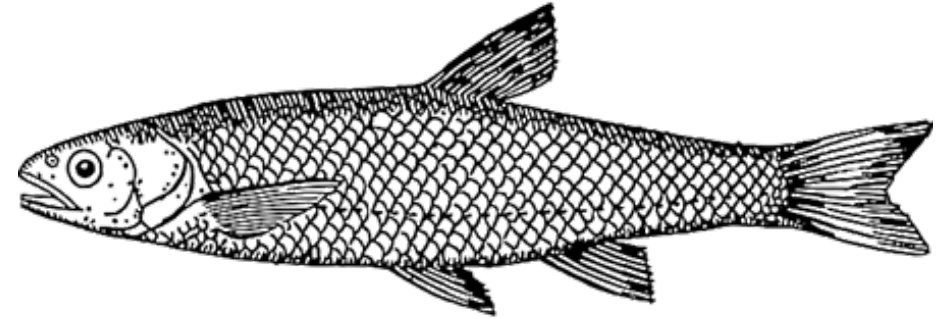
- Wetland Policy

Northwest Territories

- Wildlife Management Guidelines (2019)
- Policy under development

Federal Policy

- Fish habitat (s 35(2) of *Fisheries Act*)
 - Both freshwater and marine
- Federal wetlands policy
 - No net loss policy
- Species at Risk Act
 - Permitting policy (s. 73) under development
- *Operational Framework for Use of Conservation Allowances (2012)*





Regulatory Conditions (Federal)

- NEB 2010 – 2012: 3 decisions on NGTL pipeline proposals in Horne River area: caribou habitat offsets
- JRP 2011: Total Joslyn oilsands mine: offsets for species at risk
- JRP 2013: Shell Jackpine oilsands mine: wide range of offsets recommendations
- NEB 2013: Enbridge Northern Gateway pipeline conditions: 10 conditions for 4 different types of offsets (wetlands, freshwater fish habitat, marine habitat, caribou habitat).
- NEB 2016: Kinder Morgan Trans Mountain Expansion: caribou habitat, spotted owl, rare plant communities, grasslands, old growth management areas, wetlands, riparian
- **NEB 2016: NGTL pipeline project in western Alberta through Chinchaga caribou range: caribou habitat – emphasized indigenous interest in caribou**
- CER 2018: NGTL pipeline project on Alberta eastern slopes: recommended development of offset framework for caribou habitat



Regulatory Conditions (Provincial/Territorial)

Alberta

- Alberta Energy Regulator 2018: TransCanada Pipelines White Spruce Pipeline (Fort MacKay): caribou habitat

Northwest Territories

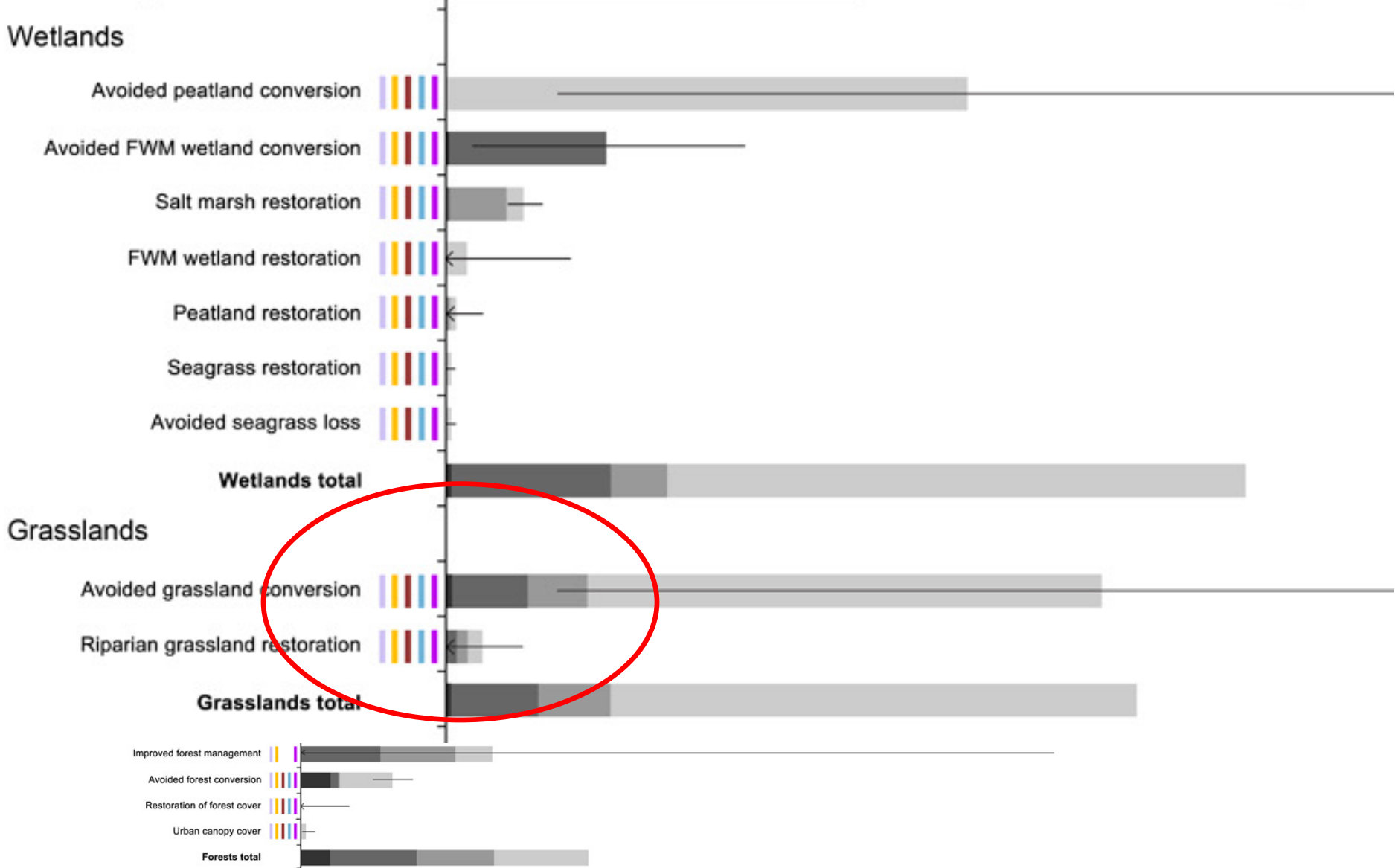
- Mackenzie Valley Review Board (2016): Ekati diamond mine expansion
- Mackenzie Valley Review Board (2018): Tłıchq All-Season Road

Evaluations of Biodiversity Offset Programs

- “Despite the increasing use of biodiversity offsets worldwide there remains little quantitative evidence to support that they deliver their claimed benefits.” (Marshall et al, 2020, Biological Conservation).
- “Results show that banks have generally been well aligned to the recommendations of the 2003 Guidance, but fall significantly short when compared to the analyzed offset principles.” (Gamarra and Toombs, 2017, Biological Conservation)
- “We identified that necessary data for assessing offsets gains, such as the location and offset sites' initial state, were not available in part (location) or all (initial state) procedure files investigated.” (Bezombes et al, 2019, Biological Conservation)
- “Habitat compensation, as currently implemented in Canada, is slowing but not stopping the rate of [fish] habitat loss. Increasing the amount of authorised compensatory habitat in the absence of institutional changes in implementation will not reverse this trend.” (Quigley & Harper, 2006, Environmental Management)

Challenges in Canadian Biodiversity Offset Design / Implementation (in no particular order....)

1. Lack of scarcity signal / demand
2. Challenges in commodity / value definition
3. The “local” nature of offsets (uniqueness, lack of substitutes, limited scale)
4. Lack of incentives for supply (funding, continuity, engaging participants)
5. Attempting to achieve multiple goals
6. Institutional challenges / failures
7. Transactions costs
8. Challenges with implementation on public land
9. Insufficient monitoring and evaluation
10. Lack of consistency across provinces / federal approaches
11. Are offsets the correct “tool” to use?





Is there a path forward?

- More comprehensive definition of the commodity? (Marshall et al, 2020, Biological Conservation)
 - But, impacts on transactions costs (Noga and Adamowicz, 2014)
- Regional biodiversity targets
 - “Target-based ecological compensation” (Simmonds et al, 2019. Conservation Letters; Moilanen and Kotiaho, 2021. Conservation Biology) .
 - A Refresh of Alberta’s Land Use Framework?
- Re-thinking conservation targets
 - Are simpler metrics better in some cases?
 - Coarse filters; Fine filters (e.g. boreal caribou)
- Offsets and performance bonds? (Abdo et al, 2019. J. Sust. Dev)
- ***Imperfect offset programs should not be compared to “perfect” programs, but to no offset program.....***

Conclusions

- Offsets and related market instruments have significant advantages
 - Incentives, options for landowners, lower costs, integration of environmental goods / services into markets
- The complexities in commodity definition and design are challenging
- But, in the right circumstances, they may be the best methods practically available to enhance, conserve or restore ecosystems and indicate their value.

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