

How can we bridge the gap in research,
management and policy in Alberta?



Evelyn Merrill
Department of Biological Sciences
University of Alberta
...and friends

My pathway to this topic...



Taking a deeper dive....

EDITOR'S MESSAGE

Are Management Implications for the *Journal Ceremonial?*

Commentary

A Collaborative Approach to Bridging the Gap Between Wildlife Managers and Researchers

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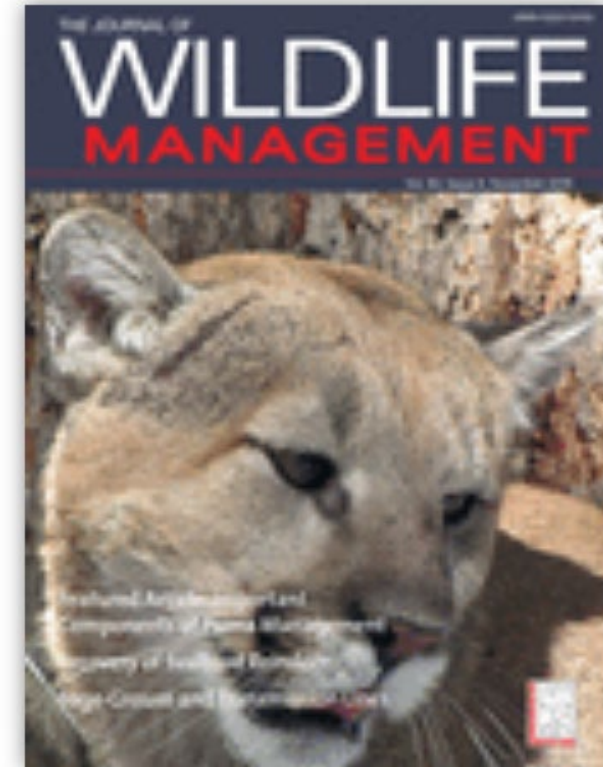
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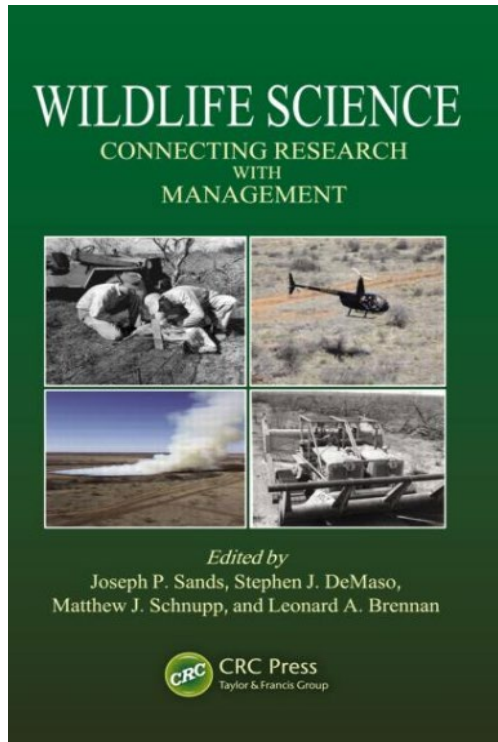
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Wildlife Research, Management, Policy



- Not a new issue (Gill 1985, Finch & Patton-Mallory 1993, Hanley 1994, Franklin 1995, Prendergast et al. 1999)



North America
Wildlife & Nat. Res.
Conference
1940: Theme

- Wildlife Science: connecting research with management
- Not just in wildlife field (Steffens et al. 2014)



Research, Management, Decision Making in Alberta



Start today's dialogue

- Mission & informational needs
- Exchange of information
- Institutional barriers & incentives
- Decision complexity & politics
- Leadership to “walk the walk”



Why Is The Gap An Issue Of Concern?



- Most wildlife professionals agree that **knowledge** should **inform** wildlife management decisions because
 - decisions may be less effective
 - more vulnerable to social & legal challenges
- North American Model of Wildlife Conservation underscores that “science is the proper tool to discharge wildlife policy”.
(Organ et al. 2012:2).
- Yet there exists a gap between those providing knowledge and manager using it ... **WHY?**

The Gap is Real

Researchers often think findings are not used or are even disregarded by managers.



Managers feel like they are not receiving the information or it is not what they need from researchers.



If you are honest, how many of you have felt this at some point?



Recognizing Mismatches

- **Mission**

Researcher: novelty and unique findings

Manager: solve operational problems

Policy makers: balance evidence, law, politics, budgets

- **Motivations & rewards**

Researcher: grants, publications, tenure

Manager: compliance, risk mitigation

Policy makers: defensibility, public accountability

- **Approach & timelines**

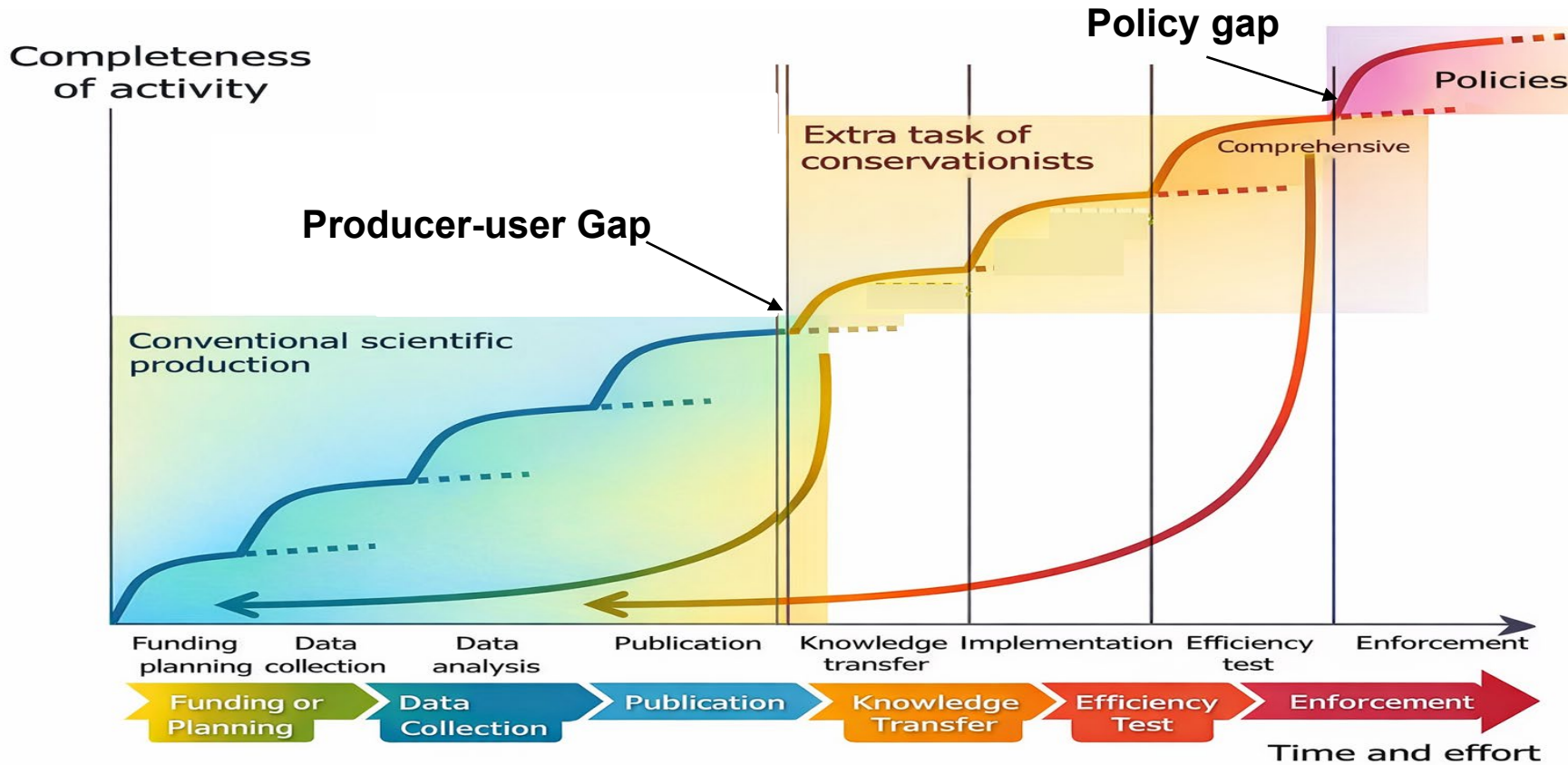
Researcher: generality, long-term, cautious, skeptics

Managers: site-specific, crisis-driven, practical, problem fatigue

Policy makers: electoral & legislative windows



Information Gaps



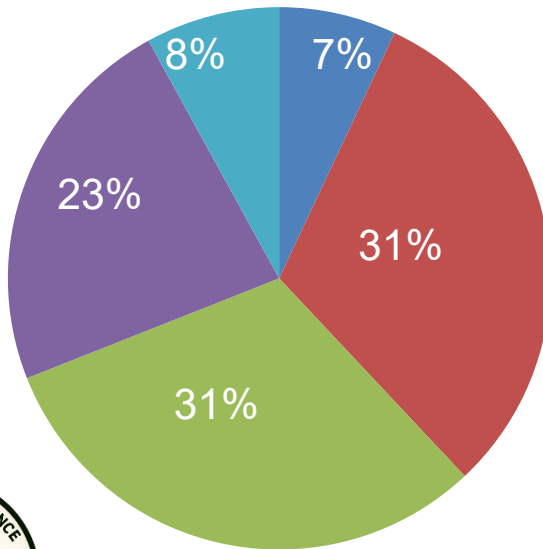
(modified from Arletiaz et al. 2010)



Information Access

Managers limited info access: due to finances, time to synthesize, increasingly sophisticated approaches

Sufficient Access: Survey of Southeast Fish and Wildlife Agencies



- Paid journals subscriptions (7%)
- In state meetings (31%)
- Out of state meetings (31%)
- Continuing education (23%)
- Other (8%)



Free with
TWS membership




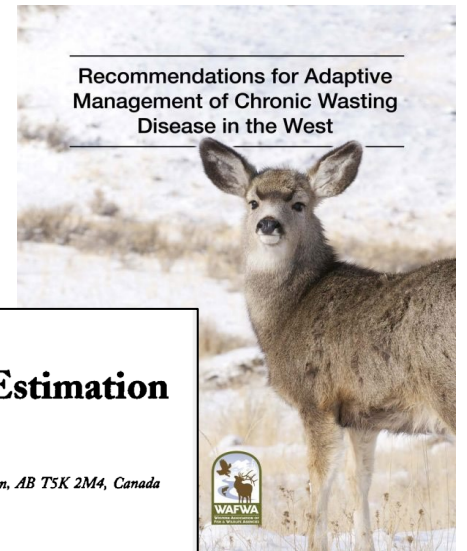
(Bowers et al. 2012)



Information Access

Opportunities for managers: updated & engaged

- **Education:** conferences, workshops, & continuing education, societies for networking → TWS working groups 
- **Leaves:** paid educational leave & personnel exchanges
- **Collaborations & co-production:** university committees, guidelines, project reviews



Tools and Technology Article

Using Resource Selection Functions to Improve Estimation of Elk Population Numbers

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MARK S. BOYCE, *Department of Biological Sciences, University of Alberta, Edmonton, AB T6G 2E9, Canada*



Collaboration & Coproduction



- Collaboration & co-production is not just consultation.
- Trust is built at the speed of relationships not publications.
- It is shared problem framing, learning, and ownership.



Institutional Barriers

Researchers

- Little Incentive for Engaging in Implementation
- Few Resources for Engagement
- Strategies of Hope for Use

Agencies

- Research not a Priority
- Little Reward for Consulting with Researchers
- Few resources to support engagement



Institutional Barriers



...and others

Wildlife grants:



Better integration?

- Collaborative research priorities
- Programs
- Funding & laboratory facilities
- Data repositories



Building Evidence-informed Capacity

Part of [Central offices and departments](#)

Office of the Chief Scientist

Coordinates delivery of Alberta's Environmental Science Program to provide data and reporting on the condition of Alberta's environment.

[Home](#) > [Condition of the environment](#) > [Fish and wildlife](#) > [Vertebrate species indicators](#)

Part of [Fish and wildlife](#)

Fish and wildlife indicators - Vertebrate species

Reporting on the status of vertebrate species in Alberta.

On this page:

- [About the indicator](#)
- [Key results by species group](#)
- [Summary results](#)
- [Resources](#)

Explore pages in:

Vertebrate species indicators

- [Amphibians](#)
- [Birds](#)
- [Fish](#)
- [Mammals](#)

A Biodiversity Network



Building Evidence-informed Capacity

Engagement of community/citizens

- Enhanced data collection
- Promote environmental awareness & education
- Build partnerships, empower communities
- Build stories for successes



Challenge: “Principles of Good Practice”

FACETS

OPEN ACCESS | Research Article

Using participatory science to investigate furbearer habitat associations and co-occurrence in Alberta’s boreal forest

Andrea T. Morehouse^a, Robert B. Anderson^b, Bill Abercrombie^c, Brian Bildson^c, Michael E. Jokinen^d, Neil Kimmy^e, and Douglas L. Manzer^b



Building Evidence-informed Capacity



EPA Office of the
Chief Scientist
SAP & IWAP

Processes effective for bridging IKS and WS

Enablers:

- Knowledge co-production
- Effective communication
- Local empowerment
- Power sharing

Barriers:

- Epistemology & ontological differences
- Lack of consensus btw IKS and WS
- Lack of trust
- Capacity limitations

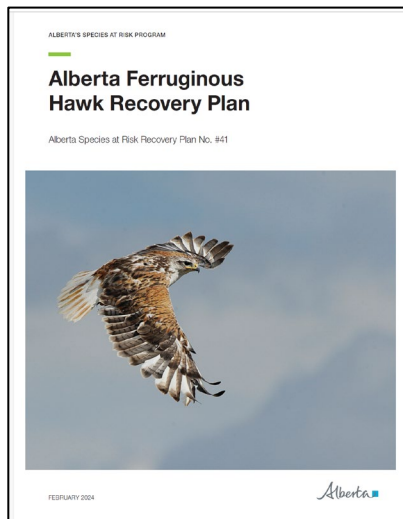
(Nishima-Miller et al. 2025)



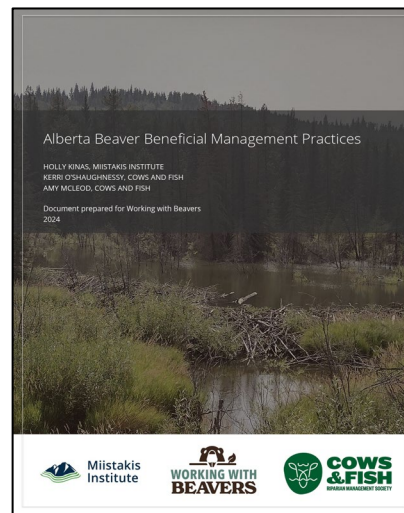
Information Translation

Translation challenges:

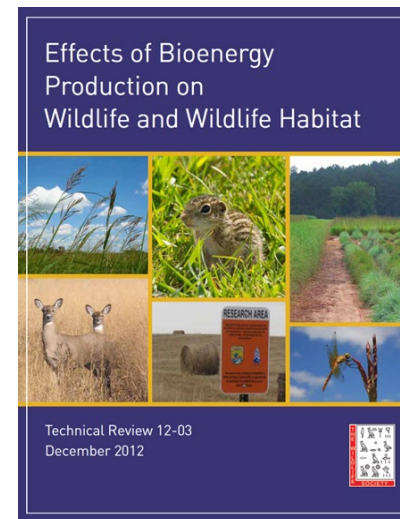
- Evidence for decision literacy
- Not about dumbing it down but streamlining and making it accessible
- Clarity in uncertainty vs. risk, generality vs. specifics



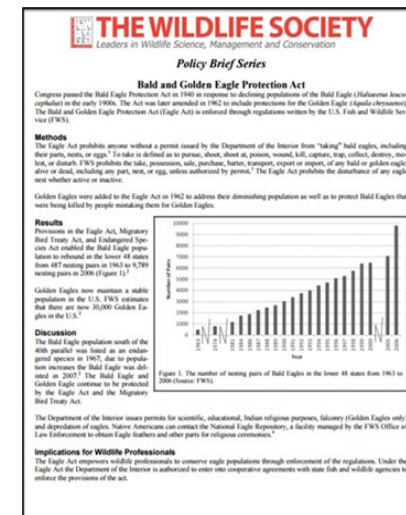
Recovery Plans



Best Practices



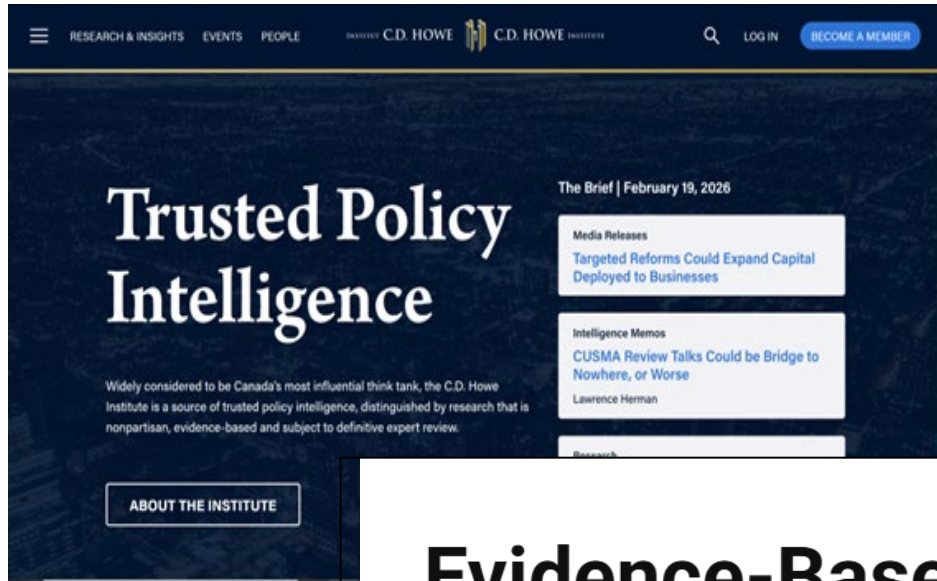
Syntheses



Briefing notes



Knowledge Brokers



Repositories: standard formats, metrics, data verifying, source

Data syntheses: for trusted evidence sources to guide decision making

Evidence-Based Policymaking



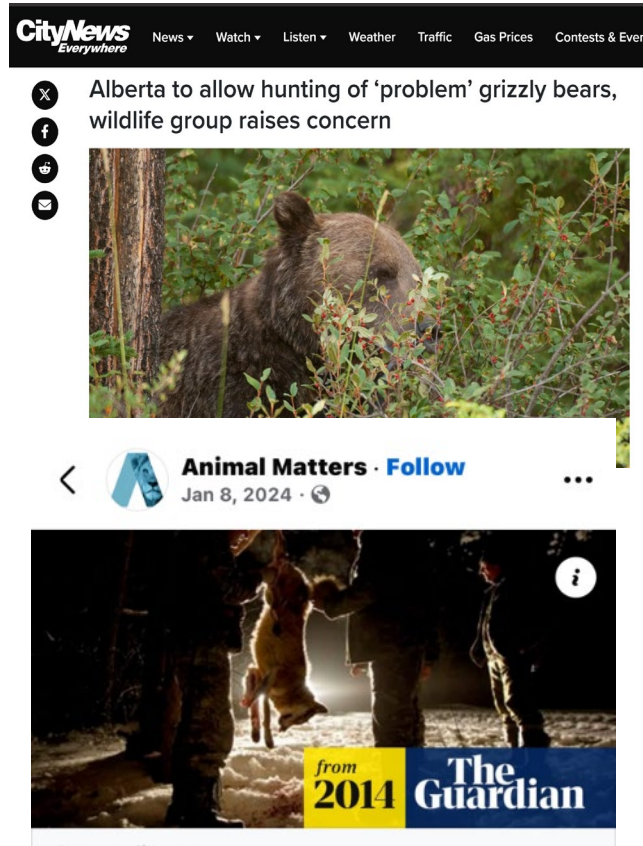
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Evidence Value



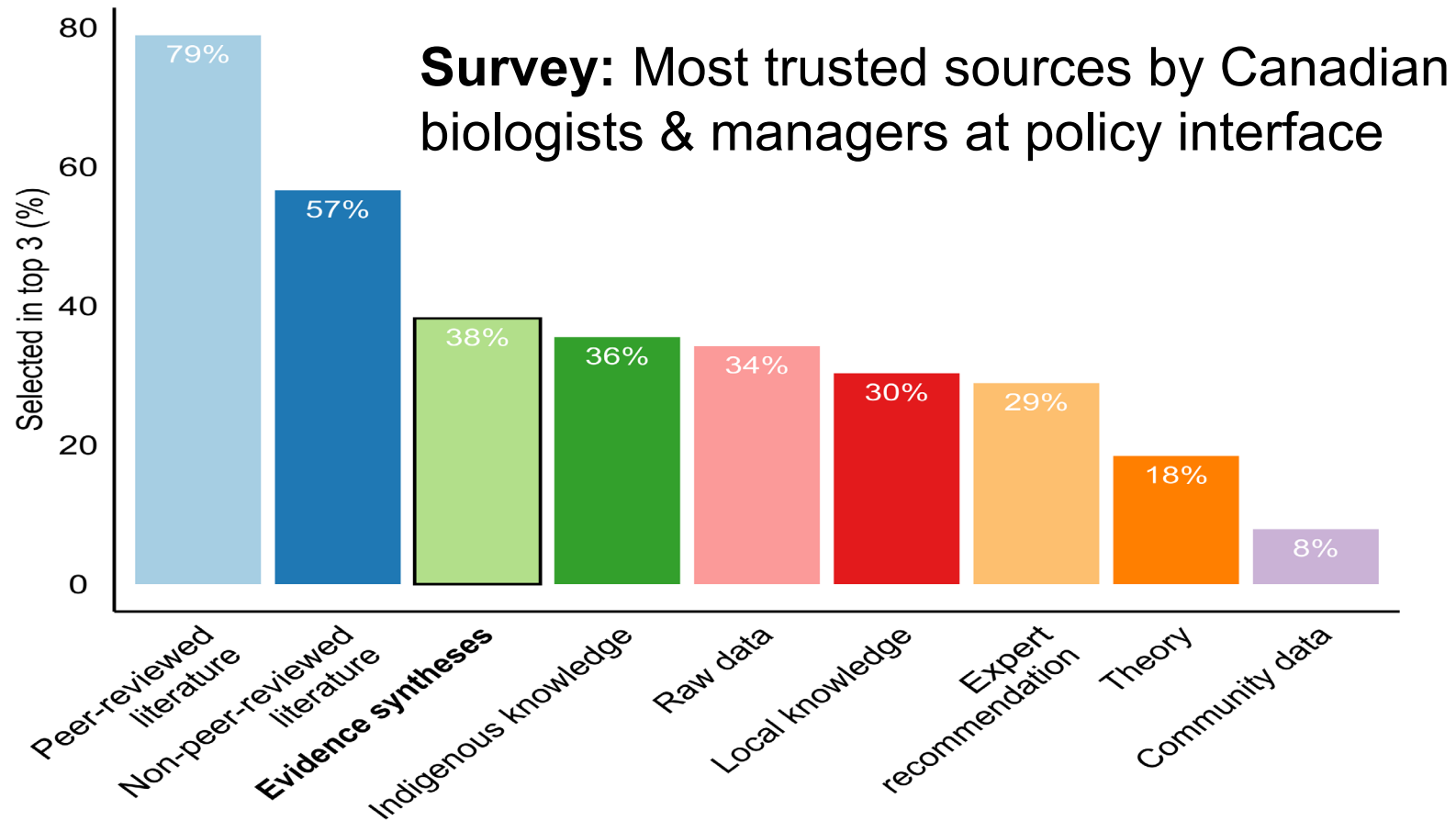
Information from the media

- **Clickbait exaggeration:** grabs you
- **Weaponized uncertainty:** know nothing/hiding
- **Solution misinformation:** solution > problem
- **Polarization:** science vs. corruption

→ *Instantly evokes emotion...then pause!*



Evidence Value



(Thomas-Walters et al. 2021)



Evidence Types

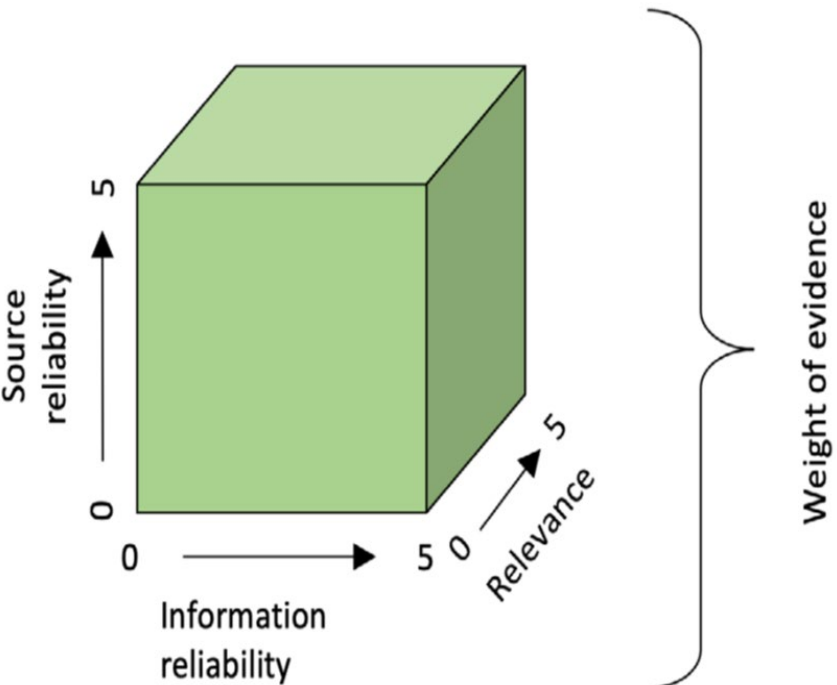
Context-specific



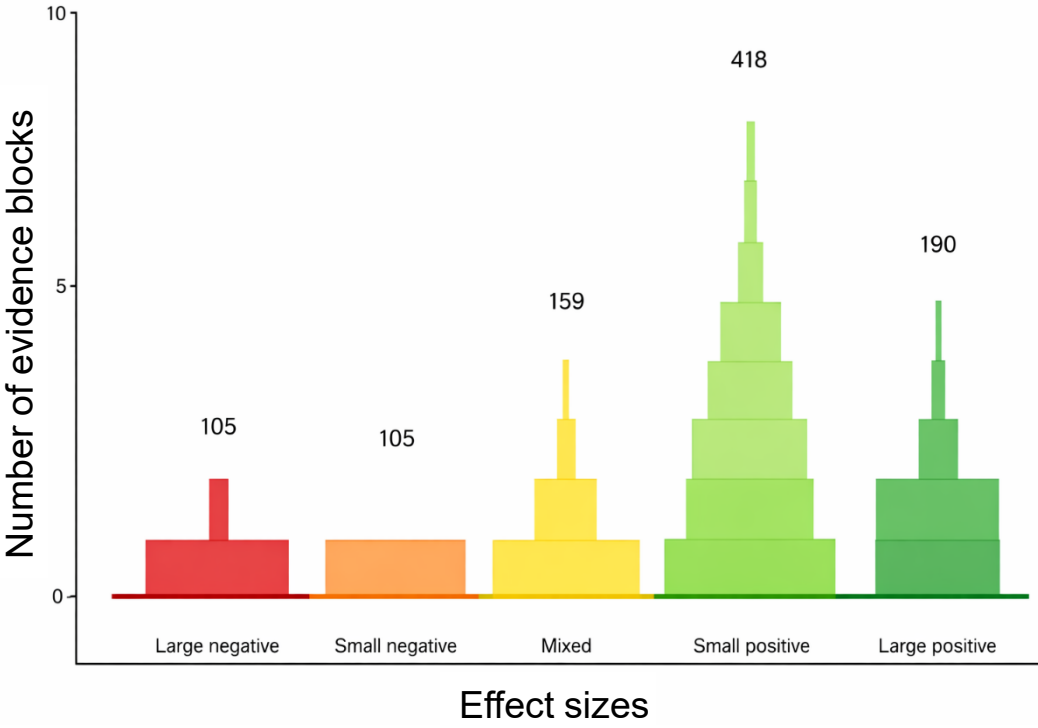
- **Relevance:** context of evidence to problem, action or situation.
- **Information reliability:** trust in authority, rigour in design, measurement error, assumptions, most updated
- **Source authority:** trust in the source honest, competent, bias, conflict of interest
- **Context generality & uncertainty:** across different contexts ...*the risk*

Evidence Types

Indices for integrating values



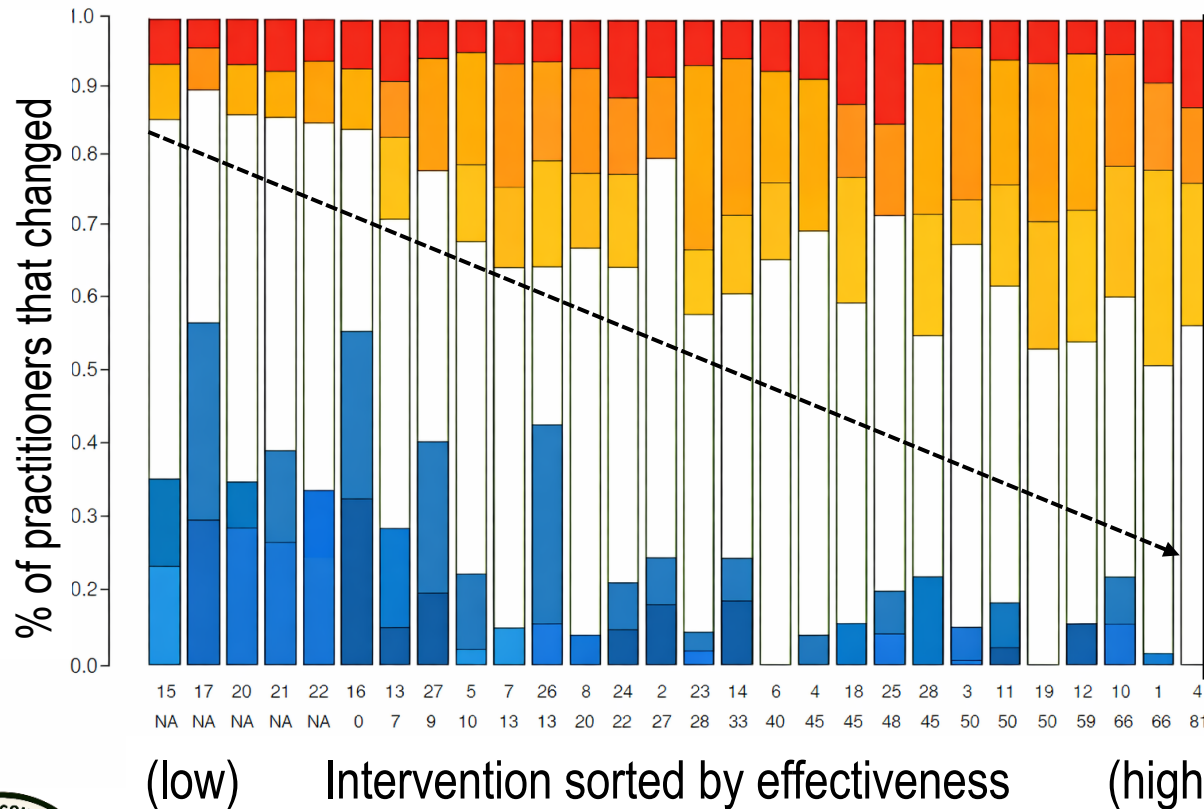
Weight of evidence: effect vs. risk



(Sutherland 2022)



Evidence in Decision Making



Practitioners in New Zealand, Australia, UK
 Changed opinion on management
 intervention based on weight of
 evidence for effectiveness of magt actions.

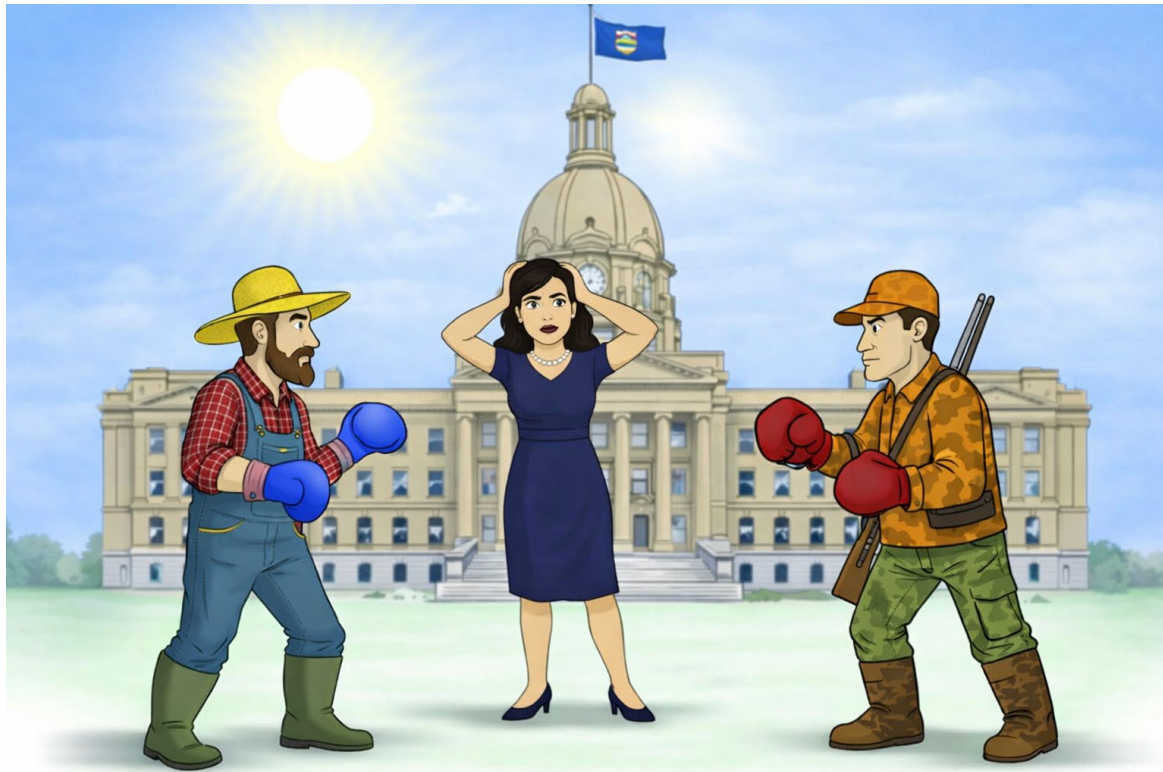
More evidence → change

- Highly likely
- Very likely
- Likely
- No change
- Unlikely
- Very unlikely



(modified from Walsh et al. 2023)

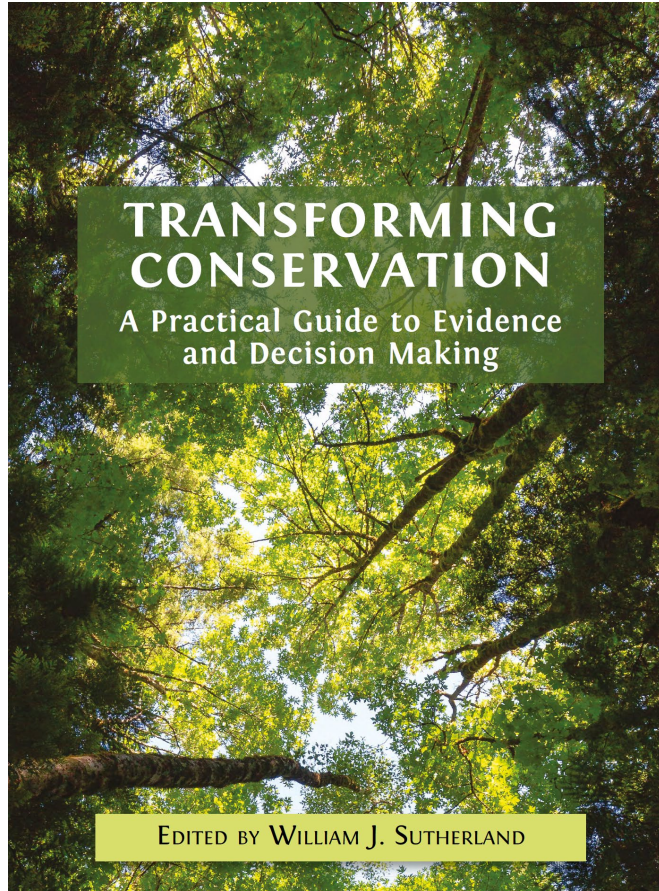
Realities in Decision Making



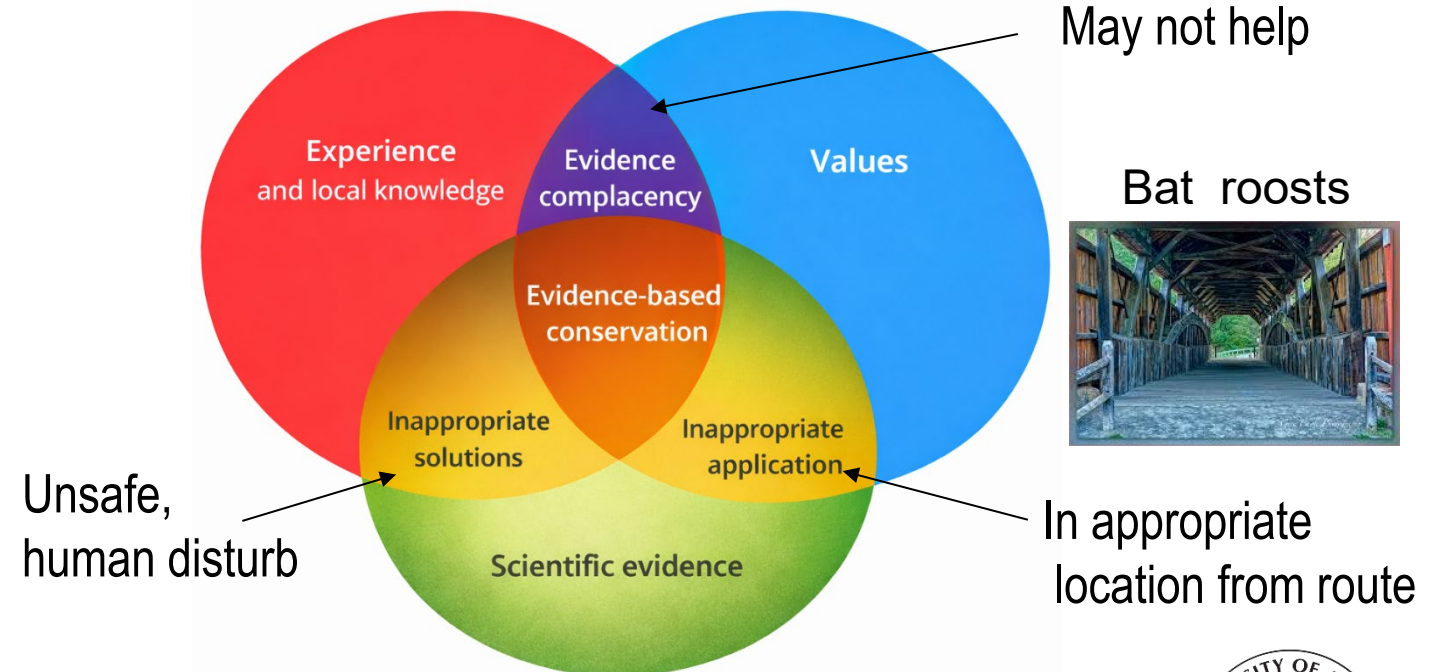
Decision makers balance:

- Evidence
- Laws & regulations
- Social & ethical
- Resources & budgets
- Politics

Evidence-based Decision Making



Evidence-based decision making **combines** evidence, experience/local knowledge, preferences



Tools for Decision Making

Structural Decision Making

→ *Formal, logical, evidence & values, transparent, repeatable process*



1. **Problem:** specificity → clarity
2. **Objectives:** values, regulations
3. **Alternative actions:** key, feasible
4. **Consequences:** models or expert opinion
5. **Trade-offs:** optimize, negotiate, learn
6. **Decision:** impose actions
7. **Monitor:** learn if successful...*or not*

Bridging Evidence & Values

Problem: Fly back to *warm* Florida → pick an airline

<u>Objectives</u>	Indicator Units	Preferred Direction
Minimize Cost	\$ \$	Lower is better
Minimize Travel Time	Hours	Lower is better
Maximize Comfort	(5 = best, 0 = worst)	Higher is better
Maximize Safety	# Accidents/ 10 ⁶ takeoffs	Lower is Better



Bridging Evidence & Values

Problem: Fly back to *warm* Florida to finish our sabbatical

Objective	Indicator Units	Preferred Direction	Air Canada	West jet	Porter
Minimize Cost	\$ \$	Lower is better	\$2,000	\$1,500	\$400
Minimize Travel Time	Hours	Lower is better	8-9	13-15	12-14
Maximize Comfort	(5 = best, 0 = worst)	Higher is better	4	2	3
Maximize Safety	# Accidents/ 10 ⁶ takeoffs	Lower is Better	4.0	3.6	3.0

➔ Porter

➔ Air Canada



Bridging Evidence & Values

Problem: Fly back to *warm* Florida to finish our sabbatical

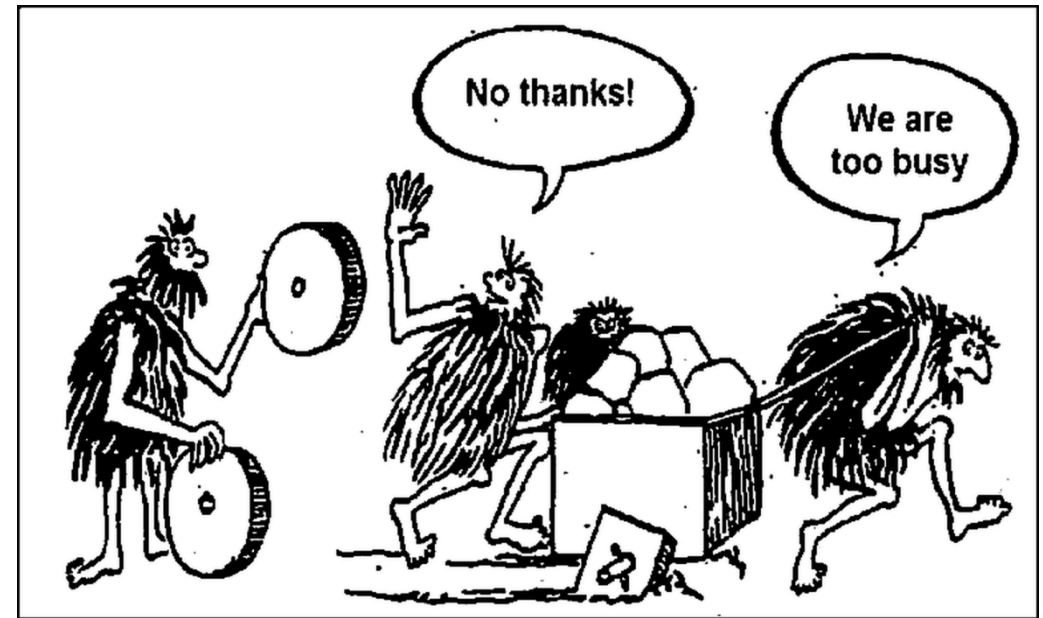
Objective	Indicator Units	Preferred Direction	Air Canada	West jet	Porter	Wt-ed Me/Him
Minimize Cost	\$ \$	Lower is better	\$2,000	\$1,500	\$400	1/4
Minimize Travel Time	Hours	Lower is better	8-9	13-15	12-14	3/3
Maximize Comfort	(5 = best, 0 = worst)	Higher is better	4	2	3	2/1
Maximize Safety	# Accidents/ 10 ⁶ takeoffs	Lower is Better	4.0	3.6	3.0	4/2



Bridging Evidence & Values

Decision-making Tools: *Force you to take time to think*

- More thorough problem framing
- Better informed alternatives
- Integration of impacts consequences, and tradeoffs
- More durable decisions



Wildlife Magt Insti: aforstchen@wildlifemgt.org

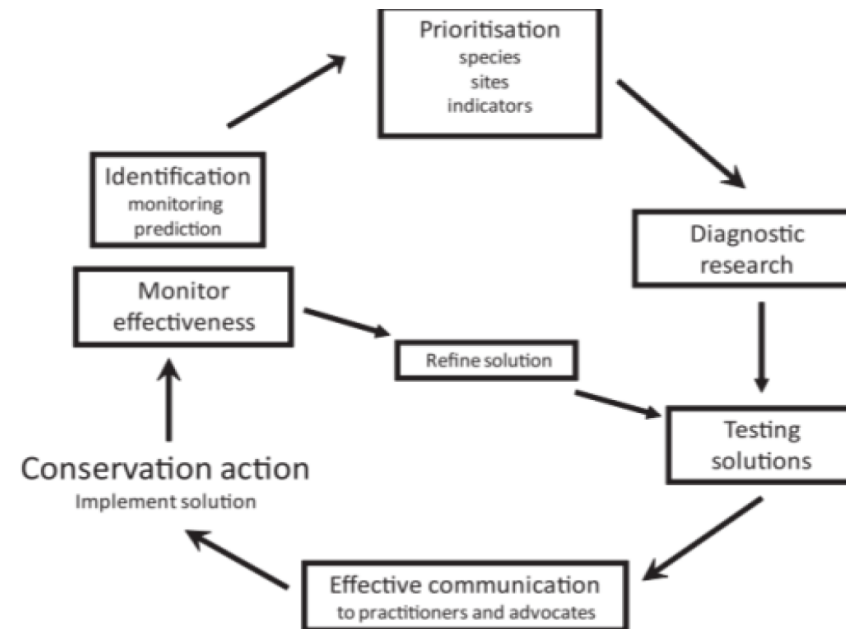
Leadership in the Face of Uncertainty



Late Jack Ward Thomas
Chief of USFS

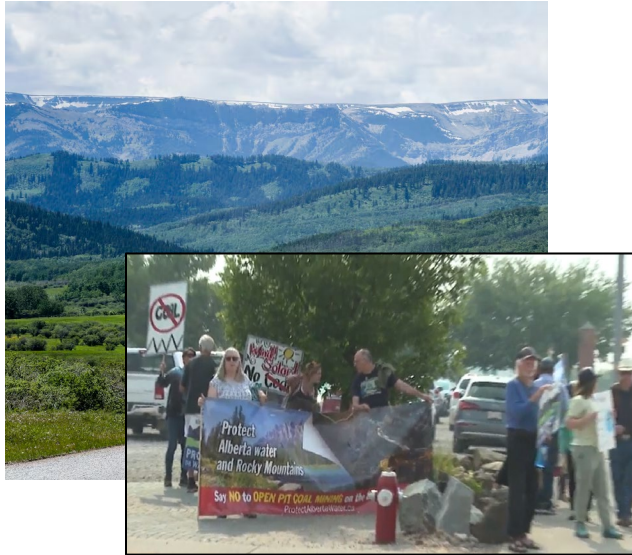


Adaptive Management: Decision Analysis
...under uncertainty it is key to monitor & learn



The Reality: Social, economic, political

Coal mining



Alberta coal policy changes trigger joint lawsuit from coal companies

4 separate statements of claim consolidated into single trial to start in early 2025

Sage Grouse



Caribou

Eco groups say conservation agreements failing Alberta's caribou

"Habitat destruction is still occurring. And in fact, in both Alberta and Ontario, caribou are continuing to decline."

Scott Hayes, Local Journalism Initiative Reporter
Jun 27, 2024 4:15 PM



Bridging the Gap in Alberta



- Researchers must **engage**, managers **invite**, institutions **reward**
... it is about integration and learning not just production and action.
- The gap is not about better science but **leadership** in science, agencies, and in the political setting... *people not science make decisions.*
- Alberta has the science, experience, capacity, dedication...
... few as well situated to narrow the gap.

Question: Do we have willingness to align in the challenges we face to close the gap for the small and large successes?





More to come...