British Columbia's *Draft* Habitat Offset Decision Support Tool

Beyond Multipliers: Managing the Risks of Offsetting

Land Use 2021 – A Place for Biodiversity Offsets Webinar Series

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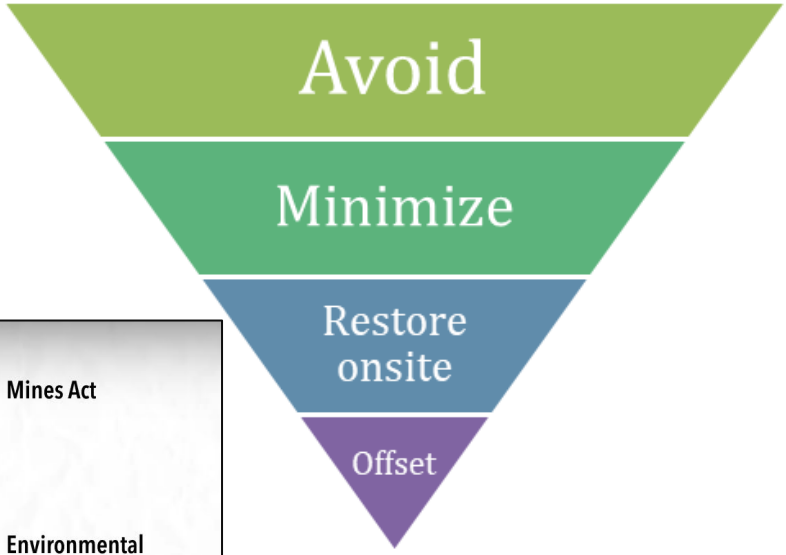
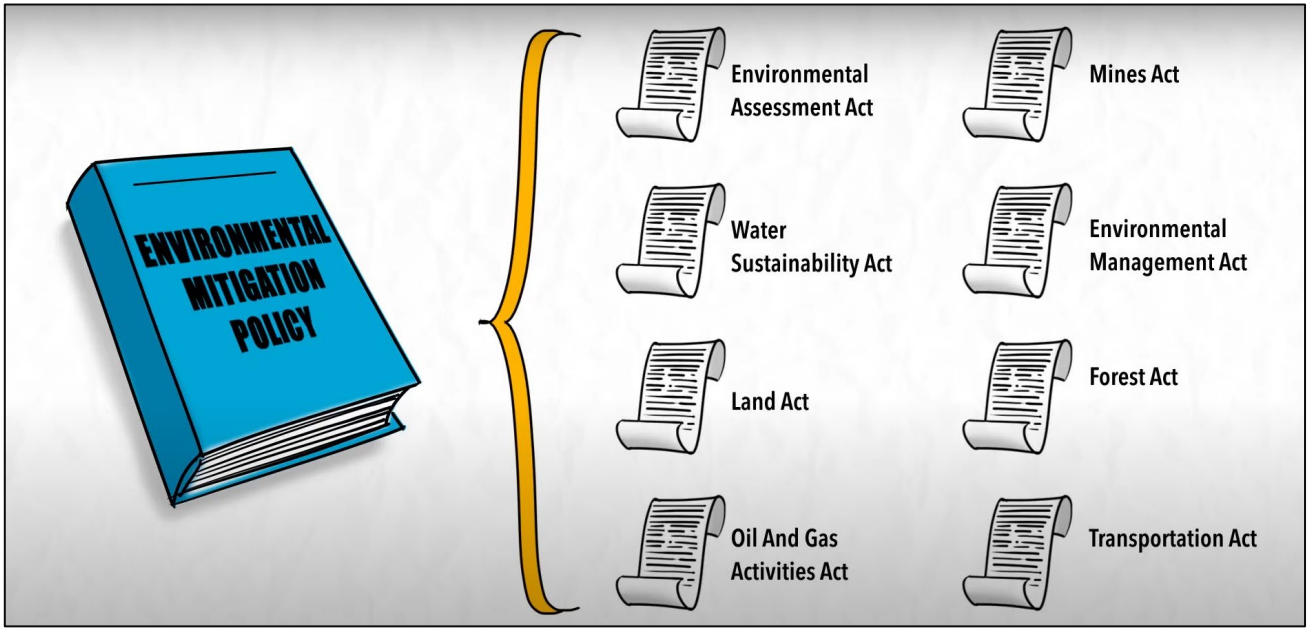
British Columbia is home to the richest diversity of species in Canada

Context

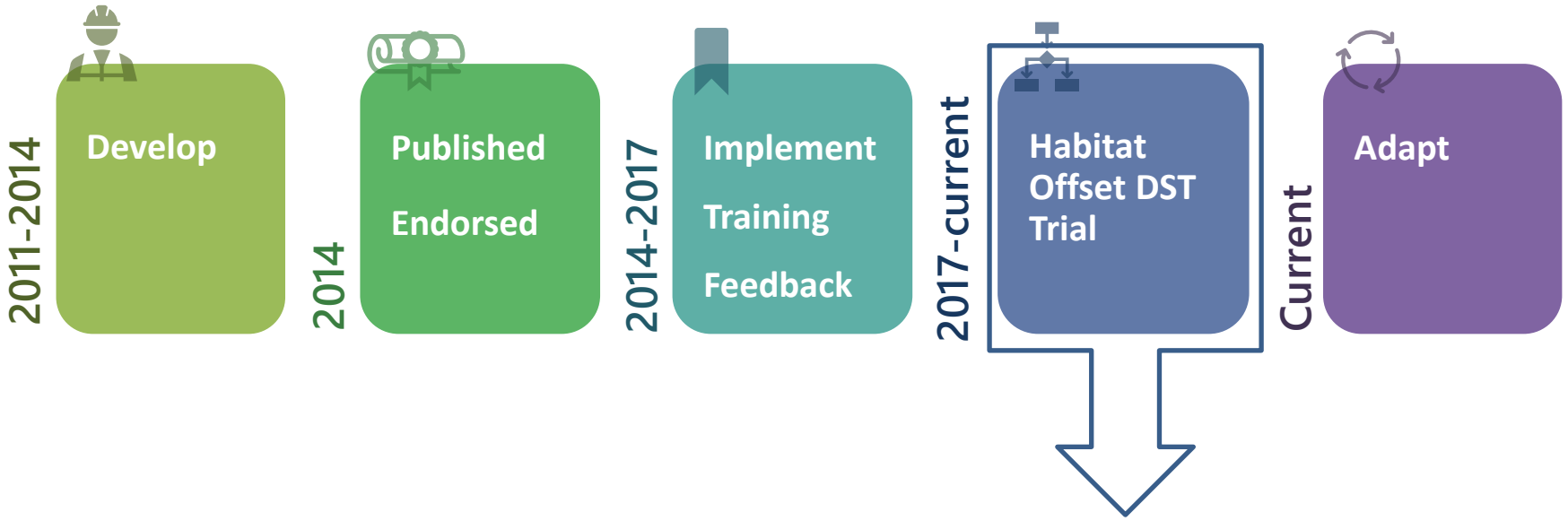

Avoid
Minimize
Restore onsite
Offset


ENVIRONMENTAL MITIGATION POLICY
Environmental Assessment Act
Water Sustainability Act
Land Act
Oil And Gas Activities Act
Mines Act
Environmental Management Act
Forest Act
Transportation Act


BRITISH COLUMBIA
Kamloops
Kelowna
Invermere
Vancouver
Victoria
Estonia
Latvia
Lithuania
Belarus
Poland
Ukraine
Slovakia
Moldova
Romania
Bulgaria
Greece
France
Spain
Portugal
Ireland
United Kingdom
Belgium
Italy
Albania
Malta
Tunisia
Algeria
Gibraltar
Andorra
Monaco
Switzerland
Hungary
Macedonia (FYROM)
Kosovo
Serbia
Bosnia and Herzegovina
Baltic Sea
North Sea
Tyrrhenian Sea
Black Sea
Edinburgh
Manchester
Dublin
London
Brussels
Paris
Warsaw
Riga
Vilnius
Minsk
Kyiv
Budapest
Bucharest
Sofia
Athens
Istanbul
Ankara
Izmir
Konya
Antalya
Rome
Barcelona
Madrid
Valencia
Lisbon
Porto
Seville
Granada
Malaga
Isle of Man

Habitat Offset Decision Support Tool

Why?



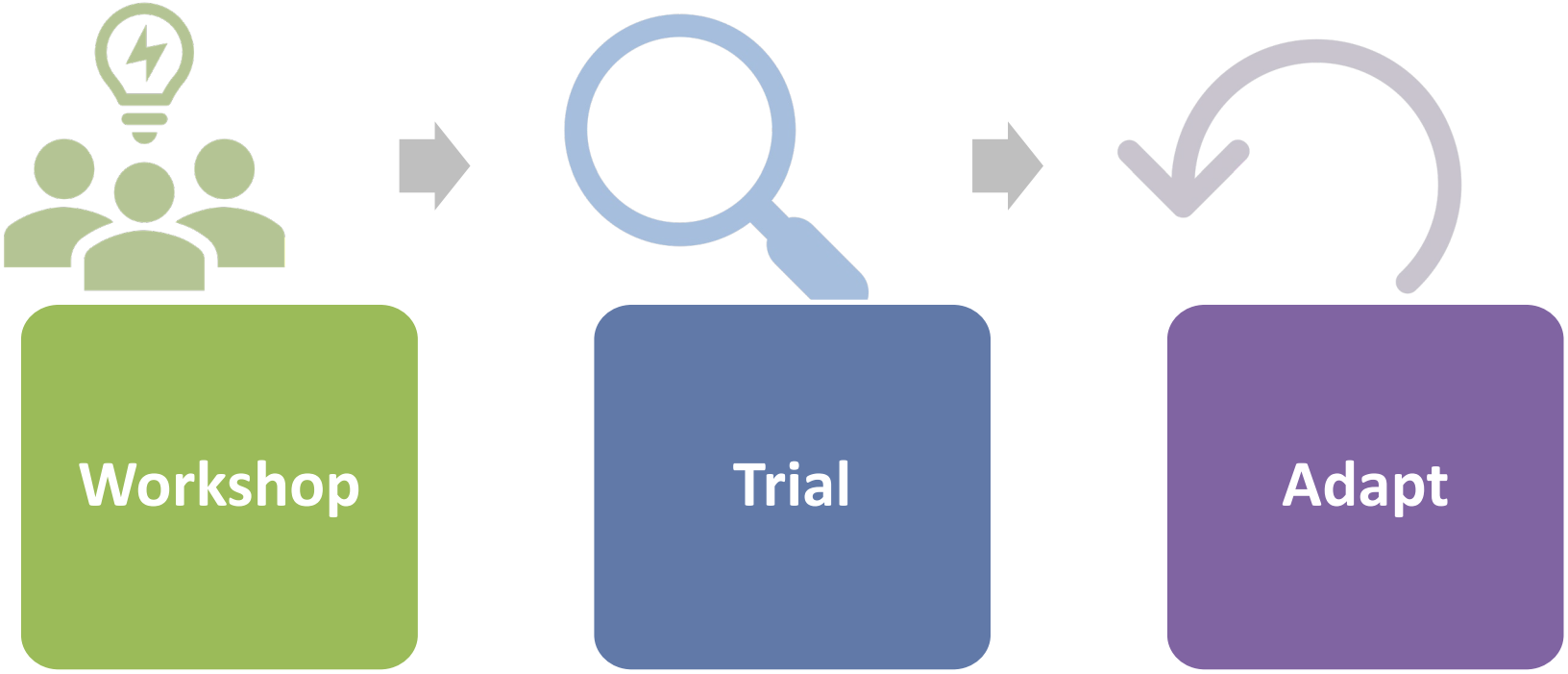
Goal

Establish a standardized method to assess offsets based on ecological factors and known risk.

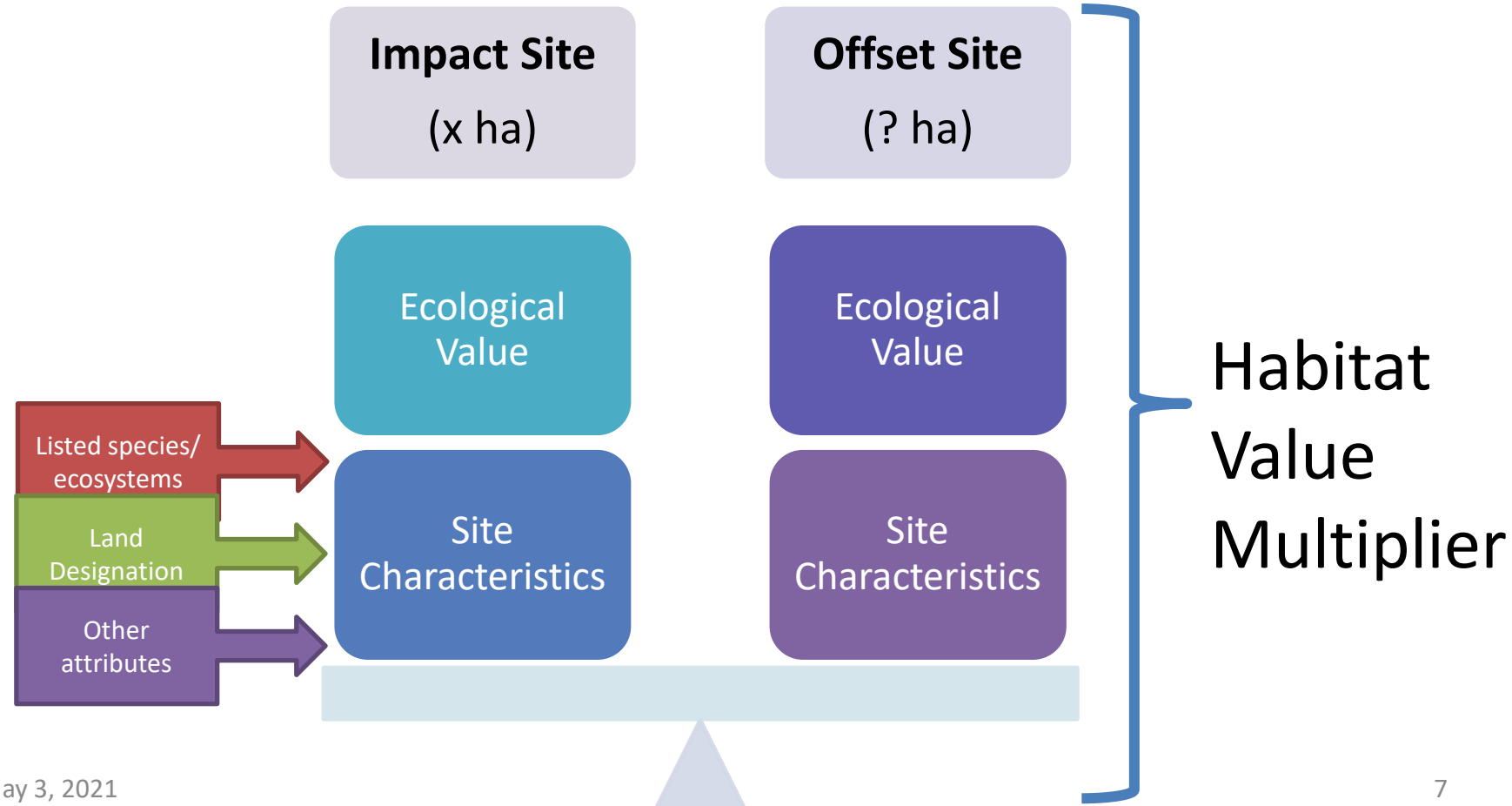
Focus on impacts to direct habitat loss

Habitat Offset Decision Support Tool

How was the tool developed?



Draft Habitat Offset Decision Support Tool



Equation 1: Habitat Value Multiplier

$$Habitat\ Value\ Multiplier = \sum_{i,j=1}^{n,m} \left(W_i \cdot \frac{X_i}{\bar{X}} \cdot Z_i \right) \left(\frac{Y_j}{\bar{Y}} \right)$$

$W_i = value\ assigned\ to\ the\ different\ options\ that\ can\ be\ selected\ for\ modifier\ i$

$X_i = ranking\ of\ modifier\ i\ within\ modifier\ group$

$\bar{X} = median\ ranking\ within\ modifier\ group$

$Z_i = proportion\ of\ habitat\ where\ modifier\ i\ exists$

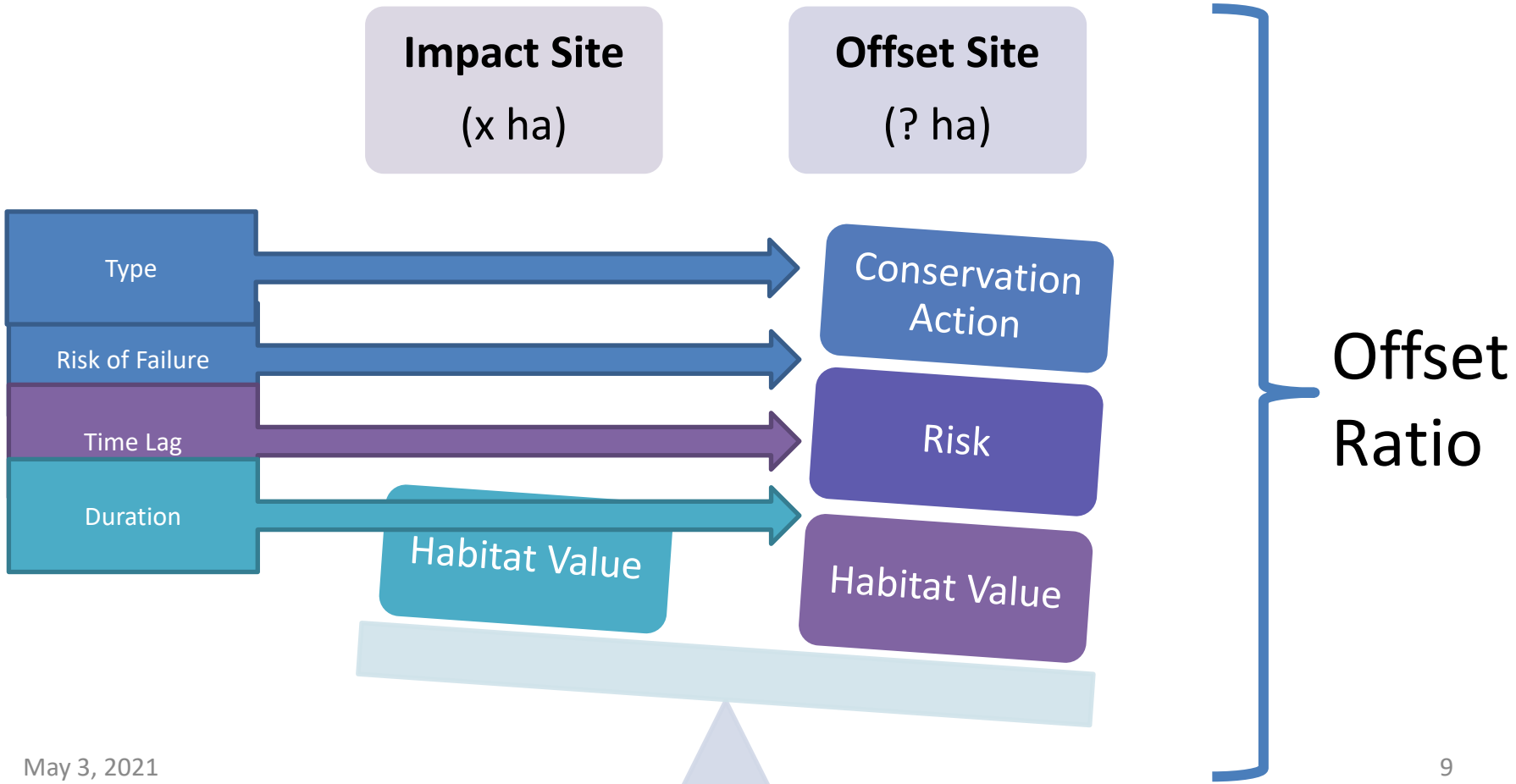
$Y_j = ranking\ of\ modifier\ group\ j\ among\ modifier\ groups$

$\bar{Y} = median\ ranking\ value\ among\ modifier\ groups$

$n = number\ of\ modifiers$

$m = number\ of\ modifier\ groups$

Draft Habitat Offset Decision Support Tool



Habitat Offset Decision Support Tool

Habitat Replacement				
Area of Direct and Indirect Residual Impact (hectares)	100	ha		
Ecological Quality				
Ecological Quality	Medium quality	0.60		
	total score	0.60		
	adjust for rankings	1.00		
Modifiers				
Listed Species, Ecosystems, or Habitats			Percent of Impacted Area Applicable	Marginal Impact
Critical Habitat (SARA)	Yes	0.22	80%	0.17
Red-listed Sensitive Ecosystem	Yes	0.17	20%	0.03
Habitat Currently Occupied by Species/Ecosystem Under Consideration	unknown	0.04	0%	0.00
Habitat Suitable for Species/Ecosystem Under Consideration	Yes	0.13	60%	0.08
Habitat Occupied by Other Listed Species	No	0.00	0%	0.00
Impact on Other Listed Species or First Nations Species of Importance	Yes	0.09	20%	0.02
Impact on Species of Concern	No	0.00	0%	0.00
Localized Rarity or Scarcity of Ecosystem or Species	Yes	0.04	40%	0.02
	total score	0.32		
	adjust for rankings	0.32		

Habitat Offset Decision Support Tool

Is there a plan for conservation action on the offset site?	Yes			
	Conservation Action Type	**Offset Risk**	**Percent of Area Covered by Conservation Action**	
Conservation Action 1	Protection	en track record with appr	80%	0.40
Conservation Action 2	Restoration	roven/experimental appr	20%	0.23
Conservation Action 3	Start >>	Start >>	0%	0.00
			Total (maximum value of 1.25)	0.63
Offset Arrangement	Medium Risk	0.25		
Offset Duration	ntinuing after project imp	0.13		
	Sum of Total Adjusted	1.00		
Additional Considerations				
Discount rate	Low	3.00		
Number of Years of Time Lag		1		

Habitat Offset Decision Support Tool

Tab 4: Results

Key Inputs

Baseline Offset Ratio	8.00 :1
Number of Hectares Impacted	100 ha
Adjusted Weighting of Impacted Habitat per Hectare	2.32
Adjusted Weighting of Offset Habitat per Hectare	2.21
Conservation Action Adjustment	1.00
Time Lag	1.00 yrs

Results

Offset Ratio Without Conservation Actions and Risk	8.65 :1
Offset Ratio Adjusted for Conservation Actions and Risk	7.57 :1
Offset Area with Conservation Actions and Risk	756.66 ha

Advantages

- Provides transparency
- Facilitates discussion
- Focused on ecological equivalency

Challenges

- Indigenous *ways of knowing*
- Focus on ratio
- Implementation

Beyond Multipliers

- Need to start somewhere
- Multipliers have a role
- Incent the right actions
- Framework
- What do we want to achieve?

Contact

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Environmental Mitigation Policy