

Table S1: Organization types represented at the adaptation workshop.

Organization Type	Number of Participants
Parks Canada (including personnel from the national parks in Southern Ontario such as Georgian Bay Islands National Park)	12
Environment and Climate Change Canada	2
Natural Resources Canada	1
Ontario Ministry of Natural Resources	1
Municipality of Northern Bruce Peninsula	2
Environmental non-governmental organizations (e.g., Ontario Nature)	3
Local Indigenous groups (e.g., Bagida waad Alliance)	3
Academic institutions (e.g., Wilfrid Laurier University)	4
Total:	28

Table S2: Adaptation options identified by workshop participants in the coastal Lake Huron ecosystem break-out group ranked for effectiveness and feasibility (from 1 to 5, with 1 being low and 5 being high) and categorized based on intervention class and mechanism targeted by the intervention.

Coastal Lake Huron				
Adaptation Option	Effectiveness	Feasibility	Intervention Class	Mechanism
Public education and awareness	3	5	Conventional	Direct
Improve tributary water quality and reduce influence	4	5	Conventional	Direct
Invasive management (i.e. macrophytes, phragmites, and others)	5	4	Conventional	Direct
Septic inspection and maintenance	5	4	Conventional	Direct
Short term rentals inventory and controls	4	4	Conventional	Direct
Re-establish hydrological connectivity in prolonged low lake levels for vulnerable coastal wetlands and river mouths (i.e. channels)	3	3	Conventional	Direct
Limit development pressures adjacent to coastal habitat to facilitate migration (inland, longitudinal, and waterward) (i.e., permits, policies, lands, zoning, bylaws)	5	3	Conventional	Direct
Build natural protective features (soft engineering) (i.e. reefs, vegetation)	3	3	Conventional	Direct
Limit development pressures adjacent to coastal habitat to increase resilience to storm events and erosion (i.e., permits, policies, lands, zoning bylaws)	5	3	Conventional	Direct
Climate SMART coastal infrastructure	4	3	Conventional	Direct
Habitat management and connectivity plan and implementation strategy (CPR)	5	3	Conventional	Direct
Build natural protective features (hard engineering) (i.e. break wall)	3	2	Conventional	Resist
Fisheries management options (e.g., moratorium, stocking, exclusion zones, fishing reg.)	5	2	Conventional	Resist

Table S3: Adaptation options identified by workshop participants in the terrestrial ecosystem break-out group ranked for effectiveness and feasibility (from 1 to 5, with 1 being low and 5 being high) and categorized based on intervention class and mechanism targeted by the intervention.

Terrestrial				
Adaptation Option	Effectiveness	Feasibility	Intervention Class	Mechanism
Seed / vegetative propagule preservation	3	5	Novel	Direct
Invasive alien species firewood containment program	5	5	Conventional	Direct
Implement fire management plan	5	5	Conventional	Resist
Preserve and promote genetic diversity	4	4	Conventional	Direct
Opportunity for partnership networking and recovery collaboration within current and future species range to create source populations	5	4	Conventional	Direct
Consider functional diversity for restoration projects (i.e., diversify plantings and consider functional traits)	4	4	Conventional	Direct
Consider maintaining / enhancing functional diversity in existing habitats	4	4	Conventional	Direct
Maintain landscape mosaic diversity across the Northern Bruce Peninsula (variable habitats and their associated successional stages)	4	4	Conventional	Direct
Implement terrestrial invasive alien species plan	3	4	Conventional	Direct
Develop clean equipment protocols for staff (clean heavy equipment, UTV, soil/fill, field gear)	4	4	Conventional	Resist
Develop landscape design/plan (trail plan, enforcement of plan) (as it pertains to invasive alien species)	5	4	Conventional	Resist
Create fire breaks	4	4	Conventional	Resist
Encourage/influence climate SMART ecosystems, habitats, and structures	4	3	Novel	Direct
Facilitate connectivity / corridor between existing habitat (Northern Bruce Peninsula)	4	3	Conventional	Direct
Protect/promote socially charismatic species (e.g., black bear and turtles)	4	3	Conventional	Resist
Enhance public engagement as it pertains to SAR	3	3	Conventional	Direct

Prevent establishment of invasive alien species upon arrival and eliminate (through policy, eradication teams, education, and equipment)	3	3	Conventional	Direct
Fuel load plan - mechanical removal	4	3	Conventional	Resist
Fuel load plan - prescribed burn	4	3	Conventional	Resist
Promote mixed or deciduous stands	4	3	Novel	Direct
Promote fire tolerant habitats / species	4	3	Novel	Direct
Make expertise available for land development and management processes (for species population range)	3	2	Conventional	Resist
Connectivity for species migration (great lakes, north/central America)	3	1	Conventional	Direct
Manage for phenological mismatch	2	1	Novel	Direct

Table S4: Adaptation options identified by workshop participants in the inland aquatic ecosystem break-out group ranked for effectiveness and feasibility (from 1 to 5, with 1 being low and 5 being high) and categorized based on intervention class and mechanism targeted by the intervention.

Inland Aquatic				
Adaptation Option	Effectiveness	Feasibility	Intervention Class	Mechanism
Create shade through tree planting, physical structure, or snow fencing	5	5	Conventional	Resist
Create an inventory and response program for wetlands that are vulnerable to drying and invasion by invasive and undesirable species	5	5	Conventional	Resist
Protect and preserve coldwater refugia through mapping, fencing of site to prevent access, and monitoring of water temperatures in multiple locations	5	4	Conventional	Resist
Beaver management. Manage beaver population beyond threat to infrastructure. Remove beaver food source to make areas less appealing to them.	3	4	Conventional	Direct
Improve culvert design and reduce barriers	5	4	Conventional	Direct
Trans-boundary management	4	4	Conventional	Direct

Reduce natural or infrastructure barriers to movement	4	4	Conventional	Direct
Augment water levels by building artificial structures	5	4	Novel	Resist
Planting around wetlands. Encourage topographic variability around and within wetlands. Restoration to include "pit and mound"	4	4	Conventional	Direct
Strategically remove barriers above wetlands	4	4	Conventional	Direct
Creation and enhancement of vernal pools. Creation of deeper pools in wetlands for overwintering herpetiles and to increase water storage capacity.	4	4	Conventional	Resist
Limit access by fencing of sites, limit fishing, and limit taking of water	5	3	Conventional	Resist
Identify critical groundwater recharge zones and limit impacts in those areas (e.g., avoid development in these areas)	4	3	Conventional	Resist
Create and restore channel networks	4	3	Novel	Direct
Targeted salvage for wetlands that are imminently failing (e.g., save turtles from drying wetland and move to new wetland)	3	3	Novel	Direct
Adjust drainage courses on the ground to divert water into wetlands	3	3	Novel	Resist
Augment flow by impounding water above important recharge points and releasing at critical times.	4	1	Novel	Resist

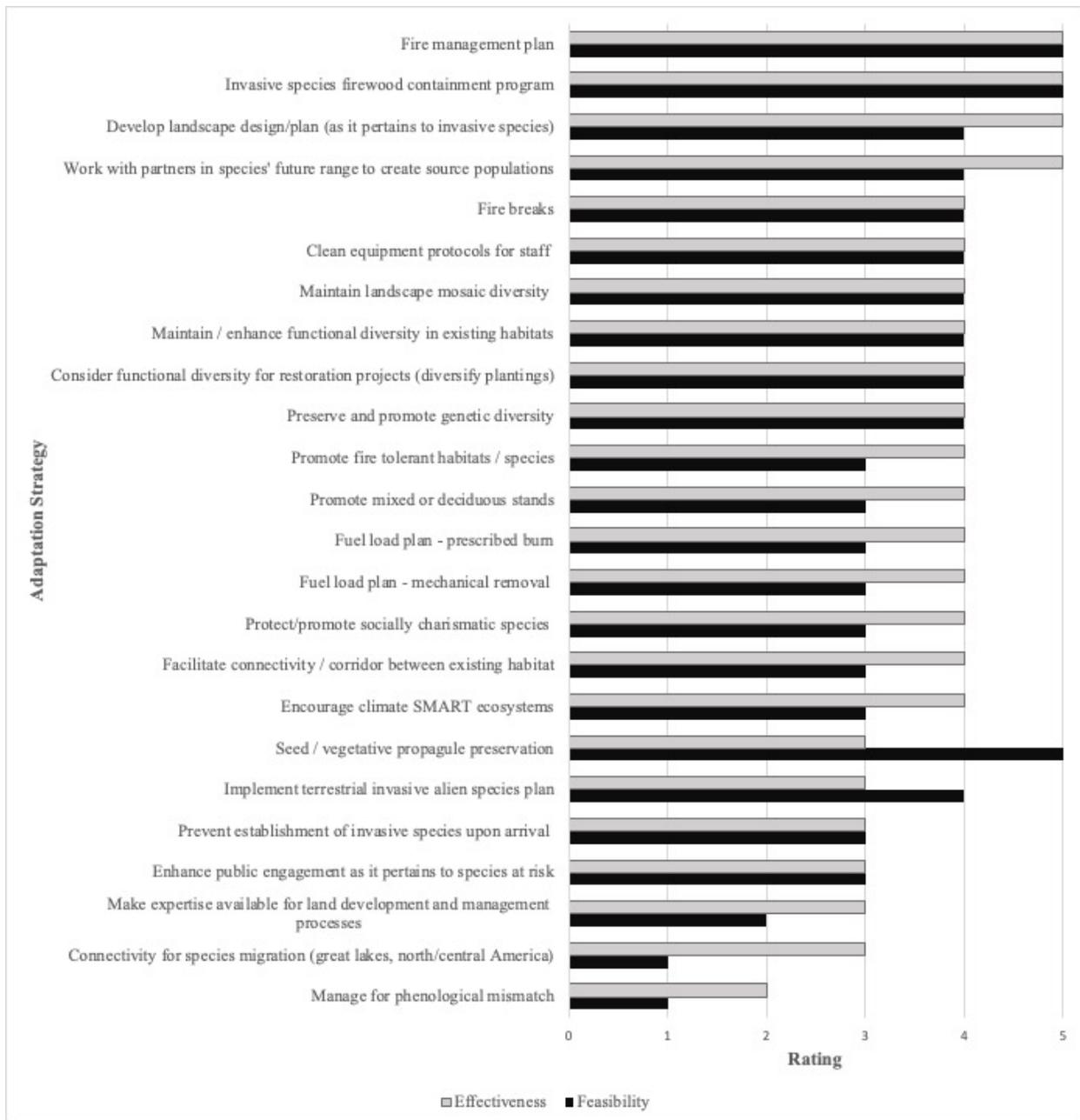


Figure S1: Adaptation strategies identified by the terrestrial ecosystem break-out group with effectiveness and feasibility ratings.

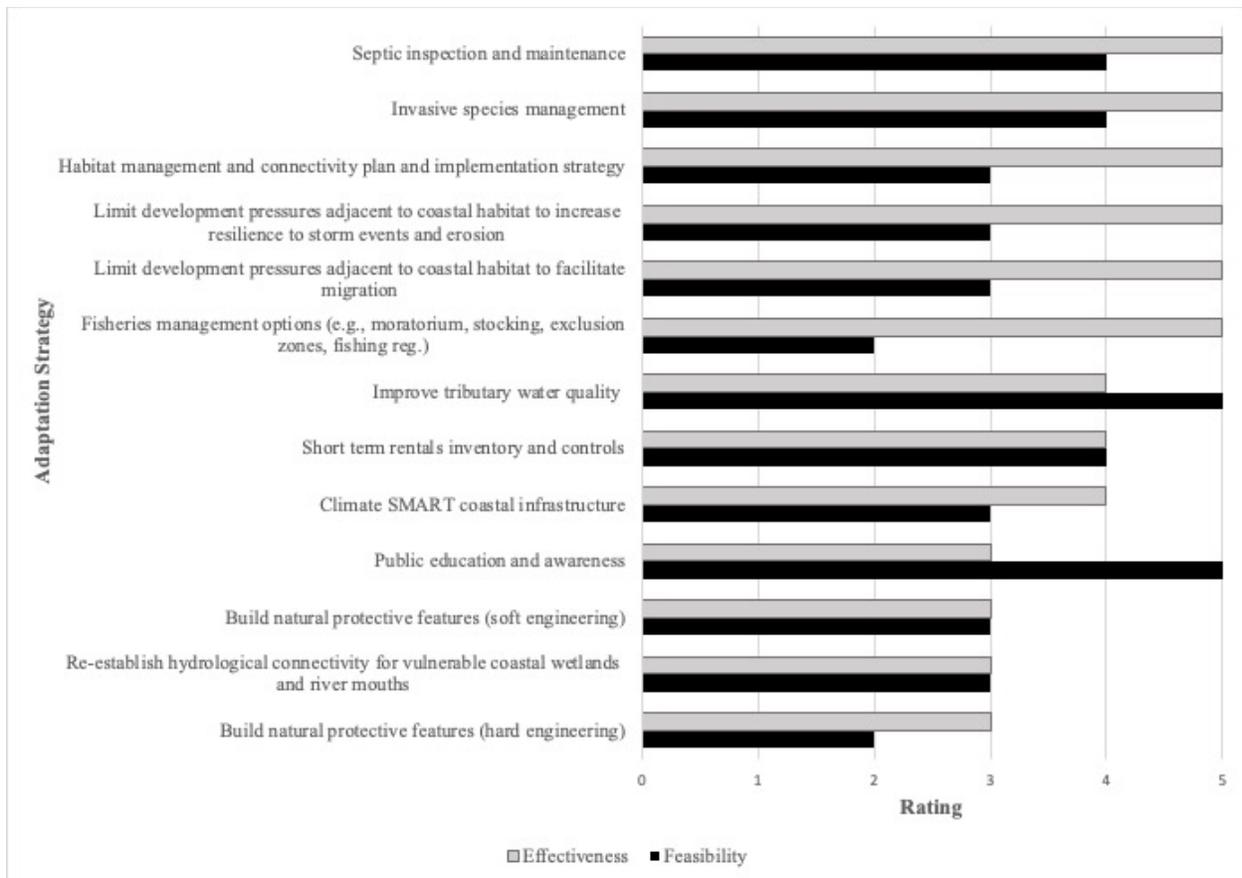


Figure S2: Adaptation strategies identified by the coastal ecosystem break-out group with effectiveness and feasibility ratings.

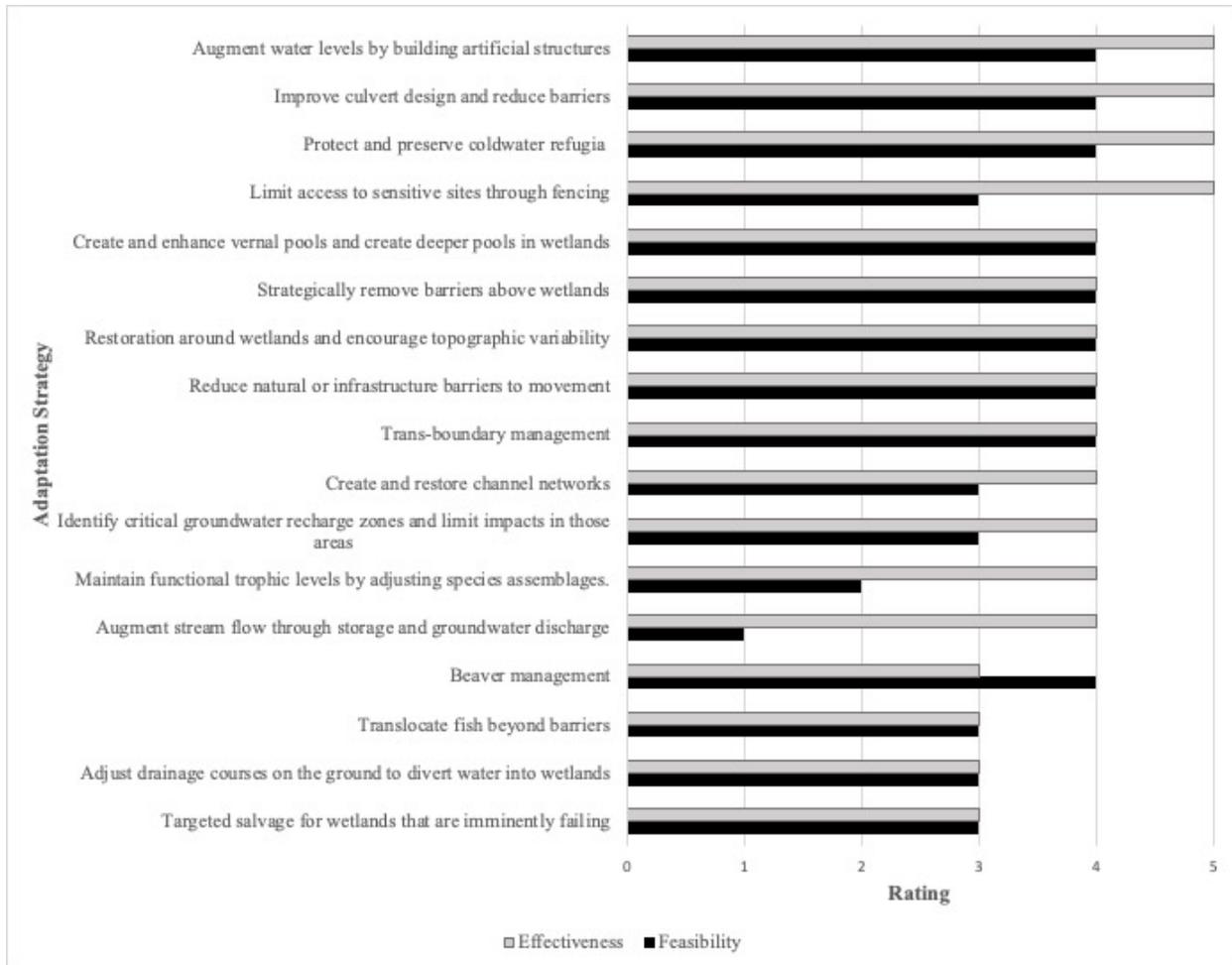


Figure S3: Adaptation strategies identified by the in-land aquatic ecosystem break-out group with effectiveness and feasibility ratings.

Table S5: Top adaptation options identified by workshop participants ranked for effectiveness and feasibility (from 1 to 5, with 1 being low and 5 being high) and categorized based on intervention class and mechanism targeted by the intervention.

Adaptation Option	Effectiveness	Feasibility	Intervention Class	Mechanism
Terrestrial				
Opportunity for partnership networking and recovery collaboration within current and future species range to create source populations	5	4	Conventional	Direct
Implement fire management plan	5	5	Conventional	Resist
Facilitate connectivity / corridor between existing habitat (Northern Bruce Peninsula)	4	3	Conventional	Direct
Implement terrestrial invasive alien species plan	3	4	Conventional	Direct
Interagency vegetation mapping project that includes succession, functional traits, and assisted migration as climate change impacts	4	4	Novel	Direct
Coastal Lake Huron				
Public education and awareness	3	5	Conventional	Direct
Invasive management (i.e. macrophytes, phragmites, and others)	5	4	Conventional	Direct
Habitat management and connectivity plan and implementation strategy	5	3	Conventional	Direct
Climate smart coastal infrastructure	4	3	Conventional	Direct
Limit development pressures adjacent to coastal habitat to increase resilience to storm events and erosion (i.e., permits, policies, lands, zoning bylaws)	5	3	Conventional	Direct
Fisheries management options (e.g., moratorium, stocking, exclusion zones, fishing reg.)	5	2	Conventional	Resist
Inland Aquatic				
Monitoring and early response for invasive species	5	5	Conventional	Direct
Creation and enhancement of vernal pools. Creation of deeper pools in wetlands for overwintering herpetofauna and to increase water storage capacity.	4	4	Conventional	Resist
Reduce barriers (increase connectivity)	5	4	Conventional	Direct

Protect and preserve coldwater refugia through mapping, fencing of site to prevent access, and monitoring of water temperatures in multiple locations	5	4	Conventional	Resist
Targeted salvage for wetlands that are imminently failing (e.g., save turtles from drying wetland and move to new wetland)	3	3	Novel	Direct