

**GOERT (Garry Oak Ecosystems Recovery Team)
Conservation Planning & Site Protection RAG**

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discussion paper

**A conservation planning
process for
northern (Canadian)
Garry oak ecosystems &
associated biodiversity**



gbi photo of private land on Mt. Maxwell taken in 1979 with promise for conservation only made in 2001

GOEs = Garry oak ecosystems

CDC = Conservation Data Centre

TNC = The Nature Conservancy of the USA

SEI = Sensitive Ecosystem Inventory programme (of Vancouver Island)

Phase 1

Setting short-term priorities

for additional conservation & habitat acquisition

schedule: completion of first list by 1 March, 2002 (and to be revised annually)

progression of tasks & decisions

1. making a list of locations to consider

- A review data on relatively undisturbed and unprotected landscapes with GOE
 - identify subset of GOE in the Georgia Basin Ecosystems Catalogue (completed by Ingram)
 - identify any GOE landscapes not included in the Georgia Basis Ecosystems Catalogue that were deleted because of treaty negotiations (TBA)
 - review relevant data on GOE in the CDC and SEI data (CDC & CP&SP RAG)
 - review Capital Regional District (CRD) data on natural areas in the CRD to identify any additional site not mentioned in the Georgia Basin Ecosystems Catalogue (TBA)
 - review Municipality of Saanich data on natural areas in Saanich to identify any additional site not mentioned in the Georgia Basin Ecosystems Catalogue (TBA)
 - review data and areas of concerns for other municipalities, regional districts and Islands Trust
 - review the priorities and plans of the various conservancies and other non-governmental organizations
 - compile an initial list of sites of concern
- B determination of nature of the sites and “locations” that will be considered – and the relationship to land parcels
- C establish minimum area of site / landscape / locations for consideration in setting short-term priorities for protection (CP & SP RAG)
- D based on the minimum area criteria, determine the sub-set of locations of consideration for short-term priorities for conservation

2. assess the most important locations

- E set criteria for delineation of locations and respective landscapes of interest
- F set a list of data necessary for the assessment of landscapes and sites for short-term conservation priorities (CP & SP RAG) that could include the following:
 - copies of the Georgia Basin Ecosystem Catalogue reports
 - copies of CDC data
 - field notes from recent visits

other relevant reports

copy of topographic map

list of relevant aerial photos with numbers, photocopies and an indication of where the prints can be viewed (and scanned)

identification of the ecosystems, species and successional conditions of interest (as related to the Recovery Strategy)

drawing of a rough map (made from the aerial photo) indicating the ecosystems, species and successional conditions of interest (as related to the Recovery Strategy)

more complete lists of species and other natural and cultural features of concern

profiles of land use history

analysis of ecosystem degradation

profile of current threats and the nature and the level of the urgency

recent field notes

A set individual responsibilities for development of particular dossiers (CP & SP RAG & TBA)

organize field visits where field notes are insufficient

compile dossiers with data and maps for each landscape / site of concern & & TBA)

A set a deadline for completion of individual dossiers (CP & SP RAG)

B compilation of all dossiers

3. rank the candidate locations

C review all dossiers by CP & SP RAG members

D set a series of criteria for rating each location and respective landscape units including the following factors:

presence of ecosystems, species and successional conditions of interest related to the Recovery Strategy

total area of the GO ecosystems

total area of other the ecosystems of interest

percentage of the GO and associated ecosystems and species occurrence of the total landscape unit

status of particular ecosystems and species occurrence (extent of rareness)

condition of particular ecosystems and species occurrences

restoration potential of the landscape unit and sites with key occurrences

viability of respective ecosystems and populations

viability of landscape unit if protected

immediacy and extent of the threats to these populations and ecosystems (CP & SP RAG)

- A create and weight a numeric rating system for each criteria (out of 5, out of 10, out of 100) (CP & SP RAG)
- B rate each location by the criteria (responsibilities for each location divided between members of the CP & SP RAG)
- C for each location, multiply the ratings such as a x b x c x d x e.... to get a score (responsibilities for each location divided between members of the CP & SP RAG)

simplified example	
<i>Rating Location Y</i>	
number of GOE ecosystem types (1 out of 6) with 4 types = 4	4
number of species at risk present in this landscape unit = 12	X 12
the condition of the species at risk is not good and with status and condition ranked between 1 and 5, two species are rated as 2 and 3 respectively	X 2 X 3
area of GOEs, associated ecosystems of interest and occurrences of species at risk is 30 hectares	X 30
broader landscape unit is 50 hectares	X 50
Because this area is under serious threat in the coming months, the sub-rating for threat is 100 out of 100	X 100
Based in this simple rating formula (way too simple) the rating, as a basis for the subsequent ranking can be calculated as	
$4 \times 12 \times 2 \times 3 \times 30 \times 50 = 43,200,000$	
This location is then ranked (for the next year) as #3 in priority for immediate conservation invention after sites that scored 1,000,200,000 (#1), 1,000,100,00 (#2)	

- D the scores are then compiled and the top 20 to 30 are ranked in order of ratings (as priorities for conservation) (CP & SP RAG)
- E revisiting some of the location ratings to assure consistency and scientific credibility

4. provide spatial precision for the top 10 conservation priorities

- A for each location, identify key areas with ecosystems and species of interest, and adjacent areas, as a landscape mosaic and delineate that as a proposed core area (CP & SP RAG)
- B for each location, conduct a viability analysis and identify other areas needed for conservation as buffers (CP & SP RAG)
- C for each location, identify any areas nearby that the proposed conservation area should be better 'connected' to and then identify key areas for 'corridors' (There would be 'landscape linkages' under the terms of the Recovery Strategy.) (CP & SP RAG)
- D for each location, compile a conservation design, with core, buffer and where necessary landscape linkages
- E write up a 1 page description of the location and a rationale for proposed conservation interventions
- F compile a dossier with the list of priority rated locations – along with maps, conservation designs and descriptions for each location
- G forward that dossier to GOERT

5. annual revision of the priority locations for additional locations

- H maintain and expand dossiers for each location
- I search for additional locations and possibly create additional dossiers
- J revise criteria and rating scheme (based on better information and theory)
- K re-assess and rate each location
- L recalculate the rankings
- M revise the conservation designs where necessary

rationale

This approach emphasizes a simple rating process based on simple multipliers. Such an approach would be biased (as based on standard principles of conservation biology) towards the larger landscape units with GOEs that are already listed and described through the Georgia Basin Ecosystems Conservation Process. The particular process, described here, is streamlined and can be completed by March 2002 with assessment, ratings and rankings easily revised annually. This process can efficiently (and democratically) involve member of the RAG in both research (particularly on the various locations and subsequent priority ratings for conservation).

Phase 2

Planning & design of a network of protected areas for
GOE & associated ecosystems and species

schedule:

If there is adequate and timely funding, there could be completion of a draft plan with finer-scaled designs by 31 December, 2003.

If there is adequate and timely funding, there can be completion of the GOERT and inter-agency review and public consultation processes by 31 December, 2004.

Revisions could be based on additional data, models, threats and programmes and can be made every 3 years subsequently.

progression of operations

0. technical choices

- A scales for decision-making and output
- B choice geographic information systems software and other digital tools
- C design of geographic information systems architecture

1. mapping biotic districts & landscape units throughout the Canadian range of GOEs

- D completion of initial CDC map of GO and associated ecosystems in BC (CDC – GOERT)
- E initial compilation of pre-2002 data on species at risk
- F identification of respective
 - ❖ watersheds and shores (on Vancouver Island and the larger Gulf Islands),
 - ❖ slopes / mountains (for the two locations on the mainland) and
 - ❖ islands (on the smaller Gulf Islands) (CP & SP RAG)
- G compilation of relevant maps of biophysical (geology, aspect, soil) and social (ownership, culture, historical) factors
- H identification of landscape units associated with each occurrence of GO and species-at-risk (CP & SP RAG)

2. mapping of spatial occurrences of ecosystem classifications & species at risk

- I completion of expanded CDC map with classification of GO and associated ecosystems (CDC – GOERT)
- J completion of compiled CDC map of associated species-at-risk (CDC – GOERT)

3. setting goals for representativeness in conservation of ecosystems & species

- K mapping GO historical occurrences in the landscape as either matrices (broader occurrences) or isolates (small, fragmented, isolated)
- L based on historical landscape patterns, determination of goals for the number of GOE ecosystems and minimum area to be conserved per landscape unit and biotic district
- M determination of whether a species has a meta-population or one or more populations
- N determination of minimum goals for the number of occurrences of species at risk per district / landscape unit

4. setting goals for species fitness

- O review of life histories of species at risk
- P determination of specific criteria for fitness (no in-breeding depression, continuing evolution and more)
- Q modelling as a background to determining minimum requirements for fitness
- R determination of minimum population sizes for continuing adaptation (including to urbanization, invasive species and climate change)

5. setting goals for population & ecosystem resilience

- S review of land use and environmental change-related threats
- T quantification and modelling of cause-effect linkages related to threats
- U determination of minimum number of populations for adequate resilience
- V determination of minimum population sizes for adequate resilience
- W determination of minimum areas for particular ecosystem types and species

6. setting goals for maintenance of successional processes, respective habitat attributes & landscape mosaics

- X assessment of key successional processes and respective habitat attributes per each location and landscapes of interest
- Y identification of key successional processes and respective habitat attributes for maintenance of respective ecosystem types and species at risk
- Z compilation of key successional processes and respective habitat attributes per landscape of interest

7. setting goals for maintenance & re-establishment of landscape connectivity

- AA returning to the landscape matrix / isolate map, identify the key landscape linkages that have existed between some GO occurrences
- BB set goals for maintaining connectivity
- CC compile all goals from steps from 3 to 7

8. mapping & gap analysis of current levels of protection of GOEs

- DD compilation of maps on currently protected GOEs (CDC)
- EE analysis of the currently protected areas in terms of the goals set in steps 3 to 7
- FF determine the 'gaps' between compiled goals and current levels of conservation

9. choice for & design of core protected areas

- GG review currently protected areas and map those areas as effective cores, buffers and landscape linkages
- HH based on the combined goals and the gaps identified, identify the priority locations for short-term conservation interventions (described in phase 1) that best satisfy the requirements for cores and fill the gaps
- II based on the combined goals and the gaps identified, identify the other locations (that ranked lower in phase 1 or were not considered) that best satisfy the requirements for cores and fill the gaps

10. choice for & design of buffers of protected areas

JJ based on the combined goals and the gaps identified, identify the locations that best satisfy the requirements for buffers and fill the gaps

11. choice for & design of landscape linkages

KK based on the combined goals and the gaps identified, identify the locations that best satisfy the requirements for landscape linkages and fill the gaps

12. assessment of economic & social costs

LL assessment of financial costs of the initial, 'optimal' design

MM determination of any conflicts related to treaty negotiation

NN determination of any additional conflicts and barriers to the proposed conservation

OO determination of whether or not the initial, 'optimal' design was political, economically and social viable

PP modification of choice of some cores, buffers and landscape linkages

13. design of network of protected areas

QQ review of approaches to and options for delineating borders for core, buffers and landscape linkages for each location and landscapes of interest

RR choice of approaches, options and rationales for design in respective landscape linkages

SS assessment of options for conservation categories (such as national, provincial, First Nations, private, private with conservation covenant)

TT choice of proposed categories of conservation for particular parts of the proposed network

UU design of entire network – represented at various scales

14. compilation & transmission of draft conservation plan

VV compilation of proposed plans and designs at desired scales

WW compilation of text describing the process, criteria and recommendations

15. review of draft conservation plan

XX submission to GOERT

YY scientific reviews

ZZ public consultations

16. compilation of initial conservation plan

AAA revisions based on requests from GOERT and partner agencies

BBB revisions based on scientific reviews

CCC revisions based on public consultations

14. revision of conservation plan every several years

DDD review and revision of conservation criteria

EEE compilation of additional data

FFF assessment of changing land use and political economic contexts

GGG new economic and political analyses – particularly around the viability of the plan

HHH proposed revisions

III review by the groups in step 16

JJJ revision of conservation plan

rationale

This approach is consistent with standard principles in conservation biology and biodiversity conservation planning, including the bioregional and ecoregional approaches that have been adopted by a number of GOERT partners. This approach is based on the reality and scale of GOEs in Canada: the range involving a relatively narrow set of arcs and all but two populations on (marine) islands of various sizes and levels of landscape connectivity. An approach tailored to management of biodiversity that is and has been in small islands often on small marine islands is necessary. This approach can be used to begin to differentiate, in conservation and subsequent management, the range of aboriginal, historical and contemporary (and often highly degraded) landscapes. A range of scenarios around climate change can be anticipated. Given the relatively small portion of many of its respective landscapes that many GOEs outside of Camosun have occupied GOE and the losses and fragmentation that have occurred from agriculture, urbanization and fire suppression, a high degree of spatial precision in conservation planning, particularly in acquisition and management of buffers and landscape linkages, is necessary. The work plan can be designed to build upon and support the work of the CDC.