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## **Review of the draft**

### **Recovery Strategy for Garry Oak and Associated Ecosystems and their Associated Species at Risk in Canada 2001 - 2006**

**Prepared by the Garry Oak Ecosystems Recovery Team  
(draft dated 8 March, 2001)**

#### **overview comments:**

- ❖ This document represents a remarkable amount of thought (and text) for a technical group that has only been in existence for a year and a half.
- ❖ Marilyn Fuchs has done an exceptional job in representing the range of perspectives in the group.
- ❖ This review is the draft Recovery Strategy document is oriented to strengthening the use of concepts in the following fields:

1. landscape ecology;
2. conservation biology;
3. geomatics for biodiversity conservation; and
4. environmental planning for biodiversity conservation ('conservation planning').

#### **proposed amendments to the draft text:**

Executive Summary

page iii Third paragraph on climate change and repeated as the last paragraph of p. 1 continuing on to p. 2

"Garry oak and associated ecosystems...Much is what is currently Douglas-fir...forest in coastal British Columbia is predicted to be replaced by Garry oak..."

Garry oak and associated ecosystems are expected to play an increasingly important role with the progression of global warming. Much is what is currently Douglas-fir (*Pseudotsuga menziesii*) forest in coastal British Columbia is predicted to be replaced by Garry oak and related ecosystems within the next half century. Ecosystem and species conservation is required to ensure that these

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biological resources are available to occupy the new habitat as it becomes available.

problem:

- While the significance of Garry oak ecosystems for society's coping with global warming is probably true, there has not been enough modelling or clear thinking about possibilities - except for initial studies by Richard Hebda. Global warming could lead to more rainfall, and less summer drought, which might not necessarily favour Garry oak ecosystems.
- The statement above is a bit simplistic while positing relationships that have barely been explored (or confirmed).
- While the links described in the passage are worth discussing, a more conservative statement is necessary to maintain scientific credibility. After more (peer-reviewed) research, a stronger statement can be made in the next GOERT strategy (in 2006?).

suggested rewrite:

Garry oak ecosystems, and associated species, have survived in the region in areas with more moderate winter temperatures, longer summer droughts, and the period presence of fire. If, under global warming, these three sets of factors were to intensify, these ecosystems and species could play an increasingly important role in the landscapes of southwestern British Columbia. Initial modelling suggests that some sites with Douglas-fir (*Pseudotsuga menziesii*) forest, on southeastern Vancouver Island and even parts of the Lower Mainland, could be replaced by Garry oak and associated species within the next century. Comprehensive conservation is required -- at the level of each landscape mosaic, small watershed, and group of islands -- to ensure that these biological resources are available.

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page iv

Second complete paragraph (also on page 9):

"This strategies outlines Phase I of the recovery program for Garry oak and associated ecosystems....

This strategy outlines Phase I of the recovery program for Garry oak and associated ecosystems and their associated species at risk in Canada. Long-term recovery goals for the ecosystems and the species are:

1. To establish a network of Garry oak and associated ecosystem sites and landscape linkages that:
  - a. Is representative of the full range of ecosystem variation across the geographic range;
  - b. Sustains all the critical processes over the long term; and

c. Supports the full range of native biota.

To improve and secure the status of all species at risk from Garry oak and associated ecosystems, except those that are extinct, so that they no longer have at-risk status.

problem:

- This passage is central to the strategy and could be fine-tuned for clarity.
- The last sentence, bringing in extinct, is unclear. There is 'extinction' (the species has totally disappeared). And there is 'extirpation', as with that paintbrush species, where a species is gone from Beacon Hill Park but is still on Trial Island. Are we talking about just extinction here or extirpation as well? A species that is extinct is 'at risk' because it no longer exists. But there is an obligation in the Recovery Plan to restore extirpated species to historical distributions within BC.

suggested rewrite:

This strategy outlines Phase I of the recovery program for Garry oak ecosystems and their associated species at risk in Canada. Our interventions for the long-term recovery of these ecosystems and the species are based on the following goals.

1. Because of such small areas of remaining habitat, all sites in Canada (which are limited to southwestern British Columbia), with natural ecosystems with Garry oak and associated species, warrant some level of conservation.
2. Some forms of Garry oak ecosystems, at the communities and sub-communities levels, are much rarer in Canada than others. Therefore, some forms of Garry oak ecosystems, that involve small portions of the entire range, may warrant additional conservation attention.
3. All species associated with Garry oak ecosystems, that are at risk, should be the subjects of inventorying, monitoring, and habitat and restoration interventions until their long-term prospects for survival in Canada are no longer in doubt.
4. Species that are considered extinct throughout their historic ranges should be the subjects of periodic searches in hopes that some remaining populations remain.
5. Species that have been extirpated from key portions of their historic ranges, in Canada, warrant reintroduction and restoration interventions.
6. An expanded network of protected areas is necessary that maintains Garry oak ecosystems and associated species. In proposing further habitat protection, we are guided by the following criteria.

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- a. This expanded network of protected habitat, with Garry oak ecosystems and associated species, should be representative of the full range of ecosystem variation across the geographic range that exists in Canada.
- b. Such an expanded network of protected habitat should sustain all the critical processes over the long term.
- c. Such an expanded network of protected habitat should sustain the full range of native biota on an indefinite basis.
- d. Such an expanded network of protected habitat should maintain landscape linkages to minimise further isolation of species and habitats.

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page v

First paragraph

"Definition of quantitative recovery..."

Future iterations of the recovery strategy and recovery program, including Phase II and beyond, will:

1. Define quantitative recovery goals for site securement and site and landscape restoration and management that will restore and sustain essential ecosystem characteristics;
2. Develop and implement strategies to meet the quantitative securement, restoration, and management goals;
3. Define quantitative recovery goals for species at risk;
4. Develop and implement strategies to meet the quantitative recovery goals for species at risk; and

Continue to motivate public and private protection and stewardship activities by supplying critical information to the appropriate audiences.

problem:

- 'Protection' is a better understood word than 'securement'. 'Securement' suggests some additional level of security that none of us can guarantee.
- It would be better (clearer) to be more specific about what we mean by 'quantitative recovery goals'. I suggest that we are mainly talking about the following:
  - size and shapes of protected habitats;
  - population sizes;
  - number of populations;
  - age-classes (demographic factors);
  - landscape processes;
  - removal of non-native species including pests; and
  - time (including deadlines and milestones).

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suggested rewrite:

Subsequent iterations of this recovery strategy and recovery program, including Phase II and beyond, will define better quantitative recovery goals and prescriptions that will be increasingly site-specific, at the fine scale, and more (bio)region at the broader level. Such recovery plans will guide conservation efforts by providing the following:

1. critical information for appropriate audiences;
2. quantitative goals for site and landscape-level habitat protection, restoration and management related to ecosystem characteristics; and
3. quantitative recovery goals for species at risk.

In subsequent phases of the recovery plan, quantitative recovery goals can be better defined in terms of such factors as the following:

- space: size and shapes of protected habitats;
- population sizes;
- number of populations;
- age-classes (demographic factors);
- landscape processes (including fire);
- removal of non-native species including pests; and
- time (including deadlines and milestones).

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page 1

Third paragraph

The term "imperilled" is a bit over-used. I suggest using "at risk" or "threatened" in the text more as these synonyms are more widely understood. And then there is "endangered" which is sometimes used as a legal term and other can be used as a more generic term that is clearer than "imperilled," "at risk," or "threatened."

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page 12

Step A.6. "Conduct wildlife habitat..."

Step A.6. Conduct wildlife habitat mapping for a set of selected indicator species and species at risk

a. Select the list of target species

problem:

This is the first mention of 'indicator species' in the text and it comes without being clearly differentiated from species at risk.

suggested rewrite:

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**Step A.6. Conduct wildlife habitat mapping for a set of selected indicator species and species at risk**

- a. Set criteria for choice of indicator species and species at risk for mapping
- b. Select the list of target species

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page 13

Step B.2. "Prepare interim list of at least 10..."

**Step B.2. Prepare interim list of at least 10 priority sites for securement**

1. Integrate existing data into CDC database
2. Prepare maps of point and polygon occurrences of rare elements associated with Garry oak ecosystems
3. Develop criteria for prioritizing sites
4. Select at least 10 first-priority sites
5. Update site records as inventory information becomes available
6. Update priority list on an annual basis

problem:

- 'Securement' is such an awkward expression. 'Protection' is probably adequate given that in many cases little change in land ownership may take place (with private land where the owner does not want to sell or there is not enough money for purchase).
- Some GOE communities and associations are rarer than others. Ecosystem mapping is necessary so that this information can be used to influence conservation priorities.
- GOERT's geographic information system will involve purposes more specific and at finer scales than is currently being employed in the CDC. At its first meeting, the Conservation Planning and Site Protection RAG discussed this (with a staff member of CDC who is a member of the RAG). While one of the goals of the GOERT geographic information system should be for it to be easily integrated into CDC, ours is a distinct project with a different set of goals.

suggested rewrite:

**Step B.2. Prepare interim list of at least 10 priority locations for protection (along with goals for long-term securement, management and restoration)**

1. Integrate existing data from CDC database with additional research associated with GOERT activities for the development of a specific GOE geographic information systems in cooperation with the CDC
2. Prepare maps of point and polygon occurrences of Garry oak ecosystems - defined as communities or associations

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3. Prepare maps of point and polygon occurrences of rare elements associated with Garry oak ecosystems
4. Develop criteria for ranking landscapes and specific sites for protection (building on criteria developed by the CDC)
5. Select at least 10 first-priority locations
6. Determine optimal reserve designs involving acquisition of particular sites, higher levels of conservation, management prescriptions and restoration activities
7. Begin monitoring respective locations and sites
8. Update site records as more inventory information becomes available
9. Update priority list on an annual basis

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page 14

Step B.3 & B.4. "Develop GIS-based prioritization methodology..."

**Step B.3. Secure at least 10 priority sites within 5 years**

- a. Distribute priority site list to governmental and non-governmental agencies
- b. Develop site securement strategy
- c. Implement site securement strategy

**Step B.4. Develop GIS-based prioritization methodology and site list**

- a. Investigate different site prioritization methodologies
- b. Select, adapt, or develop prioritization model
- c. Run model and develop revised list of priority sites

problem:

- The RAG cannot actually go out and secure -- if only because we are not a body that can own or manage the way a government agency or an NGO can. We have an intermediate role between the overall GOERT strategy and the various groups and stakeholders involved in or affected by the conservation.
- The ten conservation priorities will often involve areas and landscape units consisting of multiple sites (and ownerships). I suggest that it would be clearer hear to refer to these priorities as areas or landscape units (and not as sites) because within these areas, there will probably be several, even numerous, sites that warrant different treatment (from purchase to covenants to management).
- Developing a "**GIS-based prioritization methodology and site list**" will probably take up a large amount of the time of both the inventory RAG and the Conservation Planning and Site Protection RAG. Consequent, I think that it is

worth spelling out the importance of this activity -- especially when it comes to obtaining more funding in coming years.

suggested rewrite:

**Step B.3. Work towards the expansion of the network of Garry oak ecosystems protected areas and secure protection for at least 10 currently unprotected areas within 5 years**

- a. Develop a protected area network vision for Garry oak ecosystems in British Columbia
- b. Advocate for the need for a network of protected areas for Garry oak ecosystems within British Columbia
- c. Distribute priority site list to governmental and non-governmental agencies
- d. Develop Garry oak landscape protection strategies for each priority area involving measures for protection, site securement, acquisition and covenants where appropriate, management and restoration
- e. Work for the implementation of individual landscape protection strategies and their continued integration into the broader Garry oak ecosystems conservation initiatives and into other programmes

**Step B.4. Develop GIS-based prioritization methodology and site list**

- a. Review the work of the CDC to date on conservation of Garry oak ecosystems and associated species
- b. Review other site prioritization, conservation planning and reserve design methodologies and software -- particularly those used for conserving biodiversity in other landscapes dominated by Garry oak and Douglas fir
- c. Select, adapt, and develop a framework for conservation gap analysis, determining priorities for additional sites for protection, and design of reserve cores, buffers and corridors
- d. Develop and test a GIS architecture compatible with the CDC
- e. Transfer data from the CDC and other GOERT participants
- f. Carry out an initial exercise and evaluate effectiveness of the systems and particular procedures
- g. Carry out formal conservation planning exercises for setting protection priorities
- h. Periodically repeat the conservation planning exercise, around ranking sites, as more data is entered into the GIS and is up-dated

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page 16

Step C.5 "Establish a network of landscape linkages..."

**Step C.5. Establish a network of landscape linkages to connect protected areas of Garry oak and associated ecosystems with each other and with other ecosystems**

For landscape linkages along hydro and transportation corridors:

- a. Designate target highway, railroad, and hydro corridors
- b. Establish links with integrated vegetation management programs in other jurisdictions
- c. Initiate consultations with managers of highway, railroad, and hydro corridors
- d. Develop best management practices and other publications about management of these corridors as landscape linkages
- e. Offer workshops to managers
- f. Assist managers to develop integrated management plans for target corridors
- g. Apply adaptive management wherever possible

For landscape linkages along streams and shorelines:

- a. Designate target streams, shorelines, and associated upland areas
- b. Establish links with stream-, shoreline-, and watershed-based stewardship groups, Department of Fisheries and Oceans, and Fisheries Renewal
- c. Develop publication about restoration and management of streamside and shoreline terrestrial habitat as landscape linkages
- d. Offer workshops to stewardship groups
- e. Assist stewardship groups to develop integrated management plans for target streams
- f. Apply adaptive management wherever possible

For landscape linkages along recreational trails and greenways:

- a. Designate target recreational trails and greenways
- b. Establish links with trail and greenways managers
- c. Develop publication about management of trails and greenways as landscape linkages
- d. Offer workshops to trails and greenways managers
- e. Assist managers to develop integrated management plans for target trails and greenways
- f. Apply adaptive management wherever possible

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problem:

- This section is just a bit difficult to follow in large part because there are three different kinds of linkages discussed.
- I doubt that making linkages along hydro and transportation corridors will be very significant in the long-term. I suggest putting that kind of linkage third.

suggested rewrite:

**Step C.5. Establish a network of corridors to connect protected areas of Garry oak and associated ecosystems with each other and with other ecosystems.**

- Corridor planning and design will follow development of a protected area network concept for Garry oak ecosystems in British Columbia.
- Corridors planning and design will follow the initial conservation planning exercises with gap analyses and determination of priorities for areas of additional protection.
- Corridor planning and design will be an integral part of the same phase where boundaries for protected area cores and buffers are designed.
- The following activities will be key to development of different kinds of corridors.
  1. For landscape linkages along streams and shorelines:
    - a. Designate target streams, shorelines, and associated upland areas
    - b. Establish links with agencies such as federal and provincial ministries, the regional districts, the municipalities, and Islands Trust along with community-based stewardship groups.
    - c. Advocate zoning and other permitting constraints for sites with Garry oak ecosystems and associated species
    - d. Advocate better site planning for any change in such key corridors
    - e. Develop reports and publications oriented to government agencies and community groups
    - f. Offer workshops to personnel from government agencies and members of stewardship groups
    - g. Assist stewardship groups to develop integrated management plans (and better site planning) for target streams and shorelines
    - h. Assist in the development of covenants for protection of Garry oak ecosystems

- i. Advocate and provide support for adaptive management wherever possible
2. For landscape linkages along recreational trails and greenways:
  - a. Designate target recreational trails and greenways
  - b. Establish links with trail and greenways managers
  - c. Develop publication about management of trails and greenways as landscape linkages
  - d. Offer workshops to trails and greenways managers
  - e. Assist managers to develop integrated management plans for target trails and greenways
  - f. Apply adaptive management wherever possible
3. For landscape linkages along hydro and transportation corridors:
  - a. Designate target highway, railroad, and hydro corridors
  - b. Establish links with integrated vegetation management programs in other jurisdictions
  - c. Initiate consultations with managers of highway, railroad, and hydro corridors
  - d. Develop best management practices and other publications about management of these corridors as landscape linkages
  - e. Offer workshops to managers
  - f. Assist managers to develop integrated management plans for target corridors
  - g. Apply adaptive management wherever possible

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page 21, mid-way down

**Step E.1. Establish a research RAG and prepare a research RAP**

**Step E.2. Promote and facilitate research on priority topics**

- a. Establish links with universities throughout British Columbia and colleges throughout southeastern Vancouver Island and with federal and provincial research agencies
- b. Distribute list of priority research topics to appropriate academic departments and faculty members and to agency researchers
- c. Review research proposals upon request
- d. Support funding applications for relevant research proposals
- e. Expand the library collection pertaining to Garry oak and associated ecosystems at the Royal British Columbia Museum

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- f. Review research results and adjust or expand the recovery program in accordance with the new information if appropriate
- g. Distribute relevant research results to recovery partners

problem:

- There are a few gaps in this passage as a terms of reference for the Research RAG.
- There is the need to take leadership in setting research standards that support conservation biology research.
- Organizing procedures for and conducting peer review of funding proposals, that manage potential conflicts-of-interest consistent with national standards, is a crucial function of this RAG.
- There is identifying gaps in current research programmes (where they are relevant).
- There is identifying funding that is available and in advocating more funding for priority research topics.

suggested rewrite:

**Step E.1. Establish a research RAG and prepare a research RAP**

- a. Highlight the need for applied conservation biology research related to these ecosystems, species, locations, aboriginal and more recent land use histories -- along with topics relevant to respective conservation planning, habitat protection and management and ecosystem restoration.
- b. Provide leadership in setting research standards that support the necessary conservation biology research.
- c. Identify gaps in relevant research programmes (such as NSERC, SSHRC, and funds administered by NGOs).
- d. Identification of funding that is available.
- e. Advocating more funding for priority research topics.
- f. Organizing procedures for and conducting standard peer review of funding proposals -- that minimize potential conflicts-of-interest consistent with national standards.

**Step E.2. Promote and facilitate research on priority topics**

- a. Establish links with universities throughout British Columbia and colleges throughout southeastern Vancouver Island and with federal and provincial research agencies

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- b. Distribute list of priority research topics to appropriate academic departments and faculty members and to agency researchers
- c. Review and organize reviews of research proposals upon request
- d. Evaluate and, where appropriate, support funding applications for relevant research proposals
- e. Expand the library collection pertaining to Garry oak and associated ecosystems at the Royal British Columbia Museum
- f. Review research results and adjust or expand the recovery program in accordance with the new information if appropriate
- g. Distribute relevant research results to recovery partners

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page 40

Second full paragraph:

"Garry oak ecosystems may play an important role in the treaty process currently..."

Garry oak ecosystems may play an important role in the treaty process currently in progress between local First Nations, the Government of British Columbia, and the Government of Canada. The historical importance of Garry oak ecosystems for the culture and economy of local First Nations may be key considerations in the treaty negotiations. Public lands currently under Crown ownership, including Garry oak sites, may be transferred to First Nations. Camas harvests and other traditional uses may be reinstated on lands retained by the Crown as well as transferred lands. The importance of protecting and restoring Garry oak ecosystems as a land base for such activities should be imparted to treaty negotiators on all sides of the table. Restoration and management strategies should be developed, in collaboration with First Nations, that incorporate traditional uses. Of particular concern is the development of strategies to ensure that the health of those consuming harvested resources is not compromised by site contamination.

*Suggested actions for completing this step include:*

- a. Establish links with First Nations with traditional territories that include Garry oak or associated ecosystems;
- b. Distribute information about Garry oak ecosystems and the species at risk in them to the First Nations; and
- c. Provide financial and technical support for research and management programs related to Garry oak and associated ecosystems;

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- d. Distribute information about Garry oak ecosystems and traditional uses of the ecosystems to treaty negotiators representing local First Nations, the Government of British Columbia, and the Government of Canada;
- e. In collaboration with local First Nations, develop restoration and management strategies that incorporate traditional uses of Garry oak ecosystems; and
- f. Develop strategies to ensure that the health of those consuming harvested resources is not compromised by site contamination. Strategies may include soil analysis to identify contaminated sites, prevention of ongoing or potential future contamination, site cleanup, or other measures.

problem:

- This is only relevant to the First Nations of the Georgia Basin. I think that this is worth clarifying so that this important passage is not misunderstood.
- Even when a Garry oak area is not in question, in treaty negotiations, First Nations could choose to intervene for better or more traditional management. I have added a sentence recognising this.

suggested rewrite:

"Garry oak ecosystems may play an important role in the treaty process currently..."

Garry oak ecosystems may play an important role in the treaty process currently in progress between local First Nations of the Georgia Basis, the Government of British Columbia, and the Government of Canada. First Nations with or without treaties may choose to assert more influence over the management of traditionally harvested and managed areas with Garry oak ecosystems. In addition, the historical importance of Garry oak ecosystems for the culture and economy of First Nations in the Georgia Basis may become key considerations in the treaty negotiations. Public lands, some with Garry oak ecosystems, may, one day, be transferred to First Nations. Camas harvests and other traditional uses may be reinstated on lands retained by the Crown as well as transferred lands. The importance of protecting and restoring Garry oak ecosystems as a land base for such activities should be imparted to treaty negotiators on all sides of the table. Restoration and management strategies should be developed, in collaboration with First Nations, that incorporate traditional uses. In this respect, assessment and restoration of Garry oak ecosystems to ensure that there is no contamination of food resources is a high priority.

*Suggested actions for completing this step include:*

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- a. Establish an ongoing contact list of First Nations with historic and contemporary interests in lands with Garry oak ecosystems and with associated site for food, technology, spiritual or other significance;
- b. Establish links with all First Nations with traditional territories that include Garry oak and associated ecosystems;
- c. Support First Nations in protecting traditional knowledge related to Garry oak ecosystems, respective species, and respective harvesting and management practices;
- d. Distribute information about Garry oak ecosystems and associated species at risk to all of these First Nations;
- e. Provide technical support, exchanges, and training (where needed) for conservation of these ecosystems and species on lands currently managed by First Nations;
- f. Provide financial and technical support for research and management programs related to aboriginal management of Garry oak and associated ecosystems;
- g. Distribute information about Garry oak ecosystems and traditional uses of the ecosystems to treaty negotiators representing local First Nations, the Government of British Columbia, and the Government of Canada;
- h. In collaboration with local First Nations, develop restoration and management strategies that incorporate traditional uses of Garry oak ecosystems; and
- i. Develop strategies to ensure that the health of those consuming harvested resources is not compromised by site contamination. Strategies may include soil analysis to identify contaminated sites, prevention of ongoing or potential future contamination, site cleanup, or other measures.

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- Please note, the 'Securement RAG' would prefer to be called the Conservation Planning and Site Securement RAG.
- 'Securement' is perhaps not the best term to use for some of the passages in this document -- when there are more precise words such as 'protection', 'acquisition', 'reserve design', and 'site planning'. I suggest using 'securement' a few times in the document but also substituting it for such words as 'protection', 'acquisition', 'reserve design', 'site planning' -- alone, together and in selective groups where that seems more appropriate.
- 'Securement' is used on the following pages in ways where the substitution of 'protection', 'acquisition', and 'reserve design' would probably be clearer: [iv](#), [vi](#), [14](#), [30](#), [32](#), [33](#), [52](#), [95](#).
- The Securement RAG and RAP are mentioned on the following pages:

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where the name the group chose, 'Conservation Planning & Site Protection RAG', would be preferred.