Tracking Rare Native Vascular Plants in British Columbia

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ABSTRACT

The British Columbia Conservation Data Centre (CDC) is currently tracking >600 rare native vascular plant taxa in the province. This overwhelming number, about 25% of our entire native flora, requires careful prioritization to maximize the efforts of a limited staff and a restricted budget. The highest priority goes to the 241 Red-listed plants, whose habitats are either threatened or endangered. Little is known about the abundance and condition of populations of these critical taxa, and inventory is therefore much needed. In recent years, intensive field surveys have vastly increased the knowledge and occurrences both for critical areas and specific taxa. In many cases, the CDC database has increased tenfold for these areas and taxa. This inventory has also enabled a number of taxa to be de-listed.

Key words: abundance, inventory, populations, rare plants, tracking, vascular plants.

The British Columbia Conservation Data Centre (CDC) is currently tracking >600 rare native vascular plant taxa in the province, which is about 25% of our entire native flora. Rare plants are categorized[1] by the CDC as Red-listed or Blue-listed, according to their abundance, the quality and condition of their populations, the potential threats to their survival, and whether or not they are present in protected areas in British Columbia. Once this information is known for each taxon, efforts can be prioritized. There are 241 Red-listed rare plants and 359 Blue-listed rare plants. The Red List contains the threatened or endangered plant taxa, the high priority taxa, whereas the Blue List contains those taxa that are vulnerable. Our knowledge to date was derived from a thorough survey of the major herbaria in Canada, pertinent literature, and accounts from field botanists. Ongoing inventory and participation from field workers is constantly needed to update our tracking list and keep it accurate. Less than half of the taxa on the tracking list have been adequately surveyed, and there has been little participation outside of the CDC and its contractors. Knowing this, and the fact that little research has been done on native vascular plant taxa in British Columbia, it is difficult to accurately describe the state of the rare flora.

The status of the most critical taxa (Red List) is better known than those on the Blue List. The Red-listed taxa are each known from ≤6 sites in the province, and usually occur in areas of heavy resource use or urban development, whereas the Blue-listed taxa are known from ≤21, but >6, sites, and are not endangered. Inventory efforts since the CDC was founded have been focused on the critical taxa, but have also included some vulnerable taxa as well. These studies have resulted in great advances in what is known about the taxa's conservation status. In some cases, a plant that was once thought to be Red-listed turned out to fall in the vulnerable category following intensive inventory. For example, Scouler's corydalis (*Corydalis scouleri*) was once thought to be endangered, but will now be considered vulnerable due to the findings from an extensive inventory in the Nitinat and Klanawa river valleys and the compilation of a status report. Other examples include the down-listing of the great chain fern (*Woodwardia fimbriata*), the coastal wood fern (*Dryopteris arguta*), and Howell's montia (*Montia howellii*), all rare plants from the Gulf Islands.

There have also been a number of vulnerable taxa that have recently been de-listed as a result of field work; these are Nuttall's quillwort (*Isoetes nuttallii*), tiny mousetail (*Myosurus minimus*), Newcombe's butterweed (*Sinosenecio newcombei*), and Ussurian water-milfoil (*Myriophyllum ussuriense*). These taxa are now known from >21 sites, most of which are not in danger of being destroyed. De-listing these species gives us the opportunity to focus on the truly rare plants. *Sinosenecio newcombei*, although completely

[1] The CDC is part of an international conservation network, The Nature Conservancy of the United States, which has a highly organized set of procedures for ranking rare elements and prioritizing conservation efforts. In addition to the Red and Blue lists, B.C. Ministry of Environment, Lands and Parks designations, and state and global ranks are also assigned to the rare taxa in compliance with The Nature Conservancy procedures.

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restricted or endemic to the Queen Charlotte Islands, is so common on the islands that it no longer fits the necessary criteria to be tracked as a rare plant. There are no apparent threats to the 57 known occurrences. There are also likely many more occurrences than we already know about on the islands. Unfortunately, the CDC is too limited in staff and resources to track plants that fall short of the Blue List but are regionally important.

Despite all the de-listing, there are still 241 endangered or threatened plants to consider. Some of the rarest plants on the tracking list are only known from 1 site; there are 103 of these on the list. In these cases, there are 2 possibilities: either the plant is extremely rare and endangered, in which case its existence is extremely precarious; or it has been poorly surveyed and a few more sites may eventually be discovered. The southern maidenhair fern (*Adiantum capillus-veneris*) occurs in only 1 site, likely in part due to its habitat specificity; it only occurs at a hotsprings seepage at Fairmount Hotsprings. There are other hotsprings localities in the province, so it may also be that its dispersal ability is limited. Other plants that are only known from 1 site include buff daisy (*Erigeron ochroleucus* var. *scribneri*), western wahoo (*Euonoymus occidentalis*), and dwarf hesperochiron (*Hesperochiron pumilus*). The former was collected for the first time in British Columbia in the Elk River valley in extreme eastern British Columbia by Hans Roemer in 1996, and will probably be found in more sites in the future. Both *E. occidentalis*, known only from Courtenay, and *H. pumilus*, which has only been found near Salmo, have been documented for several years, and no more sites have been discovered. It is less certain that they could be found in more sites.

The tracking list statistics indicate that there is a problem. Why are there so many threatened and endangered plants in British Columbia? Furthermore, what is being done about it? Development pressure and the altering of habitats are the biggest threats, which mainly apply on private lands. Therefore, protected areas created from Crown lands miss the mark for rare plants in British Columbia. Regional parks have also been problematic. Other solutions are needed.

One of the reasons for these overwhelming statistics is that there has been a great deal of habitat loss over the past century. There are several species in the development "hot spots" that have a number of sites reported from the turn of the century, but only exist in a few or none of these at this time. Development "hot spots" include southeastern Vancouver Island, greater Vancouver (including the whole Fraser valley), the south Okanagan, and some areas in the Kootenays. Other major threats in general include grazing, introduced species, agriculture, and other forms of habitat alteration. There are 4 taxa that have been extirpated and 30 taxa that are historic (last observed before 1950) in British Columbia. Historic taxa may be extirpated or may have merely evaded collectors for decades. Historic taxa are generally found in heavily developed areas or habitats that have been extremely altered, thus lending support to their being extirpated. The statistics are not reassuring.

There has been a general lack of awareness of the plight of rare species and lack of planning for their persistence in areas of heavy urbanization demands. Regional parks especially have fallen short in providing adequate protection. A population of prairie lupine (*Lupinus lepidus* var. *lepidus*) was destroyed in Beacon Hill Park in Victoria in 1994 when workers removing old posts from along the road bank unknowingly wiped out its habitat. A population of coast microseris (*Microseris bigelovii*), a plant in the sunflower family, was also destroyed in a regional park when a bench was placed over top of it.

Another example of the lack of procedure in place for sound management in regional parks occurred in Uplands Park, Victoria. A fire truck drove into the middle of the park to service a fire hydrant in winter making tire ruts in a large vernal pool, which is home to a host of rare plants; after a complaint was made, they decided to fill in the ruts with gravel, which was quite destructive to its inhabitants.

Therefore, it is clear that some parks do not afford much protection for rare plant populations. Strict guidelines regarding proper management for species and their habitats need to be prepared and utilized. A major component of this is communicating the management strategies to all levels within the organization, from the director down to the people doing work in the parks. Part of the procedure also has to involve consultation with the CDC or knowledgeable individuals or organizations.

This lack of awareness and action to eliminate threats to rare taxa exists not only at the regional level, but also within the provincial government, which has had, and continues to have, protected areas strategies and our program, the CDC. However, we still have too many rare taxa and little protection for them. Only one-quarter of the Red-listed taxa occur in protected areas in the province, and only 10% of their populations fall in these protected areas.

Although inventory is still needed, it not a lack of information (which is housed in the CDC and available to anyone that asks for it) that accounts for the overwhelming number of rare plants. Nor is it due to the fact that there is no protected areas strategy in the province, because there are programs in place. The problem lies in the fact that most occurrences of rare taxa in the province are found on private land, as opposed to lands owned by the Crown. Therefore, 1 of the biggest concerns overall is the lack of endangered species legislation, which could address rare plants on private lands and their habitats.

We are now nearing the year 2000 and neither British Columbia nor Canada have any rare species legislation in place. The Canadian bill that has been proposed, still has not passed and would only protect those taxa on federal lands in

British Columbia. This greatly reduces the ability of this bill to effectively address the threats to our rare and endangered plants in the province. Legislation at the provincial level would be much more desirable. Ontario and Manitoba have rare species legislation that protects plants. In Ontario, plants must be listed by the Committee on the Status of Endangered Species in Canada (COSEWIC) in order to be protected, and they may occur on either private or public lands. Although this is a very political process that takes quite a lot of time to see through to the end, it is still a very strong act. Likewise, Arizona has had rare species legislation since 1929. In addition, the United States as a whole has a strong endangered species act.

Without rare species legislation there is not much hope for rare plant taxa in British Columbia. The efforts of groups such as The Land Conservancy, The Nature Trust, and the Nature Conservancy of Canada are the best tools that we currently have to protect rare plants on private land. However, purchases by these groups to date have only affected a small percentage of our rare plant occurrences. Land stewardship programs and covenants, which are usually associated with legislation, although not in British Columbia, would be another effective tool. Covenants to protect rare plants do exist, but are not common in the province. Therefore, there is currently no strong program in place to adequately protect rare plants. There is still much work to do to convince the policy-makers that legislation is the only tool that could adequately protect rare plants and that it is a worthwhile cause. Ultimately it means protecting biodiversity in the province of British Columbia.