

Concerns with the Removal of Naturalized Plants in the Lower Fraser Valley

by Kevin Bell and Al Grass

For the past 15 years or so, local naturalists, birdwatchers among them, have been observing the removal of naturalized plants from parks in the Lower Fraser Valley by certain public and private organizations, societies and individuals. Some work we have seen is admirable, but other work appears to be unintentionally destructive in more than one way, and this has given us much food for thought. To ensure the preservation of a healthy ecosystem for B.C.'s native wildlife, we are setting out our concerns here in the hope of encouraging others to provide input on the removal of naturalized plants and how this is carried out. It would be of great interest to hear the views of entomologists, lepidopterists, mammalogists, fish habitat and habitat restoration specialists on these ongoing projects. To effect sustainable changes in removal practices and work procedures, an exchange of ideas is required.

This article does not touch on the use of herbicides by public and private organizations in the Lower Fraser Valley. That is a major concern, and may be the subject of a later article. And constraints of space mean that *Discovery* cannot publish lists of naturalized plants and of the animals that make use of them. They can be found at www.naturevancouver.ca, the society's website, together with a much more extensive Bibliography than the one at the end of this article.

The Lower Fraser Valley (Hope to Vancouver, the North Shore to

the U.S. border) has been totally altered over the past 200 years. In the 1800s, the landscape was a huge flood plain covering over 2,000 square kilometres, made up mostly of river channels, lakes, sloughs, bogs and large areas of shrub-grasslands, salt marshes, wooded swamps, and islands of old-growth coniferous forest. Now it is diked and gentrified, with drained farmlands, urban developments, airports, seaports and roads. Yet the changes are not entirely negative, even for wildlife. The destruction of the natural flood plain ecosystems is exemplified by the loss of over 400 sq. km of Pacific crab apple swamps and marshes, which were especially important as winter food for songbird species. Each crab apple shrub retained between 15% to 20 % of its apples well into December and January, not in a solid, hard form but well softened by



Bewick's Wren.
Photo by Al Grass

frosts into a mushy food. The pulp and seeds, although few in number on each shrub, were found in great quantity in the crab apple marsh and swamp thickets. But they have been replaced in part by introduced European berry-bearing shrubs that all have masses of berries on each shrub, which they retain well into, and often through, winter. These well-naturalized shrubs are both urban and rural, and include holly from commercial holly farms and private gardens; cherry from commercial cherry orchards; hawthorn from the acres of farm hedge rows planted; and pyracantha, cotoneaster species, and ivy, all used in gardens, in landscaping zones beside highways, and around commercial offices, warehouses, and government buildings¹.

Several thousand plant species have been introduced to B.C. from around the world. Called "exotics" because they are from other places, they range from grasses, clovers, and other herbaceous species (most connected with agricultural uses) to shrubs and trees (through the horticultural trade). Some but not all of these exotics are invasive, that is, they take over large areas formerly covered with native plants; and among them are those species of exotic grasses that adapt to open

disturbed soils, making them ideal for producing pasturelands for livestock. Are these foreign plants, naturalized now like so many of B.C.'s human inhabitants, necessarily harmful and useless for wildlife or for humans?

New Biodiversity

Many of the plant species being removed have a large number of wildlife uses:

- Naturalized berry-producing shrubs and trees (over 21 species) provide food to over 38 native bird species, plus mammal species, including voles, mice, squirrels, bears, raccoons, and deer. Some of these shrubs (e.g., hawthorn, holly and cotoneaster spp.) keep their berries well into late winter when they provide vital sustenance for wild bird species.

- Naturalized shrubs, trees and herbaceous plants (Himalayan buddleia, Policeman's helmet/Himalayan balsam, ivy, etc.) provide nectar for butterfly, bumble bee and other insect species, and hummingbirds.

- The seeds of naturalized plants form an important part of the diet of native bird and mammal species from rural to urban areas. Some known examples are American Goldfinches feeding on Canada (not native) and bull thistles; Douglas squirrels nut-hatch and chickadee species on Norway spruce seeds; sparrow, finch and towhee species on naturalized blackberries.

- **Blackberries:** the exceptionally dense and long interwoven growth of the two naturalized species (Himalayan and evergreen) provide protection, shelter, and food in winter for over 40 species of native birds. The long arching growth of the stems produce many igloo-like shelters that

¹ The bases for this paragraph are Barry Leach's *Waterfowl on a Pacific Estuary*, 1985. B.C. Provincial Museum, Special Publication No. 5, Victoria, and the *Historical Vegetation, Methodology, Base Map* compiled by M.W. Dunn and L.A. Decker, edited by M.A. Ward, for the Lands Directorate, Environment Canada, 1979. The map was traced by K. Bell, and the vegetation zones measured to calculate approximately the extent of the Pacific crab apple. This is a tree that likes moisture at the roots, tolerates brackish and even salt water, and hates shade.

keep the frost and snow from reaching the ground underneath the blackberries. These unfrozen soils and leaf litter provide birds and small mammals with areas to hunt for seeds, insect and spider eggs, pupae, and worms in cold, mid-winter weather.

In the heart of cities and towns, the two naturalized blackberry species arrive in the droppings of birds. Both species grow well in poor soils in back alleys, the corners of parking lots, railway rights-of-way, and undeveloped lots. In many parts of a city, they are the only shrub cover. Other species arrive in the wind or with birds. Mountain ash, Asian buddleia, native cascara and elderberry are examples of plants that grow up in the shelter of the blackberries. This is the only habitat available for small songbirds in many urban and suburban areas.

The juicy berries of the blackberry are used by butterflies, warblers and hummingbirds as a source of energy. They pierce the skin of the berry and drink the juice. These feedings by Orange-crowned, MacGillivray's and Yellow-rumped Warblers, and Anna's Hummingbirds have been observed in August and September.

Human Interventions

Once the general public is invited to take part in ripping up plants that they are told are evil, then environmental damage can occur all too easily. It could be argued that the naturalized plant removal projects are set up for the general public who are worried about the deteriorating environment but do not know what they can actively do to help. These projects provide them both with directions on how to rip out some "evil plants that are kill-

ing their environment" and with a family outing on a warm spring day. It is a useful safety valve for public worry and concerns, for it redirects their environmental concerns from the big negative environmental issues to an actionable project that makes them feel good. The concerned citizen can take action and do something about environmental problems, but the trouble is, such actions may well be causing more damage than good for our native wildlife.

The pulling down or up of ivy, blackberries, and holly, among other naturalized species, between March and August, destroys the active nests of wild birds. In southwestern B.C. over 56 species can be negatively impacted. Experienced ornithologists point out that it is not possible to find all the active bird nests in a given area. Birds have been hiding their nests for thousands of years from many predators: mammals (weasel, raccoon, skunk, squirrel, fox, coyote, etc.), birds (Steller's Jay, crow, raven, woodpecker species, etc.), and quite specifically, brood parasites (Brown-headed Cowbird). These are the real experts at finding ac-



*Golden-crowned Sparrow.
Photo by Al Grass*

tive nests; their survival depends on it, and no human being is going to outdo these species in nest finding. To suggest that a group of untrained public volunteers with no idea of where nests are located are going to find nests is absurd. In situations where volunteers are cutting, pulling up, ripping down, and stomping on invasive species, the likelihood of people accidentally standing on the nests is high. This impact contravenes the Federal Migratory Birds Convention Act, which protects active nests of migratory songbirds.

Poor training and supervision of public volunteers may also result in the mistaken removal of native species that can be confused with the naturalized species, such as dull and tall Oregon-grape instead of holly, fireweed and hardhack instead of purple loosestrife, salmon and thimbleberries, and the other native *Rubus* species instead of the two naturalized blackberry species.

Despite the foregoing remarks, positive contributions to the maintenance of our parks and wilderness areas are being made. There are specific sites (e.g., Lighthouse Park, West Vancouver) where a group of knowledgeable, trained people have been undertaking a well researched and organized management plan for controlling naturalized species and replacing them with native species. These operations are conducted without the destruction of active bird nests or other wildlife.

Sustainable Action

From time to time, it is, of course, necessary to remove or restrain invasives in our parks. One of the purposes of parks, after all, is

to allow people to enjoy nature. But when an extraordinarily aggressive invasive like Japanese knotweed and its equally aggressive rival, the blackberry plant, both monocultures, take over huge areas, overwhelming other plants and closing trails, it is time to take action. Knotweed, not useful for wildlife so far as we know, is extremely difficult to eradicate because of its root system. Blackberry bushes are less difficult, but restraint and control are much more desirable than eradication because of their value to wildlife. Blackberry plants produce new long shoots each year, and fruit on the previous year's growth; the new shoots will root if allowed to, extending their territory with great rapidity by 5 m or more in a season, so it is desirable to prune them, which also encourages a better crop of berries for the following year, a most desirable outcome for the wildlife.

The best time of year to remove most plants is in the fall and winter when the roots can be exposed to frosts. Replanting can also be done during mild weather spells during this time. Herbaceous species can be marked with stakes and name tags and the roots removed between September and February.

Replanting of the naturalized plant removal sites should be done the same day—removal in the morning, replanting in the afternoon. If the site is left unplanted, it will be colonized with new naturalized species that are less useful to wildlife, wasting the time of the volunteers who will have removed useful naturalized species. One such outcome involved Blackie Spit Park, where blackberries were removed and the area was taken

over by creeping buttercup and greater bindweed. Watering the first summer after planting, and protection against encroachment by other plants should be planned for.

Replanting with native species of proven wildlife usefulness is very important. Too often native species with low use for wildlife are planted. Snowberry (*Symphoricarpos albus*), on which the berries are left all winter, is generally little used by wildlife species. The shrub is easy to walk through and quickly broken down by people and dogs, so it offers little protection to nesting birds. Plants like Pacific crab apple, on the other hand, are enjoyed by hummingbirds and many other species of wildlife, and give pleasure to humans as well.

An enormously useful activity for volunteers is the ongoing clean-up of parks and beaches. Plastics do not decompose naturally (they last for hundreds of years) but instead become very brittle and break up into microscopic bits that enter the food chain causing many types of cancers in all life forms.

In contrast, some of us are much too orderly. Our idealized garden and landscaped area is a trim, tidy growth of lines or groups of the same species of flowers and shrubs. We have created ideal habitat for some species and eliminated habitat for others. Some demand that Northwestern Crows be shot to control their population, because the crows destroy and eat songbird eggs and young. The fact is, our provision of food (landfills, garbage dumpsters and grain terminals), and our creation of ideal habitat for crows (open fields, gardens, and parks with scattered trees) are the

reasons for their increase in population. We then destroy the rough hedgerows and the thick tangles of shrub growth where small songbirds hide their nests and themselves from crows and other predators. We do this because the shrub tangles look untidy and are considered invasive. So it is through habitat destruction that we are destroying our songbird species.

Let us, therefore, control our desire for excessive order and cultivate a more hospitable environment: let us cultivate the blackberry thicket. The greater the number of shrub species mixed in with the blackberry thicket the more species of birds, mammals and insects will find food there. But be careful: there is a point where the protection and shelter given by the blackberry is lost due to the number of other plants. The shape of the thicket, its design, and the position of the other plants in it are most important. It is best if the exterior of the thicket is blackberry mixed with other species in the central area, thereby maximizing the protection given by the blackberry.

The Future

After 200 years of drastic landscape changes, some of the thousands of introduced plant species have become very useful to our native wildlife species, and these plant species must be identified and treated with respect. Independent field studies should also be undertaken for each of the introduced plant species considered to be a problem. European ivy, for example, should be studied in a number of habitats such as red alder/black cottonwood forests; on the forest floor; growing up trunks

or on fallen trees; in Douglas-fir/western redcedar/hemlock forests; on walls; by roads and buildings; and as part of a mix of species in rural hedges. This would provide information on ivy growth, its effect on other plants, and how insects and mammals make use of it. Then we would know what we are doing when we attempt to eradicate (or cultivate) it.

Over the next 50 years, the impact of climatic warming on the plant communities of southwestern B.C. needs to be considered. The forecasted wetter winters and drier summers will result in a slow but marked reduction in tree species like black cottonwood, red alder, western red-cedar, western hemlock, Sitka spruce, vine and big-leaf maples, and many species of shrubs and herbaceous plants. The introduction of many exotic plant species may be required to provide new plant communities that are sustainable in the new climatic regime. Under this scenario, we may need some of those naturalized exotic species that we are now ripping out. Our energies at this time might be better directed at looking south to Oregon and California plant communities that would adapt well to our new climate regimes.

Principal Works Consulted

- Campbell, R.W., N.K. Dawe, I. McT. Cowan, J.M. Cooper, G.W. Kaiser, M.C.E. McNall & G.E. John Smith. 1990/1997. *The Birds of B.C.* Vols. 1-4. Royal B.C. Museum/University of B.C. Press, Victoria and Vancouver.
- Global Invasive Species Database*. The Invasive Species Specialist Group (ISSG); A group of Species Survival Commission (SSC) of the World Conservation Union (I.U.C.N.); <http://www.issg.org/database> (accessed 16 Sept 2008).
- Leach, B. 1985. *Waterfowl on a Pacific Es-*

- tuary*. B.C. Provincial Museum, Special Publication No. 5, Victoria.
- Martin, A & C., H.S. Zim & A.L. Nelson. 1961. *American Wildlife and Plants: A Guide to Wildlife Food Habits*. Dover Publications, New York, NY.
- Snow, B & D. 1988. *Birds and Berries*. Poyser, Calton, Scotland.
- Ward., M.A. (ed). *Historical Vegetation, Methodology, Base Map* compiled by M.W. Dunn and L.A. Decker, Lands Directorate, Environment Canada, 1979, Ministry of Supply and Services, Hull.
- A full bibliography can be obtained from Kevin M. Bell at sonbel@shaw.ca.

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Al Grass, together with his wife, Jude, have been members of the VNHS since 1968. Al grew up near Burnaby, and nature was always a big part of his life. He became a provincial parks branch employee, starting in 1968 in Manning Park. Over a span of 30 years, he travelled throughout B.C. as a career naturalist and ranger. All aspects of nature interest him – he has published a formidable list of articles on every conceivable subject in Discovery, Vancouver Naturalist and NatureWild, the magazine for the Young Naturalists of British Columbia. He is well known as a teacher and tour leader, and as a wildlife photographer.