Human-Bear Conflict Management Plan

for the

District of Ucluelet

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Disclaimer

This plan has been prepared to help address the risks of human-bear conflict within the District of Ucluelet using the most recent information and expertise available. It sets out a course of action that may need to be adapted to changing circumstances over time. As such, the authors assume no liability for the application or outcomes of the recommendations herein.

Acknowledgements

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Executive Summary

The Human Bear Conflict Management Plan for the District of Ucluelet was commissioned by the West Coast Bear Aware Committee with financial support from the B.C. Ministry of Environment's Bear Aware Program and the District of Ucluelet. The plan has been developed in consultation with those who will be responsible for implementing it, namely, the District's Chief Executive Administrator, Planner, and Bylaw Enforcement Officer; the Mayor and a representative Council member, the West Coast Bear Aware Committee (WCBAC), the local garbage contractor, wildlife specialists at Pacific Rim National Park Reserve of Canada (PRNPRC), the local Conservation Officer, the Ucluelet Elementary School principal and maintenance staff, the campground manager, and several business owners.

The goal of the plan is to set forth pro-active steps for managing waste, developing land, and maintaining green space in ways that will enable people to live safely with bears within the District of Ucluelet. These steps follow directly from the recommendations of an independently prepared Bear Hazard Assessment, completed in January, 2006. Implementation of these recommendations through the Conflict Management Plan is required to achieve Bear Smart Community Status.

The first step toward implementing the plan is to have it carefully reviewed and accepted by those responsible for overseeing its implementation. Mayor and Council need to adopt the waste management, development planning and greenspace management sections and amend their policies and bylaws accordingly. The West Coast Bear Aware Committee needs to adopt the section on education. The School District, and the Campground Manager need to act on the garbage and greenspace management recommendations that pertain specifically to them. Pacific Rim National Park Reserve of Canada and the local Conservation Officer need to follow through on their commitments to help the West Coast Bear Aware Committee and District staff implement the plan and monitor its effectiveness, in addition to responding to bear problems that arise. Every individual in the community needs to take responsibility for preventing bears from becoming food-conditioned or habituated to people. We all have a role to play if we are to become a "Bear Smart Community".

A summary of the steps for achieving each of the recommendations from the Bear Hazard Assessment follows each of the main sections in the report. The priority actions are to bear-proof garbage and food attractants, and set aside habitat for bears as District lands are developed. By committing to this plan, the District will replace all municipal receptacles with animal-proof models, enforce garbage bylaws, building bylaws and illegal camping bylaws with zero-tolerance for non-compliance, and create buffers around critical habitats for wildlife. These buffered areas will be managed for wildlife primarily rather than recreational use.

By complying with the bylaws, the school, campground, businesses and residents will ensure that garbage and other human food attractants are kept in animal-proof containers and storage facilities.

The next priority is to safeguard playing fields, parks and trails. The plan recommends achieving this by installing fences, and brushing, trimming or removing bear foods, particularly berry bushes, from areas where children play and picnic and could be caught off-guard. Visibility on sections of the Wild Pacific Trail needs to be improved by thinning the understory, widening the trail, and planning straighter sections of the next phase. New trails should avoid areas with dense natural attractants as much as possible. Responsibility for this lies with the District, School District, Campground and developers of future parks and trails.

Continued education is critical through signage, media, public presentations, coordination and facilitation of committees, etc. The plan commits the WCBAC to continuing this important work with support from their educational and media partners: Ucluelet Elementary and Secondary Schools, Westerly News, Ucluelet Cable, Diggers Web Design, Pacific Rim Visitor Centre and the Ucluelet Chamber of Commerce.

Monitoring bear occurrences and citizens' compliance to bylaws will enable the District, WCBAC and the Conservation Officer Service (COS) to respond day-to-day during the active season of bears in the area, as well as, assess the effectiveness of their actions to prevent conflict. The plan requires that the COS, PRNPRC, WCBAC and the District develop a data-sharing agreement. Maintaining regular communication among all agencies is key to sharing information in a timely manner for immediate response and long term management goals.

The WCBAC has acquired financial and human resources to build their program rapidly. The plan requires that current contributors continue their support in order to sustain a high level of progress and achievement. The WCBAC's media campaign will continue outreach for donations and in kind support. Annual reporting will evaluate the effectiveness of the program and thereby determine gaps and priorities. Volunteer recruitment and proposal-writing will be important ways of acquiring future resources to fill those gaps and meet priorities.

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1.0 Introduction

Conflicts between humans and black bears have occurred regularly within Ucluelet in the past and occasionally resulted in public safety being threatened and bears being destroyed. The majority of these incidences need not happen if steps are taken to address the root causes of human bear conflict.

The Province of British Columbia encourages proactive management through the Bear Smart Community Program. Communities will be granted "Bear Smart" status when they meet the following criteria:

1. Prepare a bear hazard assessment of the community and surrounding area.
2. Prepare a human-bear conflict management plan that is designed to address the bear hazards and land-use conflicts identified in the hazard assessment.
3. Revise planning and decision-making documents to be consistent with the human-bear conflict management plan.
4. Implement a continuing education program, directed at all sectors of the community.
5. Develop and maintain a bear-proof municipal solid waste management system.
6. Implement "Bear Smart" bylaws prohibiting the provision of food to bears as a result of intent, neglect or irresponsible management of attractants.

An updated bear hazard assessment was recently completed for the District of Ucluelet (Spooner 2006). The Bear Hazard Assessment identified wildlife-resistant garbage receptacles and the enforcement of garbage bylaws as key requirements for keeping people and bears safe in Ucluelet. The importance of these actions was emphasized given the likelihood of increased human-bear interactions as Ucluelet's extensive forested lands are developed. Other recommendations included mapping food sources and den sites, locating developments away from key habitats, managing natural attractants at schools, playing fields, etc., ensuring that sight lines are clear on recreational trails, and curtailing illegal camping. The Bear Hazard Assessment also recognized the importance of continuing with education programs and maintaining a viable Bear Aware Program.

This document presents a plan that addresses the hazard assessment's recommendations. It was prepared through consultation with District staff, Mayor and Council, the waste management contractor, the Conservation Officer Service, the West Coast Bear Aware Committee, local residents, business owners and managers, and specialists with expertise in bear ecology and managing human-bear conflict. Recognizing that a feasible and effective management approach requires commitment from many stakeholders, the plan describes what steps will be (or have recently been) taken, who will be responsible, and the expected timeline.

2.0 Goals and Objectives

The goal of the Human-Bear Conflict Management Plan is to directly reduce the probability of negative human-bear conflicts (and reduce the liability related to these encounters through due diligence and best management practices). This goal will be met by achieving the following objectives:

1. Implement a bear-proof waste management system.
2. Ensure that waste management and bear-attractant management bylaws are enforced.
3. Identify bear habitat and travel corridors and recommend ways of maintaining these areas for bears to use within Ucluelet and the surrounding area.
4. Manage the green space (e.g., brushing, eradicating clover, and improving sight lines) in high risk areas, such as schools and playgrounds.
5. Continue to deliver Bear Aware educational programs.
6. Collect and record information that tracks and evaluates the risks related to the availability of non-natural attractants, bear movements, and interactions with humans.
7. Enable cooperation among agencies, support research on human-bear management and report on the effectiveness of the Bear Smart program annually.
8. Adjust and modify management actions as needed.

The next sections of the report describe a plan, based on the recommendations identified in the Bear Hazard Assessment and consultations, for achieving each of these objectives.

3.0 Bear-proof Waste Management System

3.1 Background from Bear Hazard Assessment

Garbage is the major attractant that results in black bears becoming food-conditioned. In Ucluelet between 1999 and 2005, a total of 133 bear reports (58% of all bear occurrence reports) were related to food-conditioned behaviours (Spooner 2006). Between 1999 and 2005 there were 18 incidences reported where a bear had or attempted to enter a building such as a home or restaurant to obtain non-natural food. Any effort to prevent bears from becoming food conditioned must address the problem of garbage storage.

The West-Coast Regional Landfill has been closed to bears with an electric fence since 1999, so the focus on garbage management in Ucluelet is from the point of origin to collection by garbage trucks. In the past, bears traveling into the peninsula commonly followed a pattern of commercial and domestic garbage foraging that could be easily followed where bear use of the garbage containers on the west side of Ucluelet was heavy and continued down the businesses along Peninsula Road (the main thoroughfare) as far as Main Street. There were also frequent reports of bears along a few streets, such as Helen Road, Pine Road and Imperial Lane, which~~that~~ are closer to the inlet side of town. Reports of bears accessing garbage at various other residences, hotels and resorts were more common where locations are closer to the urban-forest interface. These locations included Bay Street, Short Road, Big Beach, Victoria Road, Holly Crescent, Marine Drive, Cynamocka Road, Norah Road and the Whispering Pine Trailer Park from 1999-2005. More recently, bears have also been attracted to garbage at Reef Point, The Cabins, The Cottages, and The Edge developments, as well as Terrace Beach Resort and Little Beach Resort.

Many of the garbage containers in Ucluelet are not animal-proof. All large dumpsters are owned by the garbage contractor who currently deals with bears reactively. After a bear has been attracted to a commercial or public dumpster, the dumpster is exchanged with a heavier dumpster from another location. This merely shifts the problem elsewhere.

The municipality owns small public garbage receptacles. In 2006, the municipality purchased and installed twenty small animal-proof receptacles to replace old ones with plastic lids along Peninsula Road and Main Street. Many of the remaining small receptacles that need to be replaced are located in parks, beaches and trailheads, where the risk of human-bear encounters is high.

Recommendation 1: Convert all commercial and municipal garbage receptacles and other types of food receptacles to animal-proof receptacles.

3.2 Criteria for "Animal-proof" Garbage Receptacles

A big issue that needs to be addressed before receptacles are replaced is the confusion about what comprises an "animal-proof" or "bear-proof" dumpster. There are many products on the market that are falsely promoted as "bear-proof". For example, Ucluelet's garbage contractor had previously purchased dumpsters with plastic lids, advertised as

bear-proof on the supplier's website. Bears had no difficulty ripping open the plastic lids. The contractor then replaced plastic lids with metal lids. These were still easy for a bear to open and reach inside, even when they were secured with a chain and lock. For example, a dumpster that was chained shut in the winter of 2006, was repeatedly pried open by a bear. The contractor has recently brought in an improved model made of heavier material, and tighter fitting, self-latching doors. Unfortunately the top lid of this model has no latch. Black bears are able to exert several thousand pounds of force and have gained access to garbage in metal containers, garages and cars. Dumpsters with solid self-latching lids and doors are necessary to prevent access by bears.

The lead biologist for the Eastern Slopes Grizzly Project Committee on Resources and the Environment worked with Canmore's Waste Management Committee to determine criteria for defining a container that is animal-proof. These criteria are:

- Tight lids to reduce odours.
- Lids must be self-closing.
- Latches for its lids and bag removal must be bear proof (i.e., claws unable to reach the latch trigger mechanism).
- Hinges and latches for lids must be sufficiently strong such that they cannot be pried open by claws (able to withstand several thousands of pounds of force). The rule of thumb is that if it can be dismantled using a crowbar then it is not bear proof.
- The container must be sufficiently stable or capable of being anchored to prevent tipping by large bears.
- Container material must be sufficiently strong to prevent bears chewing, battering or crushing the containers (i.e., able to withstand several thousand pounds of force).

In addition to the criteria for animal-proof, it is important that the receptacles are durable (a 20 year life expectancy), have ergonomic access doors (not so heavy that they are too difficult to open), and have a somewhat aesthetic appearance.

Implementation Step 1.1. Adopt criteria for what constitutes a "animal-proof" garbage receptacle.

Dumpsters, produced by Haul-All, are the standard for Canmore, all the mountain National Parks and many BC Provincial Parks. Some larger BC communities, such as Qualicum, have bylaws stipulating the use of Haul-all containers only. Unfortunately, Haul-All models are expensive (approximately $ 5775 for a 6 cubic yard bin), have no guarantee on their life span, and require a side-loading truck for dumping. The current garbage contractor's truck dumps containers overhead so it can only handle front loading bins. Thus, the garbage contractor has been working with another supplier to acquire an affordable dumpster that is wildlife-resistant. The model shown in Figure 1 (centre) is inexpensive ($ 600 to $ 900 for a 6 cubic yard bin) and is used in the Long Beach Unit of Pacific Rim National Park Reserve of Canada (PRNPRC) because it is the most wildlife-resistant model available from the local contractor. Unfortunately, it is not animal-proof.

A bear could lift the upper lid and climb inside or tip the bin (B. York, pers. comm.). Improvements have been suggested. First, a band of metal welded around the edge of the top would prevent bears from getting a grip for lifting the lid, and a latch would make it secure. Second, the self-latching mechanism on the smaller access door needs to be improved so that it does not fail. PRNPRC has asked the contractor to make these improvements. Thus, PRNPRC is in the process of modifying their bins to make them animal-proof.

Figure 1. Garbage dumpster with a snug self-latching door (centre) is more "bear-resistant" than dumpsters with overhanging lids that need to be locked with a chain (right). The Haul-All dumpster on the left is the style preferred by National Parks and BC provincial parks because it is "animal-proof". Bears cannot open the top or back because there is no edge to grip, unlike the dumpsters shown centre and right.

3.3 Garbage Collection and Disposal Agreement

The District of Ucluelet signed a Garbage Collection and Disposal Agreement with a local contractor in 2004 stating that the contractor would comply with the District's Bylaws and amendments or replacements and every provision of the bylaw. The agreement clearly describes a "Bear Smart" waste collection program including: "*cleanliness and maintenance of the garbage collection equipment and all waste containers, and removal of all waste types with dispatch and in a manner as cleanly and inoffensively and with as little danger and prejudice to life and health as possible.*"

The Garbage Collection & Regulation Bylaw No. 960, 2004 states: "*After January 1, 2005, all Commercial Garbage Receptacles must be wildlife resistant*." WCBAC is pursuing an amendment to the bylaw that will replace the words "*wildlife resistant*" with "*animal-proof*". The new bylaw will be scheduled to come into effect in January 2007.

To date, the contractor has been unable to supply an adequate number of "wildlife-resistant" containers to service all his customers. The main problem, identified by the contractor, is the current contract price with the District and low service fees for commercial customers. These do not cover the costs of replacing all bins immediately. The contractor has also indicated that there is no need to upgrade his heaviest containers (see Figure 1 centre and right) to make them "animal-proof" because he considers that they are already sufficiently resistant to bears. The Conservation Officer disagrees and has demonstrated how a bear could open the top lid of this model. The criteria for "animal-proof" must be more clearly defined and legislated.

Implementation Step 1.2. Provide criteria for animal-proof receptacles to the garbage contractor and develop an agreement on replacement of current receptacles to suitable models that are animal-proof, ergonomic, durable and affordable.

Article 14 of the Waste Collection and Disposal Agreement with the District states that the "*Contractor is willing to assume all risk of conditions arising or developing… which might make the work more expensive or more onerous than was contemplated when the contract was signed*." However, the District recognizes that replacement of dumpsters is a considerable expense so it has given the contractor a period of grace, until the current contract expires in 2007, to comply. If the contractor is unable to provide public dumpsters that prevent access by wildlife, the District may not renew its contract.

The WCBAC has received a cost comparison for Haul-All versus front-loading dumpsters over a 20-year time frame. The estimate indicates that the operational costs of tipping Haul-All bins is half those of front loaders, and that replacement of Haul-All is required every 20 years instead of every 5 years. If these estimates are correct, then Haul-All may be an economically viable option over the long term, as well as being animal-proof. However, upfront costs seem prohibitive. Further research into other options is ongoing. The WCBAC has convinced Bear-Saver to donate one of its new front-loading models, the Bear Saver Commercial Bear-Resistant Dumpster, to the District of Ucluelet to determine its functionality.

3.4 Resorts, Restaurants, and other Commercial Properties

People who manage waste disposal and storage at schools, resorts, etc. indicated a good understanding of the need to contain garbage in "animal-proof" bins. They credited the West Coast Bear Aware Committee for making them more aware of the importance of having a secure garbage system, and for reminding them to be especially diligent whenever a bear is in the neighbourhood.

In spring 2006, the Bylaw Enforcement Officer started to approach commercial customers of the contractor to remind them that the onus is on them to ensure that their garbage is managed in a way that is compliant with the bylaws. It is expected that the contractor will be responsive to his customers and renegotiate the cost of services so that the price of replacing the non-animal-proof bins can be covered.

Most business managers have asked the garbage contractor to improve the "bear proof-ness" of the dumpsters leased on site. Some are understanding of the financial challenges involved in replacing the bins immediately, while others are impatient. Several business owners are not keen to pay more for "animal-proof" dumpsters, especially when they believe that the ones they already have are "bear-resistant" enough.

Although business owners/managers explained that they try to keep the lids secured, almost all admitted that, occasionally, the lids are left unlocked. Clearly, there is a need for a better designed dumpster with lids that can be secured automatically or effortlessly.

Implementation Step 1.3. Provide criteria for animal-proof receptacles to commercial property managers/owners.

Restaurants have an additional issue with oil/grease waste, which is particularly attractive to bears. Some restaurants store their grease in a metal container with a metal lid covering a steel grid. The container may be strong enough to keep bears out of the main grease compartment, but the lids are easy for bears to lift and access the grid that is coated with oil/grease residue. The restaurant operating within Pacific Rim National Park Reserve of Canada keeps their grease outdoors in the same type of container, but they keep the lid secured with a steel karabiner (Figure 2). Grease that accumulates on the walkway and around the container is cleaned with a portable power washer several times each year. The water runs into drains that were installed to remove the grease from the ground surface. They have had no problems with grease attracting bears since they adopted this system (B. Hansen, pers. comm.).

Figure 2. Grease container with a lid secured by karabiner (at green arrow) behind the restaurant in Pacific Rim National Park Reserve. Regular power washing of the area is the key to not attracting bears.

Another restaurant in Ucluelet avoids the problem of attracting bears by storing oil in plastic buckets with lids inside a secure garage. There is also a grease trap product (i.e., Solid Waste Systems) that has been tested and passed the Living With Wildlife Bear-Resistant Product Testing Program (www.lwwf.org).

Implementation Step 1.4. Provide information to restaurant managers on animal-proof options for oil/grease storage (i.e., closure mechanisms, power washing, animal-proof storage facilities).

Implementation Step 1.5. Convert oil/grease storage containers to be "animal-proof" or stored in an "animal-proof" enclosure and clean-up grease spillage.

The WCBAC has begun to approach businesses in town to offer suggestions on adopting good waste management practices. The incentive for adopting these practices is to gain recognition as a "We are a Bear Aware Business". This program was initiated in 2005 and two businesses have achieved recognition in the local newspaper. The WCBAC plans

to grant these awards on an annual basis. Each year, a dated sticker will be presented to businesses that meet the standards set using a checklist developed by Whistler's Get Bear Smart Society. The WCBAC aims to reach all businesses that have experienced bear problems within the District by the summer 2006.

Implementation Step 1.6. Encourage commercial property managers/owners to replace garbage receptacles, improve grease storage and adopt good waste management practices in general by offering an incentive, i.e., a "Bear Aware Business" Award.

3.5 Small animal-proof garbage receptacles for public use

The District of Ucluelet has approved a budget to replace all small public-use garbage receptacles with animal-proof receptacles by the end of 2007. District staff, (with the assistance of the WCBAC), researched different types of receptacles and chose the Bear Saver HA Series model. This model serves the need for an animal-proof, aesthetically-pleasing, ergonomic receptacle that is approved by the American Disabilities Act (ADA). In 2006, approximately twenty of these receptacles were purchased and installed. The total cost will be between $33,500 and $38,000 plus $2000 for installation and removal of all units (District of Ucluelet, 2005).

The Living With Wildlife Foundation's product testing program provides valuable information about receptacles that have been shown to withstand bears. The WCBAC has identified the locations and condition of all public use receptacles (Table 1) and provided that information to District staff. Replacement started to happen over a scheduled period of time beginning in the spring of 2006. It is recommended that the first bins to be replaced should occur in locations that have been most vulnerable to bears in the past (Table 1).

Implementation Step 1.7. Replace all public garbage receptacles with animal-proof receptacles in order of priority based on the condition of the receptacle and the probability of it attracting bears.

One of the issues with existing "wildlife-resistant" receptacles is their design for the west coast climate. Metal latches are susceptible to rust and they may fail to latch on their own after a period of use, and eventually break (Figure 3). It is important to remind people to secure the latch or lock each time they close the lid.

Implementation Step 1.8. Install signs/stickers on all garbage receptacles reminding people to secure the latch or lock each time they close the lid. Post a number to contact if the latch/closure is broken.

The life of these receptacles may be extended greatly if they are carefully maintained (oiled and latches replaced) on a regular basis. Some of the receptacles purchased in the 1980s have been re-welded and painted several times to lengthen their life spans. New receptacles are made of heavier gauge steel with special rust resistant coating and stainless steel parts. It is expected that the District will need to replace these receptacles

at 15-25 year intervals but, as with large dumpsters, field-testing has not been done on the west coast. (Time interval is based on manufacturers estimate). The District needs to budget a certain amount for purchasing and installing new animal-proof receptacles as the town expands and for replacement of ones that get damaged or worn out over the next ten to twenty years.

Figure 3. One of the receptacles at Big Beach (left) purchased in mid 1980s has rusted and lost its latch, rendering it no longer "wildlife resistant". The plan is to replace this and other municipal receptacles in 2006-07 with "animal-proof" receptacles like the one shown on the right.

Table 1. Public Use Garbage Receptacles, District of Ucluelet
Surveyed in November 2005. Compiled by Marny Saunders – WCBAC
**Receptacles on Peninsula Rd and Main St. were replaced in summer 2006.*

Location	**Description of Receptacle**	**Priority for Replacement** **(based on "risk of attracting bears" and condition)**
Wild Pacific Trail Phase One		
South trail parking lot	1 damaged metal animal-proof receptacle	High
Coast Guard Station - Lighthouse	1 cement receptacle with a plastic lid	High
North trail parking lot (He-Tin-Kis)	2 damaged metal animal-proof receptacles 1 metal animal-proof recycling receptacle	Very high

Table 1 Continued. Public Use Garbage Receptacles, District of Ucluelet
Surveyed in November 2005. Compiled by Marny Saunders – WCBAC
**Receptacles on Peninsula Rd and Main St. were replaced in summer 2006.*

Location	**Description of Receptacle**	**Priority for Replacement** **(based on "risk of attracting bears" and condition)**
Little Beach	1 damaged metal animal-proof receptacle	Very high
Big Beach	2 damaged metal animal-proof receptacles 1 metal animal-proof recycling receptacle	Very high
Ucluelet Skate Park	1 cement receptacle with a plastic lid	Very high
Peninsula Road (South to North)*		
At Alder Street	1 cement receptacle with a plastic lid	High
George Fraser Gardens	1 cement receptacle with a plastic lid	High
At UAC Hall	1 cement receptacle with a plastic lid	High
Co-op parking lot south	1 cement receptacle with a plastic lid	Very high
Greenhouse Market	1 cement receptacle with a plastic lid	Very high
South Davidson Plaza	1 cement receptacle with a plastic lid	Very high
North Davidson Plaza	1 cement receptacle with a plastic lid	Very high
Army, Navy, Airforce	1 cement receptacle with a plastic lid	Very high
Murray's Grocery	1 cement receptacle with a plastic lid	Very high
Library	1 cement receptacle with a plastic lid	Very high
Mystic Horizons Bay St.	1 cement receptacle with a plastic lid	Very high
At Hemlock Street	1 cement receptacle with a plastic lid	High
Image West	1 cement receptacle with a plastic lid	High
The Place TV West Ucluelet Mall	1 cement receptacle with a plastic lid	High
#1 Market	1 cement receptacle with a plastic lid	Very high
Seaplane Base Road		
North side near the rec hall	1 cement receptacle with a plastic lid	Very high
Rec Hall parking lot	- 1 cement receptacle with a plastic lid	Very high
Rec. Hall Ball Fields	2 metal animal-proof receptacles	Very high
Main Street*		
North by Tula's	1 cement receptacle with a plastic lid	Moderate
Crow's Nest	1 cement receptacle with a plastic lid	Moderate
At Whiskey Dock	1 cement receptacle with a plastic lid	Moderate
Promenade	2 cement receptacle s with plastic lids	Moderate
District staff parking lot	1 cement receptacle with a plastic lid	Moderate

Table 1 Continued. Public Use Garbage Receptacles, District of Ucluelet
Surveyed in November 2005. Compiled by Marny Saunders – WCBAC
**Receptacles on Peninsula Rd and Main St. were replaced in summer 2006.*

Lyche Road on the curve facing the Canadian Princess	2 cement receptacles with plastic lids	High
Holly Crescent at park	1 cement receptacle with a plastic lid	Very high
Cedar Rd park	2 cement receptacles with plastic lids	Very high
New ball field	1 big green plastic receptacle – 9ft deep – new design installed by District	Low (monitoring its effectiveness)

3.6 Schools

Garbage management at Ucluelet schools is handled in a diligent manner. Dumpsters are not "animal proof" but they are usually kept padlocked with access limited to teaching and maintenance staff. There have been few problems with bears since dumpsters were fitted with padlocks two to three years ago (D. Beley pers. comm.). However, when asked, there appeared to be some uncertainty about who was ultimately responsible for ensuring that the dumpsters are locked. It is recommended that the school acquire animal-proof dumpsters, and in the short-term, that the school principal ensure that dumpsters are locked each night.

Implementation Step 1.9. Replace existing dumpsters with containers that meet criteria for being "animal-proof" under section 3.2. In the short term, ensure that existing dumpsters are secured with an animal-proof latch each night. This applies to all bins in the community. Securing the school bins is extremely important given the high risks to human safety if bears are attracted to school garbage.

Litter is being dealt with effectively. As a disciplinary measure, students are told to pick up litter. As a result the school grounds are kept relatively clean most of the time. The litter consists of wrappers and the occasional foodstuff that attracts birds, mainly crows. The low volume and the type of waste would not likely attract bears.

Dumpsters and small garbage receptacles are routinely cleaned and maintained. A rotation system (once every 2-3 years) is in place to take the containers to the shop to have them power washed, painted and the hinges replaced. Spare receptacles replace units that are being maintained. Small receptacles have been retrofitted with corrosion-resistant stainless steel hardware. This type of program will keep the equipment in good condition for years, especially as these receptacles are well made out of heavy material.

Recommendation 2. Initiate a program to assess the condition of all garbage receptacles on a regular basis (e.g., monthly) so that they can be maintained.

3.7 Maintaining garbage receptacles

The wet weather and salty air appears to accelerate rusting of latches and locks. Every two years, Resource Conservation staff of the Pacific Rim National Park Reserve of Canada (PRNPRC) survey the condition of dumpsters in the Long Beach Unit. This is undertaken as part of the Park's bear management program. The intent is to check whether all dumpsters are still animal-proof. All bins are designed to be bear-resistant but the corrosive environment and the heavy use in the Long Beach Unit of PRNPRC cause overall structural deterioration and failure of the latching mechanism. The large front-loading contract bins are also more prone to failure due to their design. When emptied the large top door swings down and away to allow the garbage to fall into the garbage truck. This action eventually causes metal fatigue and deformation and chipping of paint (B. Hansen, pers. comm.).

There may be some dumpster designs that would stand up better to rusting, etc., than others but there is a lack of monitoring data to guide purchasing decisions. The Living With Wildlife Foundation describes a variety of garbage receptacles (Sowka 2004, 2005) and has recently initiated a monitoring program to assess the durability of different types of receptacles in the field (P. Sowka, pers. comm.). Ucluelet could become a test site for this program if the WCBAC and garbage contractor were interested in overseeing the monitoring.

Whether Ucluelet becomes a test site, or not, it is recommended that the condition of all garbage receptacles should be assessed on a regular basis so that they can be maintained. Ideally the business owner (if given guidelines for what to inspect) and the garbage contractor would sign off on the inspection, demonstrating that due diligence has been done. Article 15H of the Garbage Collection and Disposal Agreement states that the contractor will "*ensure containers are in good repair and condition.*" See Appendix A for a sample inspection form. A maintenance program like the one used at the schools in Ucluelet (see Section 3.3) would help keep receptacles in good condition over the long term.

Implementation Step 2.1. Using a standard inspection form assess the condition of commercial bins on a regular basis.

Implementation Step 2.2. Using a standardized inspection form, assess the condition of all public garbage receptacles on a regular basis. Sign off on the inspection.

Implementation Step 2.3. Repair receptacles as needed in a timely fashion.

Implementation Step 2.4. Share relevant data from inspections with the Living With Wildlife Foundation for their product-testing program.

Recommendation 3. Ensure construction dumpsters are not used for food waste.

3.8 Construction site dumpsters

Construction of new homes and resorts is happening throughout Ucluelet. Construction sites typically have dumpsters overflowing with large materials, making it difficult to secure a lid. Although most of the materials are non-attractants, the odd food scrap or wrapper would attract bears. Signs may keep attractants out of the bins but the safest solution is to ensure that all garbage is inaccessible to bears.

Implementation Step 3.1. Establish signs on bins used at construction sites that indicate they are not to be used for food waste.

Implementation Step 3.2. Adopt and enforce bylaws that require construction bins be one of the following: an animal-proof container; stored in an animal-proof enclosure; emptied at the end of each working day; or stored in a building or trailer.

Recommendation 4. Require residents to make garbage storage facilities animal-proof.

3.9 Residential Garbage Receptacles

According to the garbage collector, approximately 10% of the residents, who have curbside garbage collection, do not even use an enclosed receptacle for their garbage. Many put garbage out in bags that are easily torn open by wildlife. The key to addressing this issue is to educate people about what an appropriate curbside receptacle is, explain why it is important, and then enforce the bylaw. Fifty-six residents received warnings in Jan 2006 for not complying with the bylaw - most for not having garbage in receptacles with lids.

The District and the West Coast Bear Aware Committee have been collecting information about different products so that they can define a “animal-proof” receptacle and a “animal-proof” storage compartment for residential use. The garbage bylaw stipulates that receptacles must be no larger than eighteen inches in diameter and thirty inches deep with a loaded weight of forty-four pounds. One of the wildlife resistant cans being sold in Tofino is larger than these dimensions, making it difficult for the garbage contractor to manipulate. Many of the curbside carts available on the market are too big (64 and 95 gallons). As well, they are much more expensive than regular garbage cans. The WCBAC has purchased a smaller can (30 gallons) that has been tested by the LWWF bear-resistant products testing program (www.lwwf.org) (Figure 4). Although it is more moderately priced, it is not user-friendly because the lid needs to be twisted on and off. Bear Saver (www.bearsaver.com) has recently produced a 32-gallon self-latching container with wheels. It has been tested by LWWF, and would likely be a preferable bear-resistant option.

(**a**)

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

(**b**)

Figure 4. A 30-gallon residential garbage can from www.AnimalResistantCan.com (a) and a 32-gallon can with push to close latching systemfrom www.Bearsaver.com (b) have both passed the Living with Wildlife Foundation's Bear-Resistant Product Testing Program. Can (a) ($49.00 USD plus $20 for shipping) weighs 14 pounds and measures 21 inches by 28.5 inches. Can (b) (approximately $130.00 USD) appears to be more user-friendly.

Implementation Step 4.1. Provide information on animal-proof storage structures to residents through media, door-to-door visits, and mail-outs.

Rather than encouraging people to purchase expensive residential animal-proof receptacles, the WCBAC is focusing on getting people to use a securely lidded receptacle and to keep their regular garbage inside or in proper "animal-proof" storage until the morning of curbside pick-up. Information from Juneau Alaska describes how people can make their own residential garbage storage compartments that are animal-proof (Appendix B). One effective way to reach residents with information about garbage bylaws and storage options is to send a flyer of information along with the District's utility bills (S. deKeijzer, pers. comm.).

The alternative to individual residential receptacles is a communal animal-proof dumpster. Other communities challenged with bear/garbage issues, such as Canmore and Whistler, have completely switched from curbside pick-up to communal dumpsters/garbage compactors. They found that communal bins work much better for keeping bears out of garbage, and, despite initial perceptions that bins would be an eyesore, smelly, difficult to use, increase car traffic at container locations, attract animals, etc., the community soon began to appreciate the convenience of disposing of waste at any time and the containers were accepted and preferred over curb side pick up by the majority of Canmore residents. (Davis, et al. 2002, S. de Keijzer, pers. comm.).

Implementation Step 4.2. Explore ways for neighbourhoods to install communal dumpsters and discontinue curbside pickup.

Several community residents who were interviewed said they would prefer a communal bin system over the curbside pick up currently in place in Ucluelet. Some managers of multi-unit residences lease a commercial dumpster for communal use instead of paying for curbside pickup. It is less expensive and is better for keeping out wildlife, but only if

the dumpsters are wildlife resistant (kept locked/secured). Currently the District will not allow single or duplex residential properties to opt out of paying for curbside pick up.

The West Coast Bear Aware Committee enlisted the assistance of Katimavik volunteers in the fall 2005 to survey residents of the Whispering Pines Trailer Park, an area with a high frequency of bear occurrences (Spooner 2006). The purpose of the survey was to make residents aware of the new garbage bylaws and find out whether they would prefer a shared storage system or a communal dumpster for garbage. Only 9% (of 34 respondents) wanted a shared storage system or communal dumpster for garbage (no explanations for why were given). The majority of people reported they would, or are, storing their garbage inside the house or in a bear proof shed (WCBAC Survey Report, Dec. 2005).

A workshop to discuss waste management at a regional level occurred in early March 2006. The use of communal dumpsters was one of the topics discussed and Haul-all representatives were invited to present information about their products. If a switch to communal bins is being considered, Davis et al. (2002) provides a thorough description of the process used by Canmore to determine the number and locations for bins for their community.

It is recommended that the District explore the possibility of switching from household pick-up to animal-proof communal dumpsters when they negotiate their new garbage management contract in 2007. New development areas such as the Weyerhaeuser lands would be ideal for initiating a communal dumpster system.

Recommendation 5. Secure all food attractants and garbage in animal-proof storage and containers at the campground.

3.9 Campground

The current campground owner is aware of the importance of having animal-proof garbage receptacles. He has recently replaced the management staff. WCBAC is working with the new manager to encourage the development of a risk-management strategy specific to the campground.

The "Bare Campsite Policy" is an intensive education program that has effectively reduced the incidence of bear-garbage problems at Greenpoint Campground within Pacific Rim National Park Reserve since 1999. The policy requires that every wildlife attractant must be inaccessible when people are absent from the site or asleep. Two picture signs effectively convey the concept to campers of a "Bare Campsite" versus a campsite with attractants (Figure 5).
The implementation of the policy involves:

- mailouts,
- campsite visits to provide information to newly arrived campers and to answer questions,

- the signing of the camping permit after the on-site orientation to confirm that the campers understand the Bare Campsite requirements and the consequences of leaving attractants unattended
- additions to the content of interpretive programs and the camper registration briefing,
- continued attractant surveys twice weekly. During the surveys campsites where people are away from their site or asleep are assessed. Those sites where the Bare Campsite requirements have been met receive a green card, those with minor attractants receive a yellow card and those rated as highly attractive receive a red card. Red card sites have food and/or garbage left out. Any such items are removed from the site to resolve the public safety hazard. When the campers return they are contacted and may be evicted for putting themselves, other campers and park wildlife at risk.
- picnic table signs,
- animal-proof foodcaches which are available for campers that do not have a vehicle to store attractants in,
- one person dedicated to education and compliance patrols and in the last two years assistance from Young Canada Works crews with on-site education.

Implementation Step 5.1. Incorporate as much of the PRNPR's "Bare Campsite" policy as possible into the Ucluelet Campground risk management operational strategies.

We recognize that the costs of an intensive program are likely prohibitive, however, advertising a zero-tolerance for leaving out food and garbage would be a cost effective way to engage campers in reducing the risks associated with non-natural attractants. Campground management would have to be prepared to evict campers who disregard educational efforts and choose to leave food and garbage out. One of the biggest keys to success of the Park program is that staff is committed to the program and the messages visitors receive during their visit are consistent. (See more on messaging in the Education Section of the Conflict Management Plan.)

A "BARE CAMPSITE"

HAS LITTLE OF INTEREST FOR A BEAR

=A CANCELLED CAMPING PERMIT!

A Very Attractive Site (for a bear): Coolers, Water Jug, Campstove, Tablecloth, Dishes, Garbage Bag, Empty Beer Bottles, Beverages, Dogfood Dish, Dish Rag Towel, Dish Rag and Clothes on Clothes Line, Tablecloth, Fuel Container, etc.

Figure 5. Images of a "Bare Campsite" versus a "Cancelled Camping Permit"from Hansen, 2004. A Bare Campsite has minimal visual and odour attractants. The problem site has many visual and odour attractants. Experience has shown that bears do focus in on visual cues. The coolers below have only ice and beverages (e.g. no meat, etc.) but they would likely attract a bear if it had a previous food reward from a cooler.

Recommendation 6. Establish a receptacle and process for collecting and storing fish waste and other fishy-smelling attractants from residential properties, campsites, and tourist accommodations.

3.10 Fish waste

There are many recreational fishing opportunities available in Ucluelet. This can lead to issues in dealing with fish waste, both before and after consumption.

Cleaning fish and disposing of waste in the water, as close as possible to the location where the fish was caught, is the best way to avoid attracting bears. If the fish was caught in a river, attractants will not linger if the carcass is placed in fast flowing or deep water with the swim bladder punctured.

To a large extent, fish are cleaned at the end of public docks or at docks belonging to resorts in Ucluelet. These fish cleaning stations are kept clean so that smells and attractants do not accumulate. However, not all accommodations are on the waterfront and many have no fish cleaning/disposal facilities.

Implementation Step 6.1. Encourage tourism accommodation to adopt policies that will manage fish attractants.

Several resorts have adopted a policy for fishing guests that includes rules for keeping fish attractants under control at the site. For example, Little Beach Resort's policy includes:

- All fishing related gear is to be stored in your vehicle at all times.
- No fish cleaning on site or in rooms; fish are to be processed and packaged before returning to resort.
- No boats or trailer on property.
- No freezers on property.
- No coolers stored outside of rooms.
- We do provide a storage area for coolers.
- In town, processing and freezing are available at Far West Food.

Implementation Step 6.2. Explore the options for an animal-proof communal centralized dumpster or compactor for fish waste only.

Several residents and business owners raised the concern about disposing of fish waste. Most either use public dumpsters illegally or dispose of fish waste in the ocean. Others

dispose of waste in commercial dumpsters and residential garbage containers. Fish waste makes these containers very attractive to bears. One proposal is for the District to establish a centralized controlled dumpster/compactor for fish waste only. This could be pursued in partnership with one of the fish plants that takes fish offal out in trucks.

4.0 Waste Management Bylaws

4.1 Background from Bear Hazard Assessment

The key conflict management strategy for the community of Ucluelet can be summed up in one statement: "*Compliance and enforcement of relevant bylaws with a zero-tolerance policy is necessary in order to minimize the risk of bears and human conflict in Ucluelet and area."* (Spooner 2006)

Recommendation 7. Strengthen bylaws so that they clearly state zero-tolerance for behaviour that allows bears to gain access to garbage and other non-natural food attractants.

4.2 Bylaw Development

The District of Ucluelet adopted a revised set of waste management bylaws in July 2004 (see Box 1 for a list of the Ucluelet bylaws relevant to bears). One of the District staff members, who had past experience working with Pacific Rim National Park Reserve of Canada, initiated a set of amendments and included input from the WCBAC. District staff and the WCBAC worked together to bring these bylaws forward to District Council for approval. Further review of these bylaws by the WCBAC, COS, the Ucluelet Director of Planning, Building Inspector and other District of Ucluelet staff resulted in the adoption of an additional building code bylaw and a proposal for several amendments to the garbage collection and regulation bylaw.

The building code bylaw requires new construction to designate an enclosed area, building, etc., for the storage of garbage receptacles. As such, Building Code Bylaw 1017, 2006 was adopted by Council on January 10, 2006.

The amendments to the garbage collection and regulation bylaw will require that:

- The words "wildlife-resistant" should be replaced with "animal-proof" throughout the entire bylaw.
- Any food or waste that could attract wildlife shall be stored in an animal-proof enclosure or an approved animal-proof container.
- All multi-family residential buildings, having four or more dwelling units, and all complex buildings such as commercial, industrial, institutional, tourist accommodation must provide either an animal-proof area, attached garage, or animal-proof enclosure for the purpose of storage for garbage and/or garbage receptacles.
- Manufactured Home Parks are required to provide a garbage storage site located inside an animal-proof enclosure or an animal-proof commercial garbage container for residents. If the owner of a mobile home park instigates a contractual form of garbage removal with a contractor, the regulations and restrictions relating to residential garbage removal will apply.
- Construction site dumpsters must be animal-proof containers, or be stored in an animal-proof enclosure, or be emptied at the end of each working day or stored in a secure building or trailer.

- All animal-proof enclosures must be kept closed and secure when waste is not being deposited and, if damaged, must be repaired or replaced in a timely fashion.
- Animal–proof commercial containers must meet the following criteria:
    - Lids must seal tightly to reduce odors.
    - Lids must be self-closing/latching.
    - Latches for lids must be animal-proof.
    - Latches and hinges for lids must be able to withstand several thousand pounds of force so as not to be pried open by animals.
    - Container must be stable or capable of being anchored to prevent tipping by large animals.
    - Container must be constructed of strong material to prevent animals from crushing, battering or chewing the container.
- Restaurant cooking grease must be stored in an animal-proof container and/or an animal-proof enclosure.
- Outdoor fridges or freezers shall be inaccessible to animals.
- No meat or meat by-products or meat waste shall be put in compost piles.

The WCBAC will present these amendments to the District Council in November 2006.

Implementation Step 7.1. Convince District staff and Council of the importance of adopting clearly worded bylaws that make it illegal to allow bears access to garbage.

With these amendments, Ucluelet's waste management bylaws will be effective tools for reducing human-bear conflict (B. York, pers. comm.). The remaining challenge will be enforcement.

Recommendation 8. Enforce garbage bylaws.

4.3 Bylaw Enforcement

Enforcement of the 2004 bylaws was delayed because the District, itself, was non-compliant. Once the District Council began the process, in November 2005, for purchasing new animal-proof receptacles for municipal properties it has been able to begin the process of enforcing compliance at residential and commercial properties.

The enforcement plan includes publishing information and updates in the local newspaper. The Bylaw department submitted a newspaper article in November 2005 explaining the bylaws, the reasons behind them, the schedule for bringing about compliance, the deadline, and the fines. It also described how to access the full garbage bylaw on the District's web page (www.ucluelet.ca) and as hard copies at the District Office.

Implementation Step 8.1. Make people aware of the bylaws, including where they can get information and fines that apply.

Recognizing that it will take time to educate people before it will be reasonable to expect compliance, the bylaw department has planned and publicized a stepwise approach. The first step was to conduct random inspections over the month of December 2005 to advise people of compliance requirements. Next, in January, warning tickets were issued with a time requirement to comply. As of February 1, 2006, all violators were subject to a fine.

All inspections are done by the bylaw officer riding along with the garbage contractor on a portion of the regular curbside pickup routes in the community. No one knows when the inspections will happen in their neighbourhood. The WCBAC also conducts garbage "raids" or assessments several times each month. They survey streets within the community to determine whether people have placed garbage out the night before pickup. WCBAC provides information from their surveys to the bylaw enforcement officer. The WCBAC follows up with door-to-door visits to provide information about how to keep garbage secure.

Implementation Step 8.2. Visit local businesses and residences known to have experienced garbage bears in the past and review the bylaws with them.

Implementation Step 8.3. Conduct random inspections and inform people who are not in compliance about how they can become compliant. Publicize the results in a general way, e.g., report changes in rates of compliance in a newspaper article.

Implementation Step 8.4. Give out warning to people who are not in compliance and inform them about how to comply.

Implementation Step 8.5. Conduct inspections and fine people who are not in compliance. Again provide information about how they can comply.

An article, written by the newspaper in January 2006, described the results of the second round of inspections, the number of warnings, types of bylaw infractions, deadline and fines. By continuing to publicize the enforcement process and the reasons behind it, the District hopes to reach its goal of 100% compliance by the end of 2006. The bylaw officer will compile a report on compliance in the summer of 2006.

The plan for commercial properties is somewhat different because of the issues with the contractor described in the section entitled "Commercial garbage bins" above. The District plans to write letters to businesses and residents with commercial dumpsters reminding them of the bylaw and providing a timeline for compliance. The goal is to remind commercial property owners that they have the ultimate responsibility for complying with the bylaw.

Implementation Step 8.6. Make businesses aware of the garbage bylaws and enforce them. Prioritize efforts on businesses based on the condition of their receptacle and the probability of it attracting bears (i.e., whether it contains food waste, and its proximity to known bear reports).

In 2006, the WCBAC plans to provide copies of the bylaw to local businesses and residences known to have experienced bears feeding on their garbage and other attractants in the past.

Recommendation 9. Enforce bylaws to prevent illegal camping in Ucluelet.

4.4 Bylaws To Prevent Illegal Camping

Illegal camping is known to occur at several of the municipal parks, parking lots, beaches and remote areas within the District (Spooner 2006). Garbage, human foods and other waste are often not stored in an animal-proof manner. These sites should be identified and posted with "no camping" signs. WCBAC and staff at the Visitor Information Centres could let people know about the bylaws that prevent camping outside of designated campsites. Patrolling these sites and enforcing the bylaws will be key to solving the problem. This issue may grow, as it has in Tofino, if affordable accommodation becomes less available to seasonal staff and low-income visitors.

Implementation Step 9.1. Use the Visitor Info Centre and media to inform people that it is illegal to camp outside of designated campsites in the District, post signs and check commonly used sites.

Box 1. Bylaws for the District of Ucluelet that Reduce Human-Bear Conflict

Relevant sections of the Garbage Collection & Regulation Bylaw No.960, 2004, include:

Definitions

Wildlife includes any mammal that is not normally domesticated, including but not limited to bears, wolves, cougars and raccoons.

Wildlife Resistant means fully contained or enclosed to prevent access by wildlife.

Wildlife Resistant Container means a fully enclosed metal container with a metal lid and latching mechanism that can be completely closed to prevent access by wildlife.

Wildlife Resistant Enclosure means a structure that has four enclosed sides, a roof, doors and a latching device, or sufficient design and strength to prevent access by wildlife.

- 4.3 All domestic garbage and food waste or other edible waste that would attract domestic animals or dangerous wildlife shall be stored indoors in an enclosed building, shed or storage facility and shall not be left in or on any area accessible to domestic animals or wildlife, including on any patio, balcony or deck.
- 4.5 No owner/occupier shall place a garbage receptacle out before 5:00 a.m. on the morning of scheduled garbage collection.
- 7.4 After January 1, 2006, all Commercial Garbage Receptacles must be wildlife resistant.
- 8.1 All construction sites must have a designated container that receives refuse. The container must:
    - be emptied at the end of each day and stored in a building or trailer; or,
    - be stored in a wildlife resistant enclosure; or,
    - be a wildlife resistant container.

- 10 Additional Provisions to Minimize Wildlife/Human Conflicts
- 10.1 No person shall knowingly or willingly feed wildlife, or provide in any manner access to garbage, food or other attractants to wildlife.
- 10.2 Bird feeders are allowed but must be inaccessible to wild animals.
- 10.3 No person shall fail to take remedial action to avoid contact or conflict with wildlife after being advised by the Bylaw Enforcement Officer that such action is necessary. Remedial action may include, but is not limited to securing, in a wildlife resistant enclosure, all garbage containers, removal of cooking grills, pet food, bird feeders or any other attractants.

"Building Code Bylaw 882, 2002 was amended Jan 10, 2005, as follows:

1. Amend Section 10 by inserting:

- 10.1.13 Applications for standard buildings must include a site plan defining an enclosed area, attached garage or ancillary building for the purpose of storage for garbage and/or garbage receptacles.
- 10.1.14 Applications for complex buildings such as multi-family residential, tourist accommodation, commercial, industrial, and institutional uses that when completed will be included in the District of Ucluelet curbside garbage collection program, must include a site plan defining an enclosed area, attached garage, or ancillary building for the purpose of storage for garbage and/or garbage receptacles. Those properties that are excluded from the District of Ucluelet curbside garbage collection program are exempt from this requirement.
- 10.1.15 All enclosures and/or buildings used for the purpose of garbage and/or garbage receptacle storage must meet the District of Ucluelet Garbage Collection and Regulation Bylaw requirements."

5.0 Summary Plan for Improving Garbage Management and Bylaw Enforcement

Recommendation 1: Convert all commercial and municipal garbage receptacles and other types of food receptacles to animal-proof receptacles.

	Implementation Steps	Who is responsible	Expected Date
1.	Adopt criteria for what constitutes an animal-proof receptacle and storage for household use, commercial and public dumpsters, and small public garbage receptacles. Compile information into a useful format for reference.	WCBAC. District staff, Garbage Contractor	July 06
2.	Provide criteria, including photos, for animal-proof receptacles to the garbage contractor and develop an agreement on replacement of current receptacles to models that are animal-proof, ergonomic, durable and affordable.	District staff, Garbage contractor	Fall 06
3.	Provide criteria, including photos, for animal-proof receptacles to commercial property managers/owners.	WCBAC, District staff	Fall 06
4.	Provide information to restaurant managers on animal-proof options for oil/grease storage, (i.e., closure mechanisms, power washing, animal-proof storage facilities).	WCBAC	Fall 06
5.	Convert oil/grease storage containers to be animal-proof and clean-up grease spillage.	Restaurant managers	Spring 07
6.	Encourage commercial property managers/owners to replace garbage receptacles, improve grease storage and adopt good waste management practices in general by offering an incentive, i.e., a "Bear Aware Business" award. Raise the profile of this award.	WCBAC, BC Bear Smart Program	ongoing
7.	Replace all public garbage receptacles with animal-proof receptacles. Replacement should occur in order of priority based on condition of receptacle and the probability of it attracting bears, see table of priority locations in conflict management plan.	District Council & staff	Starting Summer 06

8. Install signs/stickers on all garbage receptacles reminding people to secure the latch or lock each time they close the lid. Post a number to contact if the latch/closure is broken.	District staff WCBAC	Sept 06
9. Replace existing dumpsters with containers that meet criteria for being "animal-proof". In the short term, ensure that existing dumpsters are secured with an animal-proof latch/lock each night. This applies to all bins in the community. Securing the school bins is extremely important given the high risks to human safety if bears are attracted to school garbage.	School principal, Business owner/manager, District Staff	ongoing

Recommendation 2: Initiate a program to assess the condition of all garbage receptacles on a regular basis (e.g., monthly) so that they can be maintained.

Implementation Steps	Who is responsible	Expected Date
1. Using a standardized inspection form, assess the condition of commercial bins on a regular basis. Sign off on the inspection.	Property manager, Garbage contractor	May 2007
2. Using a standardized inspection form, assess the condition of all public garbage receptacles on a regular basis. Sign off on the inspection.	District staff, Garbage contractor, WCBAC	May 2007
3. Repair receptacles as needed in a timely fashion.	Garbage contractor, District staff	Ongoing
4. Share relevant data from inspections of public receptacles with the Living With Wildlife Foundation for their product-testing program.	WCBAC	January 2010

Recommendation 3: Ensure construction bins are not used for food waste.

Implementation Steps	Who is responsible	Expected Date
1. Establish signs on bins used at construction sites that indicate they are not to be used for food waste.	Garbage contractor, Construction site personnel	Starting July 2006

2. Adopt and enforce bylaws that require construction bins be one of the following: an animal-proof container; stored in an animal-proof enclosure; emptied at the end of each working day; or stored in a building or trailer.	Garbage contractor; Construction site personnel	July 2006

Recommendation 4: Require residents to make garbage storage facilities animal-proof.

Implementation Steps	Who is responsible	Expected Date
1. Provide information, including photos, on animal-proof storage structures to residents through newspaper articles, TV, brochures delivered door-to-door in high risk areas, etc. Information/brochures could be sent with utility bills.	WCBAC, District staff	Sept 06
2. Explore ways for neighbourhoods to install communal dumpsters and discontinue curbside pickup, recognizing that this approach has been better for reducing wildlife garbage issues in other communities.	District Council & staff	Starting July 06

Recommendation 5: Secure all food attractants and garbage in animal-proof storage and containers at the campground.

Implementation Steps	Who is responsible	Expected Date
1. Incorporate as much of the PRNPR's "Bare Campsite" policy as possible into the Ucluelet Campground risk management operational strategies.	Campground manager & owner	July 06

Recommendation 6: Establish a receptacle and process for collecting and storingfish waste and other fishy-smelling attractants from residential properties, campsites, and tourist accommodations.

Implementation Steps	Who is responsible	Expected Date
1. Encourage tourism accommodation to adopt policies that will manage fish attractants.	WCBAC & District staff	Sept 06

2. Explore the options for establishing a communal centralized dumpster or compactor for fish waste only. Perhaps this could be arranged in conjunction with one of the fish plants.	WCBAC, District Council & staff, Garbage contractor, Fish processing plants	October 2006

Recommendation 7: Strengthen bylaws so that they clearly state zero-tolerance for behaviour that allows bears to gain access to garbage and other non-natural food attractants.

Implementation Steps	Who is responsible	Expected Date
1. Convince District staff and Council of the importance of adopting clearly worded bylaws that make it illegal to allow bears access to garbage.	WCBAC, District staff	July 06

Recommendation 8: Enforce garbage bylaws.

Implementation Steps	Who is responsible	Expected Date
1. Make people aware of the bylaws, how they can get information to help them comply, and fines that apply. Write newspaper articles and send notices about how to find out what constitutes a wildlife resistant storage area/container with utility bills.	Bylaw Enforcement Officer, District staff	Jan 06
2. Visit local businesses and residences known to have experienced garbage bears in the past and review the bylaws with them.	WCBAC, Bylaw Enforcement Officer	Sept 06
3. Conduct random inspections and inform people who are not in compliance about how they can become compliant. Publicize the results in a general way, e.g., report changes in rates of compliance in a newspaper article.	Bylaw Enforcement Officer	Every other month in 2006
4. Give out warnings to people who are not in compliance and inform them about how to comply.	Bylaw Enforcement Officer	Ongoing

5. Conduct inspections and fine people who are not in compliance. Again, give information about how to comply.	Bylaw Enforcement Officer	Ongoing
6. Make businesses aware of the garbage bylaws and enforce them. Focus initial efforts on businesses based on the condition of their receptacle and the probability of it attracting bears.	Bylaw Enforcement Officer	Ongoing

Recommendation 9: Enforce bylaws to prevent illegal camping in Ucluelet.

Implementation Steps	Who is responsible	Expected Date
1. Use the Visitor Info Centre and media to inform people that it is illegal to camp outside of designated campsites in the District, post signs, check commonly used sites, and enforce the bylaw.	Visitor Info Centre, WCBAC, Bylaw Enforcement Officer	Ongoing

6.0 Development Planning

6.1 Background from Bear Hazard Assessment

A peak in the number of bear occurrence reports in 2003 coincided with a significant land development project on District Lots 280 and 281 in Ucluelet (Spooner 2006). There was no parallel increase in Millstream or Port Albion, the areas surrounding Ucluelet. It is likely that the disturbance and habitat removal related to this development displaced bears from their home ranges and natural food sources. Generally, the more area developed, the less area available for bears to inhabit without encountering humans. The relationship between major disturbance events and increased human-bear interaction merits concern as Ucluelet is poised to develop its forested lands extensively over the next ten years.

One of the most important steps for minimizing human-bear conflict is to plan development in a way that provides continuous natural habitat for bears, in terms of space and time. It will be important to retain sufficient area of forested land and shoreline in a configuration that:

- meets the foraging habitat requirements of bears during their active period, thereby minimizing their need to seek alternative food sources in human occupied areas,
- retains safe places for travel and rest between and near foraging habitats,
- retains existing denning structures with undisturbed buffers to provide thermal and security cover, thereby minimizing their need to seek alternative denning sites (i.e., under buildings), and
- allows humans and bears to physically avoid one another.

It is also important to recognize that if humans create good quality habitat or food sources within a bear's home range, the bear will exploit them. Further, young bears that are dispersing from their mother's home range are particularly vulnerable to the lure of human-created habitats and non-natural attractants because they are less experienced at finding food, and, generally have lower status than older bears. Examples of human-created habitats include road right-of-ways, golf course clearings, lawns, vegetable gardens, fruit trees and community trails. Non-natural foods include garbage, barbeques, bird food in feeders (e.g., bird seed, suet and sugar-water), pet food, and compost.

Proactive measures, such as the garbage management and green space management steps recommended in other parts of this management plan, are especially needed to reduce the potential for negative human-bear interactions in newly developed lands.

6.2 Evaluating Bear Habitat in the District of Ucluelet

Habitat values of the landscape need to be assessed prior to development so that habitats to meet seasonal requirements for food, shelter, security cover, hibernation and travel remain available to bears. Consideration must be given for bears of different sex and age classes. Females with cubs and sub-adult males are more likely to tolerate human presence if it provides them with good feeding opportunities secure from adult male bears (MacHutchon 1999). Areas of moderate or moderately high value habitat need to be

identified so that the District can be prepared to restrict human use of those areas, at least during periods of bear activity.

In preparing this plan, Grant MacHutchon, a coastal bear habitat specialist, participated in a two-day habitat assessment of Ucluelet's undeveloped lands in January 2006. We visited areas that local naturalists suggested as being important for bears (B. Campbell, pers. comm.) and ranked them according to their seasonal habitat values (Table 2). Ranked values were based on how well each habitat met a bear's general living needs. including feeding, shelter, security cover and travel, but with an emphasis on feeding value. Winter hibernation habitats were ranked on the presence of appropriate denning structures (see next section). Overall, MacHutchon's judgment of habitat values is based on over 15 years of experience conducting bear habitat survey work in coastal B.C., including the Long Beach Unit, PRNPR and Clayoquot Sound (MacHutchon 1999).

We did not have time to assess the entire land base proposed for development. Thus, the onus is on the District and developers to complete thorough environmental impact assessments (EIAs) that include an evaluation of black bear habitat suitability before development occurs. The following sections describe the characteristics of important habitats that should be mapped in EIAs, and moderately high value habitats determined by MacHutchon's visit. Corridors and linkages among habitats should be planned at the landscape level before development lands are subdivided.

6.2.1 Denning Habitat

Coastal black bears generally den or hibernate between November or December and March or April. Bears do not eat or drink during the denning period. Bears on Vancouver Island are known to den in hollow trees, inside and under logs, under root masses, and inside the base of high cut stumps (>1.9 m high) (Davis 1996). Diameters of trees and logs used for denning are usually greater than 90 cm (average 143 cm) (Davis 1996). Western red cedar and yellow-cedar trees are used most often because they tend to rot inside while retaining a hard outer shell, creating a cavity in their centre. Natural openings in the butts or at branch holes above ground provide entrances for bears. Other tree species are also used. Davis (1996) found dens inside or associated with Douglas-fir, western hemlock, Sitka spruce, and Pacific silver fir.

Good denning habitat consists of denning structures within forest patches that provide as much security and thermal cover as possible. A patch width of 600m is considered necessary to provide adequate interior forest conditions for denning (MacHutchon 1996). However, some black bears den close to human activity. A female was denned within 60 m of the North Island Highway (Davis 1996) and Carney (1985) monitored six female bears that denned within 30 m of foot trails that were heavily used by people. Both authors also reported that bears often abandon their dens (and their cubs) when closely approached by investigators.

6.2.2. Active Season Habitat

From spring through fall, during their non-denning period, bears focus on habitats that provide good feeding opportunity, while at the same time providing security from other bears. The following summary of feeding habits is based on research conducted in Clayoquot Sound (MacHutchon 1999).

After den emergence, bears feed on emerging green vegetation such as sedges, grasses, horsetail, salmonberry stems and flowers, willow catkins and clover. These foods are most abundant in wetlands, creek mouths, ocean shores, clearcuts, roadsides and lawns. Throughout spring, they will scavenge winter-killed animals if available, and prey on deer fawns shortly after the fawns are born in the spring. Over summer, diets include berries, skunk cabbage and other plants. Intertidal areas provide crabs, barnacles and other invertebrates during all seasons. Bears feed on spawning salmon and their carcasses when they become available in late fall.

During periods of inactivity, bears use bed sites in forested areas beside foraging sites. Shrub and tree cover is used to avoid conflicts with other bears and humans. Females with cubs rely on trees that they can climb. They rarely forage greater than 100-200 m from a stand of trees that provides this type of security habitat (Wildlife Interpretations Subcommittee 1998). The more interconnected feeding habitats are, the easier it is for bears to move among these habitats securely.

6.3 Known Habitat Values Based on 2006 Surveys

There are several forest and shoreline types within the District of Ucluelet and they provide a variety of habitat values for bears in different seasons, depending upon their location along the peninsula and seasonal food availability (Figure 6; Table 2).

In general, the forested areas within the District of Ucluelet provide moderate and moderately high value habitats for foraging in summer and fall, whereas, the intertidal and associated forested areas along the inlet provide moderately high value habitat for foraging in early/late spring and moderate value in other seasons. Although a few of the creeks along the inlet, within Uclulet's jurisdiction, are known to have coho and cutthroat trout (S. MacDonald and D. Clough, pers. comm.), the numbers of fish are likely too low to be accessible when bears are in the area. Bears concentrate at larger fish-bearing streams across the inlet (e.g., Thornton Creek, Mercantile Creek, etc.) to feed on salmon in the fall.

Black bears can survive at low densities in low to moderate quality habitats spread over the landscape provided there are secure travel routes connecting these habitats. Black bears require forested travel routes in areas where the landscape is patchy or fragmented (MacHutchon 1999). Bears tend to move along paths of least resistance thus they are likely to use recreational trails through the forest and create trails along the shoreline of the inlet (as seen at Olsen Bay) and between pocket beaches on the outer coast (as seen off the woodchip trail from Ucluth Rd). They also create trails through open forest habitats that provide opportunities to forage on sedges and skunk cabbage in spring, and berries in summer/fall. Bear trails were evident in the muskeg forests (CwYc-Salal and

PlYc-sphagnum) that follow the low lying contours running parallel to the highway along the peninsula north west of the water tower hill. It does not appear that these forest types continue through the narrow neck of the peninsula between Olsen Bay and the outer coast, but another area of muskeg forest (CwYc-Salal and PlYc-sphagnum) occurs to the east, at the end of Cynamoka Rd and within Marine Drive Properties Rainforest Estates. Bears may move between these blocks of habitat by following the Wild Pacific Trail (WPT) along the outer shoreline or by paralleling the road along Olsen Bay before moving into the central forested area. There may be other trails that link habitat blocks that we did not find when we traversed the narrow neck of forest across from Olsen Bay.

Denning habitat was rated as moderately high value at these sites:

- the narrow forested area between Olsen Bay and the outer coast (the neck of the Peninsula),
- the forested area east of the small creek flowing into Olsen Bay,
- the forest inland and south of the large pocket beach along the outer coast off Fletcher Road, and
- the forest directly upslope of the water tower.

There may be other potential or existing denning areas in parts of the District Lands that we did not visit.

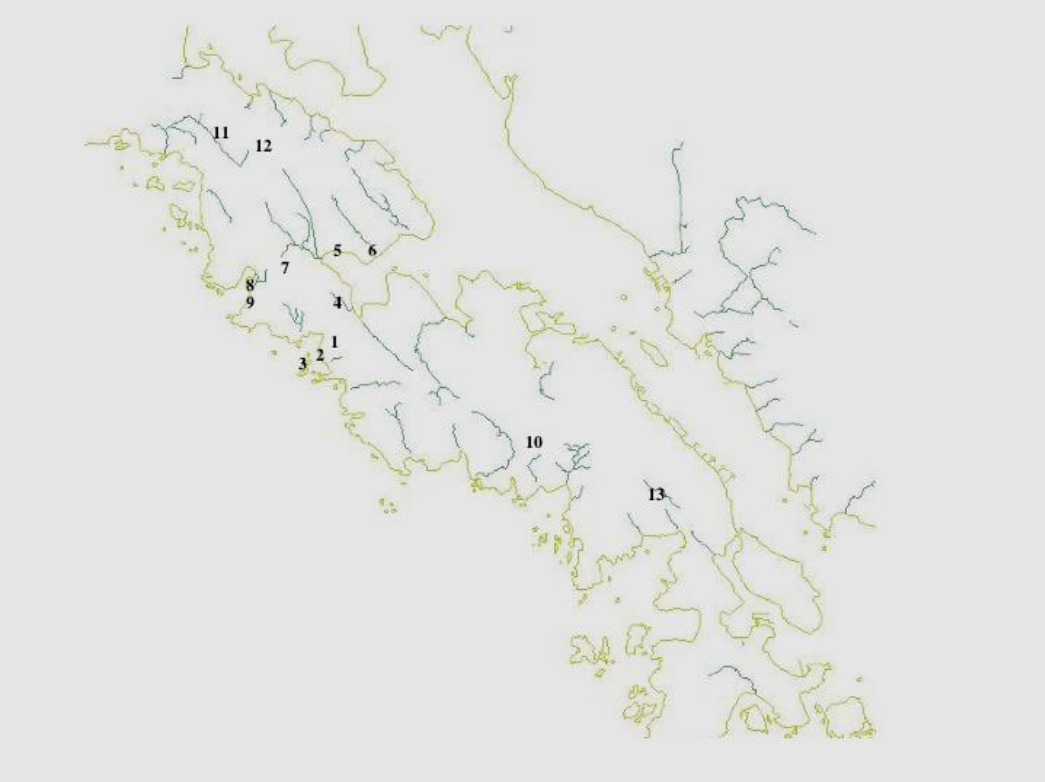

Figure 6. Sites where forest and shoreline types were identified and rated for bear habitat values in January, 2006. Refer to Table 2 for habitat values. Blue lines indicate streams.

Table 2. Description of habitat values for forest types and shoreline features assessed during field surveys in January 2006. Habitat values in all seasons except winter hibernation are a relative rating for all a bear's general living needs, including feeding, shelter, security cover and travel, but with an emphasis on feeding value. Habitat values are based on extensive field survey work in Long Beach Unit, PRNPR and Clayoquot Sound by MacHutchon 1999.

Habitat Values for Black Bears in each Season

Site	Description of Site	Early Spring	Late Spring	Summer	Fall	Winter Hibernation
1. Forest between Olsen Bay and outer coast	CwHw-Salal predominately old forest, some large diameter trees & downed logs A few small creeks, hollows and pools Nutrient poor Moderately wet	Very low	Low	Moderate -salal in openings	Moderate -salal in openings	Moderately high -possible den sites in old forest trees and downed logs
2. Forest along outer shoreline	Ss-Salal Rocky Headland, old forest, some large diameter trees Poor-med nutrients Slightly dry	Very low	Low	Moderately high - berry production high on forest edge	Moderately high -berry production high on forest edge	Moderate * *Denning in Sitka spruce forest is poorly studied.
3. Outer pocket beach with grass and sedge	Shell/stone beach with grasses and sedges Marine arthropods available all year round	Moderate -grass/ sedge shoots as well as arthropods	Moderate -crabs, and other arthropods	Moderate -Berries and arthropods	Moderate -Berries and arthropods	Very low
4. Olsen Bay shoreline	Grasses and sedges along the edge of the mudflat – clams & marine arthropods all year round	Moderately high	Moderately high	Moderate	Moderate	Very low
5. Forest along creek flowing into Olsen Bay	CwHw-Salal Mature/old forest Nutrient poor Moderately wet Not many shrubs, lots of trails (good trail along edge of old cut area) good access to intertidal foraging, shelter & security cover	Very low	Low	Moderate	Moderate	Moderately high -a few large cedars

Site	Description of Site	Early Spring	Late Spring	Summer	Fall	Winter Hibernation
6. Logged forest on inlet side peninsula S of Olsen Bay	CwHw-Salal Second growth forest - Canopy closed with little understory Nutrient poor Moderately wet Good access to intertidal foraging over an extensive shoreline	Moderate Low feeding value but provides shelter and security cover close to shoreline feeding area	Moderate Low feeding value but provides shelter and security cover close to shoreline feeding area	Low	Low	Very low
7. Logged forest along Ucluth Rd.	CwHw-Salal Shrub stage Nutrient poor Moderately wet	Low	Low	Moderately high -salal and evergreen huckleberries	Moderately high -salal and evergreen huckleberries	Very low
8. Beach off woodchip trail from Ucluth Rd.	Shell/stone beach with grasses Marine arthropods available all year round	Moderate -grass shoots as well as arthropods	Moderate - arthropods	Moderate -salal berries and arthropods	Moderate -salal berries and arthropods	Very low
9. Trail from beach to "Enchanted forest"	CwHw-Salal Old forest some large trees; Mark tree (bear scratches) at junction of trail from beach & woodchip trail; "Enchanted Forest" itself has low habitat value for bears.	Very low	Low	Moderate -salal berries in openings	Moderate -salal berries in openings	Moderately high -possible den sites
10. Marine Properties Rainforest Estates	CwYc-Salal Old/mature forest With wet pockets of PlYc-sphagnum	Very low	Low	Moderately high	Moderately high	Low

Site	Description of Site	Early Spring	Late Spring	Summer	Fall	Winter Hibernation
11. Forest between highway and outer coast NW of water tower	CwYc-Salal Old/mature Dense evergreen huckleberry	Very low	Low	Moderately high	Moderately high	Low
	With wet areas of PlYc-sphagnum Open muskeg forest, animal trails apparent Evergreen huckleberry still had some fruit	Moderate Travel primarily, but some feeding potential	Moderate Travel primarily, but some feeding potential	Moderate Travel primarily, but some feeding potential	Moderate Travel primarily, but some feeding potential	Low
12. Forest upslope behind water tower	CwHw-Salal/CwYc-Salal Old forest above cut around tower, some large trees	Very low	Low	Moderate	Moderate	Moderately high
13. Forest beside Elementary School	CwHw-Salal Mature forest, very wet creek, some salmonberry and sword fern indicating med soil nutrient regime	Very low	Low	Moderate -salal in openings	Moderate -salal in openings	Moderate -possible den sites, but high human use near area.

Recommendation 10. Limit development and human use of known moderately high value habitats within Ucluelet.

6.4 Maintaining known habitat and travel corridors

As development proceeds, it will be important to set aside moderate to high value habitats for black bears that is exclusive of development and human use, including recreational use. Lower quality habitats and areas near humans will continue to be used by bears, particularly less dominant bears. In these situations, with the support of expert input, it may be possible to promote tolerance for the presence of bears that are considered low risk to public safety. In such situations it would be appropriate to limit human use in time or space so that overlap in use by people and bears is minimized. On the basis of our January habitat surveys and over a decade of accumulated research experience on bear habitat use (G. MacHutchon, 2006), several implementation steps are recommended (listed in order of importance).

Implementation Step 10.1. Establish a continuous forested buffer (50-100 m or as wide as possible) along the inlet shoreline, especially around the mudflats at Olsen Bay, to provide a combination of shelter from weather, security cover and access to intertidal foraging. A number of wildlife species, in addition to bears, would benefit from protecting the mudflats of Olsen Bay with a shoreline buffer that extends to the highway. Show this zone on all planning maps, and restrict vegetation clearing to areas outside the zone.

Implementation Step 10.2. Establish a forested buffer (30-50 m or as wide as possible), as continuous as possible, along the Wild Pacific Trail to provide security cover for bears during the day, access to pocket beaches, salt marshes and berry bushes along the outer coast for foraging, and access to the trail for travel at night. Show this zone on all planning maps, and restrict vegetation clearing to areas outside the zone.

Implementation Step 10.3. Establish a forested buffer (30-50 m or as wide as possible) along both sides of all streams within the District, most of which run across the peninsula. Show this zone on all planning maps, and restrict vegetation clearing to areas outside these zones.

Implementation Step 10.4. Establish a forest buffer on both sides of the highway in places where it is needed to maintain connectivity of habitat parallel to the direction of the peninsula and to provide connectivity among habitats across the highway.

Implementation Step 10.5. Establish a forested buffer (30-50 m or as wide as possible) that surrounds and connects patches of muskeg forest (PlYc-Sphagnum site series) to other forest buffers along the WPT and along streams running across the peninsula. Distinct patches of open PlYc-Sphagnum northwest of the water tower and near Fletcher's road are easily located on the air photos.

Implementation Step 10.6. Establish a forested buffer (50 m or as wide as possible) around habitats with moderately high denning values. Show these zones on all planning maps, and restrict vegetation clearing to areas outside these zones.

Recommendation 11. Require that all environmental impact assessments identify moderate to high value bear habitats for denning, foraging, travel and security cover so that impacts to these habitats can be avoided.

6.5 Environmental Impact Assessments

Ucluelet's Official Community Plan specifies that environmental impact assessments must be prepared for subdivisions or development of parcels greater than 2.0 hectares in area for all types of developments and subdivisions. It is important that impacts of development on the seasonal requirements of bears for denning, food, shelter, security cover and travel be considered as part of the assessment.

Implementation Step 11.1. Require that a qualified environmental professional survey vegetation types within development areas and map all patches of vegetation classified as muskeg forest (PlYc-Sphagnum site series). Establish a 30 to 50 m (or as wide as possible) buffer zone around these patches and connect them to other buffered habitats wherever possible.

Implementation Step 11.2. Require that a qualified environmental professional survey large trees and large downed wood, root boles and stumps within development areas and map all structures that could be used for denning (see Section 6.2.1). Establish a 50 m buffer zone around these structures and connect them to other buffered habitats wherever possible.

Given the scope of development proposed for the District of Ucluelet, it will be important to plan development for the entire landscape at once so that moderate and moderately high value habitats set aside for bears and other wildlife can be interconnected. This will help bears move among habitats with minimal human interaction.

Recommendation 12. Restrict human use in areas that interconnect moderately high value habitats.

Implementation Step 12.1. Require that a qualified environmental professional review maps of bear habitat and draw buffers around them and corridors between them. Show the network of buffers and corridors on all planning maps, and restrict vegetation clearing to areas outside the network as much as possible.

Implementation Step 12.2 Build out development of one area at a time to minimize displacement of bears and ensure habitat connectivity.

6.6 Zoning Bylaws

The classification, P-1 Public Institutional, currently used to label environmentally sensitive areas (ESAs) under the zoning bylaw and map (District of Ucluelet, 2006) does not distinguish environmental values from other public use values. A new zoning type that clearly indicates the location of known ESAs would provide better guidance to developers. Figures 7 and 8 illustrate some of the ESAs identified by the assessment of Ucluelet for bear habitat.

Recommendation 13. Update zoning maps and zoning bylaw so that they distinguish environmentally sensitive areas from other public institutional areas.

Implementation Step 13.1. Include all saltmarsh habitats along the shoreline of Ucluelet's inlet and outer pocket beaches as environmentally sensitive areas and show their locations on zoning maps.

Implementation Step 13.2. Include riparian areas for streams, wetlands and shorelines as environmentally sensitive areas and show their locations on zoning maps.

Implementation Step 13.3. Include muskeg forests as environmentally sensitive areas and show their locations on zoning maps.

Figure 7. Known environmentally sensitive bog and salt marsh areas with natural forage for black bears along the Ucluelet Peninsula based on site visits and air photo interpretation with Grant MacHutchon in January 2006. An extensive ground survey was not completed. Environmental Impact Assessments need to include identification of bear habitats as part of the maps produced.

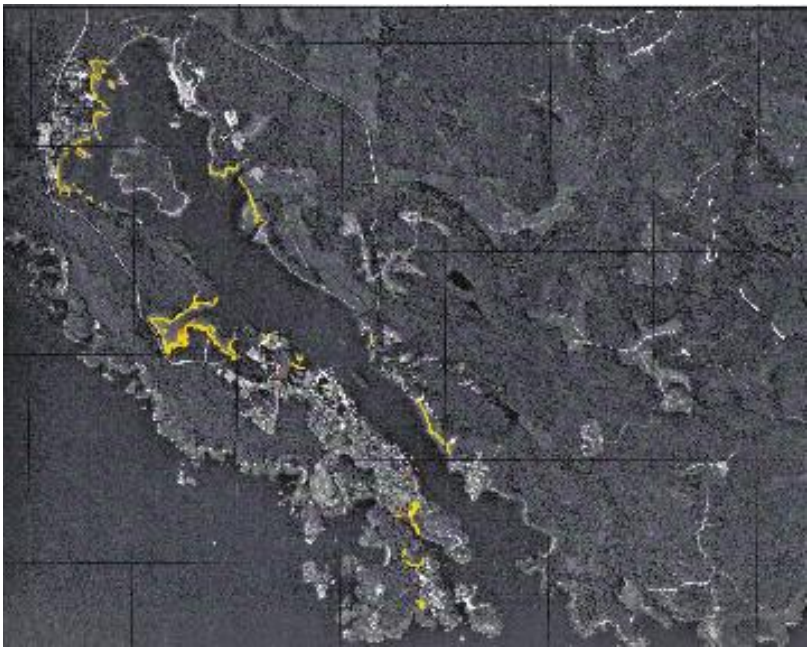

Figure 8. Map showing environmentally sensitive salt marshes and meadow areas with natural forage for black bears along the shoreline of Ucluelet Harbour. Taken from Johannes, M.R.S., L. Hanslit and J. Cleland. 2001. Ucluelet Inlet: Shoreline Atlas. Northwest Ecosystem Institute. Lantzville, B.C. 33pp. Yellow and red lines indicate locations of grasses and sedges at densities > 30 stems/m^2.

Recommendation 14. Amend the Official Community Plan to include recommendations on development planning from the Bear Hazard Assessment and Human-Bear Conflict Management Plan.

6.7 Amendments to the Official Community Plan

Limiting development on private lands is potentially challenging from an economic perspective. However, the recommendations in this plan are supported by the guiding principles and policies in the current OCP for the District of Ucluelet (2004). Sections of the OCP clearly call for protection of environmentally sensitive areas (ESAs) and steps to reduce the detrimental environmental effects of development (Table 3).

Table 3. Specific development policies in Ucluelet's current OCP related to the environmental effects of development (District of Ucluelet, 2004). Ways in which the Conflict Management Plan with further strengthen these policies are indicated in italics within parentheses.

Section Title:	**Natural Environment**
1.	"Identify, protect and enhance environmentally sensitive areas (ESA). These include natural watercourses, marine foreshore areas, and steep rocky terrestrial areas." *[Also designate adjacent forested habitat as ESAs as described in Section 6.4 above.*]
2.	"Require developers to follow the best development practices within the Ministry of Water, Land and Air Protection, Land and Parks (BC Environment – Vancouver Island Region)." **[***Current BMPs do not adequately consider requirements for managing human-bear interactions. In addition to BMPs, developers must consider ways of providing sufficient habitat for bears and connectivity between habitats.]*
3.	"Require environmental impact assessments prepared for subdivisions or development of parcels greater than 2.0 hectares in area for all types of developments and subdivisions." *[Environmental impact assessments may be justified not only on the basis of size but also according to the value and diversity of habitat types within the land parcel.]*
4.	"Identify natural watercourses, including tributaries, and maintain them in a natural state, through designation as ESAs. Discourage development of floodplains and estuaries." *[Also discourage development within vegetated riparian areas around these watercourses, floodplains and estuaries.]*
5.	"Limit or prohibit development within ESAs with guidelines and bylaws to protect the environment." *[Buffer ESAs - See recommendations for widths of buffers in Section 6.4 above.]*
Section Title:	**Development Permit Area No. 8 – Weyerhaeuser Lands**
3.	"Maintain and create 100% of the Wild Pacific Trail along the coastline, where feasible on properties located along the waterfront." *[Provide a forested buffer along this trail as it will very likely be a travel corridor for bears. Avoid building the trail in areas with high concentrations of*

	natural attractants and ensure sight lines are a minimum of 30 m to reduce the likelihood of surprise encounters between humans and bears.]
6.	"Buildings, structures, campsites and roads shall be located so as to minimize alterations to foreshore, treed areas and other environmentally sensitive areas." *[Olsen Bay, other shoreline marshes/meadows and forested riparian areas are ESAs and should not be altered by development.]*
7.	"An "Environmental Impact Assessment" shall be required to evaluate the impacts of a proposed development on the natural environment." *[Include impacts on seasonal requirements of black bears for food, shelter, security cover, hibernation and travel among habitats. Also include requirements for green space management – see section 7]*
11.	"A 30-metre wide tree strip shall be provided along the Pacific Rim Highway." *[The strip will serve as bear habitat and security cover as well as an attractive entrance to the community. Road right-of-way needs to be planned carefully so that vegetation does not attract bears.]*

Implementation Step 14.1. The WCBAC will work with the District Planner to have relevant recommendations from the Bear Hazard Assessment and Human-Bear Conflict Management Plan adopted by Ucluelet Mayor and Council as an amendment to the OCP.

6.8 Summary Plan for Bear Smart Development

Recommendation 10: Limit development and human use of known moderately high value habitats within Ucluelet.

Implementation Steps	Who is responsible	Expected Date
1. Establish a continuous forested buffer (50-100 m or as wide as possible) along the inlet shoreline, especially around the mudflats at Olsen Bay, to provide a combination of shelter from weather, security cover and access to intertidal foraging. A number of wildlife species, in addition to bears, would benefit from protecting the mudflats of Olsen Bay with a shoreline buffer that extends to the highway. Show this zone on all planning maps, and restrict vegetation clearing to areas outside the zone.	District Planner & Council, Developers	July 06
2. Establish a forested buffer (30-50 m or as wide as possible), as continuous as possible, along the Wild Pacific Trail to provide security cover for bears during the day, access to pocket beaches, salt marshes and berry bushes along the outer coast for foraging, and access to the trail for travel at night. Show this zone on all planning maps, and restrict vegetation clearing to areas outside the zone.	District Planner & Council, Developers	
3. Establish a forested buffer (30-50 m or as wide as possible) along both sides of all streams within the District, most of which run across the peninsula. Show this zone on all planning maps, and restrict vegetation clearing to areas outside these zones.	District Planner & Council, Developers	
4. Establish a forest buffer on both sides of the highway in places where it is needed to maintain connectivity of habitat parallel to the direction of the peninsula and to provide connectivity among habitats across the highway.	District Planner & Council, Developers	

5.	Establish a forested buffer (30-50 m or as wide as possible) that surrounds and connects patches of muskeg forest (PlYc-Sphagnum site series) to other forest buffers along the Wild Pacific Trail and along streams running across the peninsula. Distinct patches of open PlYc-Sphagnum northwest of the water tower and near Fletcher's road are easily located on the air photos.	District Planner & Council, Developers
6.	Establish a forested buffer (50 m or as wide as possible) around habitats with moderately high denning values. Show these zones on all planning maps, and restrict vegetation clearing to areas outside these zones.	District Planner & Council, Developers

Recommendation 11: Require that all environmental impact assessments identify moderate to high value bear habitats for denning, foraging, travel and security cover so that impacts to these habitats can be avoided.

	Implementation Steps	Who is responsible	Expected Date
1.	Require that a qualified environmental professional survey vegetation types within development areas and map all patches of vegetation classified as muskeg forest (PlYc-Sphagnum site series). Establish a 30 to 50 m (or as wide as possible) buffer zone around these patches and connect them to other buffered habitats wherever possible.	District Planner & Developers	Sept 06
2.	Require that a qualified environmental professional survey large trees and large downed wood, root boles and stumps within development areas and map all structures that could be used for denning. Establish a 50 m buffer zone around these structures and connect them to other buffered habitats wherever possible.	District Planner & Developers	

Recommendation 12: Restrict human use in areas that interconnect moderately high value habitats.

Implementation Steps	Who is responsible	Expected Date
1. Require that a qualified environmental professional review maps of bear habitat and draw buffers around them and corridors between them. Show the network of buffers and corridors on all planning maps, and restrict vegetation clearing to areas outside the network as much as possible.	District Planner, Council & Developers	Sept 06
2. Build out development of one area at a time to minimize displacement of bears and ensure habitat connectivity.	District Planner & Developers	ongoing

Recommendation 13: Update zoning maps and zoning bylaw so that environmentally sensitive areas are distinguished from other public institutional areas.

Implementation Steps	Who is responsible	Expected Date
1. Include all saltmarsh habitats along the shoreline of Ucluelet's inlet and outer pocket beaches as environmentally sensitive areas and show their locations on zoning maps.	District Planner, Council & Developers	Sept 06
2. Include riparian areas for streams, wetlands and shorelines as environmentally sensitive areas and show their locations on zoning maps.	District Planner & Developers	ongoing
3. Include treed muskeg bog as environmentally sensitive areas and show their locations on zoning maps.		

Recommendation 14. Amend the Official Community Plan to include recommendations on development planning from the Human-Bear Conflict Management Plan.

	Implementation Steps	Who is responsible	Expected Date
1.	Work together to have recommendations for development planning from the Human-Bear Conflict Management Plan adopted by Ucluelet Mayor and Council as an amendment to the OCP.	WCBAC, District Planner & Council	July 06

7.0 Greenspace Management

7.1 Background from Bear Hazard Assessment

Bears have been known to frequent properties, in Ucluelet, that have abundant natural food attractants (Spooner 2006). These include berry bushes, crabapple trees, grasses, sedges, skunk cabbage, horsetails and other foods. The risk of human-bear encounters is higher in areas with good natural forage, particularly if the surroundings also have poor visibility. If vegetation or other features obstruct the ability to see bears, then the chance of surprise encounters increases.

Ucluelet has several human-use areas with a high risk of human-bear conflict due to natural attractants and poor visibility. These include the primary and secondary school grounds, the Wild Pacific Trail, the campgrounds, new development areas such as Marine Drive, Little Beach, several locations along the bike path and other areas with high berry concentrations (Spooner 2006).

In the past, bears have become habituated and conditioned to feeding on roadside areas hydro-seeded with grass mixes containing clover, an exotic species, attractive to bears (Spooner 2006). Trails, new developments, and road right-of-ways are all areas where clover is commonly planted. Roadside clover has contributed, in some years, to the chronic occurrence of "bear jams" (large numbers of vehicles parked haphazardly to view the bear) and to people enticing bears with food to get them to come close enough to photograph. Many of the roadside locations with clover are sites where bears have been hit by vehicles.

As development of undeveloped land proceeds, bears will be attracted to green spaces that are opened up when trees are cleared. Removal of canopy cover increases the productivity of natural food plants, especially berries. In addition, people often plant species that are attractive to bears. Lawns in playgrounds, parks and the golf course will be especially attractive. Bears will not exclusively use habitats set aside for them if there are better foraging opportunities in other areas.

Recommendation 15. Avoid the use of major food plants for bears as much as possible in landscaping cleared areas of high human use such as school grounds, municipal parks, resorts, residential and business yards and campgrounds.

Implementation Step 15.1. Make planner and public works staff aware of known major food plants eaten by bears in the region. Provide a list of plants that are not known to be attractants.

Implementation Step 15.2. Encourage developers to landscape cleared areas with non-attractant native plants by providing them with a list.

Implementation Step 15.3. Visit development sites and provide recommendations for landscaping that will reduce the risk of human-bear conflict, particularly surprise encounters (i.e., minimize bear habitat quality and maximize visibility).

7.2 Natural Attractants and Non-Attractants

MacHutchon (1999) determined the seasonal food habits of black bears in Clayoquot Sound by collecting and analyzing 293 scat samples between April and October in 1997 and 1998. Table 4 lists the known major and minor food plants in our region. Appendix C provides a list of all plants eaten by black bears known from research conducted in other coastal areas of B.C., in addition to Clayoquot Sound.

Table 5 includes a list of native plants that would be preferable for landscaping. These plants are not known to occur in the diet of black bears on the coast, thus, they are considered to be non-attractants.

Table 4. Plants eaten by Black Bears in Clayoquot Sound.

A * indicates it was found in > 5% of 293 scat samples collected in 1997-98 (MacHutchon 1999); spring = Apr. - May; summer = June - Aug.; fall = Sept. - Oct.

Common Name	Scientific Name	Portion Consumed	Season
MAJOR PLANT FOODS			
Grasses and Sedges:			
grasses (bent grasses, oat grasses, wildrye, fescues, meadow barley) *	Poaceae (*Agrostis spp. Aveneae, Elymus sp., Festuceae, Hordeum brachyantherum, Calamagrostis canadensis*)	leaves, flowers	spring, summer, fall
sedges *	Carex spp. (*Carex lyngbyei* and others)	leaves, flowers	spring, summer, fall
Horsetails:			
horsetail *	*Equisetum spp.*	stems, branches	summer
Herbs:			
skunk cabbage *	*Lysichiton americanum*	underground stems, leaves	spring, summer, fall
apargidium * (similar to a dandelion)	*Microseris borealis*	stems, leaves	summer
clover *	*Trifolium spp*.	stems, leaves	spring, summer, fall
Shrubs:			
kinnikinnick	*Arctostaphylos uva-ursi*	stems, leaves, fruit	summer, fall
salal *	*Gaultheria shallon*	flowers, fruit	summer, fall
devil's club *	*Oplopanax horridus*	stems, leaves, fruit	spring, summer
thimbleberry	*Rubus parviflorus*	stems, leaves, fruit	spring, summer
salmonberry *	*Rubus spectabilis*	stems, flowers, fruit	spring, summer, fall
willow	*Salix* spp.	catkins	spring
red elderberry	*Sambucus racemosa*	stems, fruit	summer
Alaskan blueberry	*Vaccinium alaskaense*	leaves, fruit	summer, fall
blueberry, huckleberry *	*Vaccinium spp (V. ovalifolium, V. uliginosum, V. membranaceum)*	leaves, fruit	summer, fall
Fungi:			
bracket fungus *		fruiting body that grows on tree	summer, fall

Table 4 Continued. Plants eaten by Black Bears in Clayoquot Sound.
A * indicates it was found in > 5% of 293 scat samples collected in 1997-98 (MacHutchon 1999); spring = Apr. - May; summer = June - Aug.; fall = Sept. - Oct.

Common Name	Scientific Name	Portion Consumed	Season
MINOR PLANT FOODS			
Herbs:			
various wildflowers	Asteraceae	stems, flowers	
lady fern	*Athyrium filix-femina*	fronds	Spring, summer
pacific hemlock-parsley	*Conioselinum pacificum*	stems, leaves	spring
hairy cat's-ear	*Hypochaeris radicata*	flowers	
wall lettuce	*Lactuca muralis*	stems, leaves	spring, summer
pacific water-parsley	*Oenanthe sarmentosa*	stems, leaves	summer, fall
sweet-cicely	*Osmorhiza* spp.	leaves, fruit	summer
Shrubs:			
bunchberry	*Cornus canadensis*	fruit	fall
crowberry	*Empetrum nigrum*	leaves, fruit	
black twinberry	*Lonicera involucrata*	fruit	summer
pacific crab apple	*Malus fusca*	fruit	summer, fall
stink currant	*Ribes bracteosum*	fruit	summer, fall
five-leaved bramble	*Rubus pedatus*	fruit	summer
twisted stalk	*Streptopus* sp.	fruit	
evergreen huckleberry	*Vaccinium ovatum*	leaves, flowers, fruit	fall
red huckleberry	*Vaccinium parvifolium*	stems, leaves, fruit	summer, fall

Table 5. Recommended Native Plant Species for Landscaping.
Compiled by Wanda McAvoy, District of Ucluelet Landscape Gardener.

Common Name	Botanical Name	Attractant Level	Comments
Evergreen Trees			
Western Red Cedar	*Thuja plicata*	Low	Moist to wet sites; low to mid elevations; BC provincial tree; coniferous
Western Hemlock	*Tsuga heterophylla*	Low	Dry to wet sites; low to mid elevations; coniferous
Douglas Fir	*Pseudotsuga menziesii*	Medium	Dry to moist sites; low elevations; coniferous
Amabalis Fir	*Abies amabalis*	Medium	"
Scrub/Shore Pine	*Pinus contorta*	Low	Highly adaptable to coastal BC; low to mid elevations; coniferous
Lodgepole Pine	*Pinus contorta latifolia*	Low	"
Western White Pine	*Pinus monticola*	Low	"
Pacific/Western Yew	*Taxus brevifolia*	Low	Similar to western red cedar
Sitka Spruce	*Picea sitchensis*	Low	Dry to moist sites; likes full sun; coniferous
Deciduous Trees			
Red Alder	*Alnus rubra*	Medium	Moist sites; mid to sub-alpine elevations
Sitka Alder	*Alnus sinuate/sitchensis*	Medium	"
Bigleaf/Broadleaf Maple	*Acer macrophyllum*	Low	Dry to moist sites
Vine Maple	*Acer circnatum*	Low	Moist sites with drainage; shade tolerant; low to mid elevations; bright fall colours in full sun
Shrubs Lacking Berries			
Labrador Tea	*Ledum groenlandicum*	Medium	Moist sites; low to mid elevations;small white flowers June-July; succeeded by dry, hairy fruits
Mock Orange	*Philadelphus lewisii*	Low	Moist & rocky sites; low elevations; likes shade; showy orange-white blossoms in June
Shrubby Cinquefoil	*Potentilla fruticosa*	Low	Moist to rocky sites; bright yellow blooms June-Sept.; widely planted as ornamentals
Water Birch	*Betula occidentalis*	Low	Moist sites along margins of lakes/streams
Falsebox	*Pachistima myrsinites*	Low	Low-growing evergreen in damp coniferous forests; reddish flowers bloom in small tight clusters along stem
Hardhack	*Spiraea douglasii*	Low	Damp, open areas at low to mid elevations; showy pink flowers bloom in dense, cylindrical clusters
False Azalea	*Menziesia ferruginea*	Low	Shady to open forests; acidic humus, moist slopes and streambanks.
Pacific Ninebark	*Physocarpus capitatus*	Low	Often found in dense thickets; white flowers grow in tight, round , terminal clusters Apr-June; red-brown seed husks in fall; wet, open places; coastal marshes, streamsides, lake margins or understory of moist woods

Table 5 Continued. Recommended Native Plant Species for Landscaping.
Compiled by Wanda McAvoy, District of Ucluelet Landscape Gardener.

Common Name	Botanical Name	Attractant Level	Comments
Sweet Gale	*Myrica gale*	Low	Low, bushy; long narrow, leathery leaves; fragrant, yellow waxy glands release scent wjhen lightly brushed; flowers are born in catkins, in many clustered terminal spikes; male & female flowers occur on separate plants Apr-June, before leaves; along coast in swamps, bogs, lakeshores & estuaries
Oceanspray	*Holodiscus discolor*	Low	Sun to Semi-Shade; foamy sprays of creamy flowers in mid-summer; lilac-like clusters; flowers turn brown & remain on plant over winter; grows in open dry woods, clearings, thickets, logged areas, ravine edges, coastal bluffs & roadsides
False Azalea	*Menziesia ferruginea*	Low	Erect to straggly, shady to open coniferous woods, acidic humus.
Evergreen Shrubs Lacking Berries			
Juniper, Common/Mountain/Creeping	*Juniperus communis Juniperus horizontalis*	Medium	Prickly; good for xeriscape; many cultivars available
Mahonia/Oregon Grape	*Mahonia aquifolium*	Low	Dry to moist sites; well-drained; low to mid elevations
Pacific Rhododendron	*Rhododendron macrophyllum*	Low	Spectacular floral display in late spring; moist to dry sites; sun/shade; grows well in coniferous/mixed forests
California Wax-Myrtle	*Myrica californica*	Low	Coastal forest edges.
Ferns			
Maidenhair Fern	*Adiantum pedatum*	Low	Humus rich soils close to streams or waterfalls; low to mid elevations; deciduous; damp shade; graceful & delicate
Lady Fern	*Athyrium filix-femina*	Low	Moist to wet; all elevations; forest to meadow; shade; deciduous; dense clumps; lacy, bright green fronds
Deer Fern	*Blechnum spicant*	Low	Moist to wet forests; all elevations; evergreen; dark green fronds; drought tolerant; part sun to deep shade
Sword Fern	*Polystichum munitum*	Low	Moist forest; low to mid elevations; magnificent ornamental evergreen with glossy, dark green, leathery fronds; dense clumps; sun to shade
Licorice Fern	*Polypodium glycyrrhiza*	Low	Sometimes summer deciduous & winter evergreen; shade/sun; wet, mossy ground; grows on stumps, rocks & trees-often on bigleaf maple
Spiny Wood Fern	*Dryopteris expansa*	Low	Semi-evergreen; vigorous; triangular-shaped fronds; moist soil in filtered shade

Table 5 Continued. Recommended Native Plant Species for Landscaping.
Compiled by Wanda McAvoy, District of Ucluelet Landscape Gardener.

Common Name	Botanical Name	Attractant Level	Comments
Perennials/Wildflowers & Ground Covers			
Wild Lily-of-the-Valley	*Maianthemum dilatatum*	Low	Groundcover/wildflower with delicate clusters of white flowers
Wild Ginger	*Asarum caudatum*	Low	Mat-forming evergreen perennial; purple-brown flowers in Apr.; sweet scent; partial shade to sun; moist well-drained soil
Foxglove	*Digitalis purpurea*	Low	Wildflower; purple/pink/white;
Goat's Beard	*Aruncus dioicus*	Low	Wildflower; cream flower sprays; damp shade
Douglas Aster	*Aster douglasii*	Low	Purple wildflower, disturbed open areas
Western Bleeding Heart	*Dicentra formosa*	Low	Moist, shade
Western Trillium	*Trillium ovatum*	Low	Moist, shaded open areas
Nodding Onion	*Allium cernuum*	Low	Dry open woods and exposed grassy places, rocky crevices and sandy soils
Pearly Everlasting	*Anaphalis margaritacea*	Low	Wildflower, yellow centres and white petals, disturbed soil.
Indian Paintbrush	*Castilleja*	Low	Wildlflower, perennial, scarlet bracts.
Bog Rosemary	*Andromeda polifolia (Heath family)*	Low	Low-spreading evergreen with small pink flowers, boggy, acidic soils
Yellow Monkey Flower	*Mimulus guttatus*	Low	Yellow figwort flower, wet ledges, crevices, weeping rock faces
Lupine	*Lupinus polyphyllus*	Low	Blue to violet pea-like flowers, perennial, moist to wet open habitats and disturbed sites.
Stream Violet	*Viola glabella*	Low	Yellow wildflower, heart-shaped leaves, moist forests and clearings, along streams
Foamflower	*Tiarella trifoliata*	Low	Delicate white flowers, moist shade, seepage areas.
Fawn Lily	*Erythronium*	Low	Pink fawn lilies require open to dense moist woodlands.
Gentian	*Gentianella*	Low	King Gentian has blue flowers, Swamp Gentian has white flowers, both grow in boggy areas or wet ditches.
Moss Campion	*Silene acaulis*	Low	Showy pink, lilac or purple flowers; moist rock crevices.
Yellow Marsh-Marigold	*Caltha palustris var. palustris*	Low	Wetland plant; deep yellow, buttercup like flower July-Aug.
Phlox	*Phlox spp.*	Low	Perennial, showy pink to lavender or white flowers. Herbaceous border; sun
Coltsfoot	*Petasites palmatus*	Medium	Tall ground cover; damp in full sun/partial shade; large deeply divided basal leaves; pale pink flower heads in spring; rhizomus
Buck-Bean	*Menyanthes trifoliate*	Medium	Semi-aquatic; shallow ditches/bog areas; tubular white flowers with glistening hairs on upper surface & feathery appearance in May-June

Table 5 Continued. Recommended Native Plant Species for Landscaping.
Compiled by Wanda McAvoy, District of Ucluelet Landscape Gardener.

Common Name	Botanical Name	Attractant Level	Comments
Common Yarrow	*Achillea millefolium*	Low	Aromatic herb; unusual fern-like leaves; dense clusters of round, yellow-centered, daisy-like flowers June-Aug.
Red/Western Columbine	*Aquilegia Formosa*	Low	Wildflower; lowlands to timberline; nodding crimson/yellow flowers May-Aug.; soft, lime green ferny leaves
Twinflower	*Linnaea borealis*	Low	Forest; acid soils; low elevation to timberline; charming low evergreen ground cover about 1" high; tiny evergreen leaves with small trumpet-shaped pink flowers; partial-full shade

7.3 Areas with high concentrations of natural attractants

We estimate that berry bushes and other major plant foods make up over 75% of the vegetated ground cover within the District of Ucluelet and surrounding areas. It would be impossible and undesirable to remove, replace or alter all that vegetation. Instead, it is best to focus on sites with particularly high concentrations of natural attractants near high human-use areas. At these sites, berry patches should be brushed, and trimmed prior to the berry-producing season. Grassy fields with clover should be cut short. Vegetation that impedes visibility should be removed or thinned. The West Coast Bear Aware Committee can provide advice for managing natural attractants on a site-specific basis.

The District should prevent future seeding of clover and clover mixtures. Areas that have already been seeded, and are not cut regularly, need to be replanted with non-attractants.

Recommendation 16. In areas with high human use, especially schools and parks, trim and brush out berry patches, and thin or remove vegetation that impedes visibility. Install fencing as a barrier between playing fields and the adjacent forest. Remove berry-producing shrubs back at least 3 m from the fencing. Keep grass, clover and horsetails cut short.

7.3.1 Schools

Although there were only a few reports of bears at the school and sports fields between 1999 and 2005, the concentration of children and the proximity of natural attractants create concern. Ucluelet's elementary and secondary school yards are adjacent to well-used bear habitat. The forest on one side of the Ucluelet Elementary School is partly separated from the yard with a 1.5 m (5 feet) high fence. Berry bushes line the edges of the sports field and there are a few patches of forest between the school buildings and between the secondary school and the sports field.

The sports field needs to be fully enclosed with a fence that is 2 to 2.5 m (6 to 8 feet) high with no barbed wire (B. York, pers. comm.). Fences do not stop bears but can deter them. Barbed wire does not stop bears and may be a safety risk to children. Gates should be

installed in several places along the fence, especially the corners, so that if a bear were inside the yard, it could be herded through the gate into the green space beyond by a conservation officer.

Berry bushes should be kept cut back at least 3 m away from the fence. Bushes within the forest patches around the school buildings should be kept low so that visibility is not constrained. The school field should be kept cut short.

Implementation Step 16.1. Install fencing and control natural attractants at the school grounds.

7.3.2 Recreation Hall Playing Field

The Recreation Hall playing field is fully enclosed in a 1.2 m high fence with gates at the corners. Two sides of the fence (adjacent to the forest and parking lot) have a net that extends an additional 4 m high. There are large patches of salmonberry and blackberry adjacent to the parking lots and along the forested edge of the field.

Berry bushes should be kept cut back at least 3 m away from the fence. The playing field grass should be kept cut short and areas with clover should be reseeded with grass.

Implementation Step 16.2. Maintain fencing and control natural attractants at the Recreation Hall Playing Field.

7.3.3 Skateboard Park, Big Beach Park and other Municipal Parks

Ucluelet public lands are rich in natural attractants that are widely dispersed, rather than being concentrated in a few locations that would be easy to manage. The priority should be on controlling attractants, increasing visibility, and, if necessary, installing fences where children play. Berry bushes should be trimmed back away from around the Skateboard Park, Basketball Court, BMX area, and picnic areas at Big Beach Park and all other play areas in municipal parks. Cleared roadside areas that have been colonized with blackberries, horsetails and clover should be replanted with non-attractant native plants, particularly in areas such as the parking lot for Big Beach. Diverse plantings should be encouraged to avoid any possible unknown attractants from becoming concentrated at high densities.

Implementation Step 16.3. Control natural attractants around the Skate park, Big Beach park picnic area, and parking lots. Replant with diverse non-attractant plants.

7.3.4 Little Beach

A large patch of berry bushes fills the area behind Little Beach. It could be a very attractive food source for bears, as it is for people who pick berries. WCBAC should work with the Ucluelet First Nation, the B.C. Heritage Branch and the District to determine how to manage the risks of human-bear encounters at the site. Educational signs should be installed to make people aware of the presence of bears and the risk of

surprising them at Little Beach. Bushes along the parking area, outhouse, and trail to the beach should be trimmed back.

Implementation Step 16.4. Consult with Ucluelet First Nation, B.C. Heritage Branch and the District to devise a plan for controlling natural attractants at Little Beach.

Recommendation 17. Cut back vegetation and thin forested edges so that visibility is improved along the length of the Wild Pacific Trail and all other forested trails. Install signs with bear awareness information, monitor the trail for bear activity, and develop a trail closure procedure for occasions when bears persist in particular areas. Plan all future trail extensions for areas with low-density natural foods.

7.3.5 Wild Pacific Trail and other municipal trails

The Wild Pacific Trail is used as a travel corridor by bears. It provides access to many foraging sites, such as the small pocket beaches with sedges and grasses. People walk the trail to enjoy the wilderness so we do not recommend altering the native vegetation, except to improve sight lines. Ideally, a bear on the trail should be visible before walking right up to it. This is not possible in all sections of the existing trail, thus signage, encouraging people to make noise when they hike, is important.

It would be prudent for the trail to be monitored regularly. Warning signs should be posted whenever a bear is seen in the area. Temporary closure of sections of the trail may be necessary if bears choose to feed on natural attractants along or near the trail for a period of time.

Future sections of the trail should be located away from areas with natural attractants as much as possible. Consider making new sections of the trail wider and straighter to improve sight lines in areas with concentrated bear foods.

Implementation Step 17.1. Design, produce and install signage to make people aware that bears use the trails. Provide information about when to hike, how to make noise to reduce the chance of encountering a bear, as well as, what to do if a bear is encountered.

Implementation Step 17.2. Monitor the trail for bear sightings and human-bear interactions. Post notices when bears are in the area. Remove notices after bears have moved out of the area.

Implementation Step 17.3. Develop a trail closure procedure for occasions when bears persist in particular sections of trails.

Implementation Step 17.4. Improve sight lines on the existing trail sections, especially in areas with a high density of natural attractants such as berry bushes, cow parsnip, sedges, and horsetail.

Implementation Step 17.5. Plan future extensions of the Wild Pacific Trails and other trails in areas with lower densities of natural attractants. Establish the trail in a way that allows people to see bears ahead, especially in areas where there are natural attractants.

7.3.6 Campground

Ucluelet's main campground is close to the centre of town, and has a mixture of forested, field and harbour front sites. Salmonberry is the predominant shrub cover along the roadways and paths. Patches of thimbleberry, salal, and blackberry are dispersed in several areas inside, and along the borders of the campground. These shrubs are valuable in terms of providing privacy and a natural wilderness setting.

Recommendation 18. Control natural attractants at the Ucluelet Campground.

Risks associated with natural attractants throughout the campground will be reduced by thinning berry shrubs and keeping grass and horsetails cut short, especially in areas that are close to tent sites, wash stations, garbage containers and washrooms. The recent removal of blackberries along Seaplane Base Road will help reduce the attraction of bears to camp sites on the west side. Other large productive berry bushes line the borders of the campground along Peninsula Road, behind the Toquaht Band Office parking lot, and along the Inner Harbour. Replanting with non-attractant shrubs, and installing fences (which has already been done in some areas) would further reduce the risks. It is not necessary to replace berry bushes completely, but rather to thin them amongst other species to reduce the concentration of the food source. Thinning berries and underbrush is also important for ensuring good visibility of bears that move through the site.

Implementation Step 18.1. Map out areas in the campground where the risk of an encounter between a person and a bear is high, e.g., wash stations, garbage containers, etc.

Implementation Step 18.2. Remove and trim berry bushes and other natural attractants from high risk areas within the campground. Thin vegetation to improve visibility of bears from a greater distance.

See Section 3.9 on management of garbage and non-natural attractants in the campground.

7.3.7 Peninsula Road, Village Square and Imperial Lane

Bears that visit Peninsula Road, the Village Square and Imperial Lane in downtown Ucluelet are usually seeking garbage. However, natural attractants, such as blackberry, elderberry and salmonberry are common around the back of buildings and near dumpsters.

Recommendation 19. Clear vegetation away from the rear of buildings and around dumpsters on residential, commercial and public properties.

Commercial property owners have reduced their number of bear sightings by clearing blackberry bushes (B. Payne, pers. comm.). We recommend that all businesses, and especially those that have had a history of bears getting into garbage, clear berry bushes from their property and thin out vegetation near garbage receptacles, or move receptacles to cleared areas. This is especially important for properties that back onto extensive areas of forest along the west side of Peninsula Road and the north side of Main Street.

There is very little security cover available along Imperial Lane, except along the slope at Fifty-two Steps down to the Government Dock. Vegetation should be brushed away from around the dumpster at the top of 52 Steps.

Implementation Step 19.1. Use media to make residents and commercial property owners and managers aware of the ways to reduce surprise encounters with bears by brushing and thinning natural attractants near buildings and dumpsters.

Implementation Step 19.2. Offer to visit properties, if requested, and provide advice on how to make vegetation less attractive to bears and reduce the risk of people having a surprise encounter with a bear.

7.3.8 District Lot 281, 282, Black Rock, Reef Point, The Edge, The Cabins and Hyphocus Island

District Lot 281 and several other newly developed areas in town are rich in natural attractants and bear travel paths are common. As described above, berry bushes should be trimmed back away from residences and children's play areas. Fencing would provide an additional measure of security. Non-attractant native plants should be used to landscape recently cleared areas in close proximity to houses and resorts.

Information about the high habitat values of salt marsh meadows and intertidal areas should be provided and people should be encouraged to allow bears to feed undisturbed along the mudflats and meadows of Spring Cove as well as the outer coastline. Residents and visitors need to be educated about the likely presence of bears in these areas, how to avoid encounters, and how to react safely if they do see a bear.

Recommendation 20. Promote tolerance for bears among residents and property managers, especially in recently developed areas adjacent to high value bear habitats.

Implementation Step 20.1. Use media to make residents and property managers aware of the importance of allowing bears to feed undisturbed on natural foods in areas along the outer coast and on the mudflats and meadows of Ucluelet Inlet, including Spring Cove.

Implementation Step 20.2. Post signs in areas that are frequently used by bears such as Little Beach, Spring Cove, etc., warning people of the risk of encountering bears

and advising them to make noise, be alert, and keep their distance or avoid the area in times of high bear use.

7.3.9 Weyerhaeuser Lands

New trails and developments within the Weyerhaeuser Lands should be located away from areas of high natural attractiveness. See Section 6 for planning recommendations.

7.4 Summary of Plan for Greenspace Management

Recommendation 15: Avoid the use of major food plants for bears as much as possible in landscaping cleared areas of high human use, such as school grounds, municipal parks, resorts, residential and business yards, and campgrounds, but do not attempt to replace all natural attractants.

Implementation Steps	Who is responsible	Expected Date
1. Make planner and public works staff aware of known major food plants eaten by bears in the region. Provide a list of plants that are not known to be attractants.	WCBAC	July 06
2. Encourage developers to landscape cleared areas with non-attractant native plants by providing them with a list.	District Planner & Developers	Spring 07
3. Visit development sites and provide recommendations for landscaping that will reduce the risk of human-bear conflict, particularly surprise encounters, (i.e., minimize bear habitat quality and maximize visibility).	WCBAC, District Planner	Spring 07

Recommendation 16: In areas with high human-use, especially schools and parks, trim and brush out berry patches and thin or remove vegetation that impedes visibility. Install fencing as a barrier between playing fields and the adjacent forest. Remove berry-producing shrubs back at least 3 m from the fencing. Keep grass, clover, and horsetails cut short.

Implementation Steps	Who is responsible	Expected Date
1. Install fencing and control natural attractants at the school grounds.	School District and staff	Fall 06
2. Maintain fencing and control natural attractants at the Seaplane Base Recreation Hall playing field.	District staff	Ongoing

3. Control natural attractants around the Skate Park, Big Beach park picnic area and parking lot, and all other parks. Replant with diverse non-attractant native plants.	District staff	Summer 06
4. Consult with Ucluelet First Nation, B.C. Heritage Branch and the District to devise a plan for controlling natural attractants at Little Beach.	WCBAC, District staff, Ucluelet First Nation	Winter 06/07

Recommendation 17: Cut back vegetation and thin forested edges so that visibility is improved along the length of the Wild Pacific Trail and all other forested trails. Install signs with bear awareness information, monitor the trail for bear activity and develop a trail closure procedure for occasions when bears persist in particular areas. Plan all future trail extensions for areas with low-density natural foods.

Implementation Steps	Who is responsible	Expected Date
1. Design, produce and install signage to make people aware that bears use the trails. Provide information about when to hike, how to make noise to reduce the chance of encountering a bear, as well as what to do if a bear is encountered.	WCBAC, District staff Wild Pacific Trail Society	Summer 06
2. Monitor the trail for bear sightings and human-bear interactions. Post notices when bears are in the area. Remove notices after bears have moved out of the area.	WCBAC	Ongoing
3. Develop a trail closure procedure for occasions when bears persist in particular sections of trails.	District staff WPT Society WCBAC PRNPR COS	Fall 06
4. Improve sight lines on the existing trail sections, especially in areas with a high density of natural attractants, such as berry bushes, cow parsnip, sedges and horsetail.	District staff	Fall 06

5. Plan future extensions of the Wild Pacific Trail and other trails in areas with low densities of natural attractants. Establish trails in a way that allows people to see bears ahead, especially where natural attractants occur.	District staff, WCBAC COS PRNPR wardens Wild Pacific Trail Society	Summer 06

Recommendation 18: Control natural attractants at the Ucluelet Campground.

Implementation Steps	Who is responsible	Expected Date
1. Map out areas in the campground where the risk of an encounter between a person and a bear is high, e.g., wash stations, garbage containers, etc.	Campground manager, WCBAC	July 06
2. Remove and trim berry bushes and other natural attractants from these high risk areas within the campground. Thin vegetation to improve visibility of bears from a greater distance.	Campground manager	Ongoing Summer 06

Recommendation 19: Clear vegetation away from the rear of buildings and around dumpsters on residential, commercial and public properties.

Implementation Steps	Who is responsible	Expected Date
1. Use media to make residents and commercial property owners and managers aware of the ways to reduce surprise encounters with bears by brushing and thinning natural attractants near buildings and dumpsters.	WCBAC, District staff	Summer 06
2. Offer to visit properties, if requested, and provide advice on how to make vegetation less attractive to bears and reduce the risk of people having a surprise encounter with a bear.	WCBAC	Summer 06

Recommendation 20: Promote tolerance for bears among residents and property managers, especially in recently developed areas adjacent to high value bear habitats.

	Implementation Steps	Who is responsible	Expected Date
1.	Use media to make residents and property managers aware of the importance of allowing bears to feed undisturbed on natural foods in areas along the outer coast and on the mudflats and meadows of Ucluelet Inlet, including Spring Cove.	WCBAC, District staff	Summer 06
2.	Post signs in areas that are frequently used by bears, such as Little Beach, Spring Cove, etc., warning people of the risk of encountering bears and advising them to make noise, be alert, and avoid the area in times of high bear use.	WCBAC	Fall 06

8.0 Education

The purpose of this part of the Conflict Management Plan is to provide detail about the educational activities of the West Coast Bear Aware Committee. These activities are central components of the waste management, land use planning and greenspace management implementation steps already described in earlier sections.

8.1 Formation of the West Coast Bear Aware Committee

The West Coast Bear Aware Committee (WCBAC) was formed in spring 2004 in response to the destruction of a young food-conditioned bear in residential Ucluelet. Crystal McMillan initiated the volunteer group and recruited two other members and a network of supporters. Their initial focus was on learning how to stop the destruction of bears while keeping people safe. The Committee has been guided by the Provincial Bear Aware Program.

The WCBAC has received financial support from the BC Conservation Core (BCCC), the BC Ministry of Environment, the Habitat Conservation Trust Fund, the District of Ucluelet, and the Clayoquot Biosphere Trust. The Committee works closely with the staff, Mayor and Council of the District of Ucluelet, the BC Conservation Officer Service, Pacific Rim National Park Reserve of Canada, and the Ucluelet RCMP detachment. Recently, WCBAC has become involved in addressing human-bear conflict in Tofino, as well as in Ucluelet.

In May 2006, Crystal McMillan was hired by the BCCF as a Bear Aware Program Delivery Specialist for the District of Ucluelet and area.

8.2 Goals and Objectives of the WCBAC

The goal of the WCBAC is to prevent further human-bear conflict and bear destructions through education, innovation and cooperation. This goal will be accomplished by meeting the following objectives:

- Increase awareness about how to reduce bear attractants and how to be safe living around bears.
- Encourage the District to implement policies and procedures that will improve waste management, land-use planning, and greenspace management.
- Encourage resort and tour operators to implement policies and procedures for safe wildlife viewing that minimizes negative impacts to bears.
- Collaborate with the District, COS, PRNPR and RCMP to implement a monitoring system for bear sightings and human-bear interactions that will provide useful information to guide action.
- Network with other communities to keep informed and share innovative ideas.
- Raise funds to sustain the activities of the WCBAC.

8.3 Activities of the WCBAC

Over the past two years, the WCBAC has been engaged in a variety of activities to meet their objectives. This section describes both ongoing and recommended aspects of the program.

8.3.1 Increasing Awareness – Reducing Attractants and Staying Safe

Media Campaign

- Use messaging consistent with the videos produced by the Safety in Bear Country Society in cooperation with the International Association for Bear Research and Management.
- Write a weekly column from May to November for the local newspaper "the Westerly" with a distribution of approximately 2500 people (residents and visitors).
- Post television messages daily on the Ucluelet/Tofino Video Cable Service and the "Info Channel" that reaches approximately 3500 residents. Keep these messages lively and fresh.
- Maintain the WCBAC website (www.bearawareucluelet.com) with weekly updates on bear activity. People are encouraged to use this website to report sightings and help WCBAC monitor local bear activity, allowing WCBAC to help prevent unnecessary conflicts with bears. They are also encouraged to email questions about any bear related issue they may have. The website also has a page for donations.
- Write a monthly Bearly Newsworthy Newsletter sent by email to the Chamber of Commerce, businesses, hotel/resort owner, realtors, local newspaper, Parks staff, Tourist Information Centres, and interested people. Expand the audience for the newsletter by providing opportunities for sign-up on the web site and at special events. Additonal audiences to reach: Ucluelet First Nations, Toquaht First Nations, key businesses eg. Smileys, campground managers, Iisaak Forest Resources, Raincoast Education Society, etc.
- Produce and distribute an eye-catching calendar with Bear Aware messages delivered in an innovative way to 1000 people.

Participation in Special Events

- Host information booths at special events such as "Ukee Days" annual summer weekend festival with approximately 2000 attendants (residents and visitors) each year.

Presentations

- Make presentations at both the Ucluelet and Tofino Elementary Schools in spring and fall (approximately 240 students) each year.
- Host meetings and workshops involving presentations by the Conservation Officer, PRNPR Wildlife Conflict Specialist and Bear Aware Specialists for local businesses, District Council and staff, developers, the Wild Pacific Trail Society, and other interest groups.
- Provide training to staff at the Visitor Information Centre, Chamber of Commerce Offices, and the Raincoast Interpretive Centre about Bear Aware information that staff should relay to visitors.
- Present Bear Aware information to the Alberni-Clayoquot Regional Advisory Committee and the Ucluelet First Nations Band Council.

- Present videos, "Living in Bear Country", "Staying Safe in Bear Country", and "Working in Bear Country" to community groups and the public.

Signage

- Raise funds and design bear aware slogan signs (10 installed by the District to date) and photo information signs (6 installed by the District to date) prominently in the Ucluelet area. The District of Ucluelet is responsible for installation and maintenance.
- Install signs on the new extension of the Wild Pacific Trail. There are three signs required for Phase II. The number that will be needed for Phase III has yet to be determined.
- Post 'Caution, Bear in Area' signs in response to bear sightings. Currently more durable signage is being made to replace paper notices. Removable stickers or erasable ink could be used to post the date.
- Provide information to the B.C. Ministry of Transportation that will help them decide whether and where to install signs on the highway to discourage cars from pulling over to watch bears. Encourage the Ministry to get involved in addressing this concern before further car accidents occur.

Door-to-Door Campaign and One-on-One Support

- Door-to-door and/or phone campaign in response to bear sightings and human-bear interactions in Ucluelet.
- Approach individual businesses to offer suggestions on adopting good garbage management and greenspace management practices with the incentive to gain recognition as a "Bear Aware Business". Start with businesses that have experienced problems with bears. Businesses that gain "Bear Aware Business" status will be promoted through the media campaign.
- Provide information that will support the Campground's efforts to implement a "Bare Campsite Program".
- Provide information to the School District that will support the Elementary and Secondary School's efforts to fence their playing fields, control garbage and other attractants and maintain good visibility.

8.3.2 Cooperating with the District – Developing Policies and Procedures

Meetings

- Meet periodically with the District of Ucluelet's Chief Administrative Officer and Council to provide information that will encourage them to adopt and enforce a progressive garbage management by-law aimed at reducing the availability of garbage and other attractants to wildlife.
- Provide information to District staff that will support the District's efforts to negotiate a garbage contract that will convert all commercial and public dumpsters to animal-proof models in 2007.
- Meet regularly with the Bylaw Enforcement Officer to exchange information about bear sightings, human-bear conflicts and levels of compliance with garbage bylaws.
- Meet regularly with the District's Building Inspector to exchange information about levels of compliance with the building bylaw requiring bear proof garbage storage in all new developments. The District has recently revised building inspection forms to incorporate the bylaw.

Committee Organization

- Help the District Council representative recruit members and organize meetings for a Waste Management Committee that can serve as an advisory group for the District Council. Provide information to assist in making the decision about whether to install communal dumpsters in new areas of development, such as the Weyerhaeuser Lands.

Extension of Bear Smart Research

- Provide information to the District of Ucluelet's Planner to ensure that environmental impact assessments include inventory and mapping of bear habitats, and to help him ensure that the plan for conserving these habitats is followed.
- Raise funds for assembling and producing Bear Aware information packages for developers. Much of the costs will be for creating and printing maps of recommended buffers and environmentally sensitive areas. Assist the District Planner in providing these packages to developers.
- Provide information to the District's Mayor and Council to assist them in understanding and adopting recommendations from the Bear Hazard Assessment and Human-Bear Conflict Management Plan as amendments to the Official Community Plan.

8.3.3 Cooperating with Tourism Businesses – Safe Wildlife Viewing

- Provide information to resort owners by phone, email and mail to encourage them to promote guided wildlife viewing rather than sending people to the Thornton Creek Hatchery on their own.
- Meet with Thornton Creek Hatchery staff to explore further options for safe-guarding people who go to watch bears during the salmon run. A sign has been installed recommending people stay at least 100 m from bears. The hatchery has an electric fence that possibly could be used to ensure safety of visitors and control viewing locations (Jan Smith, pers. comm.).
- Organize a workshop for local eco-tourism operators to become informed and agree on bear-watching policies that will not lead to negative interactions between bears and people. Involve bear management specialists, such as Tony Hamilton, to provide information about carrying capacity for bear viewing at any one site (i.e., "user-day densities"), lower impacts of water-based viewing compared to land-based viewing, and the importance of not alienating bears from their preferred critical habitat.

8.3.4 Collaborating to Implement a Monitoring System

- Develop a formalized monitoring system in collaboration with the COS and PRNPRC. See section 9.3 for ideas.
- Meet regularly with the Conservation Officer to exchange information about bear sightings and conflicts.
- Meet regularly with the RCMP, PRNPRC staff and District staff to exchange information about human-bear interactions, including sightings.
- Collect information using both telephone reporting and garbage raids. See section 9.3 for more information about the existing and proposed monitoring system.

8.3.5 Networking with other Communities – Sharing Ideas

- Maintain a reference collection of community-based bear awareness education programs (e.g., Bear Aware) and umbrella programs that provide direction for reducing human-bear conflicts (e.g., BC Bear Smart Community Program).
- Attend conferences and workshops. WCBAC presented their accomplishments at the 2005 Bear Smart Community Conference as a "small town/Bear Smart example".
- Visit other communities that are working towards becoming "Bear Smart".
- Continue to share information, support and experience with the fledgling Tofino branch of West Coast Bear Aware.
- Promote Bear Smart waste management and development planning in Area C of Alberni Clayoquot Regional District and on Ucluelet First Nation and Tla-o-qui-aht First Nation Reserve lands.

8.3.6 Raise funds and find resources to sustain the activities of the WCBAC.

- Research funding opportunities and timelines.
- Contact funders to explore the feasibility of funding.
- Write proposals to acquire funds for activities according to priorities.
- Recruit and train volunteers.
- Collect donations at special events and by mail. Keep people informed about what WCBAC needs to continue its work using the website, newsletter and other media.
- WCBAC is working towards becoming a charitable society.

8.4 Annual Budget for the West Coast Bear Aware Education Program

In total, the WCBAC requires approximately $80,000 worth of resources to deliver the education program each year (Table 6). Only $33,399 or 42% is supported by cash from funders including the BC Conservation Foundation, BC Ministry of Environment and the Clayoquot Biosphere Trust. The majority of support is in-kind and volunteer contributions.

Table 6. Proposed Budget for May 2006 to May 2007

	Quantity	@ Price	BCCF	Other		Total
Wages:				In-kind	Cash	
Program Delivery Specialist	35 h x 48 wks	$12.48/h + 8%	$11322		$11322	$22644
Bear Aware Volunteers	146 days	$100/day		$14600		$14600
Conflict Management Specialists	96 days	$250/day		$24000		$24000
Project Expenses:						
Travel				$500	$1200	$1700
Newspaper & Television					$3285	$3285
Web site				$150	$130	$280
Signs					$2000	$2000
Brochures				$250	$2000	$2250
Overhead:						
Office Space and Utilities				$3600		$3600
Printing and photocopies				$500	$900	$1400
Computer with Internet				$2100	$400	$2500
Telephone					$840	$840
Total Costs			**$11,322**	**$45,700**	**$22,077**	**$79,099**

8.5 Evaluating the Success of the West Coast Bear Aware Program

Since the formation of the WCBAC and their educational activities in Ucluelet, fewer bears have been destroyed and there has been a reduction in the number of "problem bear reports" to the Conservation Officer Service. The same has not been true for Tofino. It has continued to have high numbers of bear activity and more bears were destroyed than in Ucluelet. The difference between the two neighbouring communities has been directly attributed to the concentrated efforts of the WCBAC in Ucluelet (Spooner, 2006).

The ultimate measures of success for the West Coast Bear Aware Program are:

- a reduction in the number of bears destroyed due to human-bear conflicts caused by improper management of attractants,
- a reduction in the frequency and intensity of human-bear conflicts, and
- bears and people co-existing safely on the Ucluth Peninsula.

To determine which components of the program work the best and which ones need to be modified, it is recommended that the WCBAC should track indicators of the inputs and outcomes from their programs (Table 6).

Table 6. Indicators of an Effective Bear Aware Program

WCBAC Input	Desired Outcome	Measurable Outcome
Frequency of training sessions, meetings and correspondence between WCBAC and experts.	WCBAC Program provides up-to date expert-based information to the community about how to reduce human-bear conflict.	Messaging and programs contain appropriate content as assessed by an expert reviewer annually.
Frequency and number of people reached with Westerly News columns and ads, television ads, articles in the Ha-Shilth-Sa, website, newsletters, calendar, presentations, and participation at public events.	100% of residents and visitors are aware of bears, understand what they can do to prevent conflict, and care enough to spend the time and effort to take responsible action.	Increased proportion of property managers/residents keep garbage and other sources of food in animal-proof receptacles and storage (over time, and compared to other places). Fewer occurrences of bears showing human-habituated and food-conditioned behaviour on District Lands over time.
Frequency and number of training sessions given to staff of Visitor Information Centres, Chamber of Commerce, etc.	As above.	As above.
Time spent to facilitate the formation of the Garbage Management Committee and frequency and number of meetings held by the Committee.	Innovative garbage management practices put into action with support from the community and key stakeholders.	Increased proportion of bear proof dumpsters used at businesses, construction sites and public properties over time. Stronger bylaws are adopted.

WCBAC Input	Desired Outcome	Measurable Outcome
Frequency and number of checks on residential garbage and door-to-door information follow-ups.	100% of residents understand what they can do to animal-proof their garbage and other attractants and care enough to spend the time and effort to take responsible action.	Increased proportion of residents secure garbage and other attractants (e.g., in animal-proof receptacles) after door-to-door visits compared to before.
Frequency and number of meetings with bylaw officer.	100% compliance with garbage bylaws.	Increased proportion of people who are not complying with the bylaws are visited with reminders, information, and if necessary, fines. Followed by reduction in the number of people not complying.
Frequency and number of meetings with principal and the School District.	Bears are not attracted to the school yard and cannot get dangerously close to children. Children are safe at the school.	Schoolyard is fully fenced. School garbage is kept in animal-proof containers. Berry bushes are trimmed; clover and grass are kept short. Reduced number of occurrences of bears at the school yard.
Frequency and number of meetings with District Works Yard Superintendent.	Bears are not attracted to the Skatepark, other parks & play areas. Bears can be seen before they encounter children. Children are safe in play areas.	Skate park has an animal-proof garbage receptacle. Berry bushes are trimmed, and clover and grass is kept short in areas where children play and picnic. Reduced number of occurrences of bears at parks.
Frequency and number of meetings with District Staff regarding the Wild Pacific Trail, including existing sections (Phase I and II) and planned sections (Phase III and beyond).	People who hike the trail are aware of the presence of bears in the areas and know how to avoid encounters with bears and how to react in an encounter. Bears and people see each other before close encounters occur. Bears are given space on trails when necessary.	Bears are visible from a distance on the third phase of the WPT. Signs are installed on Phase II by July 2006. Trail closure plan is developed. Reduced number of surprise encounters between people and bears on the Wild Pacific Trail.

WCBAC Input	Desired Outcome	Measurable Outcome
Number of meetings with campground manager. Number of volunteer days spent checking campsites. Number of info packages distributed at campground.	Campground operators provide consistent clear messages educating campers about what they can do to live safely with bears. Campers understand information about bear awareness and safety and behave responsibly.	Reduced number of human-bear conflicts, including surprise encounters at the Campground than in previous years or in comparison with other campgrounds. Campground garbage containers are animal-proof.
Frequency and number of meetings with planner.	Bears and humans coexist safely on District lands.	Increased proportion of cleared land is landscaped with native non-attractant plants. Increased proportion of developers are reached with information about bears and how to minimize human-bear conflicts. Developers understand their role in helping people and bears coexist peacefully. A higher proportion of land is conserved as habitat for bears and other wildlife than would have been without meetings.
Frequency and number of meetings with resort operators, ecotour operators and hatchery.	People have opportunities to view bears safely without habituating them.	An increased proportion of bear watchers go to Thornton Creek with experienced guides. The road to the hatchery is closed to visitors during peak periods of bear activity if necessary.
Frequency and number of meetings with local government.	The District of Ucluelet becomes, and sustains itself as, a Bear Smart Community.	Stronger bylaws are adopted. Recommendations from the Bear Hazard Assessment and Human-Bear Conflict Management Plan are adopted and amended to the Official Community Plan.

Recommendation 21. Track the inputs and the measurable outcomes of the West Coast Bear Aware Program and Human-Bear Conflict Management Plan to determine which activities are effective and where additional resources are required.

9.0 Monitoring and Reporting

9.1 Background from Bear Hazard Assessment

Data used to prepare the Ucluelet Bear Hazard Assessment came from the Wildlife Reporting Occurrence System from the COS, the wildlife database at PRNPR, reports to the WCBAC, and anecdotal reports. The greatest challenge was collecting and verifying the activity and occurrence reports from such a variety of sources. None of the collection systems were the same, nor were the databases compatible. The PRNPR database was the most robust but did not have all reports entered. For the most part, only bear conflicts are reported to the COS. Few entries of bear sightings (bears behaving in natural ways) are included. Therefore the trends in the Bear Hazard Assessment represent bear reports of "problem bears" and not the actual bear activity level for the areas (Spooner 2006).
The Bear Hazard Assessment recommended that all reports should be compiled into one main west coast wildlife database.

9.2 Assessment of the Information Needs of the WCBAC and District

The WCBAC and District need access to information about the occurrences of bears and their behaviour for two different purposes and in two different time frames.

First, during the period when bears are active, the WCBAC and District need to track bear occurrences from day to day so that they can boost their efforts in specific areas accordingly. For example, they need information about where bears are active so that they can post (and remove) warning notices, and remind households to be diligent about attractants, at the appropriate locations and times.

Second, the WCBAC and District need access to records collected over the long term (i.e., over all years of record-keeping) to examine long-term trends in occurrences and types of human-bear interactions. An analysis of these trends is critical to being able to evaluate and report on the effectiveness of their program, and devise improvements.

The WCBAC and District also need information on how well people are complying with the bylaws and whether they are behaving in ways that pro-actively reduce the risks of conflict. This information will help the District enforce its bylaws and help WCBAC decide whether its educational messages are getting through to people to the extent needed to create positive change.

Implementation Step 21.1. Collect and share information on human-bear interactions, including bear sightings in Ucluelet.

9.3 Interagency Cooperation

9.3.1 Collecting Information About Wildlife

Currently, two agencies and the WCBAC keep records of human-bear interactions within the District of Ucluelet and surrounding areas. The Conservation Officer Service uses a province-wide standardized system for tracking human-wildlife interactions via a 24-hour telephone call-in centre. The COS primarily encourages and receives calls about human-

wildlife conflict more so than about sightings of bears posing no risk. Pacific Rim National Park Reserve collects information about all wildlife encountered and observed in the Park, by phone, fax or in person at the Park's interpretive and information centres. Although the Park directs people to the COS to report bears outside the boundaries of the Park, they invariably collect some information from surrounding areas, including Ucluelet. The WCBAC receives phone calls about bears in Ucluelet and the immediate surroundings. Like the Park, the WCBAC refers people who are reporting human-wildlife conflict directly to the COS call-in centre (Box 2). If the WCBAC gets an emergency call in person, and they are fairly certain that the caller will not be phoning COS (e.g., the caller informs them of that), then WCBAC will forward the information from the caller to COS Call Centre immediately. WCBAC has been informed by the COS of the key information to relay.

The District of Ucluelet Office and the RCMP also receive calls about human-bear conflicts. Both agencies direct callers to the COS call-in centre, except in extreme emergencies, when the RCMP are the first responders. In these cases, the information collected by the RCMP is reported to the COS by telephone and subsequently entered into the COS database.

Box 2. West Coast Bear Aware Telephone Answering Script

"Hello you've reached the Ucluelet bear sighting hotline. If this is an emergency and you need to report a major conflict – hang up now & call the emergency dispatch - 1-877-952-7277. If you are calling to report a sighting of a bear or would like advice on how to prevent conflict with bears, please leave a message and we'll get back to you as soon as possible."

9.3.2 Sharing Day-to-Day Information

No single agency has all the information it requires so it is critical to share information on a regular basis and over the long-term. For example, the low-risk sightings recorded by the WCBAC and the Park provide the COS with a more complete picture of the activity of bears. This helps them respond better to problems that arise (B.York, personal communication).

Implementation Step 21.2. Develop a data-sharing agreement among the West Coast Bear Aware Committee, Pacific Rim National Park Reserve and the Conservation Officer Service.

Information, captured day-to-day by these different agencies, is shared frequently on an informal basis. WCBAC, PRNPR and the local CO talk to each other by phone about bear activity at least once each week. The CO can refer to the large-scale map of bear activity represented by pins in the WCBAC office when he visits Ucluelet to respond to problems. To a large extent, this fulfills the information needed for short-term responses.

Long-term tracking requires a more complex database system - ideally, a single database that would combine information from all these sources.

9.3.3 One Main West Coast Wildlife Database – how do we get there?
To date, the PRNPR and COS databases contain historical records of human-bear interactions and wildlife sightings. They differ substantially in the level of detail recorded, but capture the same essential pieces of information. After reviewing the structure of each with the Access Database Manager for PRNPR (D. Edwards), the WCBAC decided to adopt the simpler COS database. We added a few fields to make it easier to compile new information for comparison to the trends presented in charts and tables in the 2006 Bear Hazard Assessment. Appendix D describes the WCBAC data entry fields and the data form.

PRNPR is in the process of finding a way to incorporate COS and WCBAC reports into its database on a regular basis. Duplicated records will be filtered and identified. A research agreement is required to ensure confidentiality (B.York, personal communication). Once achieved, the expanded PRNPR database will provide a valuable way of doing GIS analyses to examine trends in bear occurrences for future annual reports and updated hazard assessments. In the meantime, the information logged into the WCBAC database is available for the COS, whenever they require it.

Implementation Step 21.3. Develop a systematic way of merging the bear report databases maintained by the WCBAC, PRNPR and COS.

9.3.4 Monitoring Human Behaviour
Indicators of human behaviour listed in Table 6 of Section 8.5 should be measured to determine whether the efforts of the District's bylaw enforcement officer and the WCBAC's make a difference over time. The WCBAC and the bylaw enforcement officer already conduct surveys to assess whether people are complying with the garbage bylaws. The results of these surveys need to be compiled and shared in regular meetings. Box 3 indicates the data that need to be included.

Box 3. Data Fields for Garbage Surveys

Date
Time
Street Name
Number of households checked
Number of households with garbage cans out before 5:00 AM on pickup day
Number of households with garbage stored in non-bear proof facilities
Number of households with other non-natural attractants accessible to bears
Total Number of households not complying with the bylaw
List of addresses that are non-compliant

Many of the input indicators can be tracked by the WCBAC. The Program Delivery Specialist keeps files and a log book describing all her meetings, presentations, correspondence, etc., in general, as well as data collected through surveys.

Implementation Step 21.4. Keep records of all the activities of the WCBAC and Program Delivery Specialist.

A plan for monitoring the input and outcome indicators related to habitat conservation and greenspace management needs to be developed by the District staff.

Implementation Step 21.5. Keep records of all the activities of the District Bylaw Enforcement Officer, Developer and Public Works Superintendent that are intended to reduce human-bear conflict.

Implementation Step 21.6. Develop a system for tracking bylaw compliance, the area of District land managed for wildlife habitat, and the number of sites where natural attractants are reduced.

University graduate students could be encouraged to conduct research on the links between land development and bear habitat. This would be a cost-effective way to proceed given the Park's Carnivore research program and Ucluelet's experience working with students of the Planning Department of Malaspina University College. Examples of useful research projects are: examining whether active development increases human-bear interactions; determining the capacity of Thornton Creek for wildlife viewing; and tracking the food habits, habitat use and movement patterns of individual bears within the District lands.

Implementation Step 21.7. Encourage university and college students to assist in monitoring the effectiveness of garbage management, land-use planning, and greenspace management. Maintain and distribute an active list of research questions to university and college departments.

9.4 Annual Reports

The West Coast Bear Aware Committee will produce an annual report to track trends in human-bear interactions and progress in meeting the desired outcomes for Ucluelet in becoming a Bear Smart Community. Reports will be written each winter by the Program Delivery Specialist with assistance from the PRNPR and District staff.

Reports will include a summary of bear occurrences formatted in a way that is comparable to the trends presented in the 2006 Bear Hazard Assessment. This will include charts showing the number of bear occurrences in Ucluelet:

- by month
- by year, in comparison to Millstream, Port Albion and Tofino

- by high risk type (incidences of human-bear contact, bears hit on highway, bluff charges, injured or sick bears, bears close to children/school, bears trying to enter building, and resident destroyed or attempted to destroy bear).

The report will also include a summary table of the number of food conditioned and habituated bear reports, and the types of attractants (e.g., garbage, compost, gardens, etc.) that bears were seen accessing.

A summary of the WCBAC's and District's activities (inputs) and measurable outcomes (Table 6) will be presented and analyzed to determine which objectives have been achieved and where greater efforts are needed. The nature of the indicators will also credit the achievements of the District staff, Mayor and Council, the garbage contractor, developers, the school administration, the campground manager, PRNPR and COS collaborators, business owners/managers, and residents.

Implementation Step 21.8. Assemble all information into an annual report that highlights progress and areas where further effort is required. Use this information to modify recommendations, implementation steps and priorities in the Conflict Management Plan.

9.5 Summary of the Plan for Monitoring and Reporting

Recommendation 21: Track the inputs and the measurable outcomes of the West Coast Bear Aware Program and Human-Bear Conflict Management Plan to determine which activities are effective and where additional resources are required.

Implementation Steps	Who is responsible	Expected Date
1. Collect and share information on human-bear interactions, including sightings, in Ucluelet.	WCBAC. District staff, COS, PRNPR, RCMP	ongoing
2. Develop a data-sharing agreement among the West Coast Bear Aware Committee, Pacific Rim National Park Reserve and the Conservation Officer Service.	COS, PRNPR, WCBAC	Aug 06
3. Develop a systematic way of merging the bear report databases maintained by the WCBAC, PRNPR and COS.	PRNPR	Sept 06
4. Keep records of all the activities of the WCBAC and Program Delivery Specialist.	WCBAC	ongoing

5. Keep records of all the activities of the District Bylaw Enforcement Officer, Developer and Public Works Superintendent that are intended to reduce human-bear conflict.	District Staff	ongoing
6. Develop a system for tracking bylaw compliance, the area of District land managed for wildlife habitat, and the number of sites where natural attractants are reduced.	District Staff, WCBAC	Winter 06/07
7. Encourage university and college students to assist in monitoring the effectiveness of garbage management, land-use planning, and greenspace management. Maintain and distribute an active list of research questions to university and college departments.	District Staff, WCBAC	Winter 06/07
8. Assemble all information into an annual report that highlights progress and areas where further effort is required. Use this information to modify recommendations, implementation steps and priorities in the Conflict Management Plan.	WCBAC District Staff	Winter 06/07

10. Conclusion

The recommendations in this Conflict Management Plan are proactive and preventative in that they address the root causes of the problems identified in the Bear Hazard Assessment. The focus is primarily on the management of human behaviour through education and bylaw enforcement. Careful land use planning and greenspace management will help keep bears separated spatially from people and thereby enhance human safety. The plan does not deal with responding to human-bear conflicts through aversive conditioning, trapping, etc. That work falls to the COS if need be. The implementation of this plan should lead to less of a need to call on the COS for that purpose.

Ucluelet is in a strong position to demonstrate that a small community can live safely with bears if everyone takes responsibility for managing garbage and other attractants and the local government adopts and follows through with actions to maintain bear habitat during development and reduce natural attractants around people. Food rewards to bears that seek garbage, no matter how infrequent, will maintain food-conditioned bears, and diminish everyone else's efforts.

This plan is based on the situation in Ucluelet at the time of writing (January to July 2006). As new information becomes available and progress continues, the plan should be updated. Normally this is recommended at five-year intervals, however, the rapid pace of progress and development in Ucluelet may require a revised plan after 2 to 3 years.

Personal Communications

Barrett, Lani. 2005. Volunteer for the West Coast Bear Aware Committee, Ucluelet, B.C.

Beley, Dave. 2006. Maintenance Supervisor for Ucluelet Elementary & Secondary Schools, Ucluelet, B.C.

Bird, Chris. 2005. SonBird Refuse and Recycling, Contractor for the District of Ucluelet, Ucluelet, B.C.

Grady, Volker. 2006. Manager of Tauca Lea Resort and Spa, Ucluelet, B.C.

Bray, Nicole. 2006. Co-owner of Surfs Inn Hostel, Ucluelet, B.C.

Callie, Krista. 2006. Manager of Terrace Beach Resort. Ucluelet, B.C.

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Chisholm, Fletcher. 2005/06. Bylaw Enforcement Officer for the District of Ucluelet. Ucluelet, B.C.

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Fanli, Wing. 2006. Manager of The Peninsula Restaurant, Ucluelet, B.C.

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Reite, Kali. 2006. Manager of the Ucluelet Campground. Ucluelet, B.C.

Reite, Norm. 2006. Owner of the Ucluelet Campground and Island West Resort. Ucluelet, B.C.

Sloan, Karen. 2006. Owner of Norah House Bed and Breakfast, Ucluelet, B.C.

Sowka, Patricia. 2006. Executive Director of the Living With Wildlife Foundation, Montana, USA.

Summerfield, Wendy. 2005/06. Volunteer for West Coast Bear Aware, Ucluelet, B.C.

Thorpe, Nick. 2006. Councillor, Representative for the WCBAC on the District of Ucluelet Council, Ucluelet, B.C.

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Appendix A. Garbage Receptacle Inspection Form

Template for a garbage dumpster inspection form based on the inspections done in Pacific Rim National Park Reserve every other year.

	Possible Types of Answers	
Dumpster_ID	Whiskey Dock	
Date Installed/Replaced	April xx, 2006	
Date of Inspection	*October xx, 2006*	
Location	*wherever it is*	
Size	*double/single*	
Bearproof?	*yes/no (explain why if not)*	
Condition	*excellent/good/fair/poor*	
Odor	*clean/mild/medium/strong*	
Left door (or front)	*good/not self-latching/sticky latch/broken hinge/heavy door*	
Right door	*good/not self-latching/sticky latch/broken hinge/heavy door/NA*	
Back door (or top)	*good/not self-latching/not adequately pinned/locked*	
Base	*good/not attached to base/NA*	
General condition	*excellent - brand new/ good/ rusty/needs grease & paint/*	
Any evidence of wildlife entry or damage	*Bent metal/ plastic/ paw prints/ tooth marks*	
Reason for failure	*not attached to base/latches don't work/ latches pinch fingers/ doors left open*	
Replace	*Y/N*	
Attach Base	*Y/N*	
Needs Latch Repairs	*Y/N*	

Appendix B. Residential Animal-proof Garbage Storage Structures.

Visit http://www.juneau.org/bears/enclosure_photos.php for images of storage structures that have been tried in Juneau. The website includes images of structures that have been proven to be inaccessible to bears, as well as those that bears have accessed.

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

Appendix B. Continued. Residential Animal-proof Garbage Storage Structures
(Source: City and Burroughs of Juneau, Alaska - www.juneau.org/bears)

If you do not have the luxury of keeping your garbage cans in a garage or shed or other fully-enclosed sturdy structure, here are some ideas for how to build an enclosure for your cans:

- Minimum of 5/8 inch plywood; 2 x 4 construction; use screws instead of nails.
- Heavy duty hinges and latches strong enough that they cannot be pried open by claws.
- No seams that claws can get into (use metal flashing to cover seams).
- Secured so it can't be tipped.
- If you can get into it without using your hands-by jumping on it, kicking it, using your shoulders-then it isn't bear resistant.

* Keep garbage cans and storage area clean and odour-free.

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

Appendix C. Bear Foods in Coastal B.C.

Black bear foods documented for Clayoquot Sound and/or described for the Coastal Western Hemlock biogeoclimatic zone of B.C. in other studies (MacHutchon 1999).

Scientific Name	Common Name	Season[1] SP	SU	FA
ROOTS & CORMS:				
Fritillaria lanceolata	chocolate lily		X	
Lysichiton americanum	skunk cabbage	X[2]	X[2]	X[2]
GRAMINOIDS:				
Cyperaceae:	sedges	X[2]	X[2]	X[2]
Carex lyngbyei	Lyngby's sedge	X[2]	X[2]	
Carex spp.	sedges	X[2]	X[2]	X[2]
Scirpus microcarpus	small-flowered bulrush	X	X	
Poaceae:	grasses	X[2]	X[2]	X[2]
Agrostideae	bentgrasses		X[2]	X[2]
Aveneae	oat grasses		X[2]	X[2]
Elymus sp.	wildrye		X[2]	
Festuceae	fescues	X[2]	X[2]	
Hordeum brachyantherum	meadow barley		X[2]	
HORSETAIL:				
Equisetum arvense	common horsetail	X[2]	X[2]	X[2]
Equisetum spp.	horsetail	X[2]	X[2]	X[2]
FORBS & SHRUB STEMS, LEAVES OR FLOWERS :				
Asteraceae	unidentified composite		X[2]	
Athyrium filix-femina	lady fern	X[2]	X	X
Cirsium arvense	Canada thistle	X	X	
Conioselinum pacificum	pacific hemlock-parsley	X[2]	X[2]	
Dryopteris expansa	spiny wood fern, shield fern	X	X	X
Epilobium angustifolium	fireweed	X	X[2]	
Gaultheria shallon	salal	X[2]	X[2]	
Heracleum lanatum	cow-parsnip		X	
Hypochaeris radicata	hairy cat's-ear	X[2]	X[2]	X[2]
Lactuca muralis	wall lettuce	X[2]	X[2]	
Microseris borealis	apargidium		X[2]	X[2]
Oenanthe sarmentosa	pacific water-parsley		X[2]	X[2]
Oplopanax horridus	devil's club	X[2]	X[2]	
Osmorhiza purpurea	purple sweet-cicely		X[2]	
Osmorhiza spp.	sweet-cicely	X[2]	X[2]	
Rubus parviflorus	thimbleberry	X[2]	X[2]	
Rubus spectabilis	salmonberry	X[2]	X[2]	X
Salix spp.	willow	X[2]		
Sonchus asper	prickly sow-thistle	X		
Taraxacum officinale	common dandelion	X	X	
Trautvetteria caroliniensis	false bugbane	X		
Trifolium pratense	red clover		X[2]	
Trifolium repens	white clover	X[2]	X[2]	X[2]

[1] SP = Spring (April, May); SU = Summer (June, July, August); FA = Fall (September, October).
[2] Seasonal use documented in Clayoquot Sound in 1997 or 1998.

Appendix C. Continued. Black bear foods documented for Clayoquot Sound and/or described for the Coastal Western Hemlock biogeoclimatic zone of B.C. in other studies (MacHutchon 1999).

		Season[1]		
Scientific Name	**Common Name**	**SP**	**SU**	**FA**
Trifolium spp.	clover	X[2]	X[2]	X[2]
Vaccinium alaskaense	Alaskan blueberry	X	X	X
Vaccinium ovalifolium	oval-leaved blueberry	X	X	X
Vaccinium parvifolium	red huckleberry		X[2]	
Vaccinium spp.	blueberry, huckleberry		X[2]	X[2]
SHRUB FRUIT:				
Amelanchier alinifolia	Saskatoon berry (whistler)			
Arctostaphylos uva-ursi	kinnikinnick		X[2]	X[2]
Cornus canadensis	bunchberry		X[2]	X[2]
Cornus stolonifera	red-osier dogwood		X	X
Empetrum nigrum	crowberry		X[2]	X[2]
Fragaria spp.	strawberry		X	
Gaultheria shallon	salal		X[2]	X[2]
Lonicera involucrata	black twinberry	X	X[2]	
Malus fusca	Pacific crab apple		X[2]	X[2]
Oplopanax horridus	devil's club		X[2]	
Populus balsamifera	black cottonwood	X		
Prunus emarginata	bitter cherry			X
Ribes bracteosum	stink currant		X[2]	X
Rosa spp.	rose			X
Rubus parviflorus	thimbleberry		X[2]	
Rubus pedatus	five-leaved bramble		X[2]	
Rubus spectabilis	salmonberry		X[2]	X
Rubus ursinus	trailing blackberry		X	
Sambucus racemosa	red elderberry		X[2]	
Sorbus sitchensis	Sitka mountain-ash			X
Smilacina sp.	Solomon's-seal		X[2]	
Streptopus amplexifolius	clasping twistedstalk		X[2]	
Streptopus sp.	twistedstalk		X[2]	
Vaccinium alaskaense	Alaskan blueberry		X[2]	X
Vaccinium ovalifolium	oval-leaved blueberry		X	X
Vaccinium ovatum	evergreen huckleberry		X[2]	X[2]
Vaccinium parvifolium	red huckleberry		X[2]	X[2]
Vaccinium spp.	blueberry, huckleberry	X[2]	X[2]	X[2]
Viburnum edule	High-bush cranberry			
FUNGI:	bracket fungi, mushrooms		X[2]	X[2]
MOLLUSCA: *Mytilus* spp.	mussels		X[2]	X[2]
ARTHROPODA:				
Crustacea: Decopoda	crabs	X[2]	X[2]	X[2]
Isopoda	isopods		X[2]	
Balanus spp.	barnacles		X[2]	X[2]

[1] SP = Spring (April, May); SU = Summer (June, July, August); FA = Fall (September, October).
[2] Seasonal use documented in Clayoquot Sound in 1997 or 1998.

Appendix C. Continued. Black bear foods documented for Clayoquot Sound and/or described for the Coastal Western Hemlock biogeoclimatic zone of B.C. in other studies (MacHutchon 1999).

			Season[1]		
Scientific Name		**Common Name**	**SP**	**SU**	**FA**
Insecta:	Coleoptera	beetles		X[2]	
	Diptera	true flies			X[2]
	Formicidae	ants	X	X[2]	X[2]
	Vespidae	wasps		X	X[2]
ECHINODERMATA:		sea stars		X[2]	
FISH:					
	Oncorhynchus spp.	salmon		X	X[2]
	Anoplarchus spp., *Xiphister* spp.	pricklebacks, cockscombs		X[2]	
	Apodichthys spp.	gunnels		X[2]	
MAMMALS:					
	Odocoileus hemionus	mule deer		X[2]	
	Ursus americanus	black bear	X	X[2]	
OTHER:		garbage		X[2]	X[2]
		Grass, alfalfa, dandelions[3]			
		Fruit trees[3] – cherry, plum, apple, crabapple, etc.			
		Domestic roses[3]			

[1] SP = Spring (April, May); SU = Summer (June, July, August); FA = Fall (September, October).
[2] Seasonal use documented in Clayoquot Sound in 1997 or 1998.
[3] Use indicated by Tony Hamilton (pers. comm.) and not recorded in MacHutchon (1999).

Appendix D. WCBAC Wildlife Database: Data Fields

Field Name	Field Descriptor
OR #:	National Occurrence Number, entered as YY-##### where YY is year (e.g. 99, 02).
DATE	Date of observation. Once entered, date is automatically formatted to DD-MMM-YY.
Time:	Time of observation, enter as 24 hour clock (e.g. 1900 for 7pm, 900 for 9am)
SPECIES	Drop down list of common names - default American Black Bear
LAST NAME	Name of observer
FIRST NAME	Name of observer
HOUSE #	Location of sighting
STREET	Location of sighting
VILLAGE_TOWN	Location of sighting
Location Type:	Drop down list includes: yard, backyard, porch, driveway, garage, park, school, beach
LOC_ID99	Drop down list based on Park locations that are linked to GIS coordinates.
Total # of Animals	The total number is automatically calculated as the sum of the number in each of the six categories below.
MALES	The number of adult males observed.
FEMALES	The number of adult females observed.
YOY	The number of young of the year observed.
YLY	The number of yearlings (young last year) observed.
UNK_ADULT	The number of adults of unknown sex.
UNKNOWN_AGE/SEX	The number of bears of unknown age and unknown sex.
Just sign observed. No sighting.	Drop down list for number of animals includes: no estimate, one, few (1-3), moderate (4-6), many (7-20) and abundant (>20)
SIGN_TYPE	The Type of Sign observed - choose from drop down list to right of field. Select each sign that was observed - tracks, scat, digging, torn up logs, bed, mark tree, den, blood, hair, heard not seen, other.

Appendix D. Continued. WCBAC Wildlife Database: Data Fields

Field Name	Field Descriptor
PROBLEM_TYPE1	Drop down list based on COS categories including: human safety, livestock, property damage, nuisance, sighting, accident, other.
PROBLEM_TYPE2	As above
PROBLEM_TYPE3	As above
PROBLEM_CAUSE1	Drop down list based on COS categories including: landfill, street garbage, household garbage, fruit, garden, compost, BBQ, fish smoker, clover, berries, fertilizer, feed, other
PROBLEM_CAUSE2	As above
PROBLEM_CAUSE3	As above
ACTION_TAKEN	Check the box if any action/response was taken by WCBAC. Describe actions by COS, RCMP, Bylaw officer or others in NARRATIVE.
ADVICE_GIVEN	Check the box if WCBAC gave advice.
ATTENDED	Check the box if WCBAC went to the site either during or after the sighting.
TRAPPED	Check the box if COS trapped the bear.
DESTROYED	Check the box if COS, RCMP or anyone destroyed the bear.
NARRATIVE	Provide as much detail as possible about bear behaviour before and after it noticed human. Note the exact location and habitat characteristics. Note the actions of the person who observed the bear (e.g., how did they try to scare it away), distance from the bear, as well as the bear's response (e.g., vocalizations, direction of travel away). Also note any follow up actions taken.
Tagged?	Was the animal tagged? - check. If yes, fill in the next 6 fields re: tag colour, number and whether tag was on right/left hand side.
L_TAG_COLOUR	Colour of tag on left side
L_TAG_NUM	Number of tag on left side
R_TAG_COLOUR	Colour of tag on right side
Tag #(s)	Number on tag
WILD_SIZE	Drop down list of size categories: very small (< 50 lb, small 50-100 lb, medium 101-250 lb, large 251-350 lb, very large > 350 lb).
AGE	Filled in based on tag records.

Appendix D. Continued. WCBAC Wildlife Database – Data Fields

Field Name	Field Descriptor
Obs or Encounter?	Was it an Observation or Encounter? - Important to note that observations of cougars, bears and wolves in areas of high human use (such as near residences or on busy trails) are encounters (even if it is just sign seen). Possible categories include: encounter-people, encounter-place, encounter-vehicle, general observation, vehicular observation, observation of sign only, anecdotal data.
Event	
Deterrent Type:	What type of Deterrent was used to scare the animal away? Use drop down list to right of field. Select each deterrent that was used - once clicked it will automatically be entered to the deterrent type list.
Sub Area Name:	The name of the Sub Area the location was observed in - the location drop down list is filtered based on the value entered in this field. Drop down list based on Park database.
Food Type:	The type of food the animal is eating - use drop down list that Danielle added for WCBAC includes: garbage, human food, other human source food, natural, livestock, exotic, compost, smokehouse, crab/fish traps, pet food, BBQ, bird feeder, fruit bush/tree, garden, greenhouse, beehive, greasetrap, offal, outdoor food storage.
Reaction Behaviour1:	Reaction Behaviours of animal (approaches, attacks, fled, follows, indifferent, investigative, no reaction, other, unknown) - use drop down list. Two fields are available. Enter the first reaction in the top field and the secondary reaction (if any) in the bottom field.
Garbage Type:	Drop down list of the type of garbage being pursued by bear- added by Danielle for WCBAC, including commercial dumpster, municipal garbage can, residential garbage can, recycling bin, recycling depot, garbage truck, other.
Reaction Behaviour2:	Reaction Behaviours of animal (as above for Reaction Behaviour 1) - use drop down list. Enter the secondary reaction (if any) in this field.

Appendix D Continued. WCBAC Wildlife Database – Data Fields

Field Name	Field Descriptor
Habituated / Food Conditioned:	Is the animal habituated and food conditioned? - Use drop down list of possibilities added by Danielle for WCBAC including both, only habituated, neither, to various situations & people.
General Behaviour	Drop down list based on COS categories including: drink, feed/forage, hunt, rest, swim, travel, with fish, with other prey, other see comments. Added: feeding on berries, feeding on clover, feeding on salt meadow, feeding in intertidal.
High Risk Type	Drop down list created for WCBAC including all the high risk categories shown in Figure 5 of Angela's 2006 Bear Hazard Assessment, including: human-bear contact, bear hit on highway, bluff charge, injured/sick bear report, bear close to school/children, bear tries/does enter building, resident destroy or attempt to destroy bear.
Food Conditioning Indicators:	What behaviour indicates possible Food Conditioning? Use drop down list which includes: food seeking, investigate boat, investigate building, investigate campsite, investigate compost, investigate dumpster, investigate fishfarm, observed attempt to feed; observed being fed; food left out, investigate fruit trees, investigate garbage, investigate garden, investigate hatchery, investigate lawn, investigate clover, investigate livestock, picnickers, restaurant, garbage truck spillage.

Appendix E. WCBAC Wildlife Data Sighting Form

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.