

Living with Wildlife in BC

CONFLICT REDUCTION TECHNIQUES #8

“Living with Wildlife” is a series of nine wildlife management guides for people who work outdoors where wildlife is encountered. Options for wildlife management, worker safety, and animal deterrents are provided for each species. Many guides suggest completing a wildlife conflict management plan to be used as a resource for managers and large property owners. Web links to the guides and other resources are on the back page.



HUMAN-WILDLIFE BALANCE

Learning to live in balance with wildlife while reducing potentially destructive and dangerous threats has long been an issue for large property owners and those working on the land. Large lands and agricultural holdings are most often on the edges of populated regions, and therefore in wildlife interface zones. Attractants are an unavoidable part of agriculture, and will continue to be an issue when attractants are being produced as a commercial product. This coupled with little or no wildlife mitigation effort will drastically increase the possibilities of conflicts occurring.

Wildlife Control agencies are understandably reticent to respond to complaints about damage to commercial crops or livestock, if little or no predator control is in place such as fencing and basic attractant management practices. Responsibility for the reduction of potential conflicts lies first with the land owner or operator.

Farmers and ranchers can use existing hunting and trapping seasons to control predators but must ensure they comply with all Federal, Provincial and Municipal regulations. See the following link for the BC Wildlife Act at

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96488_01



Conflict management requires a balanced approach. Elements of an effective management system include identifying hazards and planning procedures to reduce conflict with wildlife and increase human safety. Ongoing monitoring contributes to sound decision making; insuring impacts to wildlife and the environment are minimized.

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On Land: Structures

Building Evaluations

New building sites should take into consideration:

- proximity to wildlife activity
- visibility—sight lines
- human safety – as a refuge
- have more than one entrance and exit
- communication: phone or communication device
- attractant management
- all aspects of responsible animal husbandry

Old buildings can be assessed for safety and modified to:

- reduce access by wildlife
- improve sight lines
- include access to hand held deterrents such as pepper spray, air horns, or noise makers
- have a means of communication
- provide more than one exit
- effectively deal with attractants and waste
- ensure best practices for animal husbandry

More detailed information on is available on the Environmental Farm Plan web site:
<http://bit.ly/EnvFarmPlan>



bear damage beehive

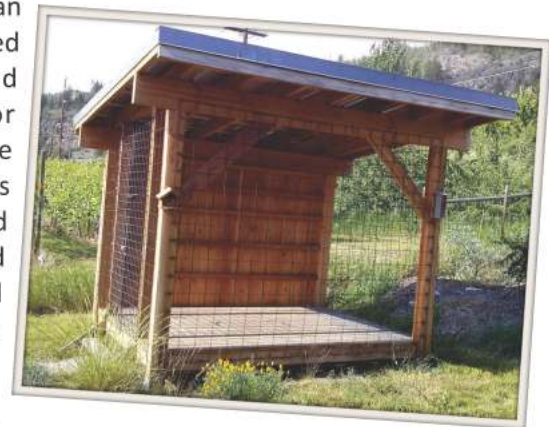


bear damage outhouse



bear damage orchard

Buildings can be both a refuge and an attractant to wildlife. Buildings are used to store feedstuffs, chemicals, and equipment or to house people or animals. Both the contents of the buildings or their use as animal barns are known attractants to predators and nuisance wildlife including rodents and small mammals. Consult “Rodent and Bird Control in Farm Buildings”. Refer to Resource and Contacts page.



Apiary structure cost \$750 in materials and labour.

All buildings can be assessed and made less attractive to predators, and safer for humans to work. An example of a safe apiary or storage shed is shown here. Note the visibility, strong mesh and simple roofline combine to make a cost effective and wildlife resistant structure.



Ideal small holding livestock, fowl or storage building

Buildings for human refuge should also be evaluated for safety of workers. It is not always practical to fence the perimeter, but good visibility, having more than one door, and storing food stuffs safely will help to deter wildlife .

If employee areas are out of doors, keeping a secure and safe garbage receptacle away from the eating and rest area, but close enough that it will be visible and accessible to employees.



On Land: Attraction Management

WASTE

Managing attractants and wastes are the single most important practice for reducing human-wildlife conflict. Garbage is the major cause of human-wildlife conflict in North America.

Manage attractants:

1. Secure pungent liquids, chemicals, fertilizers, and animal or livestock feeds in locked or wildlife resistant structures, and bee hives inside enclosures or surrounded by electric fencing.
2. Ensure secure wildlife resistant or bear proof containers are in place, well signed and easily accessible for human garbage and waste. This is very important around living areas and regular food consumption sites. Keep containers in clear view to avoid a surprise encounter. This practice also removes any other molestation of waste by racoons, rats, rodents, or dogs.
3. Discarded vegetative material, such as fruit and vegetable thinnings, old hay, and manure piles are considered attractants. Make sure these items are correctly composted and safely away from workers.
4. Left over fruit or vegetation in the field should be flailed, ploughed under or removed.
5. Practice responsible animal husbandry. Keep corral, pen, or runs clean, feed, additives and supplies well secured. Provide adequately constructed housing and safe waste disposal

COMPOST

Composting on site can be a very effective way of dealing with potential attractants. Composting recommendations:

- locate away from areas of human activity and check frequently to insure the compost is working correctly – composting not rotting
- locate where leaching or ground water pollution is not an issue
- choose a highly visible location, in an open area to reduce wildlife encounters while loading on or turning the compost
- compost can be used to dispose of smaller dead animals if properly managed; buried deeply
- composts can be effective to compost larger animals if cut up, buried deeply and managed correctly

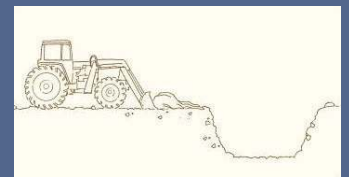
MORTALITY PITS

Mortality Pits are the least preferred method of disposing of dead animals. The pungent aroma of decomposition can be irresistible to many large predators. If unavoidable, through consultation with Ministry of Environment officials, mortality pits can be managed to reduce wildlife-human conflicts.

- must be located away from water sources
- should be located away from inhabited areas and housing
- cover carcasses with at least a 1 meter depth of earth and do not use the same pit all the time



Bear Proof Cart



Refer to BC Ministry of Agriculture excellent guide: *Composting Handbook and Environmental Farm Plan links on back page under 'Resource Links'*.
NOTE: check with local landfill personnel for carcass disposal requirements.

Fencing Options



Old or new fencing?

It can be a difficult balance, being sensitive to wildlife while protecting crops, livestock and workers. Costs involved in re-fencing may be too onerous to take on all at once and require a prioritized, staged implementation. There may be options to remedy existing fences to save both money and time, while ensuring an added level of safety to humans and wildlife.

Wildlife friendly fences

- Are highly visible to birds and mammals.
- Allow wildlife to easily move past or along the fence line.
- Allow *non-target* wildlife safe passage through; either to jump over or crawl through.
- Use smooth, solid galvanized wire not barbed wire.
- Are double fenced to prevent disease transmission between domestic and wild sheep.
- Do not impede wildlife access to important habitat and safe zones.
- Do not crowd wildlife onto major roads.
- Do make room for a safe corridor for wildlife to move through.
- Use wildlife friendly construction techniques and materials to deter predators and problem wildlife.

Refer to Fencing with Wildlife in Mind at:
<http://bit.ly/CODOWfenwildmind>
BC Agricultural Fencing Handbook:
<http://bit.ly/FencingwithElectricity>

Remedies for existing fences:

- regular maintenance: include regular physical inspections as part of ongoing maintenance schedule
- keep wires taut and replace any part of the fence that is broken or damaged
- fill in places where wildlife have dug underneath or bury a wire mesh skirt under the fence
- add a smooth wire section atop an existing fence to add height
- emphasize height with a top rail, using polyvinyl chloride (PVC) pipe sections or flagging tape
- add one or two strands of electric wire outside and along existing fences
- dig a trench and fill with **large** rocks to prevent wildlife digging beneath the fence.

* Low fences augmented with higher strands of barbed wire are **not** recommended for deer fencing. This type of fence is most commonly implicated in wildlife injury.



Building new wildlife fencing:

1. Consult “BC Agricultural Fencing Handbook” for guidelines on deer and elk exclusion fencing. *See Resources and Contacts page for link.*
2. Cantilevered smooth wire top with flagging tape are the best deterrent to prevent fence-jumping and injuries to wildlife.

Electric Fence Options



Adding electricity to an existing fence, using stand-off insulators and galvanized wire, can be accomplished for both wooden and page wire style fences. It is a very cost effective technique to reduce wildlife intrusion.

Planning for an Electric Fence

1. Consider the project: What are you most concerned about keeping out or inside the fence? This will determine the number of strands and type of fence required.

2. Decide which is best for your application: solar or electric, fixed or mobile – perhaps both.

3. Make a sketch to lay out boundaries and to calculate actual footage of fence required: account for gates, driveway openings, corners and additional bracing.

4. Ensure the fence loops back to maximize energizing potential.

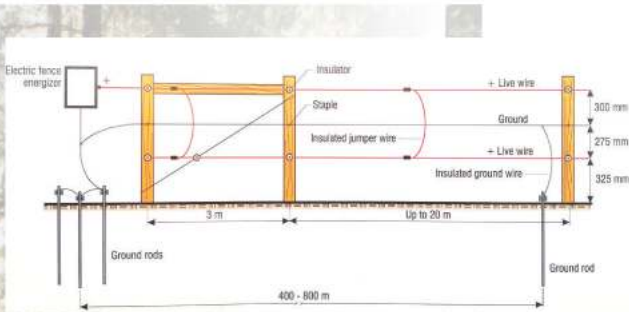
5. Consider all conditions under which the fence must operate i.e., temperature and moisture.

6. Identify potential hazards and barriers, such as cable lines, hydro lines, roadways, large boulders, and terrain challenges.

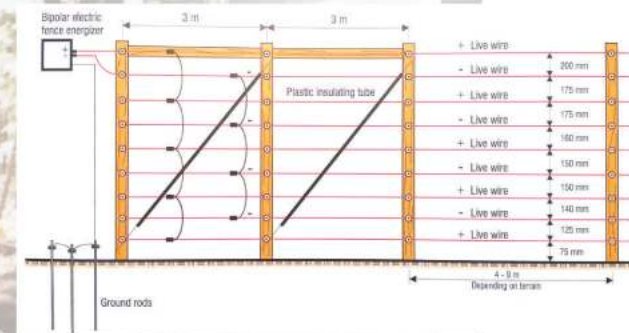
7. Mark out distances for brush clearing on each side of the fence to improve line of sight and ease fence maintenance. This removes cover and shelter for predators and allows wildlife to see the fence. Consider a set back from the property line to allow for easy fence maintenance and to let wildlife pass.

Consult a professional to purchase the correct materials.

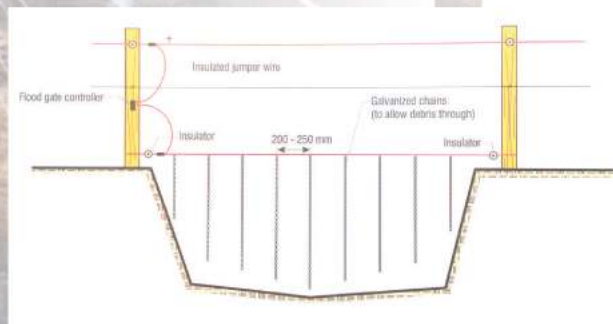
See Resources and Contacts page for electric fencing materials and



Example of most common, stand-alone three wire electric fence.

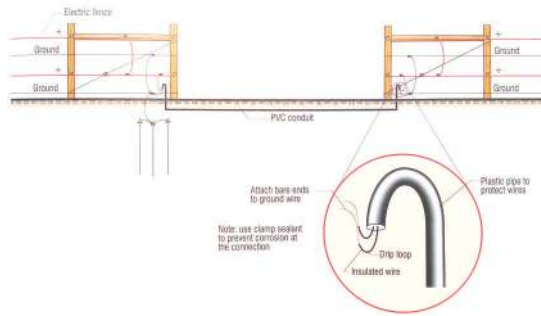


A predator fence with alternating live wires. Note: clearing of brush and debris along the fence line in the photo, allows for excellent sight lines and uninterrupted flow of electrical current. This fence is cost effective to maintain.

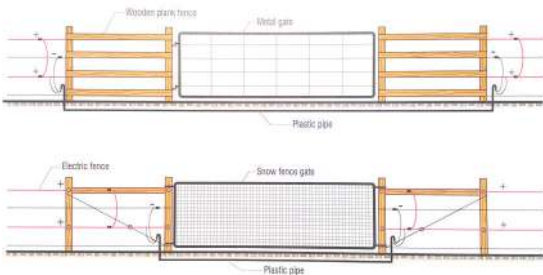


Simple solutions are available for challenging terrain.

Gate and Driveway Options:



The pedestrian and driveway gate illustrated above, allows for easy passage and discourages any animals from digging underneath. The electrically charged wire can be driven across when the gate is open – still maintaining complete boundary and electrical circuit connection.



Many other configurations of electrically operated gate openers can be factored into the installation or retrofit of a fencing project or made educational as demonstrated by Kraze Legz Winery in Kaleden, BC. *"Thank you for helping to keep the deer out"*

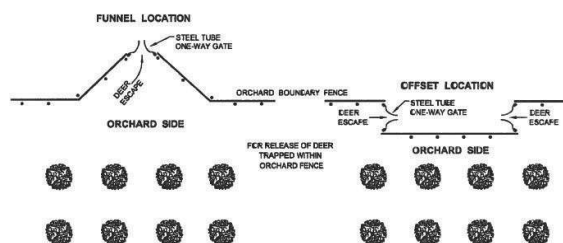


Wildlife escape gates

Despite fences, wildlife do get into fenced areas most commonly from gates that have been left open. Install one or more manual gates at the opposite end of the property so that they can be opened if wildlife is trapped inside. The larger the fenced property, the greater need for one or more gates in addition to the main vehicle access gate. There is little or no extra cost involved when gates are installed as part of a new perimeter fence.

For large remote properties adjacent to wildlife travel areas where people aren't always on the property, one-way wildlife gates can be a good investment to prevent wildlife damage.

There are at least two designs: spring-operated metal tine gates and clear plastic gates that allow wildlife to push open the gate to get out when trapped.



The Cost Benefit Analysis of a Professional Installation

Is an electric fencing a viable option for you?

- 1) Estimate the annual losses in dollar value of wildlife predation. Consider actual crop or product loss and time spent removing trapped wildlife.
- 2) Calculate the approximate annual costs of labour and materials to repair property damage and fences.
- 3) Obtain at least two quotes for a professional installation – on a cost per foot basis showing gate and driveway options. Discuss what role you can play in the installation so the quotes reflect your participation.
- 4) Decide how much of the preparation work you can do before the installers arrive. Brush clearing, line marking and terrain modification will save you money.

Note: Many growers that have professionally installed fencing have saved more than originally calculated

Snake Fencing

Snake Fencing

For detailed information on snake fence construction consult “Snake Barrier Fencing” by Mike Sarell on the South Okanagan Similkameen Stewardship Program web site <http://tinyurl.com/snakefencing>.

Permanent snake barrier fencing may be considered for areas next to natural habitat where rattlesnakes are frequently found. A snake fence can improve public and worker safety and reduce risks for snakes. Barrier fences can either deflect snakes away from a property or enclose an area. A biologist can help identify likely snake movement patterns.



Recommended material and methods:

- 36 " wide ¼ inch mesh (90 cm wide 10 mm mesh or 23 gauge hardware cloth)
- Wood or metal posts (or attach mesh to existing fences)
- A 6-10"/15-25 cm deep trench should be dug along the fence line with the wire mesh buried into the trough and a 3"/9 cm right-angle fold facing out
- The buried mesh prevents rodents from digging tunnels that can be used by snakes and allows for soil erosion
- Posts can be installed as in standard livestock fencing using thinner, shorter posts can be used
- A 10' separation between posts works well to support the wire mesh. All corners should be braced
- The top edge of the mesh should extend at least 25"/62 cm above ground. The top edge of the mesh must be strengthened to prevent tearing
- People and large wildlife crossing over the fence can easily tear the upper edge. Attach smooth wire along the top of the mesh to strengthen the edge or use a wooden or metal top rail



- Try to design the fence so that it does not cut off access, but gates can be used if necessary. Gates should have a 6"/15 cm sweep skirt over the ground to prevent snakes from getting underneath.
- Sections drift fence are not 100% effective, so the occasional snake may find its way around the fence. Escape funnels allow snakes to move back into natural areas. Roll mesh into an open-ended cone and flared wider end to form a flange that can be secured to the fence. Covers can be placed over the funnels to prevent collapse from wildlife or livestock.
- Maintenance: check that the mesh is still anchored in the soil, clear plants and debris from the fence, ensure that exit funnels are still functional; and use wire stitching to close any holes in the fence.
- Cover Objects: snakes can be vulnerable to predators and weather as they travel along barrier fences. Rock piles or wood covers give protection. Use 2x4s blocks with a 2'x2' /60x60 cm plywood cover

Predator Deterrent Options

There are many excellent mobile or portable options available to assist landowners in reducing wildlife-human conflicts. Mobile deterrents include items such as mobile canons, sound deterrents, moveable nets, portable electric fence or mesh, and infrared warning sirens. Mobile devices that will be covered in this publication will be predator related. Refer to the last page of this guide for Resources and Contact links.



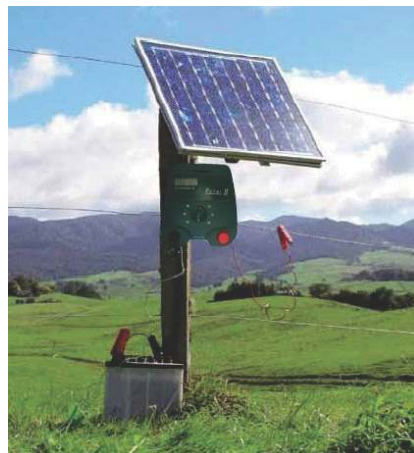
The complete bear deterrent kit includes:

- 1- box bear bangers (50 cartridges)
- 1- box screamers (50 cartridges)
- 1- tin 6mm Sellier & Bellot Economy Blanks (100 blanks)
- 1- Record single shot launcher
- 1- canister bear spray
- 1- bear spray holster
- 1- Xtreme Rattler
- 1- Dry Box carrying container

A 'Bear Kit' is recommended for carrying in a vehicle or motorized farm equipment for a wide variety of wildlife encounters. The kit contains a canister of bear spray, hand held aerosol screamers that emit ear piercing screeches, a launching revolver for bear screamers and launch cartridges, and a bear rattle. All are noise making devices with exception of the bear spray. These kits come in a self contained, strong plastic carrying case which can be easily mounted to a tractor, quad, or motorbike. They can also be stationed in work areas, when the threat of an encounter is elevated. Bear kits are available at Margo Supplies. *See Resources and Contacts page for contact information.*



A portable electric fence is a viable option for those producers in an area where no electricity is available. Bee hives located in orchards or vineyards are a prime application for a portable electric fence (wire or mesh), as are permaculture fowl runs and small livestock producers that rotate pastures or ranges. They can be deployed when workers are in vulnerable locations i.e., ice wine grape or late season fruit harvesting and can sometimes be shared between property owners to defray costs.



During an on-site property assessment, deterrent options specific to your location can be discussed. Often assessment personnel will have samples of deterrents and products for demonstration. If an on-site assessment is unavailable in your area, most manufacturers will provide information and discuss the best options for your needs.

Bird Deterrent Options

Bird Predation Management

Bird management, like integrated pest management, is best done with a planned approach to evaluate the damage and decide whether a management technique is worth the cost and is effective.

Noise and visual deterrents

Bird scare devices such as propane cannons, starling distress calls, hawk kites, balloons and reflective tape are used when netting is impractical or expensive. Often visual and noise deterrents are used together to increase the effect. Make sure to check local government noise bylaws. Consult BC Ministry of Agriculture web site for “Audible Bird Scare Devices in BC” guidelines.

The timing and location of these devices should be varied otherwise they lose their impact. Research indicates that cannons are less effective than either natural predators or recorded Coopers Hawk calls and starling distress calls. Hawk kites have also been used successfully. But the effectiveness of all scare methods lessens with regular use so the “scare tactics” should be used in peak bird predation months.

Trapping

European starlings are the primary culprit for bird damage. Robins and other birds also eat fruit but since they occur in significantly smaller numbers and are protected by The Wildlife Act, trapping is not allowed for these species. Contact fruit producer groups to learn more about professional starling trapping and eradication programs in your area.

Birds of Prey

Natural bird predators (also called raptors) can be encouraged to live on or near your property if you provide perching poles or trees for birds of prey and leave old crow nests to be used as raptor nests. Retaining natural gullies and treed habitat will also attract birds of prey.

Netting

Consult BC Ministry of Agriculture guides on the internet to assess the economic costs and benefits of netting:
Netting for Bird Control in Blueberries – A Decision-making Guide
Netting for Bird Control in Cherries – A Decision-making Guide
Netting for Bird Control in Grapes – A Decision-making Guide

Acquire bird netting from a reputable supplier who will provide the appropriate size and mesh gauge for your crop. Ensure that nets are correctly draped and pegged with no slack points. The nets should end well above the ground. Nets should be checked every day to make sure there are no openings for birds to get in. Struggling birds caught inside nets can attract birds of prey or snakes who may also get entangled. European Starlings and House Sparrows may be killed, but most other birds are protected by The Wildlife Act and must be released.

For further information on bird control methods, consult “Suppliers of Bird Control Materials and Equipment for BC Growers” at <http://www.agf.gov.bc.ca/berries/publications/document/suppliers.pdf>

Worker Safety: Action Plan

Map of Property with labels showing: outbuildings, sheds, and areas where wildlife can be expected or travel

Every employee receives training and education when beginning a job or returning to work the land. Having a WSAP is an important tool for both employers and workers to discuss best practices for the safety of all workers.

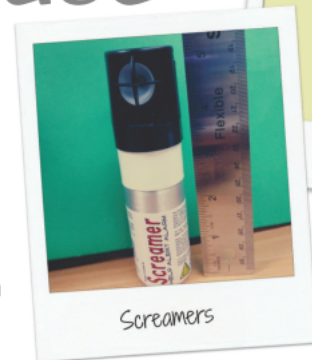
Tick boxes when discussions and reviews are complete:

- Review overall detailed map of the farm including areas where workers move through and work
 - Refuse and garbage containers have been identified
- Review list of possible predators likely to be in each of the described areas. Identify safe zones.
- Review action plans
 - Information is available and has been distributed to workers
- Review where the deterrents kept, and who manages them.
 - Know if they are distributed daily and returned, or issued at one time for the duration.
- Have attended worker training on wildlife deterrents and best practices
 - If worker is required to carry bear spray, training must be provided

Employee _____ Manager _____ Date _____

Worker Safety: Deterrents & their use

The best wildlife deterrent is to avoid an encounter. Managing attractants, being alert, and using the human voice reduces the chances of a surprise encounter. The devices shown below are considered non-lethal deterrents. Air horns, screamers, and rattles should be used at the first sign of wildlife intrusion. It may save yourself and others, both at work and when recreating in the outdoors. Be prepared, have a plan and know what to do.



Air Horns and Screamers

When carrying air horns or screamers, ensure ready access to use them. They are a good scare tactic and first warning device. Air horns (and mini air horns) are available at hardware, sports and outdoor stores. Both rechargeable and non-rechargeable models are available. Screamers are available through Margo Supplies: See Resources and Contacts page. Screamers are equipped with a safety trigger as well. It is a horizontal slide mechanism (bright red) which can be deployed by sliding the trigger safety to the right, and then deploying the spray by pressing down on the trigger. These cans also come with a metal loop to attach a carrying clip. Using an air horn or screamer is simple, as they rely solely on compressed air. Depressing the trigger will release the air activating the sound.

Air horns can have several uses including communication. It is possible to have a pre-planned system of blasts to signify different safety issues. Decide on how many blasts for bears and other predators or to signal an accident or distress call. If the need arises, it can be used as a location sounder to lead responders to your location.

Remember:

- Carry deterrents
- Have ready and deploy when required

Cell Phones and Two Way Radios

If you are carrying a personal cell phone, insure that you exchange phone numbers with your supervisor or manager. Two way radios may be available and training will be provided by your employer. Two-way radios have the advantage of not requiring a cell signal and can be calibrated for ranges and particular areas.



Bear Spray

There are many safe and respected deterrent options on the market today. It is important to look for high-quality products. Items priced much lower than average may not perform as well, and in some cases, have been known to misfire or fail. Bear spray is available at most hardware and outdoor stores. The list of local suppliers is located in the Resources and Contacts section at the back of this guide. Once you have purchased the bear spray (and holster) make sure you remove the plastic wrap covering. Also check to insure the 'trigger safety' has a strap that will allow you to remove the safety without having to cut the strap off. You can see the can in the photo above has two straps. One for shipping and one attached to the trigger safety. The trigger safety strap is attached in a way that it can be slid off the trigger without being lost. Remove the shipping strap before beginning to carry it in the holster. Note the 'best before date'. If you have a can without a date, it is already too old to be used. The pressure in the can will have depleted and deterrent gases dissipated. Bear spray should be stored safely when not in use. Storage sleeves can easily be made from ABS piping with a threaded lid. It should not freeze or be subjected to temperatures above 40 degrees Celsius. Using bear spray safely is available for download at: <http://bit.ly/Bearspray>



Contacts & Resources

“Living with Wildlife in BC” management guide series:

1 Bear

#2 Cougar

#3 Coyote & Wolf

#4 Rodents

#5 Snakes

#6 Starlings

#7 Ungulates

#8 Conflict Reduction: mitigation options for wildlife safety and control

Mitigation Decision Matrix: calendar of wildlife occurrences and recommended controls

Authors: Living with Wildlife 2013 series, Zoe Kirk, WildSafeBC and Margaret Holm, Okanagan Similkameen Conservation Alliance.

The management guides are available for free downloading and distribution on the following web sites:

Okanagan Similkameen Conservation Alliance www.osca.org/ Living with Wildlife – Agriculture section

Regional District Okanagan Similkameen www.rdos.bc.ca WildSafeBC-Bear Aware section

BC Wine Grape Council www.bcwgc.org Health & Safety section

Wildlife Deterrent Retailers for fencing:

Margo Supplies <http://margosupplies.com/public/canadian1/index.html>

R&S Power Fence 645 Main St. Penticton, BC V2A 5C9 250-492-7090

<http://electricfence.homestead.com/>

Clear lexan wildlife gate are produced by Glenfir Industrial, 250-496-4250

Wildlife Deterrent Retailers for devices and kits:

Margo Supplies <http://margosupplies.com/public/canadian1/index.html>

True North Outdoors Store <http://trueoutdoors.ca/> Vernon, Kamloops, Kelowna, Penticton

Bear Scare (training courses available as well) <http://www.bearscares.ca/>

Resources:

Bear Aware Web Site <http://www.bearaware.bc.ca>

BC Conservation Officer Service <http://bit.ly/COServiceHumanWildlifeConflict>

The BC Wildlife Act :

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96488_01

BC min. of Agriculture Compost Handbook:

<http://www.agf.gov.bc.ca/resmgmt/publist/300Series/382500-0.pdf>

BC Environmental Farm Plan: <http://bit.ly/EnvFarmPlan>

Rodent and Bird Control in Farm Buildings <http://www.cps.gov.on.ca/english/plans/E9000/9451/M-9451L.pdf>

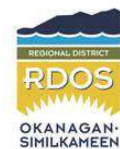
Bear Spray is available at most Outdoors Stores, Hunting Outfitters, Canadian Tire,

Deer/Dog Spray is available at Canadian Tire Stores across BC (not restricted)

References: Fencing with Electricity, Alberta Agriculture Food and Rural Development: John Bourne and Phil Merrill 2005; Fencing with Wildlife in Mind, Colorado Parks and Wildlife: Wendy Hanophy, 2009.

Photos reprinted with permission: Elk courtesy of Colorado Dept. of Wildlife; bees, shed, and broken apricot tree, composting with machinery – Organic Homestead Farm; Bear resistant cart - Bearsaver.com; electric fencing photos- R&S power Fence archives; diagrams of electric fencing – Min. of Alberta, Kraze Legz Winery, Kaleden BC; 'Fencing with electricity – Brian Kennedy; remaining photos – Wikimedia commons.

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