Electric Fencing Considerations

The use of electric fences in urban areas requires some special consideration, but when properly constructed and maintained an electric fence is a safe and effective tool to keep predators and other potentially dangerous wildlife away from anthropogenic (human-related) food sources. Please note that in some instances, secondary exclusionary fencing may be required to keep out predators such as cougars or bobcats that can leap over electric fencing or smaller predators that may go through or under the fencing without touching a hot wire.

The use of electric fencing is only recommended when the attractant that the electric fence is protecting cannot be effectively dealt with in some other manner: e.g. if garbage can be removed from an area then that would be preferable to setting up an electric fence around the garbage.

It should be noted that having an electric fence in an urban setting will be less of a safety issue than having no electric fence and a bear or other predator accessing attractants in that setting.

There are many ways of constructing an electric fence and the choice of components ultimately depends upon a variety of factors. Please note that the suggestions given here are for small-scale electric fences designed to cover areas typically less than 20x20 meters, for larger applications, such as around garbage dumps or berry farms, other components and/or construction techniques may be required.

General considerations:

1. All fences must be constructed within the guidelines of municipal, regional, provincial or even federal regulations that may supersede the direction provided here.

2. Energizers and various components of the system must be installed and used as per the manufacturer's instructions.

3. Please note: It is the duty of the person installing the fence to ensure that all regulations regarding the deployment of an electric fence are being followed.

Fencing considerations: To create an effective predator electric fence designed to keep out grizzly bears, black bears, coyotes, and wolves the following points need to be considered:

1. Choice of energizer:

    a. Should be able to deliver a minimum of 6,500 volts throughout the system (e.g. at a point furthest from the energizer).

    b. Must have a rating of at least .75 joules. Upper limits can be set by appropriate authorities when developing regulations with regards to the deployment of electric fencing within your jurisdiction. Consideration should be given to the fact that too restrictive a range on output of the system could curtail the choice of units available.

    c. Must be CSA or ULC approved.

2. Fencing wire:
    a. Either smooth steel/aluminum wire no less than 16 gauge, or
    b. A poly braid wire with no fewer than 9 steel wires in the braid
    c. At no time should barbed wire be used as this poses a great risk should an animal or human become entangled in the wire.
3. Wires and placement:
    a. Because there are a variety of configurations for electric fences (e.g. all hot wires, alternating hot and ground wires, and electrified mesh – to name just a few) it is difficult to make hard and fast rules for the number and placement of wires.
    b. The general rule should be that the fence must be constructed in such a way that the predators (as noted above) cannot pass through the fence without simultaneously touching a hot wire and the ground (or a ground wire).
    c. For an all hot-wire fence the bottom wire should be no more than 25 cm. from the ground at any point along its length and the top wire should be no less than 1.20 meters from the ground and wire spacing should be no more than 25 cm apart.
4. Grounding: The grounding system (whether plate or rod) must be sufficient to complete the circuit throughout the length of the fence. If the dryness of the soil prevents the use of the ground as part of the circuit, grounding wires should be used instead of relying on the ground itself. Note: The bottom wire on any system should NOT be a ground wire (as this allows wildlife to dig under the fence, unimpeded).
5. Warning signs: Weather resistant signs stating the danger of electric shock need to clearly identify the fence and be visible at all points where people may contact the fence.
6. Fence construction:
    a. Fence wires must be taut enough to deliver the shock from the fence to the animal (sometimes through a thick insulating coat of hair) without such deflection as to render the fence ineffective. This may require fence posts to be braced at intervals to allow sufficient tension to be applied to the system.
    b. When constructed inside another fence (the perimeter fence) the electric fence needs to be a sufficient distance from the perimeter fence so that an animal cannot scale the perimeter fence and then cross over the electric fence without touching both a hotwire and the ground (or grounding wire).

c. When constructed within a perimeter fence, the electric fence should be such a distance that the perimeter fence cannot be pushed against the electric fence and thereby rendering it inoperable.

7. Maintenance:

a. Fences must be maintained in such a way as to ensure that plants and/or other materials do not touch the fence and in turn "ground out" the fence.

b. Fences should be checked periodically with an appropriate voltmeter to ensure the fence is working appropriately.

General Safety considerations

a. Call "One Call" ***1-800-474-6886*** before starting construction on your electric fence. This service will tell you what underground services that you must avoid when placing grounding rods or fence posts into the ground.

b. Do not construct electric fences within 75M of overhead electrical transmission lines (these are the large high-tension lines used for transmitting power from power generation sites to distribution sites). For fences within the 75M limit or on transmission right-of-ways please contact BC Hydro for their safety guidelines. Standard construction safety methods need to be exercised when working around household distribution lines (these are the lines that bring power from the distribution centers to a home).

c. Do not locate your grounding system in such a way as to encroach on existing grounding systems.

d. If you have neighbours nearby it is good practice to let them know about your planned construction of an electric fence. If they have pets that wander freely this will be a good reason for them to reconsider the practice. Children old enough to walk about without parental supervision should be old enough to be taught not to approach the electric fence.