I live in the center of Pennsylvania which is made up of beautiful river bottom farms to remote mountain forests with any kind of in-between habitat. You can see a bear in any of them. Bears are very adaptable and learn quickly where to find a meal. A small number of people encourage these bears to come into closer human contact by feeding them treats with some bears getting so used to people that they are able to feed them off of their porches. Then, they become problems for everyone, dumping garbage cans nightly, eating from the garden, tearing chicken coops apart, and emptying the well filled bird feeder for dessert.

Part of their diet comes from insects in the ground or old hollow logs that are found in relatively small numbers and require a lot of work to make a good full stomach. Sometimes in the bear’s travels, which are many and often, it comes across an all-night, all you can eat smorgasbord containing a complete diet of protein and carbohydrates. I suppose even those external bee skeletons of the adult bees supply the required daily amount of fiber to round out his meal! Where is this wonderful restaurant? It is in your bee yard, which has several buffet tables of which that hungry bear will sample three or four. One will be your prize hive that was doing so well. Maybe he will knock a few others over just as a way of making reservations for tomorrow. The next time our friendly, easy going, beekeeper visits his yard, you see him change into a raging bear killer – “I’ll kill every one of them.” A lot of us have experienced this change; I have. However, it is not the bear’s fault that over millions of years this animal survived by eating all types of foods and now someone keeps bees in boxes on the ground. The black bear is beautiful, agile and very powerful. Everyone should have the opportunity to observe them in their wild domain as they move about at their own leisure. To see one when it is in prime condition is something you don’t forget quickly. The sunlight reflects off their hair like millions of tiny diamonds as they move. However, it can step into the edge of the clearing and be gone like a ghost. It is a wonderful scene that I’ve seen several times. If only they didn’t like my bees so well!

Well folks, the bears are here to stay and if you live in a state that has them, you will have a problem. Their range is expanding to new states, so don’t think that your state or locality will always be immune. It is not if you will have a problem, only when. Most of the time you could have prevented it. I have had bear problems over the years,

An 8-post, 4-panel simple and clean bear fence. Notice the weed control and a good ground.

This is the high tensile wire bear fence at Pennsylvania State University shown with Parmak solar-powered fencer.
but I never suffered a loss when I had a properly maintained bear fence.

Bears are unpredictable. Years will go by without a loss and then suddenly your yard is added to the menu. They may come back again and again or it may be the type that never comes back again. I've had both kinds over the years. In the 1950s I lived 40 miles west of New York City and bears were something you heard about only in stories from Pennsylvania. The man who lives in our old house told me last fall that he has seen bears on his back porch — that's 100 feet from where my hives used to set. Someone shot one last year in Paterson, N.J., about 15 miles west of N.Y.C. They are everywhere, so learn to accept and live with them.

So how do you live with them? Fence your bees in and the bears out. I inspect bees for the state, so I see all types of protection from nothing to keeping them on the second floor of a storage building (not nice for smoking the bees). Why someone would set 10 to 15 hives out without any protection is beyond me, especially after he has just finished telling me how a bear ripped them up last year. It is like playing Russian Roulette only with 5 live rounds instead of 1. A beekeeper can build a minimum type fence for the cost of one colony with honey on it or a top of the line fence for twice that. Over the years I have built several different styles and they all did the job, but I think some are better than others. For several years I only used thin smooth wire like the TV and phone companies use to lash up their cable to the supporting steel strand (cable). It didn't rust, was easy to work with and didn't require much of a corner post or many inline posts. About every month or two pieces of bacon should be tied to the wire as bait. The bear will touch this and learn what the fence is. The bear must be trained the same as cows, goats, sheep and horses are, so they know what the fence is. Because the fence operates in cycles, an animal can be part way through before he is shocked — Zap — now he is through and doesn't know what hit him. He must be shocked before his head is between the wires or you have a high risk of failure. Bacon strips are a good idea for any kind of electric fence.

The Pennsylvania Game Commission has a program for supplying materials to erect deterrent fences for bears if 10 or more hives are in one location on lands open to public hunting. They also may pay for damages caused by bears if the bear is not killed, if the affected hives are within 300 yards of the owner's home or the home of an agent in charge of the bee yard. Also, the Game Commission will pay for damages if it is a first-time claim or a commission-approved bear deterrent fence has been erected, maintained, and operated. Add a tight state budget to these rules and you have a bear fence. The Pennsylvania Game Commission recommends three strands of 15 1/2 to 12 gauge four-point barbed-wire spaced 10", 20", and 30" above ground and will supply an information sheet on erecting a bear fence. I did go this route a number of years ago, but I wasn't satisfied with the equipment and requirements, so I just buy what I want and where I want to now. I know it costs me some money, but one night of a bear visit will be more expensive than a good fence and I will still have to buy the fence. Kennicove (one of the largest fencing suppliers in the U.S.A.) has some very knowledgeable people — Address: 344 Kendall Road, Blairsville, Pa. 15717; Phone: 724-459-8991; E-mail: www.kennicove.com. They do not recommend electrifying barbed wire. In their words, "It is too dangerous." I have seen animals become tangled up in an electric fence — it just keeps on shocking the animal every second or so because it can't get away. If a person was to get snagged on a barb with his clothing, it could possibly end up the same way. Remember, it is the power of the shock not the size of the wire that will turn a bear.

A few years ago I started using large trailers to keep my bees on — about 24 hives per trailer. I knew I would have to...
have bear protection, so instead of building a fence around the trailer, I made up hangers to hold livestock panels along the sides. These look like woven fence, but are 1/4" thick bar stock welded together in 16' lengths and then galvanized. Tractor Supply sells panels that are welded after galvanizing and they hold up fairly well. The really good ones are welded, then hot-dipped in zinc and are manufactured by Behlen Corp. in Columbus, NE, telephone no. 1-800-447-2751. They can supply a list of dealers in your area if you call them. The local dealers in my area handle 52" high cattle panels and 34" hog panels. I have always used the 52" just as a safety factor, but I really think 34" would work.

A friend of mine from the Poconos, John Sloan, and I were discussing bear problems last spring in his yard when we came up with the idea of using these same panels to build a permanent bee yard fence. Again, Kencove came to the rescue with how to insulate these from the ground. They sell fiberglass oil field sucker rods 1 1/4" in diameter and in whatever length you want. These rods feel like a piece of steel and are about that flexible. NOTE: Always wear gloves when you handle these because of the glass fibers. Do not let the hardware store salesmen talk you into something else that will not work as well. I have mine cut out 6' long and drive them 2' into the ground and let the panel extend above the tops. After driving in the posts, I stand a panel up on two 4" bricks and hit it to the post. The 4" space allows me to use a weed eater for vegetation control, while it is low enough to keep skunks out. These can be a real problem with the research hives at Penn State University that I help maintain.

Once the panels are at the correct height, use a drill to make a 1/4" hole through the post about 12" down from the panel top at a horizontal bar location. Insert a 1/4" stainless bolt with the head on the far side, a lock washer next and then a nut and tighten. Now screw on the second nut and washer with Loc Tite leaving 3/8" between the two nuts. The panel's weight will be supported by the bolt and you can tie the panels to the post with thin wire or plastic ties. Eight posts and 4 panels, with about 2 hours work, and I have a 16' x 16' nice looking bee yard. I like the panels because they stop and make the bear look around instead of just crashing in. He will sniff and touch, but stay out. We also used 36" wide metal roofing under the panels at Penn State to reduce fence vegetation maintenance and this also gives the bear's feet a wonderful ground to complete the circuit. One end of a panel is simply swung back to provide us with a gate when we are working and then tied shut when we leave.

Another type of fence was used the previous fall at another yard location for Penn State. When I was first asked to do the field work with the University's bees I asked, "How are your bear fences." The answer was, "They don't work, but that is all right because we don't have a bear problem." I made temporary repairs to the fence and braced the corners, so it was half presentable. The fencer itself was a cheap solar unit, but appeared to work. I installed 25 packages in that yard and one week later it was raided by a bear. I couldn't find any downed wire, so the only thing it could have done was to crawl under the smooth gate wire. The fencer was working and I was stumped. I did my bee work and before I left for home, I decided to check the fencer again. It was a "sometimes" fencer - sometimes it worked and sometimes it didn't! So, I drove the 80 miles round trip and brought back my own solar Parmak fencer and hooked it up. About one week later on a Sunday evening, while the sun was still up, I drove over to check and while doing paper work in the truck cab, I noticed something coming down the logging road. It was a beautiful black bear coming right towards me - past the front of the truck within 12 feet of me and then went to each side of the yard. It would stand about the middle of one side and look left and right. After awhile, it would move to another side and look left and right again. Finally, it went back into the brush and laid down. They say a cow can tell if a fence is on or off and I think a bear can also. As poor as this fence was, the good fencer kept the bear out.

I rebuilt this fence in the fall with 6" and 8" x 8" long wood fence posts and high tensile wire spaced about 6" apart. I used 1 1/4" pipe between the posts to brace one corner against another. One wire was placed around each post to the ground to keep the skunks out and it made a big difference this year - no skunks. This is a very impressive looking fence, but it requires a tremendous amount of labor and I really don't think it is as effective a fence as the panels for bear protection. Live and learn.

Let's talk about the fencer last. It is the heart of the whole fence, for without it, you have nothing. The best chain link fence without electricity is just an exercise game for a bear. They just go up and over the top, hand over hand. Here I went back to Kencove for more answers. If you want to get some real technical questions answered, then ask for Ken. He recommends a fencer with an output of 1 joule for bears. Both Penn State and I have been using the Parmak Magnum 12 volt solar unit ($281.00) with no break-ins from bears. (E-mail: www.parmakusa.com.; Telephone: 1-800-662-1038) Some fencers are rated with miles of wire they can handle and sometimes it can be very misleading. Some sales people will say anything sometimes to make a sale, so it is better to deal with someone who knows the equipment and you can trust. The output on the Parmak 12 is at 1 joule, whether it is solar-powered or a battery-powered fencer ($85.00).

Ken can build a custom made unit also if you have deep pockets and a real need for more power. Some of the things that determine how large a solar unit you need are:

1. Latitude which determines the Tile Angle
2. The average sun hours per day
3. The output of the fencer
4. Generally, the larger the fencer unit (output), the larger the solar panel must be. Also, larger batteries are needed where you have fewer sun-hours per day.

I have a small D cell operated unit called a Yellow Jacket with a 0.25 joule output at a cost of $72.50. I use it where I have only

Trailer with bear fence at Pennsylvania State University mobile apiary site.
one or two hives on a temporary basis and so far I haven’t had any problem, but I would not recommend it as a good choice. People tell me they can’t afford to spend $300.00 on a bear fence and then they turn around and lose 4 or 5 hives with the season’s honey production gone also. They lost all that and now they still have to buy the fence! The 110 volt fencers are nice because they always work, but lightening is about three times more likely to hit the fencer than with a battery or solar powered fencer. Just in case you didn’t know, those solar units do contain a battery that needs to be replaced every few years. I didn’t know this and years ago I bought a brand new solar unit from a farm store. It had been on the shelf so long the battery was junk. I sent it in to the manufacturer and they repaired it, but I was out the postage and time. Again – buy from someone who has a good reputation.

The cost of the 16 x 16 foot bee yard fence at Pennsylvania State University was:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 panels</td>
<td>$25.00</td>
</tr>
<tr>
<td>8 posts</td>
<td>$6.90</td>
</tr>
<tr>
<td>Total</td>
<td>$55.20</td>
</tr>
</tbody>
</table>

Another person I met used wood posts with Kencove’s “double nail-on insulators” to hold the panels. It turned out to be a real neat looking job when he was done.

One of the larger queen breeders told me he likes the 0.5” white ribbon for temporary fence. It seems that the bears are fascinated by the way it flutters in a breeze and touch it with their nose. They won’t do that again!

All in all, bears are one of our smaller problems. They can be managed with a little work and common sense. Somewhere or sometime you may have a problem and have to solve it the best way for everyone with a good bear fence. It won’t do any good to fight with the game commission of your state because they are only able to do so much and now their budgets are tight.

If you want more information on this, you may contact me, Craig Cella at 1-570-725-3682 or Maryann Frazier at Penn State University, 1-814-865-4621. Web site – [http://MAAREC.cas.psu.edu](http://MAAREC.cas.psu.edu)