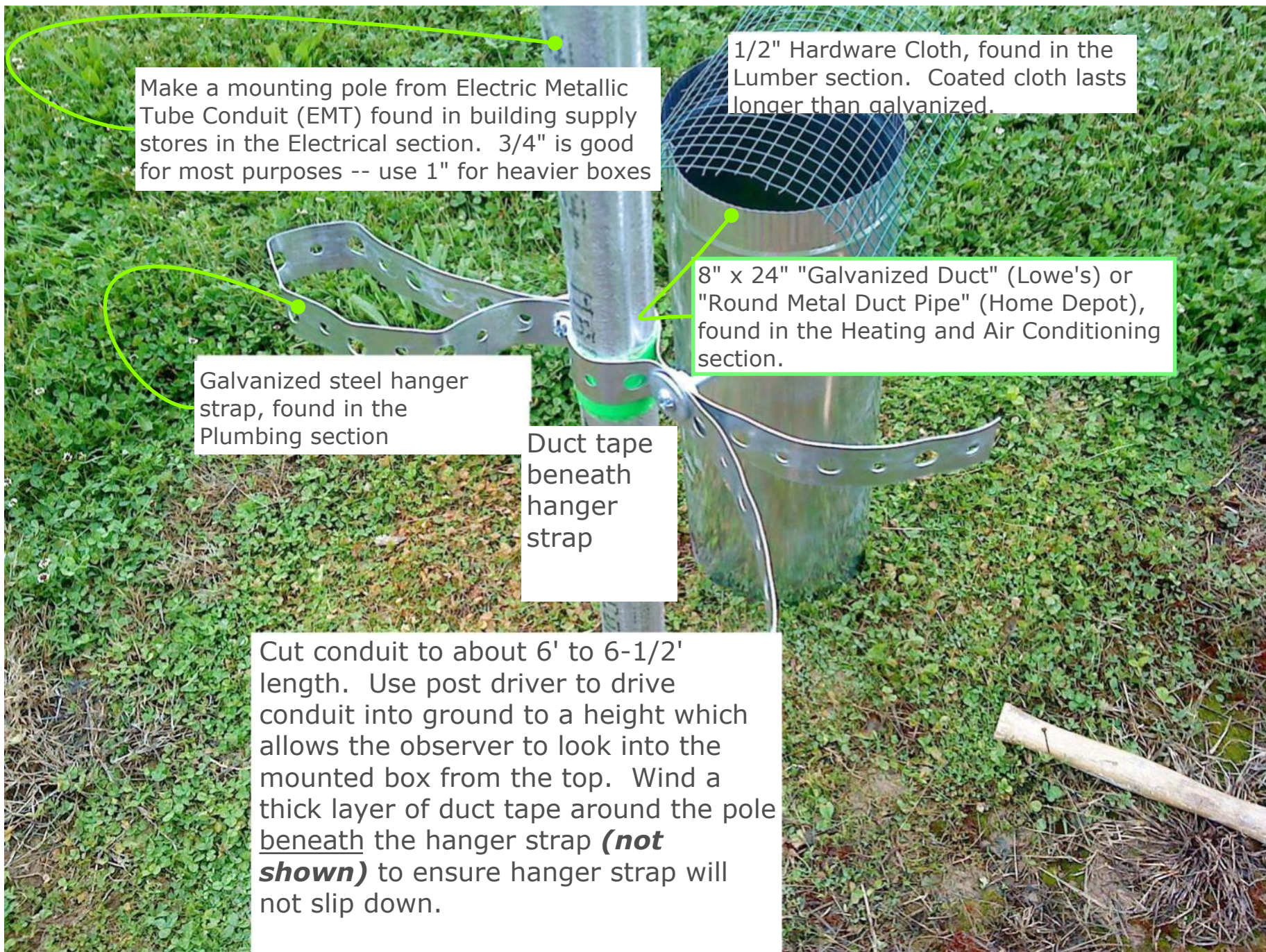


A Kingston guard provides good protection for your nest box against snakes and raccoons. The stove pipe baffle must wobble in order to deter raccoons from climbing up the box. The *hardware cloth* mesh inside the baffle stops snakes from slithering all the way up the pole and allows them to smell the nest box's contents as they approach the nest box. The closer they get, the stronger the smell becomes.

A fence post driver is indispensable. Found in garden section of hardware store (such as Home Depot), or farm supply store. Make sure mounting pole is contained within driver before pulling it down; otherwise, injury could occur.



Qty	Material	Use
28"	Galvanized steel hanger strap	Supports hardware cloth mesh
16x16	1/2" hardware cloth (coated is preferred)	Supports vent pipe baffle
1	8" x 24" round galvanized duct pipe	Baffle
1	Electric Metallic Tube Conduit, 3/4" or 1"	Mounting pole
3	Small screws and nuts, e.g., 11/64" x 1-1/4"	Assemble hanger strap support
1	Carriage bolt, 1/4" x 2-1/2" & 1/4" nut	Fasten box to pole
1	Deck screw, 1-1/2"	Fasten box to pole
1	Wine cork	Seal top of mounting pole
	Tools:	
	Snips	
	Fence post driver	
	Screwdrivers 7/16" nut driver Hammer	
	Cordless drill/driver: Phillips bit; 1/16" drill; 1/4" drill	
	#1 Irwin Unibit recommended; center punch recommended Pipe wrench recommended compass recommended	
	Duct tape	



Make a mounting pole from Electric Metallic Tube Conduit (EMT) found in building supply stores in the Electrical section. 3/4" is good for most purposes -- use 1" for heavier boxes

1/2" Hardware Cloth, found in the Lumber section. Coated cloth lasts longer than galvanized.

8" x 24" "Galvanized Duct" (Lowe's) or "Round Metal Duct Pipe" (Home Depot), found in the Heating and Air Conditioning section.

Galvanized steel hanger strap, found in the Plumbing section

Duct tape beneath hanger strap

Cut conduit to about 6' to 6-1/2' length. Use post driver to drive conduit into ground to a height which allows the observer to look into the mounted box from the top. Wind a thick layer of duct tape around the pole beneath the hanger strap (**not shown**) to ensure hanger strap will not slip down.

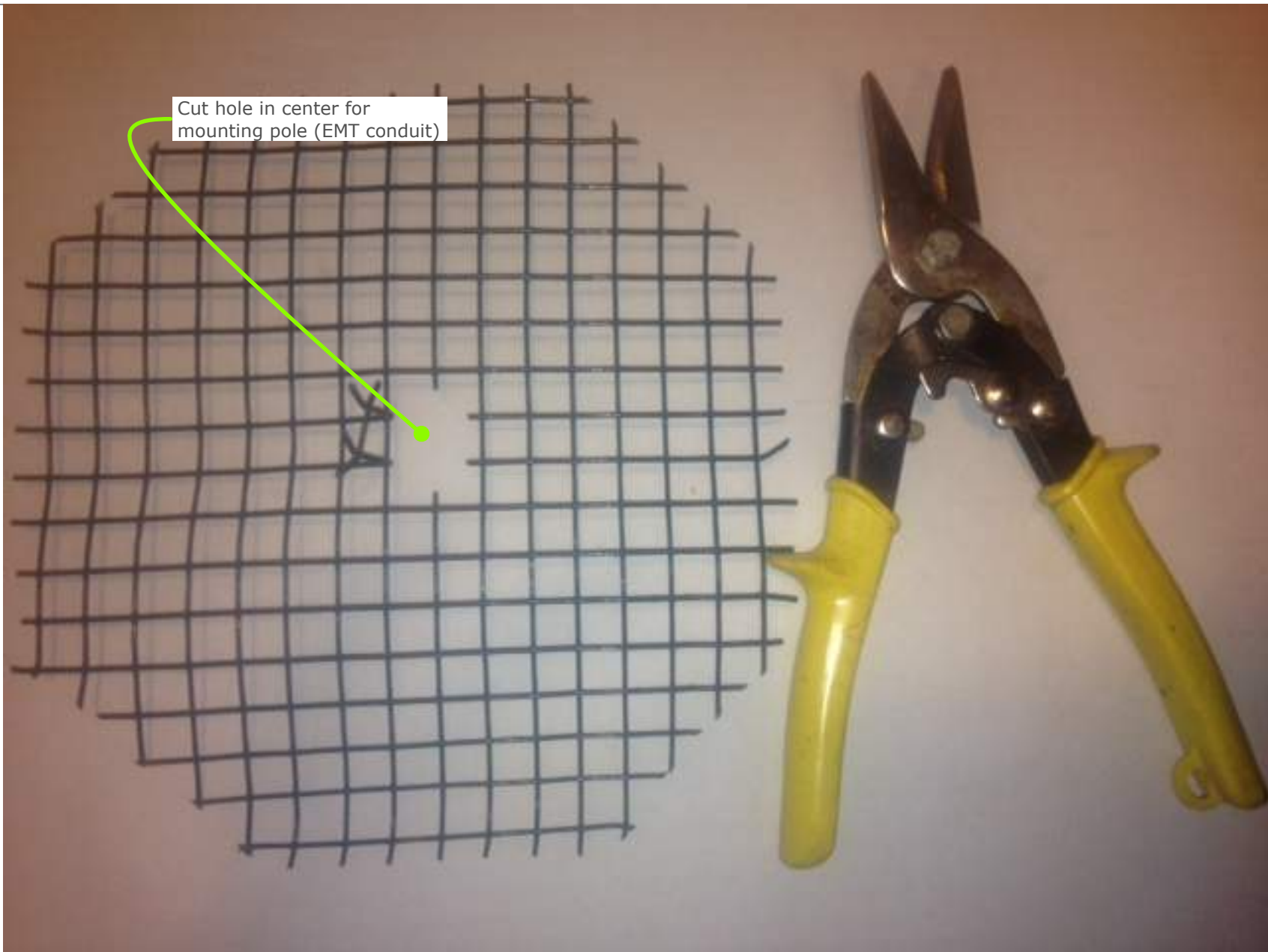


Example of small nuts and bolts
to be used to hold hanger strap to
mounting pole



8 inch by 2 feet "round metal duct pipe," or "galvanized duct," found in heating and air conditioning section of building supply stores, such as Home Depot or Lowe's.

Join the seams together carefully. Once they are joined, it's hard to get them apart



Use 1/2" hardware cloth for a snake barrier and baffle support. Coated hardware cloth lasts longer in the weather. For 8" vent pipe a section 16 squares by 16 squares works well. Cut off the corners, then fold the mesh into roughly cup shape, with the "opening of the cup" facing down.



Cut a length of hanger strap about 28" long. Fasten the two ends together with a screw and nut. Then use two other screws and nuts to tighten the strap around the mounting pole.



Use tin snips to cut strips in top of stovepipe, which you will fold over alternately

This metal will be sharp!!



After cutting hole in center of h.cloth, install roughly-cup-shaped h.cloth onto conduit on top of hanger strap

Alternately fold cuts in top of stovepipe, then lower stovepipe onto top of hardware cloth -- this will support the stovepipe, allowing it to wobble (important), and won't encourage wasp nesting. Finally, use screwdriver to lift h.cloth, sealing any gaps.





7/16" nut driver works well
with 1/4" inside diameter nuts



Center punch creates little dimple in metal that will keep your small bit in the same place as you are starting your pilot hole

Irwin Unibits make drilling holes in EMT conduit easy. Here, a #1 Unibit is used to expand a pilot hole.

Make a big hole for the carriage bolt (strength) and a smaller hole for the deck screw (stabilizes).



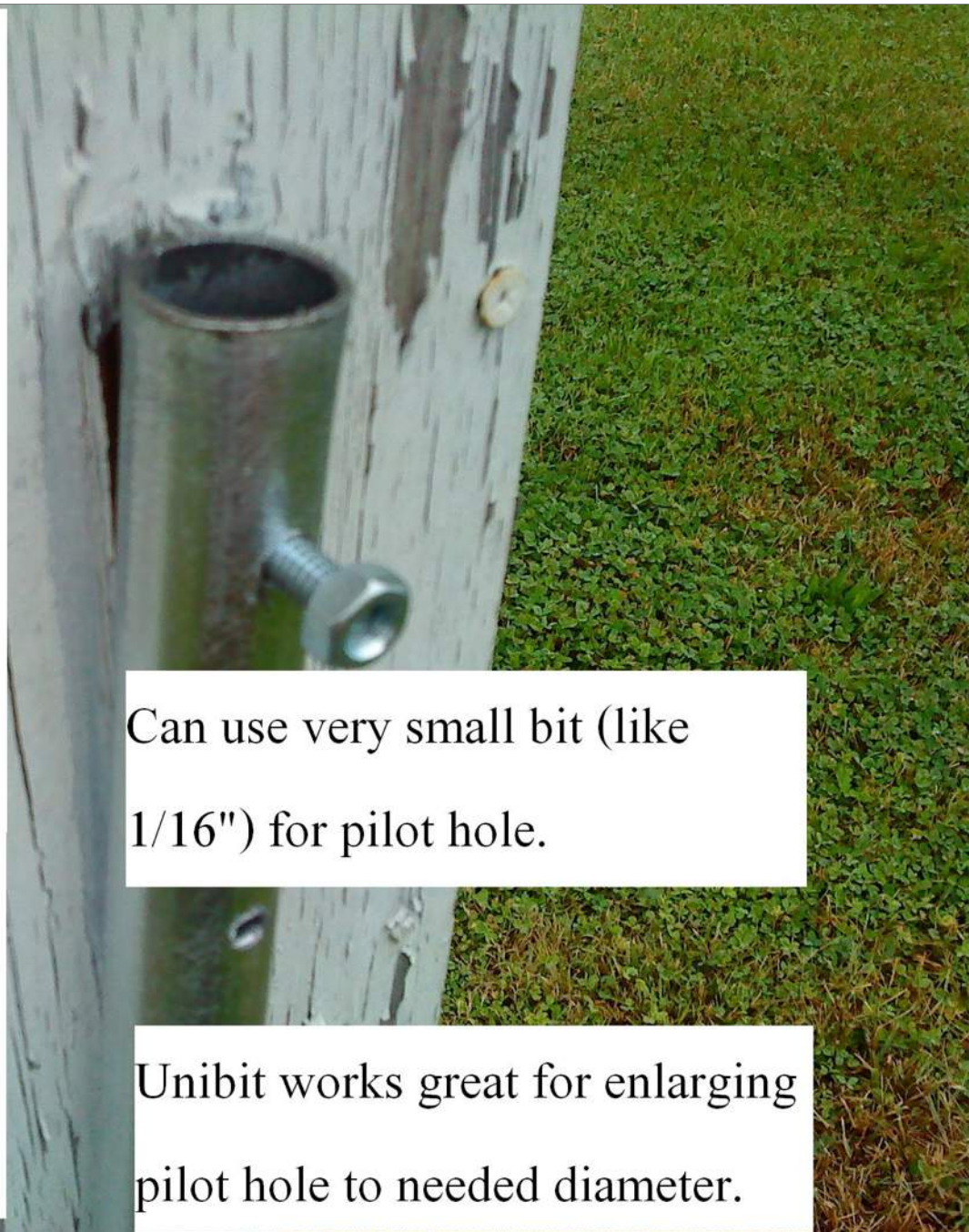
Make a hole in the top of the mounting pole (EMT) by making a dimple with center punch, then drilling a small pilot hole, then using a Unibit to expand the hole to about 1/4".

Then hold box up to mounting pole and use a 1/4" drill bit through the mounting pole into the back of the box. Push carriage bolt through the resulting hole in back of box from inside, and fasten with matching nut.

I mount our boxes using 1/4" carriage bolts and 1/4" nuts at the top, and (coated) deck screws at the bottom.

The carriage bolt is for strength, and the deck screw keeps it stable. For box made of 3/4" wood ("1-by") and 3/4" conduit, 1-1/2" long deck screw and 2-1/2" long carriage bolt are good.

Start your hole with center punch.



Can use very small bit (like 1/16") for pilot hole.

Unibit works great for enlarging pilot hole to needed diameter.

A nut driver is a good way to
tighten (and eventually, loosen)
your mounting bolts/nuts.



Half a wine cork does a good job of keeping water out of the conduit: water will freeze in cold weather, cracking the pipe, and become fetid at other times.



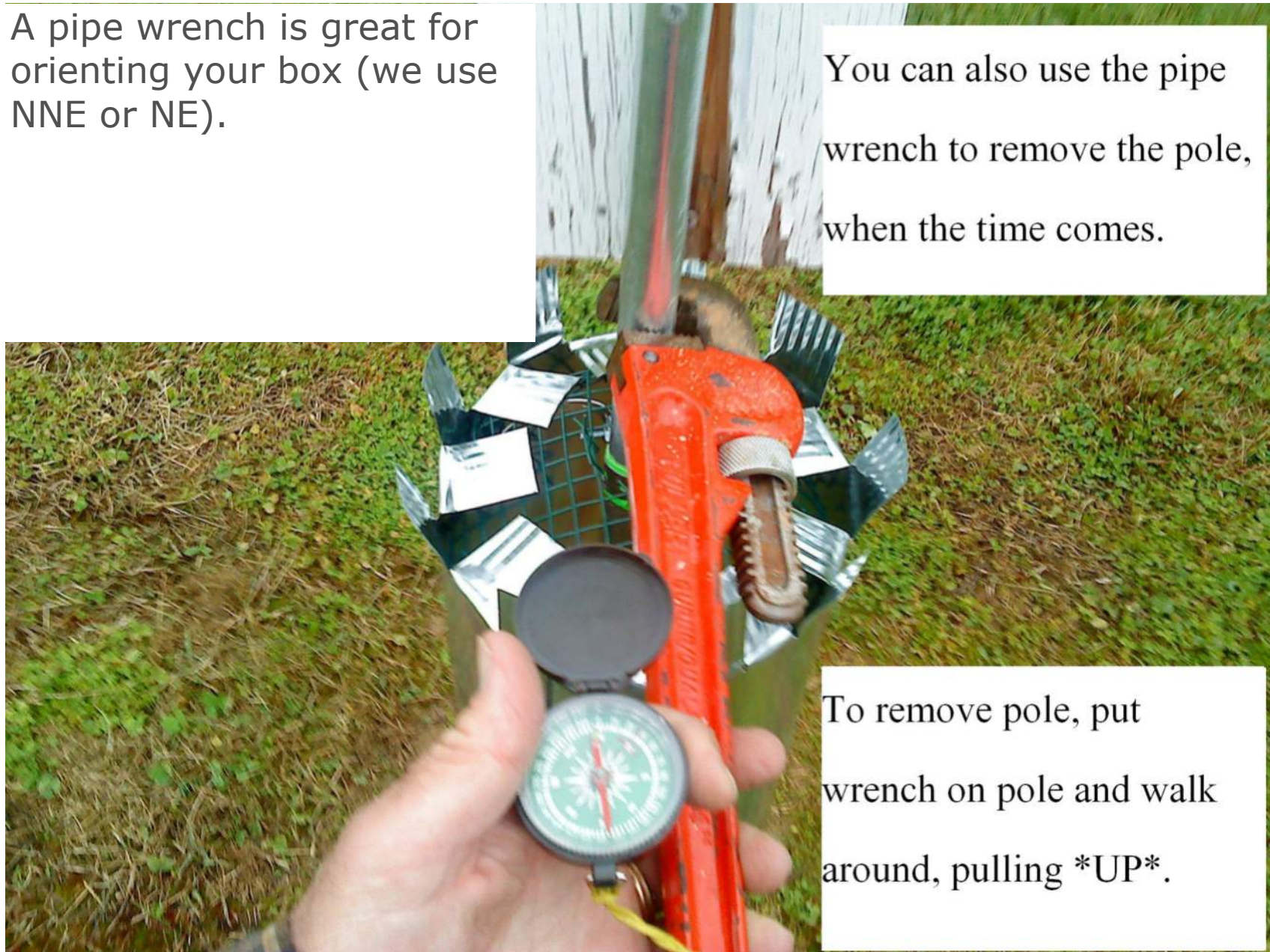


As the roof swings open for observation, it must clear the top of the mounting pole.

Here's how it looks. Note box is hinged, so it's top-opening. The box is mounted a little high for swing clearance.

A pipe wrench is great for orienting your box (we use NNE or NE).

You can also use the pipe wrench to remove the pole, when the time comes.



To remove pole, put wrench on pole and walk around, pulling *UP*.

All done

Thanks to Ron Kingston
for the design and Fawzi
Emad for mentoring me.

Paul K :-)



Ron Kingston, pictured here at Ivy Creek Natural Area, Charlottesville, VA, invented his snake/predator guard in 1988.

