Portable fishing rod antenna

A simple way of erecting a good temporary antenna

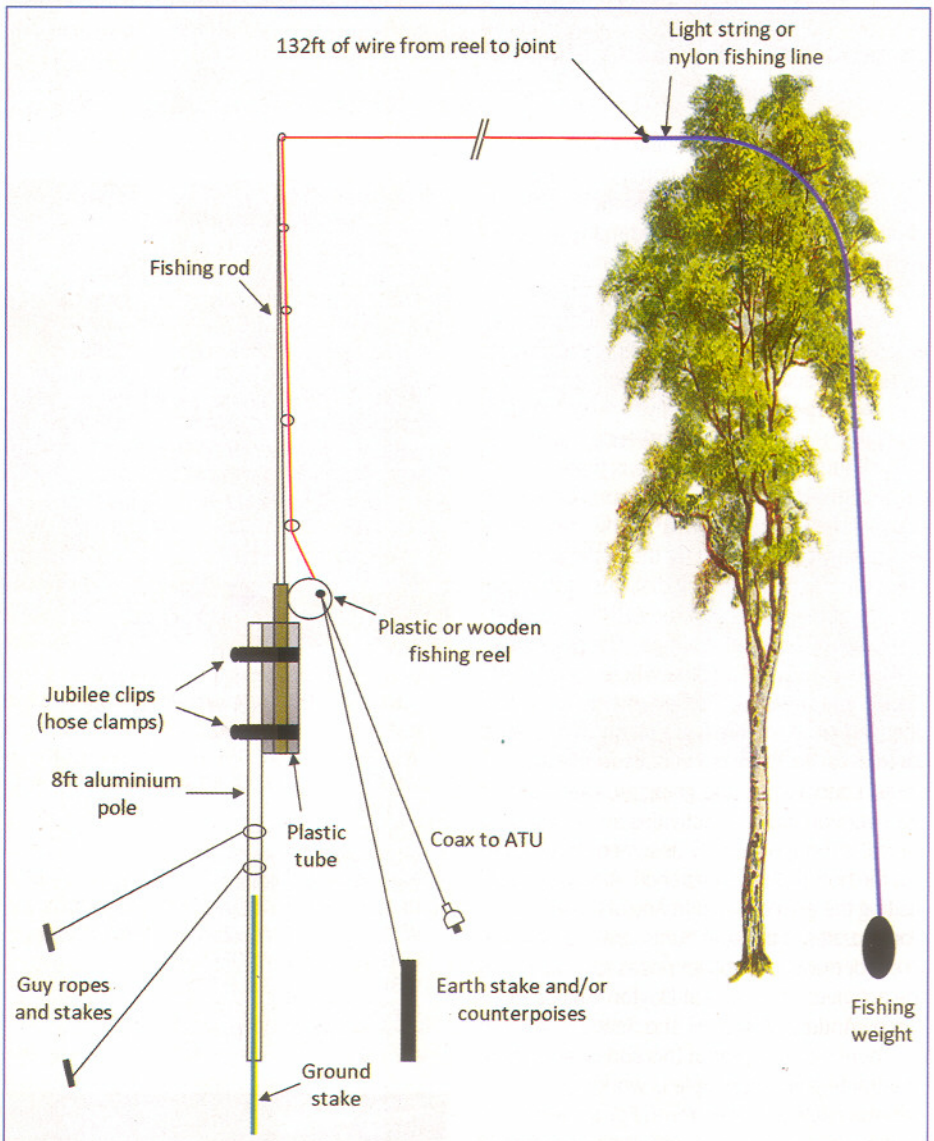

FIGURE 1: General arrangement of the fishing rod aerial system.

INTRODUCTION. In the June 2010 Last Word there was a letter requesting more articles on antenna construction. Spurred on by this, I decided to submit details of my portable fishing rod antenna. I have been using this simple antenna for many years with great success. It is very easy to construct and the results are remarkably good for an antenna that can be deployed in the space of a few minutes.

DESCRIPTION. The basic design of the antenna is nothing special – just a long wire – but the clever bit is how to keep it up in the air. Driving around the countryside one day I couldn't help noticing lots of big, tall wooden things dotted around. I think they're called 'trees', but whatever their name, they looked ideal for supporting one end of an aerial wire. But how to get the wire up there without the assistance of a trained squirrel? Fortunately, I have done some fishing in my time and I realised that with a little ingenuity I could modify a fishing rod and reel to help out.

The basic principle is to use a fishing rod and reel to loft a weighted, non conductive leader line to the top of a tree. The weight should cause the line to hook over a branch and head for ground level. The other end of the line is permanently attached to a 132 foot (40.2m) length of wire that acts as the aerial element. A stand for the fishing rod plus a couple of guys and some wiring completes the ensemble, as shown in **Figure 1**.

The parts are basic and quite easy to obtain. When the antenna is dismantled it will fit in a car for easy portability, ready for use at any time. The only really long piece is the aluminium support tube, which could be cut in half and then sleeve jointed. I find it takes less than ten minutes to erect once a suitable tree has been selected.

PARTS AND CONSTRUCTION. None of the parts are terribly critical, so just use the following as a guide. You will need a beach caster type fishing rod. I used a telescopic one, but any kind will do as long as it is about eight or ten feet long. Avoid the conductive carbon fibre types, though. You will also need a centre pin type plastic or wooden fishing reel. I made my own from a spool that once contained a lot of enamelled copper wire, but a commercial fly reel will be fine.

Make a connection point in the side of the reel – I just put a bolt through. You may find it convenient to remove the reel winder knob and put a bolt through in its place. Use a solder tag to connect one end of a 132ft piece of thin wire. I used 22 SWG stainless steel stranded insulated wire, although this is not ideal because of its high resistance. You can use any wire you like as long as it is strong enough and thin enough to fit comfortably on the spool with space to spare. Next, attach a long 'leader' of string or nylon fishing wire to the other end of the wire. About 60 feet (20m) is enough. A solder tag at the end of the wire provides a handy attachment point. Wind the string onto the reel on top of the wire. **Photo 2** shows the general construction.

The rod support is constructed from an 8 foot or so (~2.5m) length of aluminium tube, of roughly 1.5" (37mm) diameter. Dimensions are not at all critical. Attached to the support is a piece of PVC pipe of a suitable diameter to take the bottom of the fishing rod. The pipe is about 16 inches (40cm) long and doesn't have to be a tight fit to the rod. I used two jubilee clips (hose clamps) to attach the plastic pipe to the support rod. **Photo 3** shows how it all goes together.

I used a piece of steel reinforcing bar about four or five feet long as my ground stake. A slight point on the end will help it go into the ground, as will encouragement with a suitable implement (**Photo 4**).

The final parts to make are the feed and counterpoise. My prototype used a 10' (3m)

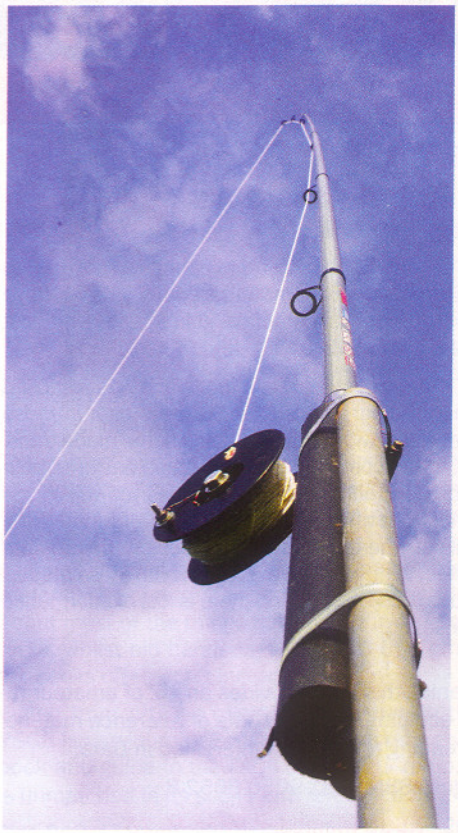

PHOTO 1: General view up the fishing pole showing the support pole, sleeve, reel and rod.

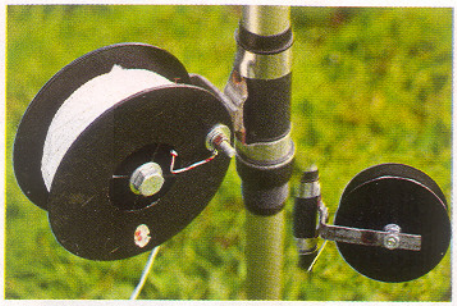

PHOTO 2: How I terminated the wire on the bolt and (inset, right) the bracket I made to fix my homebrew reel to the rod.

TABLE 1: Suggested counterpoise lengths

Band	Length
160m	39.5m / 129'6"
80m	20.5m / 67'5"
40m	10.5m / 34'8"
30m	7.4m / 24'4"
20m	5.3m / 17'4"
17m	4.1m / 13'7"
15m	3.5m / 11'7"
12m	3m / 9/10"
10m	2.7m / 8'9"

length of RG58 coax with a PL259 plug on one end to suit my ATU. The other end has an alligator clip on the centre conductor to connect to the end of the aerial wire (**Photo 5**). The counterpoise length is calculated as 75/frequency (MHz), which allows a bit of extra length for trimming. **Table 1** gives suggested values for the mid-point of the HF bands, though you may well find that trimming these by 5% or so will be better. I only use a single counterpoise wire per band, although I recognise that more might be better.

DEPLOYMENT. This description assumes that you know how to beach cast a fishing rod. If you don't have the knack then please find someone to teach you otherwise you could injure yourself or others. Select a suitable tree and make sure that there are no people or animals nearby that could be hurt when you cast the leader. Trees beside footpaths are particularly prone to people walking near them, and folks tend to get upset if you hit them with flying lead. Respect the wildlife that may be in the tree - after all it's their home!

Thread the leader through the rod loops (just like a fishing line) and attach the weight to the end of the leader. I let a goodly bit of slack off the reel, ensuring it doesn't tangle. I think it's called 'flaking out' the line. Don't try to cast straight off the reel or a 'bird's nest' (tangle) will result. Beach cast toward the top of the tree. With luck the weight will carry the leader over a high branch and fall to the ground. Pull the leader over the branch so that the end of the aerial wire is several feet from the leaf canopy. Tie off the leader at the base of the tree.

Go back to the rod and pay out the aerial wire as you walk away from the tree. When the wire is fully extended, set up the ground stake, slip the rod support over it and then put the rod in the top of the support. If the aerial wire is a bit saggy then you can go back to the tree and tighten it by pulling on the leader.

Depending on the stoutness of your ground stake and the weight of your aerial wire, you may find it necessary to use some guys to keep the rod support upright.

Finally, connect the feed to the bolt on the reel and arrange your counterpoises.

IN USE. The radiation pattern will mostly be to the sides as a figure of 8. However, if you select a very tall tree you'll find that it acts as a reflector and the radiation pattern approaches that which you'd get from a sloper attached to a tower.

There are other methods of feeding the aerial. One that may be attractive is to put an automatic ATU on the ground at the base of the aerial, with a single wire connecting to the driven element. The ATU earth can then be connected to counterpoise(s) or even just to an earth stake. I use a small LDG auto tuner and it has always served me very well.

I have used this aerial for years with a Yaesu FT-840, an SWR meter and my trusty LDG auto ATU. If it's windy then the SWR will alarm you as the tree sways about but I've not had any real problems in practice. Happy DXing – or should I say "tight lines"?

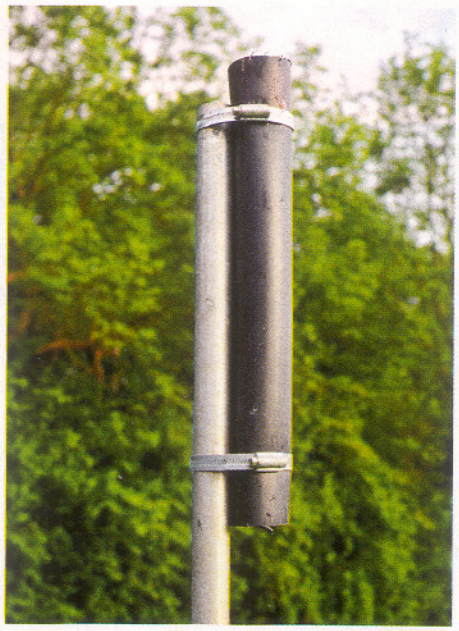

PHOTO 3: General construction of the rod support. Note how the tube protrudes an inch or so above the support pole.

PHOTO 4: Encouraging the ground stake to stay vertical.

PHOTO 5: Attaching the feed (the antenna was not deployed at this point, which is why the antenna wire is not visible).