



## A Monitoring Trap for the Asian Hornet

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The Asian Hornet, *Vespa velutina*, is an aggressive predator of honey bees and other beneficial insects. It has extended its geographical range from Asia to mainland Europe following an accidental introduction into France and is now also present in Spain, Majorca, Portugal, Italy and Germany. Adult hornets are highly mobile; the rate of spread across France is approximately 60 km/year. The hornet was confirmed September 2016 to be present in the UK and as it is still not clear whether it is established or not. Therefore, it is vitally important that beekeepers monitor for the presence of the hornet in their area. This sheet explains how to make an Asian hornet monitoring trap. Hanging this simple device in your apiary will allow you to monitor for pest arrival, but it will trap our native hornet *Vespa crabro* and will therefore need regular monitoring to release them. These are especially effective if used in spring when hornet queens first emerge from hibernation while they are in search of sugary foods.

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To make a hornet trap, you will need the following items:

### Equipment

- A couple of pop bottles; look for pop or fizzy water bottles which have ridged sides with the bottom section marginally wider than the middle. The ones pictured are from Asda, but other stores may stock them.
- 500mm of plastic coated garden wire;
- 100mm square off-cut of epoxy coated wire *Varroa* floor mesh;
- A sharp knife;
- A sharp pair of scissors;

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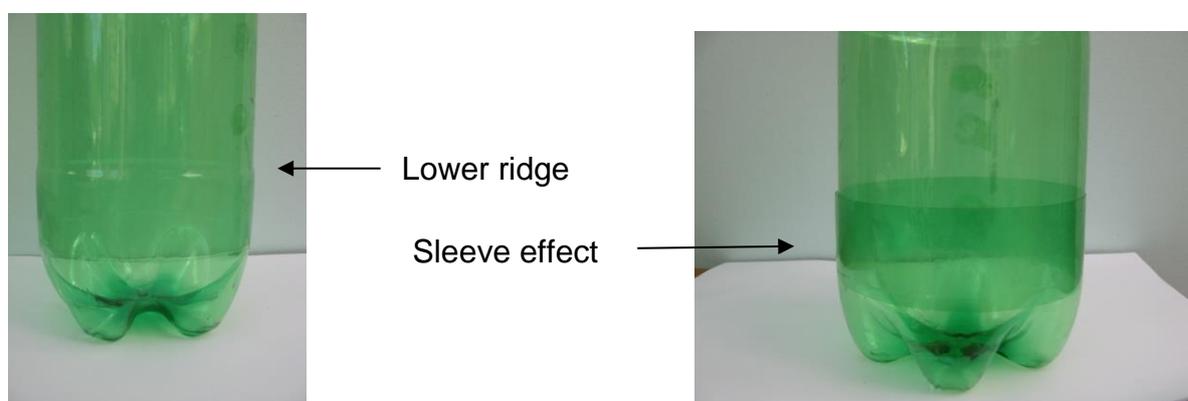
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- Stapler;
- Tin snips;
- A sheet of card;
- Thin black plastic or Correx (for the roof of the trap);
- 1x thin nail or hole punch for creating holes for the garden wire, and
- 1x 1/4 inch nail to create 5mm hole.

### Method:

Make an incision with a sharp knife and cut each side of the lower ridge with scissors – this will give a sleeve effect with the middle of the bottle allowing it to freely slide into the bottom part.



Also cut around the neck of the bottle just above the bottom of the shoulder – this will make a funnel when inverted and can be fixed into place with a few staples. The cap of the bottle should be removed.



Cut a circle of card which fits snugly inside the lower section of the bottle and place this over the square of mesh. Cut in from each side on the corners of the mesh to just inside the card circle to leave a 10 to 12 mm tab and then cut along the edge of the card as shown. Bend the tabs up so that the mesh fits inside the bottle bottom

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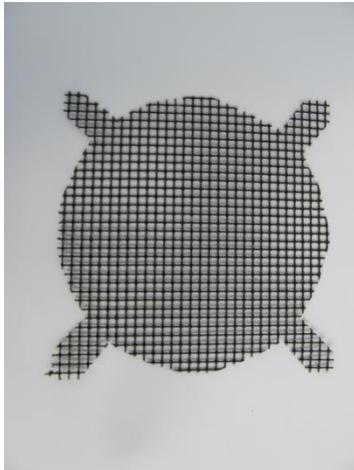
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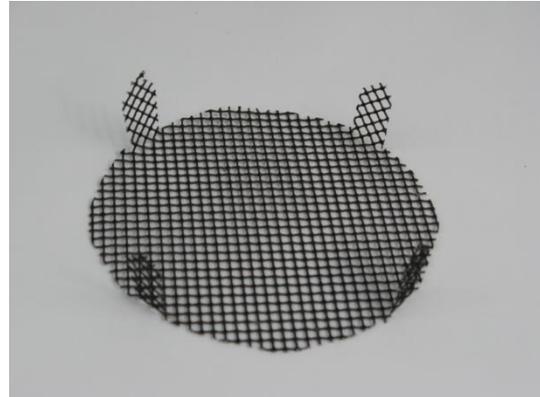
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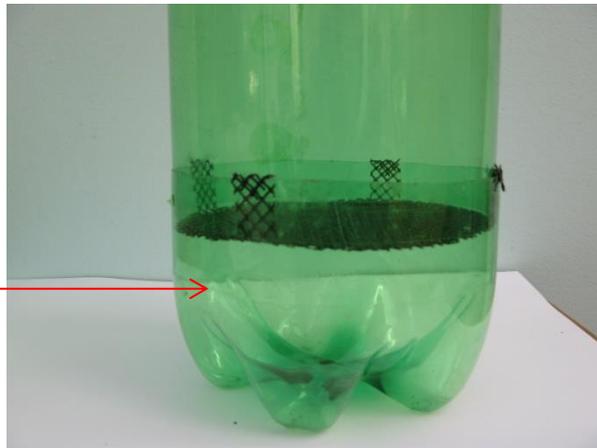
then fold over the top 5mm section to create a retaining clip to hold the mesh in place. The mesh is used as a platform or barrier to prevent hornets from gaining access and drowning in the bait placed underneath it.



Suitable mesh sheets can be brought from any of the larger DIY stores. E.g. B&Q or a beekeeping equipment supplier



The bait goes below the mesh circle



With the middle section of the bottle held firmly onto the mesh tray make a hole at each side through the overlapping layers of plastic with a small hot nail. Push a 140mm length of garden wire right through – this will hold the two sections firmly in place. Now make two more diametrically opposite holes with a larger nail (a 4 inch nail will give holes about 5mm diameter). Gently separate the bottle sections and twist by about 1.5 cm and push the small heated nail back through the hole in the outer bottle section so that there is now a second retaining hole in the inner section. When the holding wire is in this position the two larger holes are off-set, closing the 5mm 'escape' holes (to prevent smaller insects using these as alternative entrance holes).

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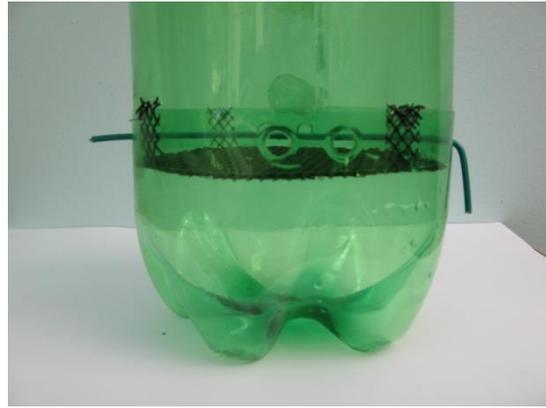
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Escape open



Escape closed

Cut 3 x 150 mm lengths of garden wire and a large enough rectangle to act as a roof for the trap from the black Correx. Thread two lengths of the garden wire through the black Correx, roughly Xmm apart and bend the wire so that the sheet makes a roof shape. Hook each end of the wire through holes made in the top of the trap to act as an umbrella against rain. The third length of wire is hooked through holes made in the top of the black roof to make a hanger for the completed trap.



### When to hang out traps?

Reports from France suggest that in areas where spring trapping has been used, subsequent numbers of Asian hornet nests are reduced by as much as 90% (2 or 3 nests in trapping areas versus >70 nests where no traps have been hung). Monitoring should begin in spring when the queen hornet emerges from its winter period of dormancy in search of food for her and her larvae after constructing its

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small cup-shaped nest. Weather conditions allowing for foraging activities and founder nest establishment will vary but typically, this will probably be between late February and March; however this could be later or even earlier due to erratic behaviours in regional climatic conditions. Adult hornets will be on the wing throughout the beekeeping season, so trapping will still have an effect on hornet numbers right into the autumn.

During the period from August to November the demand for food is greater as the amount of forage begins to decrease. Hornets will begin preying on honey bee colonies during this period and therefore, hanging out traps will be a useful way of reducing the stress on an apiary. Traps will need to be regularly changed as they can become full very quickly where high predation of an apiary is experienced. In the autumn, it is a good idea to hang traps near favourable hibernation sites, such as wood piles, stones, tiles etc.

### What bait should I use?

At the end of hibernation emergent hornets have a raised energy requirement and show a preference for sweet foods. In early spring such food resources are comparatively rare in the environment, so this means that sweet baits are highly attractive for the first captures of Asian hornet queens. French beekeepers often use a mixture of dark beer, a Dark beer, mixed with 25ml of strawberry syrup and 25ml of orange liqueur.

At the height of the beekeeping season, when predatory worker hornets are seeking high protein foods, consider adding raw meat or fish to the bait mixture. In the field we have also found that a protein bait of mashed fish e.g. prawns or trout, diluted to 25% has also proven effective. However, if you use protein baits, it will need changing after 3 days due to the unpleasant aroma. This type of bait may not be as effective from winter and through to spring because when queens emerge from hibernation their preference is for sugary baits. Therefore this type of bait should only be used in the summer when the nest workers are after protein to feed the larvae. Additionally, you can also buy proprietary brands of hornet (wasp) trap bait from many garden centres and DIY stores.

### Where should I hang traps?

Traps should be hung in sunny areas, avoiding deep shade where hornets are unlikely to forage. Traps can be hung in trees and on hive stands, in and around affected apiaries, at the height of a person.

### How to empty the trap

Before you empty a homemade trap of the design described above, you will need to have with you a transparent plastic bag and a square of thick cloth such as a tea towel. To empty your homemade trap, remove the plastic funnel and quickly place the plastic bag over the open capture chamber. Wrap the cloth around the body of the trap. Any live insects present in the capture chamber will then migrate up towards the light. Any specimens of Asian hornet should be immediately killed, but try to maintain it sufficiently intact to allow expert identification. How to report

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sightings is described below. **Release all other live insects.** In order to preserve as many non-target species as possible traps should be visited and emptied regularly; ideally **daily**. As stated above, it is very important that damage to native wasps, hornets and any other insects is kept to an absolute minimum. If your trap is adapted from an off the shelf design and you think you have caught an Asian hornet, then you may find it helpful to place the whole trap, unopened, into a freezer bag that you can seal tightly; place the bag containing the trap into a domestic freezer for 12 hours before opening, to avoid losing your suspect specimen.

### How do I know if I have caught an Asian hornet?

The Asian hornet is not easily confused with any other species. Superficially similar to our native European hornet (*Vespa crabro*), it has a characteristically brown or black velvety body with a dark abdomen and yellow tipped legs. Only the fourth abdominal segment is yellow. In spite of its fearsome reputation, the Asian hornet is smaller than *V. crabro*. For further guidance on identification, there is an ID sheet for the Asian hornet:

<http://www.nonnativespecies.org/alerts/index.cfm?id=4>

### How do I report captures?

You need to alert the relevant authorities as soon as possible. It is important to note the location as accurately as possible as well as obtain a photograph to allow experts to confirm identification of the specimen. Please report the sighting immediately (sending a photograph if possible) to: [alertnonnative@ceh.ac.uk](mailto:alertnonnative@ceh.ac.uk), the NBU office and your Regional Bee Inspector.

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