



## Hoverfly Lagoon Project: What to do

Thank you for signing up to the Hoverfly Lagoons project! You are part of a nationwide experiment helping the University of Sussex discover how best to create suitable habitats for hoverflies to lay eggs and breed in, promoting pollinators in your garden.

### For the project, you will need:

- **A large drinks bottle** such as a 4 or 6 pint milk bottle or a 1.5 – 2 litre soft drink/water bottle
- **A craft knife or scissors** (to cut the top off of the bottle and create a larger opening for hoverflies to access your lagoon)
- **A pen or other pointed object** (to poke some over-flow holes into the sides of your lagoon container to prevent the content flooding)
- **Kitchen weighing scales** (to measure content weight)
- A choice of five **organic materials** as content, one per lagoon:
  - Grass cuttings
  - Nettles (e.g. collected from a local wood, but remember to wear gloves while collecting them, and you may need to ask permission before collecting from parks) or
  - Untreated wood chips or saw dust or
  - Untreated hay (e.g. animal bedding) or
  - Leaf litter
- **A few twigs/sticks** long enough to reach from the bottom to the top of your container to allow larvae to climb up and down
- **A seed tray** with drainage holes in the base to stand your lagoon in, this will be your pupation tray
- **Dry leaf litter** to fill your pupation tray. This will be for larvae to move into and pupate (when they leave the water once they are fully grown)
- **A basin or tray** with no holes in the bottom, into which you can pour samples of material to search for larvae
- **A jam jar**, or similar, with breathing holes poked into the lids, in which to collect pupae
- **A suitable location**: set up your lagoon on a flat surface outdoors, preferably out of direct sunlight so it doesn't dry out quickly or get too warm – under a bush or tree is ideal

**Lagoon creation and instalment:**

1. Use a **craft knife/scissors** to carefully cut off the top 14 – 15cm of the **bottle** (just underneath the handle if using a milk bottle) to create your lagoon container about 14 – 20cm deep when standing upright.
2. Use a **pen** to push 4 roughly equally spaced holes in the sides of your lagoon container, about 2.5cm (1 inch) down from the brim of the container. These holes are to allow water to drain so that the water level doesn't submerge the contents.



3. Pack the lagoon (or as many lagoons as you like, one container per material option) with your chosen **organic material** up to the line of the holes. For the green materials (nettles and grass), ideally leave them to dry for 48 h before filling the lagoon container, so that you can pack more in.  
(You will need roughly between 45g and 90g of organic material for every litre of water capacity of your container, the table below provides some guidelines).

Organic Material	Weight (grams) needed for 4 pint milk bottle lagoon (cut to be 14cm tall)	Weight (grams) needed per litre capacity of container
Grass	100 – 115g	45 – 55g/l
Nettles	100 – 115g	45 – 55g/l
Wood chips	190 – 200g	85 – 90g/l
Hay	90 – 100g	40 – 45g/l
Leaf litter	180 – 190g	80 – 85g/l

## Hoverfly Lagoons Project: What to do

4. Insert 2-3 **twigs/sticks**, long enough to reach from the bottom to the top of the lagoon to prevent the material becoming too dense, allowing larvae to move about and filter feed.



5. Add tap water until it reaches the holes in the sides of your container. Top the container up with an inch of leaf litter up to the brim, protruding above the water line. This will provide landing platforms for female hoverflies when they come and lay their eggs.



6. Stand your lagoon in the **pupation tray**, with holes to allow rainwater to drain through, and fill this tray with an inch or two of soil, topped with an inch of **dry leaf litter**. This creates a site into which the larvae will hopefully move and pupate.



Your finished lagoon should look something like this. Make sure that there is plenty of dry leaf litter above the water line and your lagoon is packed with material, and stand the finished lagoon outside in a shaded area such as under a bush or tree.

NB. If you choose to create multiple lagoons, please number them or mark the containers in some way. This will help when filling out the online results form so that the results are assigned to the same lagoons each month.

**Data collection:**

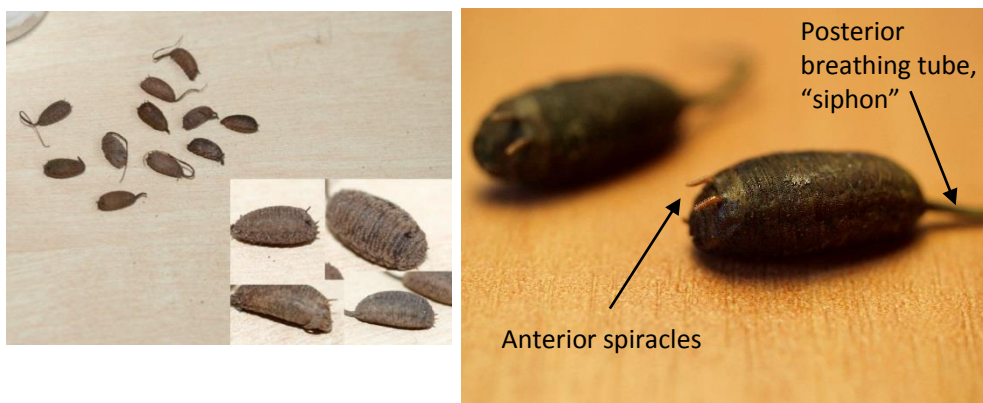
The following steps should be carried out once a month, (reminders will be sent out by email):

1. Top up the water in the lagoon (if necessary) up to the holes.
2. Remove the lagoon from the pupation tray and empty the entire contents into a larger basin/tray to allow you to search through and count all the long-tailed larvae.  
If you have time, take photos of any larvae you find, and of any other life you find in your lagoons, and send the photos in to us ([hoverflylagoons@gmail.com](mailto:hoverflylagoons@gmail.com)) or share them on Twitter ([@HoverflyLagoons](https://twitter.com/HoverflyLagoons)) and/or Facebook ([facebook.com/TheBuzzClubUK](https://facebook.com/TheBuzzClubUK)).



Some examples of the distinctive long-tailed larvae you will be searching for in your lagoons.

3. Carefully return the content, including the larvae, back to the lagoon.
4. Search the leaf litter in the pupation tray for pupae. Count and carefully transfer all pupae into a jam jar ensuring that there are holes in the lid, and store in a cool, dry location out of direct sunlight. If possible, monitor pupae every day for adults, and photograph and release upon emergence.



Search the pupation sites for hoverfly pupae that look like these. Please ensure you handle them carefully when transferring to the jars. If the pupae lose their anterior spiracles (shown above), they could die.

## Hoverfly Lagoons Project: What to do

5. Return the lagoon and the pupation tray (if the material in the tray has become very wet, replace with dry leaf litter).
6. Finally, ensure that there is enough water and organic material to fill the container up to the line of the holes, and top up the container with leaf litter up to the brim.

Please remember to enter the number of larvae and pupae you find each month into the online results form (you will be able to access this from your monthly reminder email), and please share your photos of these via email ([hoverflylagoons@gmail.com](mailto:hoverflylagoons@gmail.com)), Twitter ([@HoverflyLagoons](https://twitter.com/HoverflyLagoons)), and/or Facebook ([facebook.com/TheBuzzClubUK](https://facebook.com/TheBuzzClubUK)).