



Marvellous Miners



Most of the UK's native bees are **solitary bees**, which do not form communal nests. Instead, female bees make individual nests, usually in tunnels or tubes. Providing habitat for solitary bees is a popular wildlife gardening action, but such 'bee hotels' tend to focus on **cavity nesting** bees, which nest above / off the ground. **Ground nesting** bees ('mining bees') nest in the soil, and often go overlooked.

The Buzz Club's **Marvellous Miners** project aims to see if we can make 'bee hotels' suitable for ground nesting bees. We have a few idea to try out, and as this is a pilot project, we are as interested in what **does not** work as we are in what **does work**!



Examples of UK ground nesting bees from Linda. Left x2: female *Andrena cineraria* (ashy mining bee), right, male *Anthophora plumipes* (Hairy footed flower bee).

Space for mining bees on wildlife sites is often provided by clearing quite large areas of ground (e.g. several square metres), or building banks of bare soil. This is not very practical for a garden sized space, so we are going to look at three small-scale versions:

- 1) A '**Container**' of sandy soil (the most 'bee hotel' style option).
- 2) A '**Sandy Square**' – a hole dug out of the ground, and filled back with sand / soil mix.
- 3) A '**Cleared Space**' of bare soil (the control).

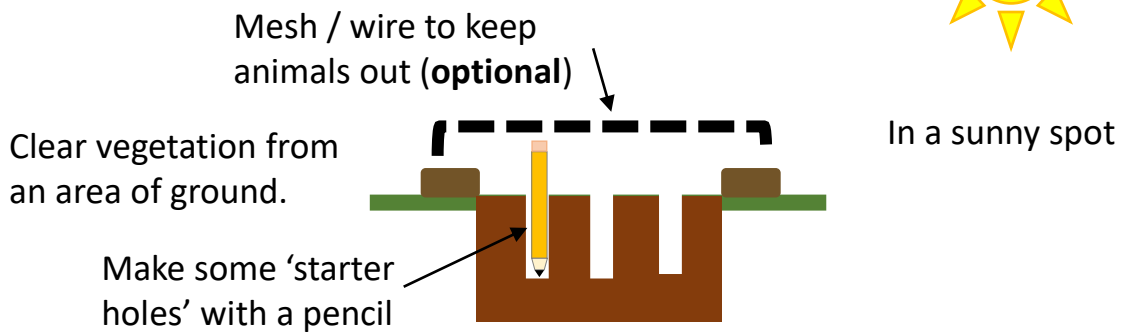
For this project you will need to make a 'Cleared Space' for a control, and then at least one test hotel - a 'Container' **or** a 'Sandy Square'. You can do both test hotel types if you like, but we recognise this might be a lot of work!

Equipment needed

- 1) 20-30cm deep pot **with drainage holes.**
- 2) Sand (any sand)
- 3) Soil (from your garden)
- 4) Rocks / gravel
- 5) Spade / trowel
- 6) Bricks / something to tilt the hotel.

The Hotels

Cleared Space (control)



Step 1: Choose a sunny spot in the garden. Bees like it warm!

Step 2: Mark out a space approximately the same size as whichever test hotel you are doing (default: approximately 30cm square). Clear off any vegetation, digging out roots as well if possible.

Step 3: Make some starter holes with a pencil, to about 15cm deep.

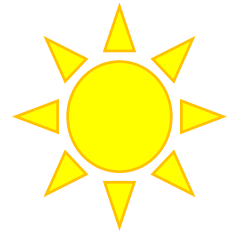
Step 4: Make sure you can find the space again (e.g. mark the edges). Keep clear.



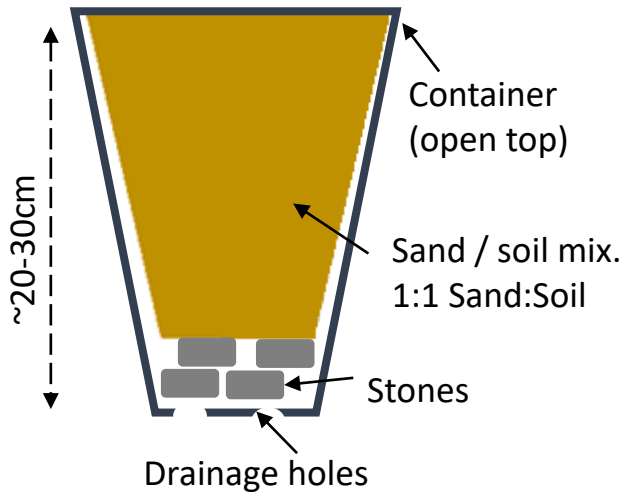
Cleared space with starter holes

The Container hotel

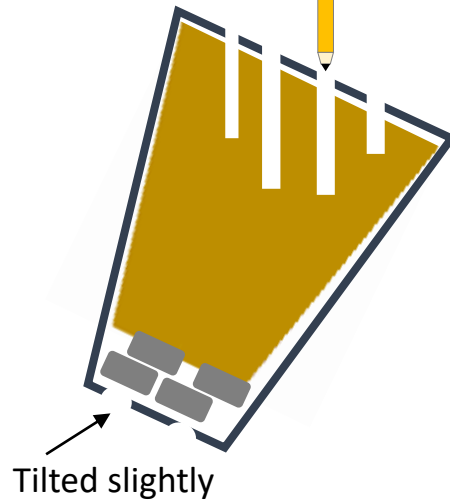
Note – the filled hotel can be **heavy** so you may want to construct it in place, rather than lug a lot of soil around afterwards.



In a sunny spot



Make some 'starter holes' with a pencil



Step 1: A layer of stones / gravel for drainage



Step 2: Mix garden soil and sand 1:1. (Shown above using a spare 5ltr pot to measure volumes before mixing.)



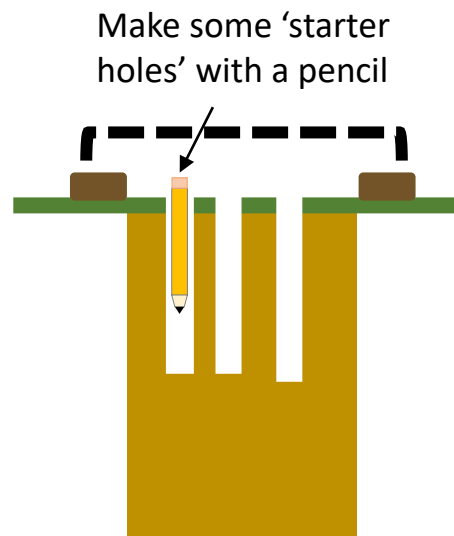
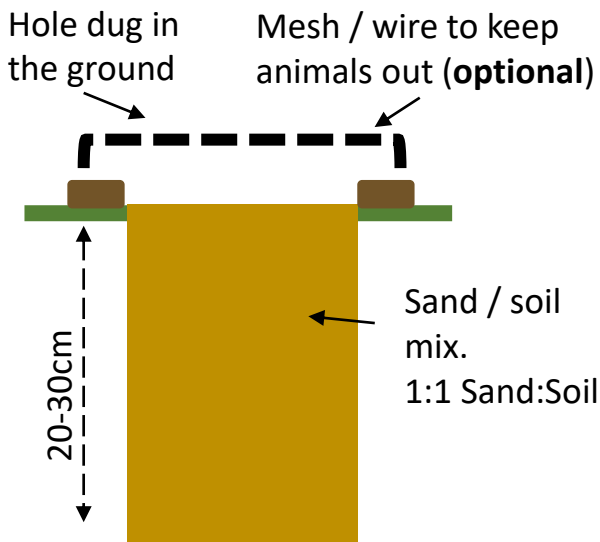
Step 3: Pat down the sand/soil mix firmly. Use a pencil / similar to make some starter holes ~15cm deep.



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Tilted and held up with some old bricks

Step 4: Place hotel in a sunny spot in the garden. It should be slightly tilted to let rain run off.

The Sandy Square hotel



Step 1: Find a sunny spot in the garden. Mark out a space, either:

- a) ~30cm square, **or**
- b) approximately the same width as your Container hotel

Step 2: Clear any vegetation away. Dig down, either:

- a) ~30cm deep, **or**
- b) the same depth as your Container (e.g. so it would fit in the hole)

Step 3: Prepare a 1:1 sand:soil mix. Use the soil you just dug out.

Step 4: Fill the hole back up with the sand / soil mix and pat down firmly.

Step 5: Use a pencil / similar to make some starter holes, ~15cm deep.

Step 6: Make sure you can find the space again (e.g. marking the edge out with wood). Keep clear.



Sift out any big roots / rocks from the soil you dig out – we'll use it later.



Sandy square with starter holes

Data collection

It should be fairly clear if mining bees have taken up residence in one of our hotels. The female bee will dig out further / new tunnels, leaving behind characteristic piles of fine soil around a neat hole. These might be mistaken for worm casts, but worm leftovers tend to be 'blobby' and don't have a smooth entrance hole.



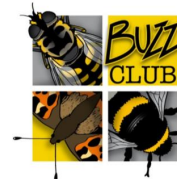
Above (left), solitary bee lawn burrows (from: solitarybeeweek.com); worm casts (right).

To record data:

- A recording form is attached to these instructions.
- **Once a week**, from **April**, please record if there are any signs of bee activity in your hotels. You can count soil piles, or spend 5 minutes during a sunny period watched the area for visitors.
- If you do see evidence of bees, we would **really appreciate a photo** of them (so we can ID which species you have). Solitary bees tend to return frequently to their nests to bring back pollen, so if you are able to hang around watching the nest for a while, you may be able to spot the bee!
- **Remember – we are trying to find out if these methods work at all.** So if you don't have any bees moving in to your hotels, **we want to know that too!**
- We are also interested in knowing if this is a practical method to do in real gardens, so any feedback about the project is brilliant.

Any questions? Contact us: buzzclub.uk@gmail.com  @The_Buzz_club

Marvellous Miners



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Recording sheet

(print as many as you need)

Your name:

Type of soil in your garden (e.g. sandy, clay, loam):

Type of sand used (if known; e.g. play sand, builders sand etc):

Do you usually have mining bees visiting / nesting in your garden?

April	Week 1	Week 2	Week 3	Week 4
Number of bees / burrows seen				

May	Week 1	Week 2	Week 3	Week 4
Number of bees / burrows seen				

June	Week 1	Week 2	Week 3	Week 4
Number of bees / burrows seen				

July	Week 1	Week 2	Week 3	Week 4
Number of bees / burrows seen				

August	Week 1	Week 2	Week 3	Week 4
Number of bees / burrows seen				

September	Week 1	Week 2	Week 3	Week 4
Number of bees / burrows seen				

If you miss / are unable to do a week's count, please mark it as **skipped**.