This home-made rig is a simple idea that is almost certainly not new. New to me definitely and very precisely snaps my mini-beasts like Moths and Beetles. Details of construction below and most people will have no difficulty understanding the principles involved.

The base I have dubbed the stage, taken from the subject of microscopy. The main area will readily accommodate an A4 sheet, which hints at other possible uses. The camera seen here is a Canon 7D MKII fitted with a Canon EF 100mm f2.8L Macro IS USM Lens. I have mentioned the camera and lens because my macro-rig has been designed around the parameters of the equipment I use. This is important to avoid wasted effort (which I had initially); trial and a few errors.

The photographic equipment used and typical size of specimens to be photographed will affect the following matters:

1. The overall height of the main mast.
2. All dimensions related to the slot in the mast (there is an easy way to create that slot).

It does not have to be a Canon 7D MKII fitted with a Canon EF 100mm f2.8L Macro IS USM Lens. I have made a similar rig for my smart phone and it works well. You make your own choices. So, why does this matter ?

Any lens will have a minimum focusing distance. This distance together with the minimum and maximum mini-beast sizes will determine the lowest point of the slot above the stage and the highest point of the slot. Therefore the height of the mast.

Take your time to learn about these parameters, bearing in mind you may use different lenses or may decide to upgrade in the future. You can of course download manuals for various lenses you may use, now or in the futre.

For those who wish to know about my rig, which is perfectly stable, the details are as follows:

The stage overall size is 380mm x 220mm and in my case made from an off-cut of 18mm best plywood. The mast I have dovetailed to the base seen and both are off-the-shelf 67mm x 42mm planed softwood. The base is bolted to the stage so it is a demountable rig.

I have shaped the mast and the base softwood only for aesthetic reasons. The whole rig is coated with varnish or polish (then left under cover outside to get rid of the odour).

The bolt, which determines the size of the slot, is a standard 3/8ths imperial, to suit the base of the standard low-cost quick-release assembly shown on the next page. The bolt in my case has a hexaganal head and two huge diameter washers to protect the softwood mast.

For the slot I drilled the bottom hole in the mast. I then marked the slot using a marking gauge, the whole distance to the top.

Using a sharp saw, I cut down the mast from the top until I reached the pre-drilled hole. A piece fell out and the inside of the slot was then cleaned up using sandpaper wrapped around a thin piece of wood.

On completion a prepared piece of planed softwood was glued and inserted into the slot at the top and left cramped in the vice overnight.

The mast was then cleaned up carefully and polished once the glue had set. Ordinary white wood glue is better for that job than polyurethane glue which I also favour for some jobs.

Operation and use

An important next step is to consider lighting options for the staging area. You can experiment with that in many ways though I eventually invested in a ring-flash as I use the rig commercially and not just for mini-beasts. That said, the use of any flash can cause problems you may need to resolve.

I have a small stock of A4 card or paper of different pastel shades, which tend to be unaffected by flash. Thick high quality A4 shiny 90gsm white paper may produce impressive reports but may not be suitable for the stage. I also have a purpose-made small LED lamp that slots into the camera hot shoe and has adjustable light intensity.

For some mini-beasts, especially if more mobile, I may use a rectangular plastic bowl lined with paper acceptable to your light source. Mini-beasts which are aquatic and need a splash of water are best accomodated in a shiny white porcelean desert bowl. The later are usually unmarked and pristine. An excellent background for aquatic mini-beasts but lighting may need to be adjusted accordingly.

Check if your camera software includes a remote shooting option. This is a very powerful utility which enables you to operate the camera fully from your computer. Your camera viewfinder is on-screen in large format. Incredibly useful for focusing and I use that always in tandem with my macro-rig.

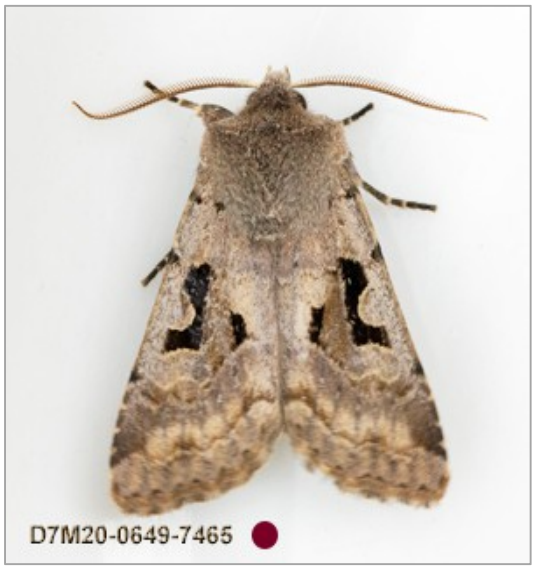
Images seen on the website shot on the macro-rig have a 15px maroon dot next to the printed image reference. Several sample images on the next page.

With creatures like Moths I tip the container onto the staging area and leave the container over the Moth for a couple of minutes. Once the mini-beast settles down you can carefully remove the cover (but keep doors and windows shut just in case). I release later unharmed.

Over time you will quickly learn the optimum height on the mast for your camera. A huge Elephant Hawk Moth will require the camera lifting. A tiny Nettle-tap Moth will allow you to lower the camera fully. Using remote shooting guarantees optimum focus and depth of field.

As a basis for discusion the Elephant Hawk Moth is the largest target I planned for on my macro-rig. Anything bigger than that and you do not (should not) need a macro-rig.

Great Diving Beetle Larva (*Dytiscus marginalis*)



Hebrew Character Moth (*Orthosia gothica*)

Heart and Dart Moth (*Agrotis exclamatiovis*)

Garden Carpet Moth (*Xanthorhoe fluctuata*)

Oak Hook-tip Moth (*Watsonalia binaria*)