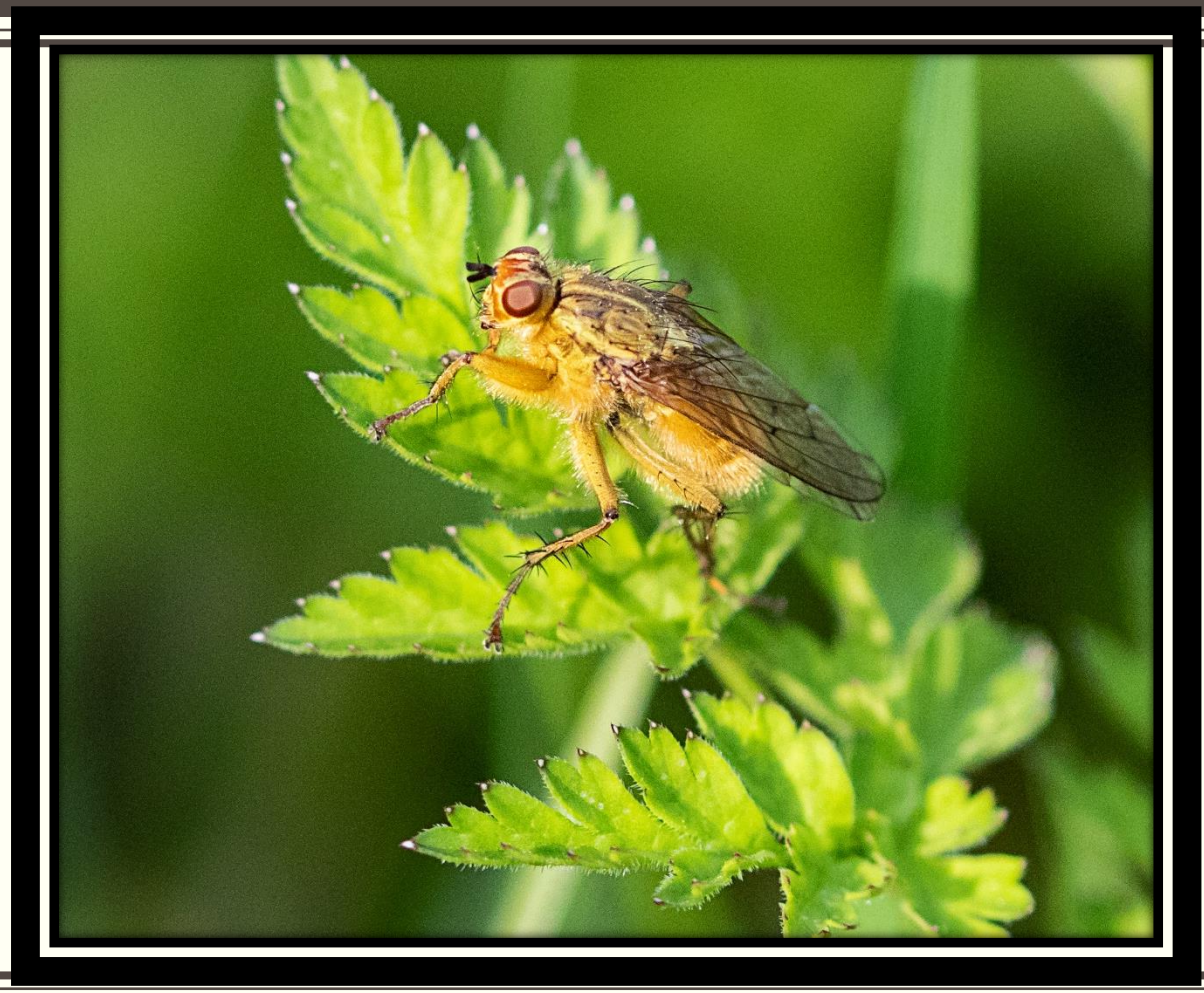
INSECT MACRO PHOTOGRAPHY

By Bob Ede DCC



Presentation content

- Basics of Macro Photography (The Technical Stuff)
  - ❖ Definition
  - ❖ Considerations
  - ❖ Equipment
  - ❖ Taking the Photo
- Galleries
- Processing Photos - Photoshop
- Best Photos
- Other References

YouTube References to Support your journey

- Complete Macro Photography Tutorial, very good but quite wordy, gives a good explanation of what you need to know, stay with it - https://www.youtube.com/watch?v=8CbfL4fvH6M
- Reverse a Lens - https://www.youtube.com/watch?v=fT1fcwMu8jY
- Live view focus – Cannon, focus through your back screen, Digital x5 & x10 magnification view - https://www.youtube.com/watch?v=0nN5duGTjtg
- Nikon Live View - https://www.youtube.com/watch?v=JiNWrfuvqrc
- To get a good understanding of Presentation of Macro presentation and Post processing in Lightroom - https://www.youtube.com/watch?v=OK5PaTTes4Y&list=PLu_4Ueevkw3ys1FCHX2wylIrv20w6KUp3
- Subjects other than Insects - https://www.youtube.com/watch?v=5nQ-Lt8TxVo

What is Marco Photography, are these Macro Photos?

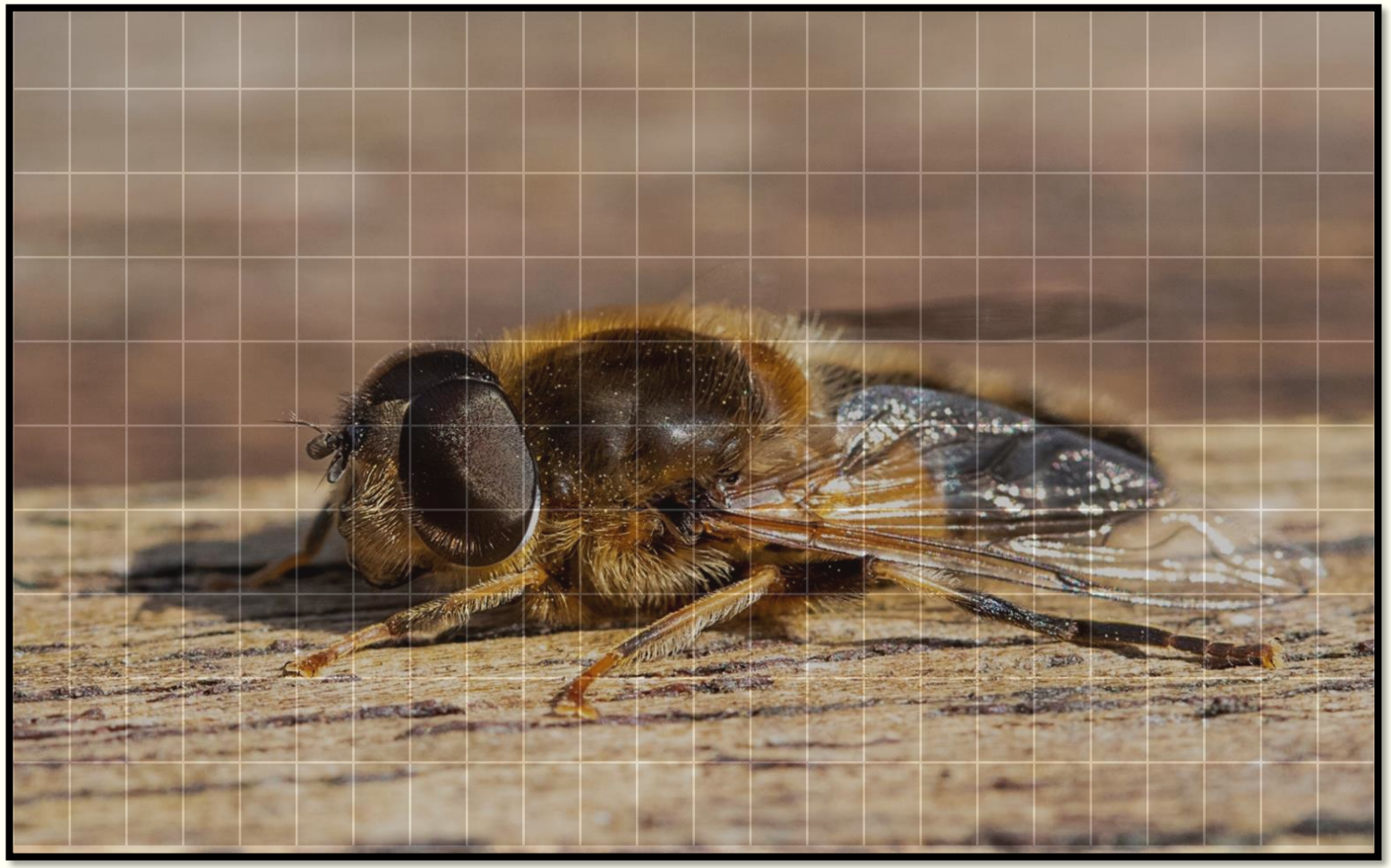


Definition

- Size of the subject in the photograph is greater than life size
- A macro photograph is one in which the size of the object is the same as the sensor, 1 to 1, Magnification
- **Magnification** - A capability to Magnify a subject so that it is 1 to 1 or greater compared with the size of your sensor
- Sensors Full Frame 36 mm x 24 mm, 80D 22.5 x 15 mm, Micro 4/3 18 mm x 13.5 mm
- Honey Bee 15mm, a dragonfly is from 1 to 4 inches in length

Almost 1 to 1 and the photo is larger than life size

80D Sensor 22.5 x 15 mm Hover Fly 15 mm



Macro Considerations

- Subject
- Equipment
- Working Distance – The distance from the subject
- Focus
- Blur (Shutter Speed)
- Magnification (Magnification Increases Shake/Blur)
- Depth of Field
- Background

Macro Equipment

- A Camera lens with or without a Macro Setting that can achieve a close focus
- Dedicated Macro Lens will help
- Reversing a nice prime lens (50mm F1.8) provides the require magnification (£10 costs)
- A tripod under the right conditions
- A flash gun with diffuser, either on or off camera
- Ring Flash
- Extension Tube

Extension Tubes



Flash gun with diffuser





Ring Flash (Bob's Set Up)





Reversing Ring



Twin Flash equipped with flexible arms

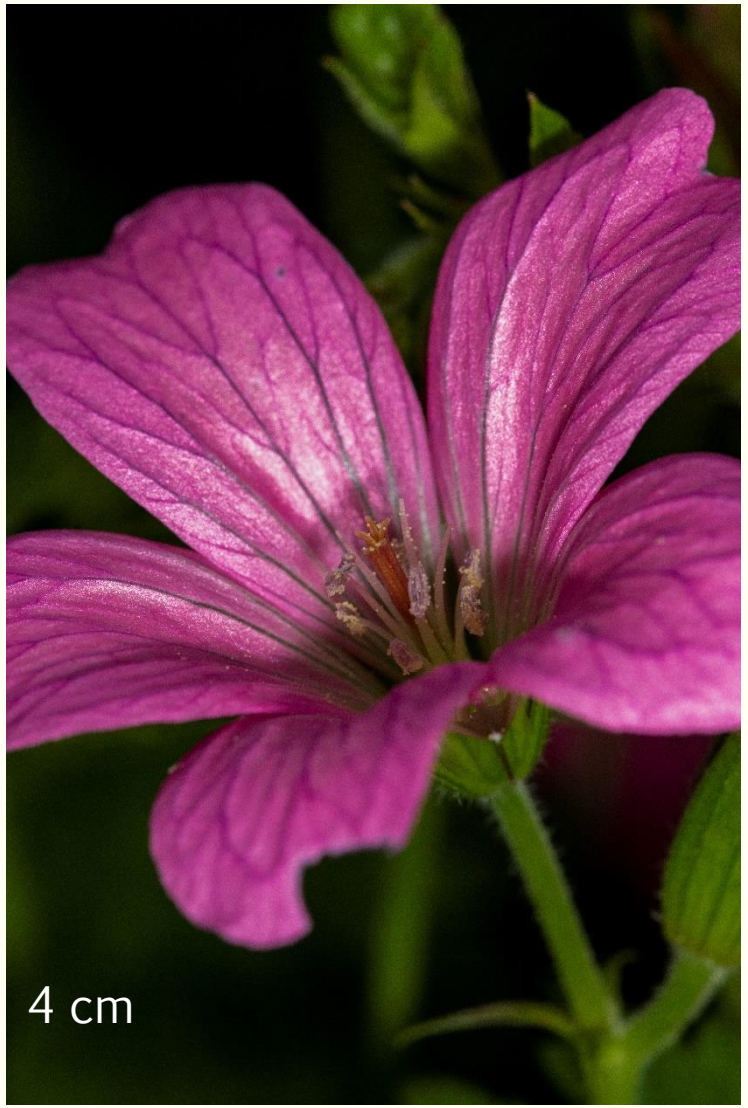
Working Distance

- Governed by your lenses, 60mm on full frame closer than an 100mm on a cropped Sensor
- Dependant on sensitivity of subject, flighty longer, static less
- Minimise to gain magnification and detail (More Pixes covering subject)
- Larger subject greater Working distance, smaller subject closer working distance
- As you change working distance you need to adjust focus (Next Slide)

Working Distance Demo



30 cm Vs 4 cm





Focus (Critical)

- Less that 1 mm depth of field at close working distances
- Use Live view and Tripod (Static subject)
- Use Manual focus and gently rock hitting shutter when subject is in focus (Auto Focus Struggles to keep up)
- Spray and Pray, but use every effort to get focus correct
- Magnification Magnifies Camera Movement, use faster shutter Speeds
- Breeze/Wind is the enemy of Focus

Note above you may not be able to see the degree of focus required in Camera so take multiple shots

Focus on the Eyes, 2mm difference in Focus



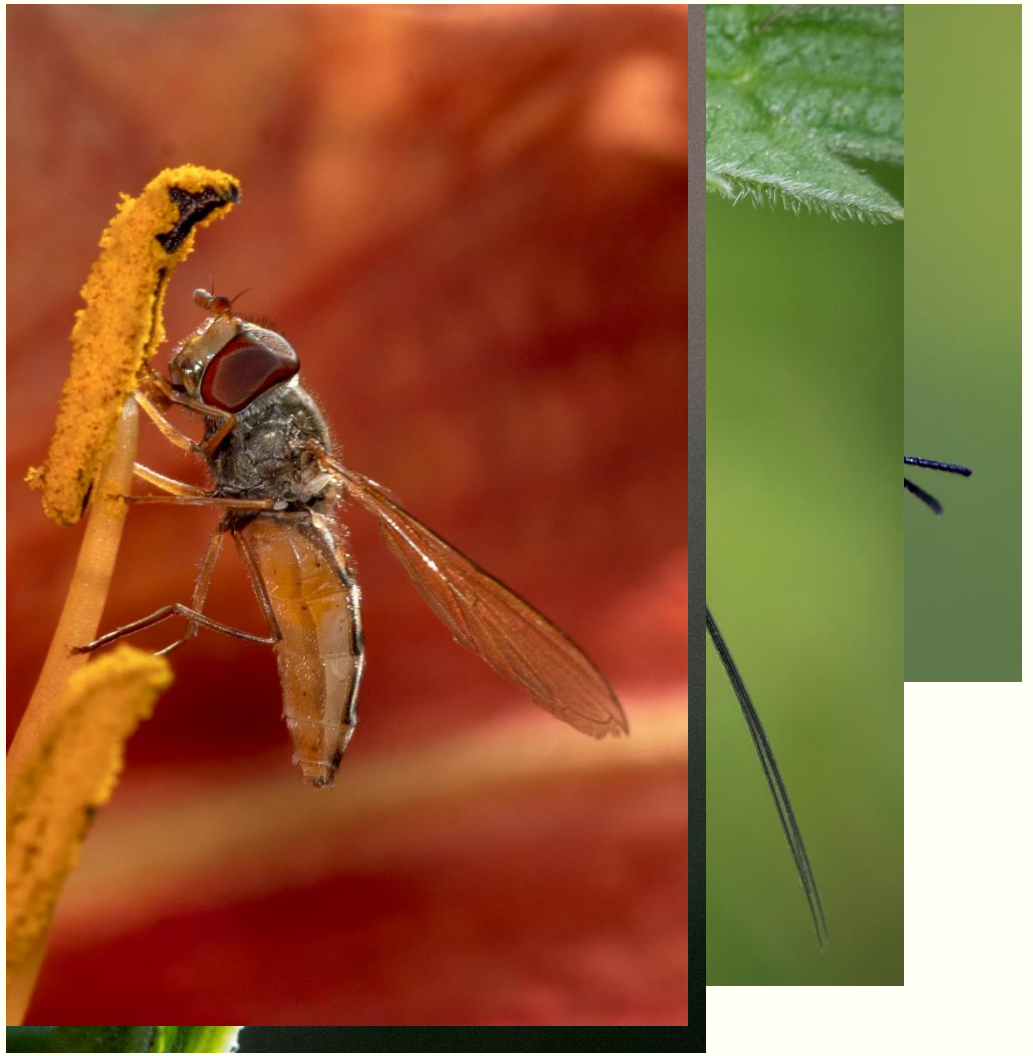


Depth of Field and Setting Up

- Higher Magnification Decreases Depth of Field ☹
- Easier to shoot Bigger subjects (Dragonflies) if your starting out
- If you work close use small f stops, Large apertures f16/f22 (Issue Lack of light), Cannon f11/14
  - ✓ Accept Lack of Depth of Field
  - ✓ Focus Stack (Difficult for Live subjects)
  - ✓ Use a Flash
- Flash Power 1/3 to ¼
- Shutter Speed at Flash Sync Speed 1/200s, 1/250s
- Adjust ISO until a leaf is properly exposed, 1 to 1 magnification, ISO 200/320/400
- Turn Flash to automatic TTL

Taking the Photo

- Blur, even colour, no distractions
- Think about the colours
- Back Light
- For Multiple subjects get in the same plain
- Do not photograph the back of Insects, everyone does that



GALLERIES

Different Categories of Insect Macro Photos

Misses





Behaviour 1





Caterpillar Predation Eggs

Behaviour 2



Parasites on a Hover Fly

Camera	
Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/8
Exposure time	1/250 sec.
ISO speed	ISO-100
Exposure bias	0 step
Focal length	100 mm
Max aperture	3
Metering mode	Centre Weighted Average
Subject distance	
Flash mode	Flash, compulsory
Flash energy	
35mm focal length	

Behaviour 3

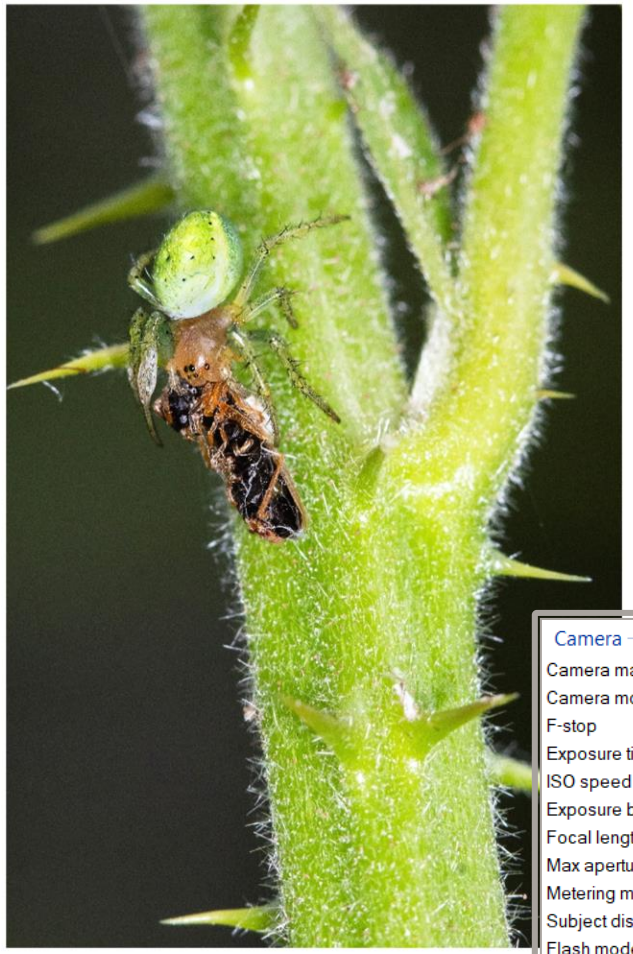


Sharing a Limb

Note the Dust Spots

- Keep camera clean
- Have sensor cleaned
- Remember to use Spot Healing

Behaviour 4



Camera	
Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/8
Exposure time	1/250 sec.
ISO speed	ISO-500
Exposure bias	0 step
Focal length	100 mm
Max aperture	3
Metering mode	Spot
Subject distance	
Flash mode	Flash, compulsory
Flash energy	
35mm focal length	

Get Closer or Not
Same set up,
minutes apart



Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/8
Exposure time	1/20 sec.
ISO speed	ISO-500
Exposure bias	+0.3 step
Focal length	100 mm
Max aperture	3
Metering mode	Spot
Subject distance	
Flash mode	Flash, compulsory
Flash energy	
35mm focal length	

Behaviour 5 – Team Work

Camera	
Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/11
Exposure time	1/160 sec.
ISO speed	ISO-160
Exposure bias	0 step
Focal length	100 mm
Max aperture	3
Metering mode	Centre Weighted Average
Subject distance	
Flash mode	Flash, compulsory





Behaviour 6 - Follow insects and see what they do

- Follow insects and see what they do





Scarlet Lilly Bug - For Multiple subjects Photo in the same plain





A Big Catch

A unique find, very early in my photographic development, taken 2nd Aug 2012

Wasp Spider with Dragonfly Catch



Butterflies – Long Lenses 600mm (400mm on Cropped Sensor)





Butterflies

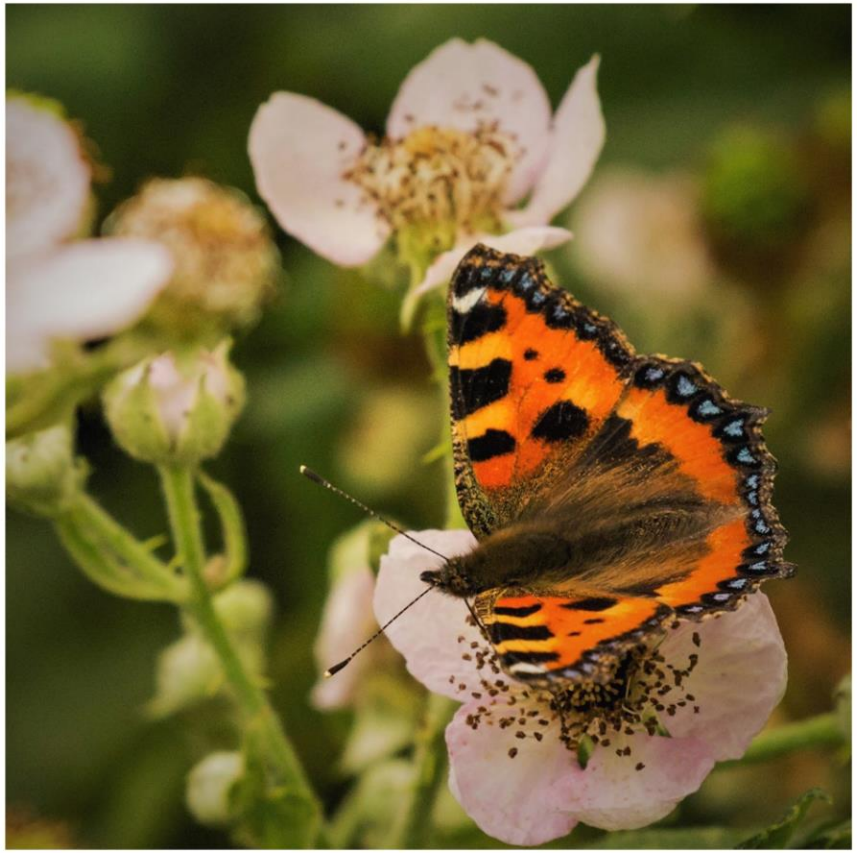




Butterflies



Peacock



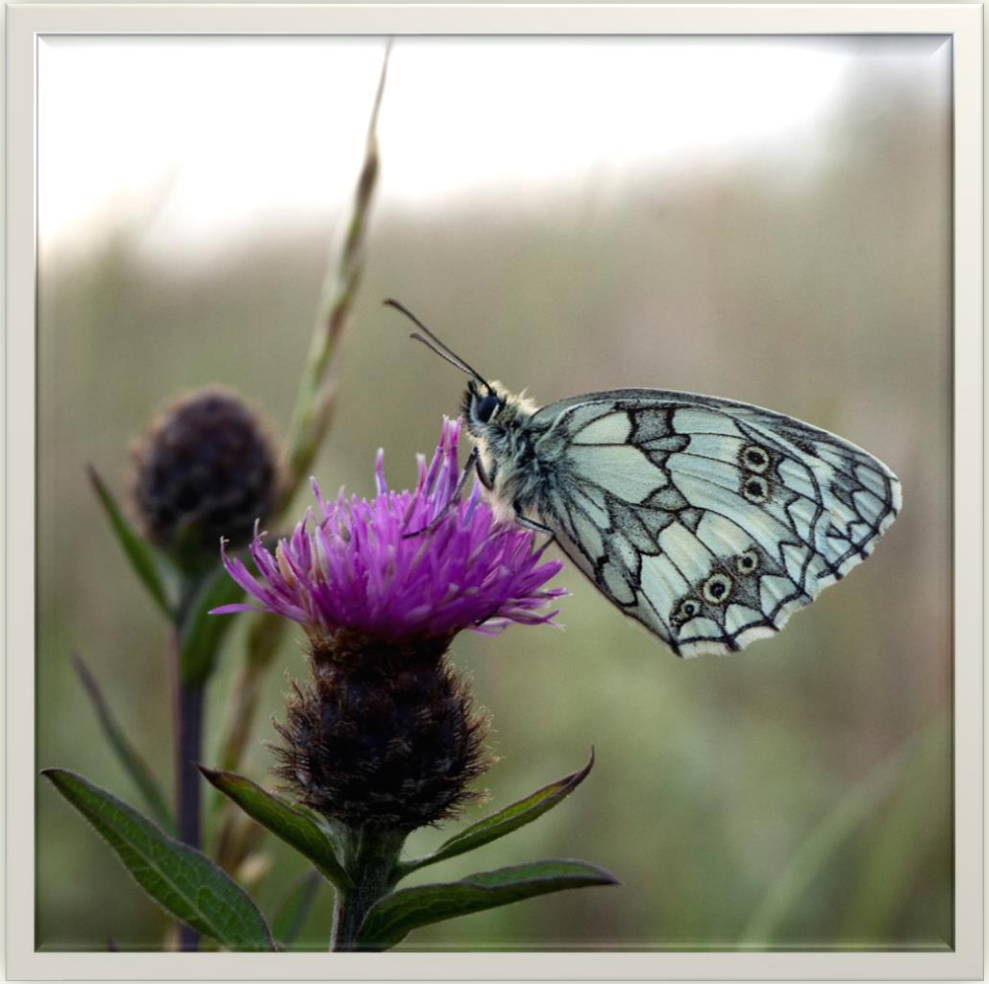
Small Tortoiseshell

Reflected Light (Large Mirror) and a patch of Light



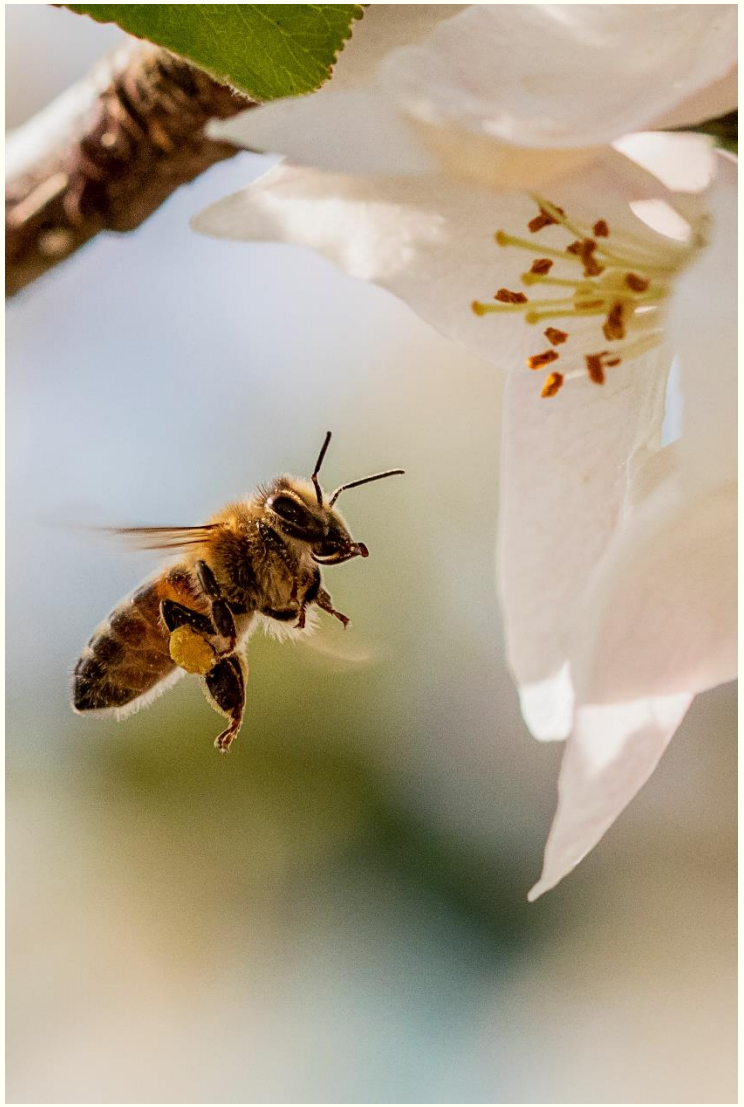


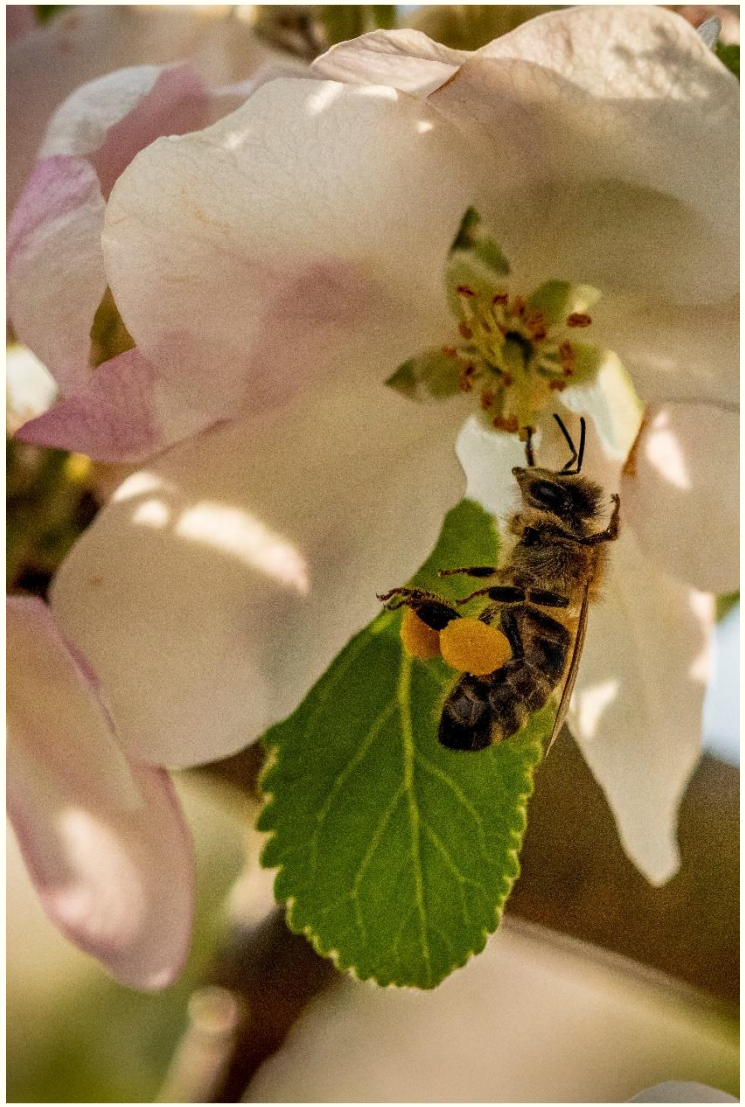
First Dabble at Micro 4/3 – Olympus and not a Macro Lens - Marbled White Butterfly





Apple Blossom









The Mating Game





Mayflies Focus Stack Raw File



Mayflies Focus Stack Complete



Mayflies







Spiders



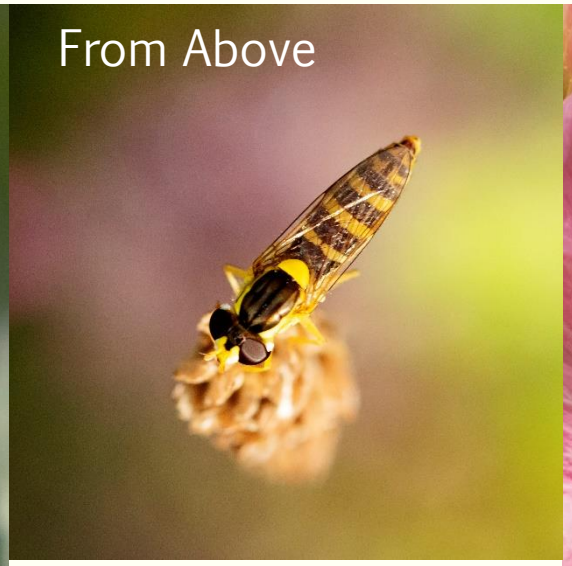


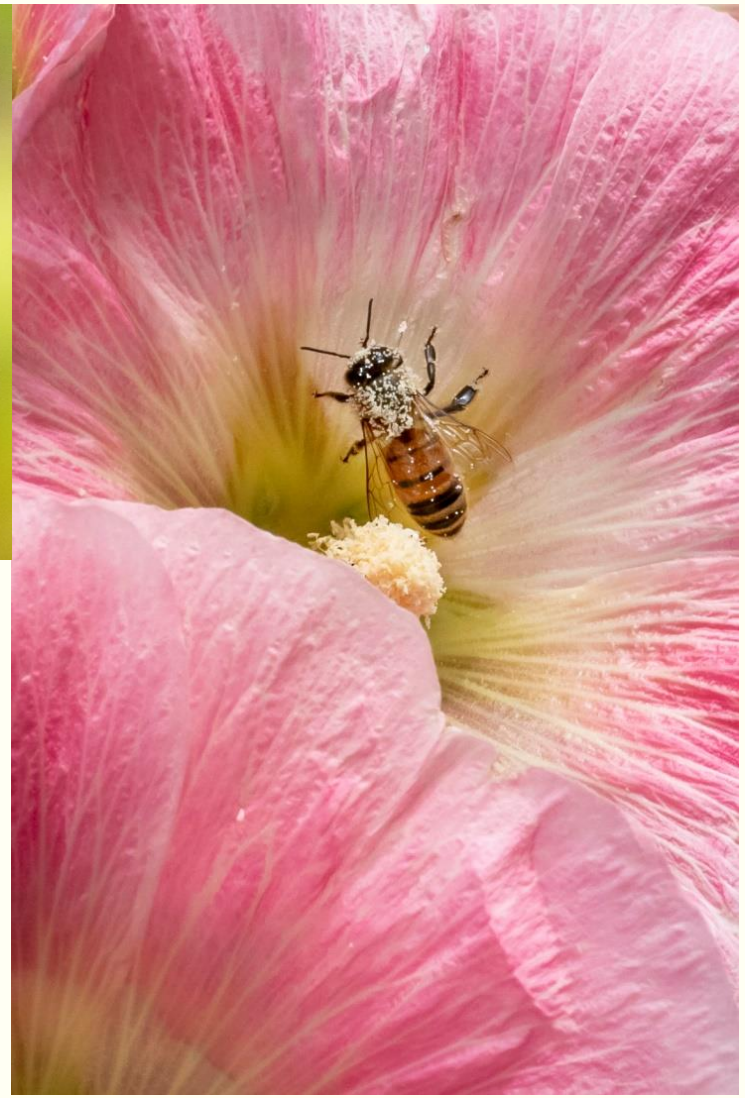




Oddments

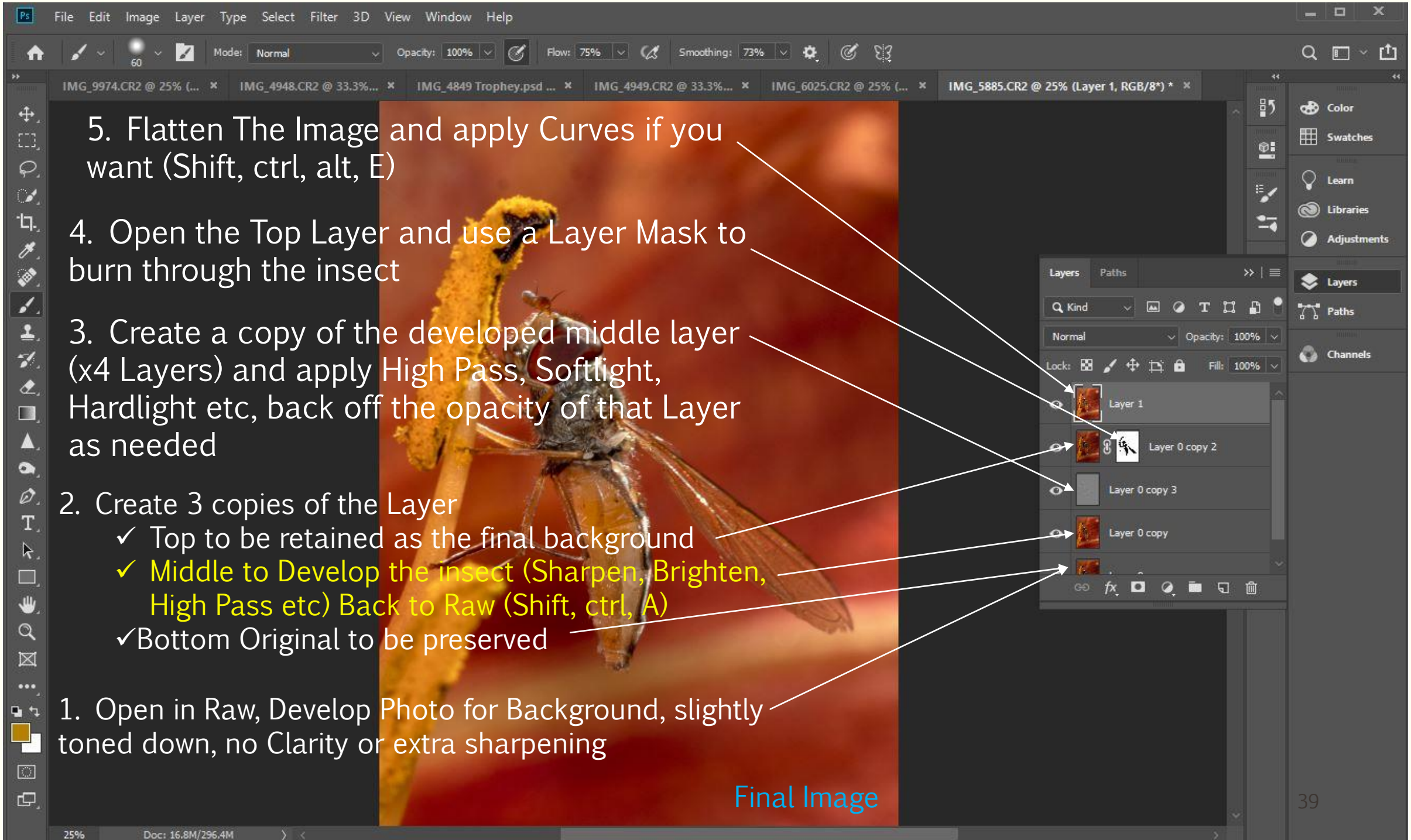






PROCESSING PHOTOS

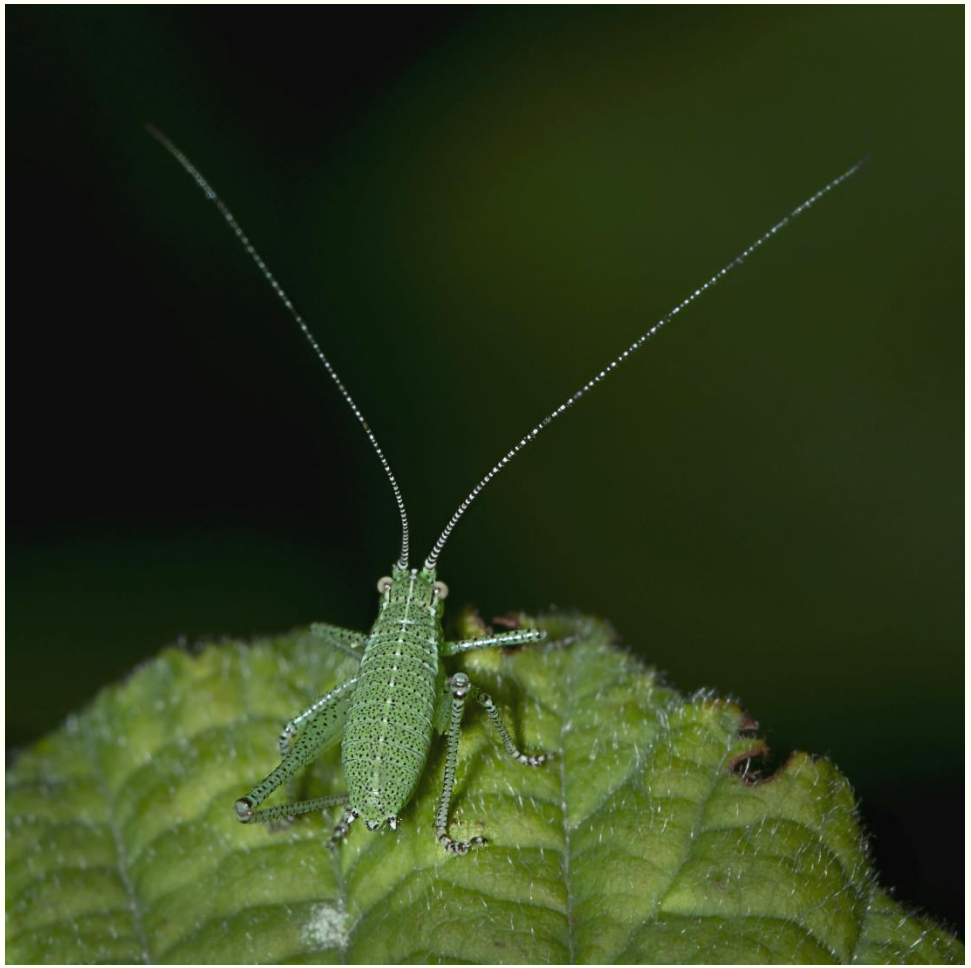
My Photoshop CC Workflow


5. Flatten The Image and apply Curves if you want (Shift, ctrl, alt, E)
4. Open the Top Layer and use a Layer Mask to burn through the insect
3. Create a copy of the developed middle layer (x4 Layers) and apply High Pass, Softlight, Hardlight etc, back off the opacity of that Layer as needed
2. Create 3 copies of the Layer
✓ Top to be retained as the final background
✓ Middle to Develop the insect (Sharpen, Brighten, High Pass etc) Back to Raw (Shift, ctrl, A)
✓Bottom Original to be preserved
1. Open in Raw, Develop Photo for Background, slightly toned down, no Clarity or extra sharpening
Final Image
Layers
Paths
Layer 1
Layer 0 copy 2
Layer 0 copy 3
Layer 0 copy

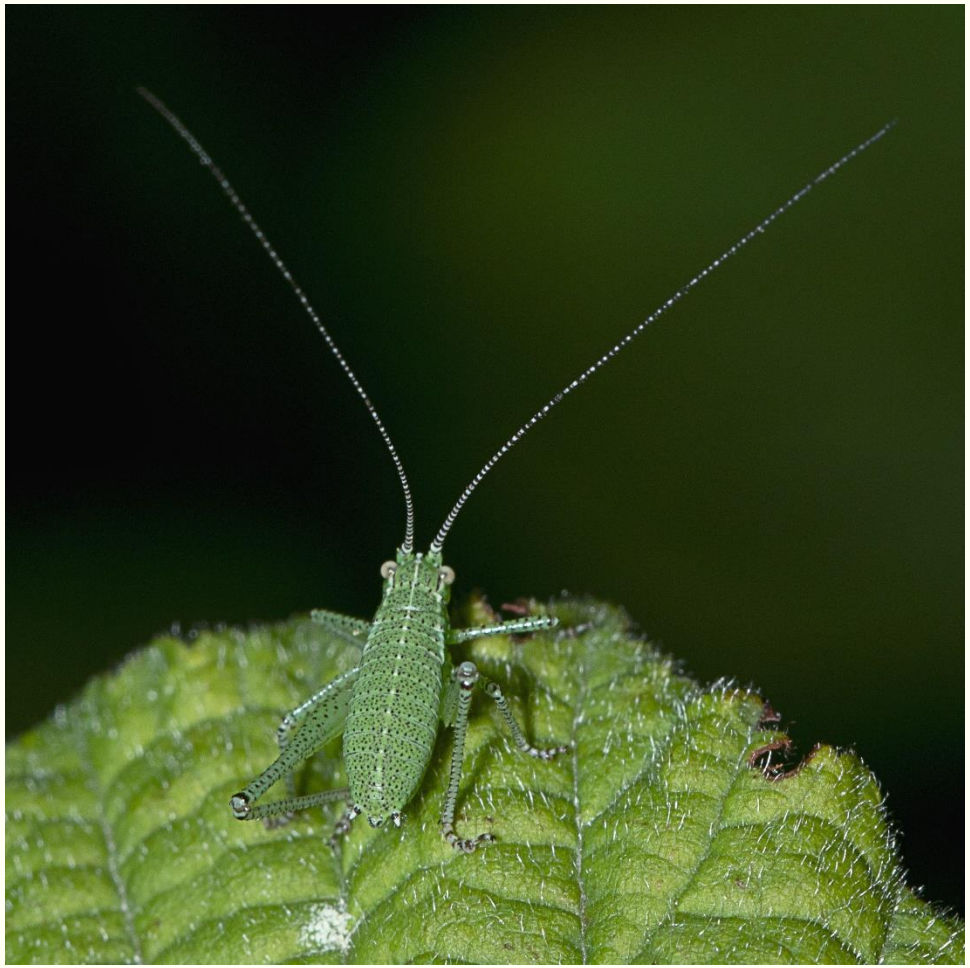
Photoshop Process

- Open in Raw, Develop Photo for Background, slightly toned down, no Clarity or extra sharpening
- Create 3 copies of the Layer
  - ✓ Bottom Original to be preserved
  - ✓ Middle to Develop the insect (Sharpen, Brighten, High Pass etc)
  - ✓ Top to be retained as the final background
- Blank the view of the top image, select the middle image, add sharpening, brightness, saturation, Clarity (Not over the top) etc
- Create a copy of the developed middle layer (x4 Layers) and apply High Pass, Softlight, Hardlight etc, back off the opacity of that Layer as needed
- Open the Top Layer and use a Layer Mask to burn through the insect
- Flatten Layer and add Curves as an Option (Shift, ctrl, alt, A)

Developing a Macro Photo in PhotoShop



Leaf Toned down, softer background



More Noise, Brighter all round

BEST PHOTOS

Coopetition Criteria

Best Photos -

One of the first photos that I took actually using a Macro Lens



Best Photos – Bee (Significant Photo)

Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/4
Exposure time	1/640 sec.
ISO speed	ISO-1000
Exposure bias	+1 step
Focal length	100 mm
Max aperture	3
Metering mode	Pattern
Subject distance	
Flash mode	No flash, compulsory



Best Photos - Bee

Camera	
Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/10
Exposure time	1/250 sec.
ISO speed	ISO-400
Exposure bias	-0.7 step
Focal length	100 mm
Max aperture	3
Metering mode	Spot
Subject distance	
Flash mode	Flash, compulsory



Best Photos – Ladybird

Camera	
Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/4.5
Exposure time	1/160 sec.
ISO speed	ISO-500
Exposure bias	-0.3 step
Focal length	100 mm
Max aperture	3
Metering mode	Centre Weighted Average
Subject distance	
Flash mode	No flash, compulsory



Camera

Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/11
Exposure time	1/250 sec.
ISO speed	ISO-320
Exposure bias	0 step
Focal length	100 mm
Max aperture	3
Metering mode	Centre Weighted Average
Subject distance	
Flash mode	Flash, compulsory





Mushroom Headed Mayfly?





Best Photos – Ladybird and Mayfly





Best Photos – Richmond Park



Best Photos – Accepted for the SPA Biennial 2020 Exhibition

Camera	
Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/8
Exposure time	1/500 sec.
ISO speed	ISO-800
Exposure bias	+0.3 step
Focal length	100 mm
Max aperture	3
Metering mode	Spot
Subject distance	
Flash mode	No flash, compulsory



Best Photos – Another Behaviour shot

Camera	
Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/8
Exposure time	1/500 sec.
ISO speed	ISO-800
Exposure bias	+0.3 step
Focal length	100 mm
Max aperture	3
Metering mode	Spot
Subject distance	
Flash mode	No flash, compulsory

I Saw the Robber Fly take the Moth in the air



Best Photos – Robber Fly Eyes

Camera	
Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/8
Exposure time	1/250 sec.
ISO speed	ISO-400
Exposure bias	+0.7 step
Focal length	100 mm
Max aperture	3
Metering mode	Spot
Subject distance	
Flash mode	Flash, compulsory



Best Photos – Funnel Web Spider with a Catch

Camera	
Camera maker	Canon
Camera model	Canon EOS 80D
F-stop	f/11
Exposure time	1/250 sec.
ISO speed	ISO-400
Exposure bias	0 step
Focal length	100 mm
Max aperture	3
Metering mode	Partial
Subject distance	
Flash mode	Flash, compulsory



References – Search the Web

- Ann Healey
  https://www.annhealeyphotography.com/p/60509rfw/C300565004
- Kate Albert
  http://www.katealbert.net/fauna/?album=4&gallery=13



- Justin Streeb
  https://flic.kr/p/2hK1uJz



ANY QUESTIONS?

Many thanks Bob