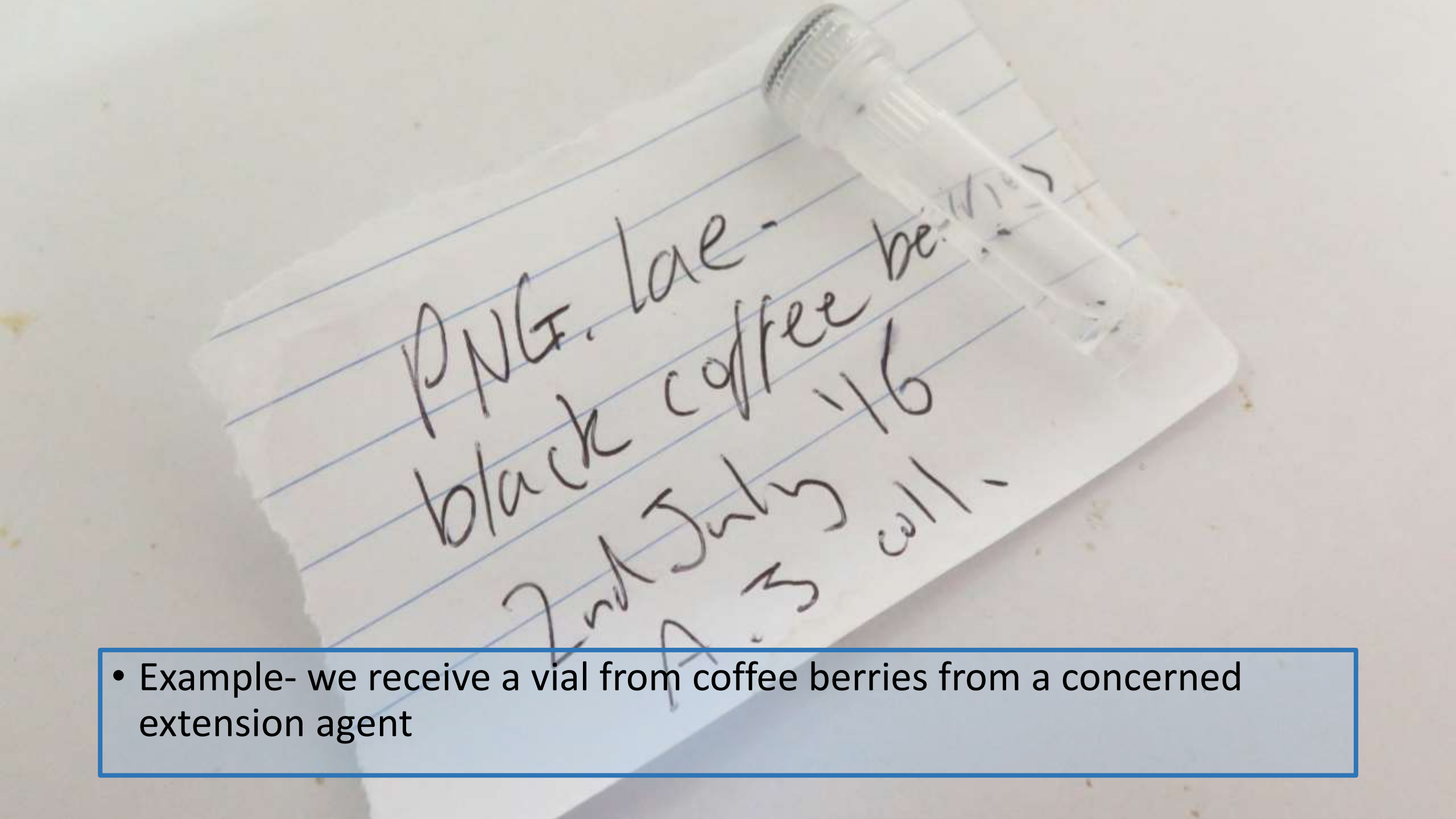
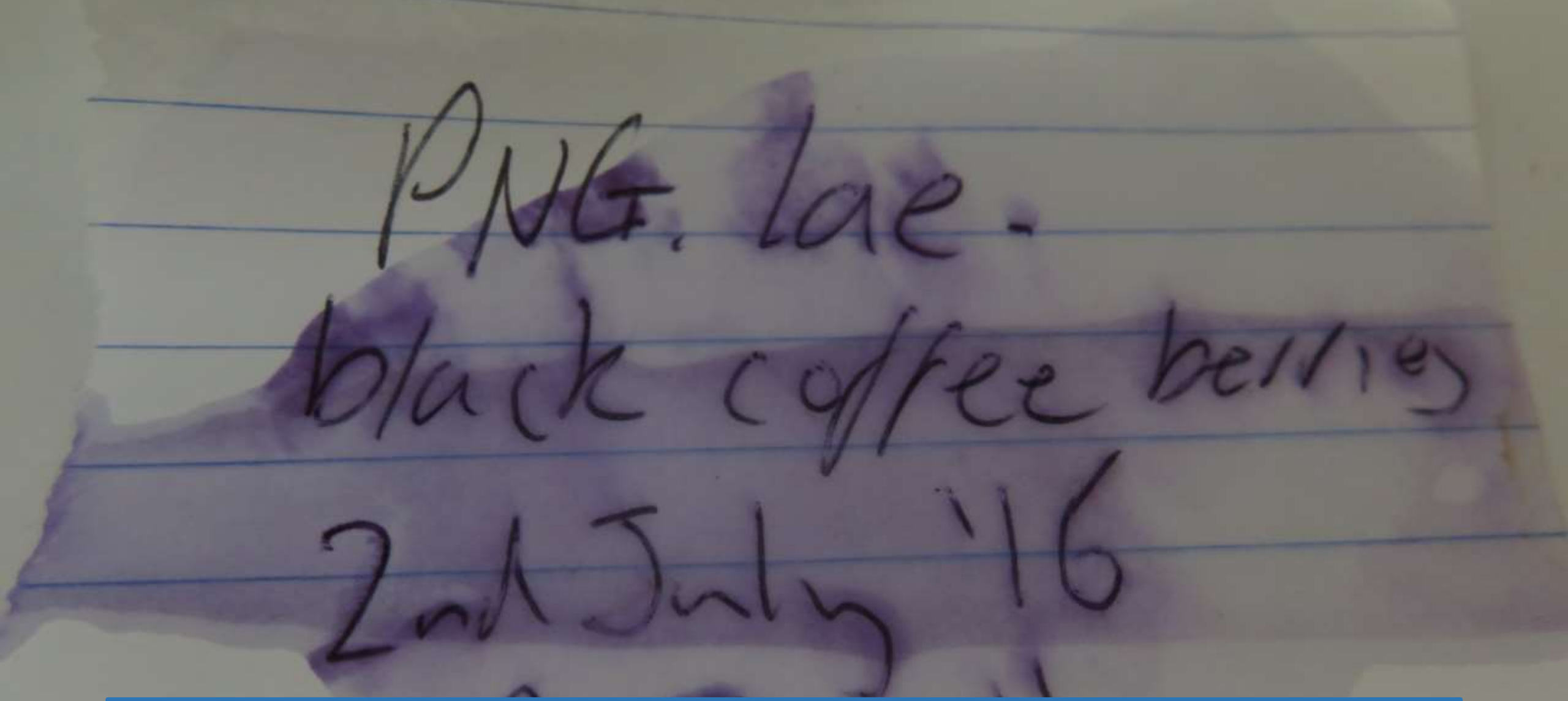
Coffee Pest Detection protocol

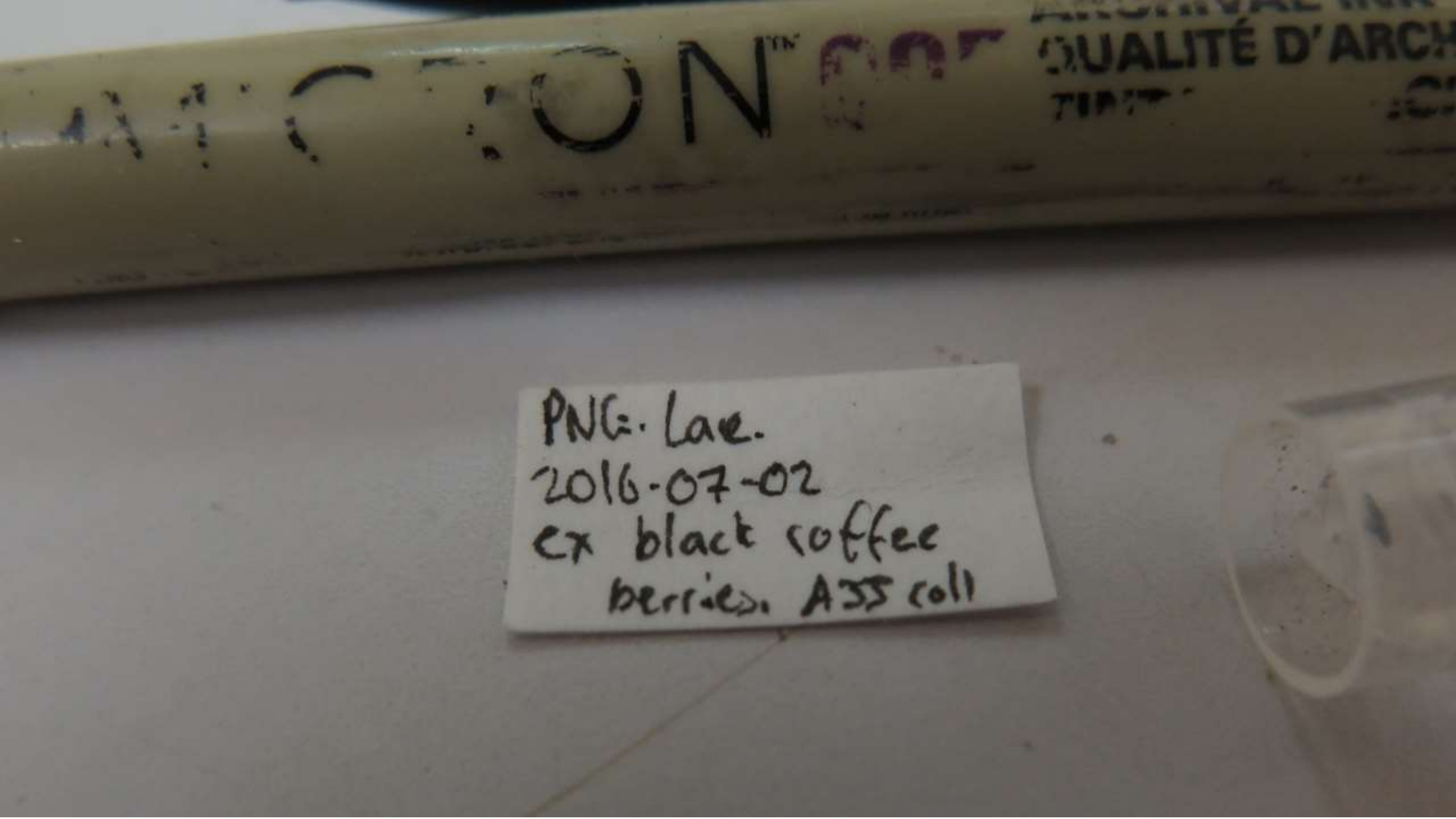
part 1: Data entry

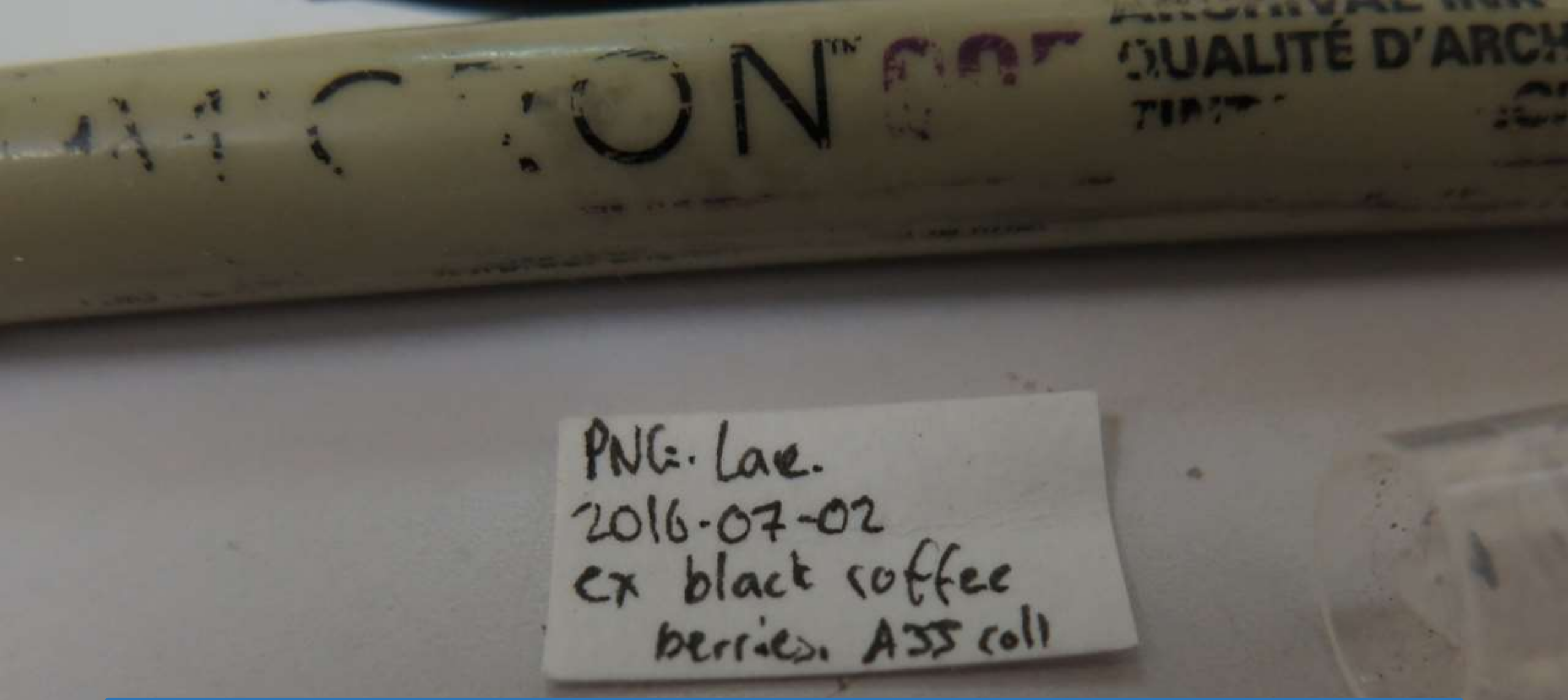


- Example- we receive a vial from coffee berries from a concerned extension agent



- Biro and many other pens will dissolve in ethanol- never use this for labelling

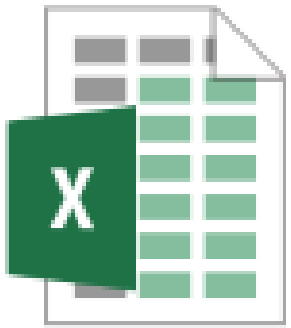

PNG. Lae.
2016-07-02
ex black coffee
berries. AJS coll



- Using a pencil or pigma pen, make a label with the collection information on a small piece (1cm x 2cm) of archive paper

Now input into datasheets

- Open the working version of the CIC lab records.
- Check it is the most current version- there should be only one called “CIC_lab_records.xlsx”, all others should be labelled “_backup” or “_copy”



CIC_lab_records.xlsx

CIC_lab_records - Excel

vial_id	num_specimens	num_removed	Country	Province	Locality	Host_or_Trap	year	month	day	note	collector
v1	10		PNG	Eastern Highlands	Aiyura	breadfruit	2015	9			Andrew Johnson
v2	6		Indonesia	Jawa Timur	Jombang	ethanol trap	2013				Andrew Johnson
v3	5		Indonesia	Jawa Timur	Jombang	ethanol trap	2013				Andrew Johnson
v4	7		Indonesia	Jawa Timur	Jombang	ethanol trap	2013				Andrew Johnson
v5	12		Indonesia	Jawa Timur	Jombang	ethanol trap	2013				Andrew Johnson
v6	5		USA	Florida	Ft Myers	tamarind seed	2013				Andrew Johnson
v7	5		USA	Florida	Ft Myers	tamarind seed	2013				Andrew Johnson
v8	5		PNG	eastern highlands	Aiyura	breadfruit	2015	9	13	r8	Andrew Johnson
v9	1		PNG	eastern highlands	Aiyura	breadfruit	2015	9	14		Andrew Johnson
v10	5		PNG	eastern highlands	Goroka	Chako stems	2015	9	13		Andrew Johnson
v11	14		PNG	eastern highlands	Aiyura	Ichy Ficus	2015	9	16	r11	Andrew Johnson
v12	9		PNG	eastern highlands	Aiyura	unknown tree photo	2015	9	16		Andrew Johnson
v13	8		PNG	eastern highlands	Aiyura	unknown flower vine	2015	9	18		Andrew Johnson
v14	3		PNG	eastern highlands	Aiyura	passaflora	2015	9	18		Andrew Johnson
v15	11		PNG	eastern highlands	Aiyura	unknown tree photo	2015	9	19	r15; 3cm dia brach	Andrew Johnson
v16	8		PNG	eastern highlands	Aiyura	Ichy macaranga	2015	9	26	petioles	Andrew Johnson
v17	4		PNG	eastern highlands	Aiyura	Ichy macaranga	2015	9	26	from petioles	Andrew Johnson
v18	16		PNG	eastern highlands	Kugofanka	vine, "Kekesa"	2015	9	27	from dead vines	Kingsten, CB, AJ et al
v19	11		PNG	Eastern Highlands	Aiyura, Onamona	Vine, "Rop"	2015	10	4	2.5 cm branch of vine	Kingsten, CB, AJ et al
v20	12		PNG	Eastern Highlands	Aiyura, Onamona	Ficus nr. not macrophylla	2015	10	4	leaf petioles, mostly pairs	Kingsten, CB, AJ et al
v21	1	1	PNG	Eastern Highlands	Kinantu	Eucalyptus	2016	6	26	Control for DNA extraction	Andrew Johnson
v22	1	1	not recorded	not recorded	not recorded	palm seeds				Control for DNA extraction	Andrew Johnson

Vials | pecimens | Extracts | PCR | Sequencing | Molecular_Identification

READY 100%

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CIC_lab_records - Excel

A59 | v58

	A	B	C	D	E	F	G	H	I	J	K	L
1	vial_id	num_specimens	num_removed	Country	Province	Locality	Host_or_Trap	year	month	day	note	collector
45	v44	1		PNG	Debepari	Yoks Kona	Brocap trap	2015	8	23	c12	Matilda's group
46	v45	1		PNG	Debepari	Kapikam Kona	Hypotan trap	2015	8	23	c13, loc 2 site 3	Matilda's group
47	v46	2		PNG	Mougulu	Rubber Kona	Hypotan trap	2015	8	28	c14, loc 4 site 2	Matilda's group
48	v47	1		PNG	Mougulu	ementary compour	Hypotan trap	2015	8	26	c15, loc 4 site 3	Matilda's group
49	v48	8		PNG	Nomad Ahubi	fee trial and bush s	Hypotan trap	2015	8	27	c16, loc 3 site 1	Matilda's group
50	v49	2		PNG	Amanab LGG	I-P-NAMU	not recorded	2015	8	27	c19; "I-P NAMU \\ AMANAB I	Group 4
51	v50	1		PNG	Amanab LGG	P-Mama-Mora	not recorded	2015	8	19	c20; "P-mama \\ mora \\ AM	Group 4
52	v51	1		PNG	Amanab LGG	P-Aihiri	not recorded	2015	8	27	c21; P- Aihiri\\ Amanab LLG\	Group 4
53	v52	2		PNG	Amanab LGG	B-Wamu	not recorded	2015	8	27	c22	Group 4
54	v53	2		PNG	Edwaki	Inalis	Hypotan trap	2015	9	9	c23	Jonah's group
55	v54	1		PNG	Edwaki	Inalis	Brocap trap x2	2015	9	9	c24	Jonah's group
56	v55	1		PNG	not recorded	not recorded	not recorded	2015	9		c25	Jonah's group
57	v56	24	3	PNG	Morobe dist	Near Lae	Black coffee fruits	2016	7	3		Andrew Johnson
58	v57	24		PNG	Morobe dist	Lae bot. garden	fabaceae pods	2016	7	3		Andrew Johnson
59	v58	4										
60												
61												
62												
63												
64												
65												
66												

Vials | Specimens | Extracts | PCR | Sequencing | Molecular_Identification

ENTER 100%

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CIC_lab_records - Excel

F59: Lae

	A	B	C	D	E	F	G	H	I	J	K	L
1	vial_id	num_specimens	num_removed	Country	Province	Locality	Host_or_Trap	year	month	day	note	collector
45	v44	1		PNG	Debepari	Yoks Kona	Brocap trap	2015	8	23	c12	Matilda's group
46	v45	1		PNG	Debepari	Kapikam Kona	Hypotan trap	2015	8	23	c13, loc 2 site 3	Matilda's group
47	v46	2		PNG	Mougulu	Rubber Kona	Hypotan trap	2015	8	28	c14, loc 4 site 2	Matilda's group
48	v47	1		PNG	Mougulu	ementary compour	Hypotan trap	2015	8	26	c15, loc 4 site 3	Matilda's group
49	v48	8		PNG	Nomad Ahubi	'fee trial and bush s	Hypotan trap	2015	8	27	c16, loc 3 site 1	Matilda's group
50	v49	2		PNG	Amanab LGG	I-P-NAMU	not recorded	2015	8	27	c19; "I-P NAMU \\ AMANAB I	Group 4
51	v50	1		PNG	Amanab LGG	P-Mama-Mora	not recorded	2015	8	19	c20; "P-mama \\ mora \\ AM	Group 4
52	v51	1		PNG	Amanab LGG	P-Aihiri	not recorded	2015	8	27	c21; P- Aihiri\\ Amanab LLG\	Group 4
53	v52	2		PNG	Amanab LGG	B-Wamu	not recorded	2015	8	27	c22	Group 4
54	v53	2		PNG	Edwaki	Inalis	Hypotan trap	2015	9	9	c23	Jonah's group
55	v54	1		PNG	Edwaki	Inalis	Brocap trap x2	2015	9	9	c24	Jonah's group
56	v55	1		PNG	not recorded	not recorded	not recorded	2015	9		c25	Jonah's group
57	v56	24	3	PNG	Morobe dist	Near Lae	Black coffee fruits	2016	7	3		Andrew Johnson
58	v57	24		PNG	Morobe dist	Lae bot. garden	fabaceae pods	2016	7	3		Andrew Johnson
59	v58	4		PNG	Morobe dist	Lae						

Vials | Specimens | Extracts | PCR | Sequencing | Molecular_Identification

ENTER 100%

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CIC_lab_records - Excel

L59 | Andrew Johnson

	A	B	C	D	E	F	G	H	I	J	K	L
1	vial_id	num_specimens	num_removed	Country	Province	Locality	Host_or_Trap	year	month	day	note	collector
45	v44	1		PNG	Debepari	Yoks Kona	Brocap trap	2015	8	23	c12	Matilda's group
46	v45	1		PNG	Debepari	Kapikam Kona	Hypotan trap	2015	8	23	c13, loc 2 site 3	Matilda's group
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50	v49	2		PNG	Amanab LGG	I-P-NAMU	not recorded	2015	8	27	c19; "I-P NAMU \\ AMANAB I	Group 4
51	v50	1		PNG	Amanab LGG	P-Mama-Mora	not recorded	2015	8	19	c20; "P-mama \\ mora \\ AM	Group 4
52	v51	1		PNG	Amanab LGG	P-Aihiri	not recorded	2015	8	27	c21; P- Aihiri\\ Amanab LLG\	Group 4
53	v52	2		PNG	Amanab LGG	B-Wamu	not recorded	2015	8	27	c22	Group 4
54	v53	2		PNG	Edwaki	Inalis	Hypotan trap	2015	9	9	c23	Jonah's group
55	v54	1		PNG	Edwaki	Inalis	Brocap trap x2	2015	9	9	c24	Jonah's group
56	v55	1		PNG	not recorded	not recorded	not recorded	2015	9		c25	Jonah's group
57	v56	24	3	PNG	Morobe dist	Near Lae	Black coffee fruits	2016	7	3		Andrew Johnson
58	v57	24		PNG	Morobe dist	Lae bot. garden	fabaceae pods	2016	7	3		Andrew Johnson
59	v58	4		PNG	Morobe dist	Lae	Black robusta coffee berrie	2016	7	3		Andrew Johnson

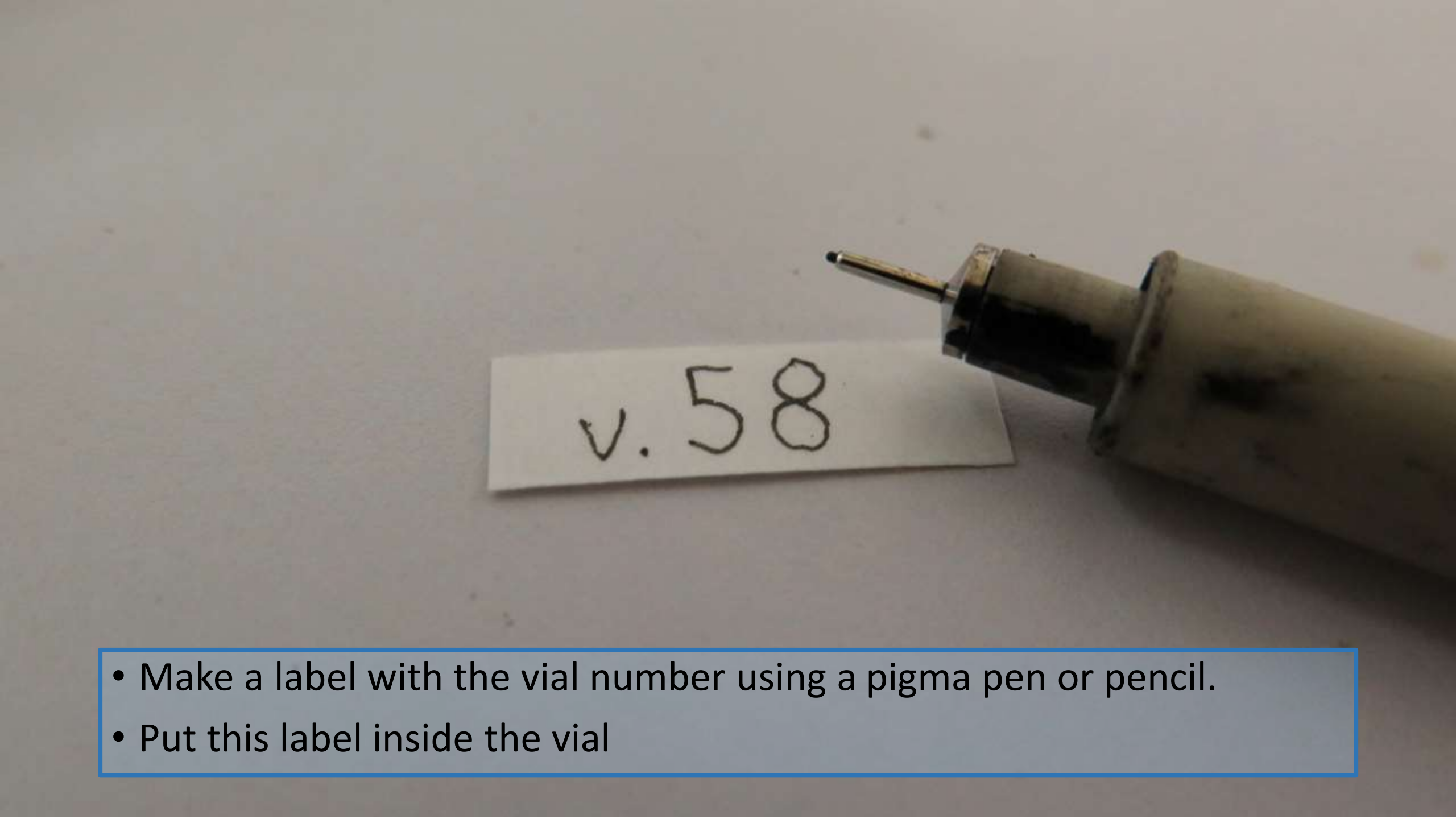
Vials | Specimens | Extracts | PCR | Sequencing | Molecular_Identification

EDIT

Solve PC issues: 1 message

11:57 AM
7/8/2016

v. 58



- Make a label with the vial number using a pigma pen or pencil.
- Put this label inside the vial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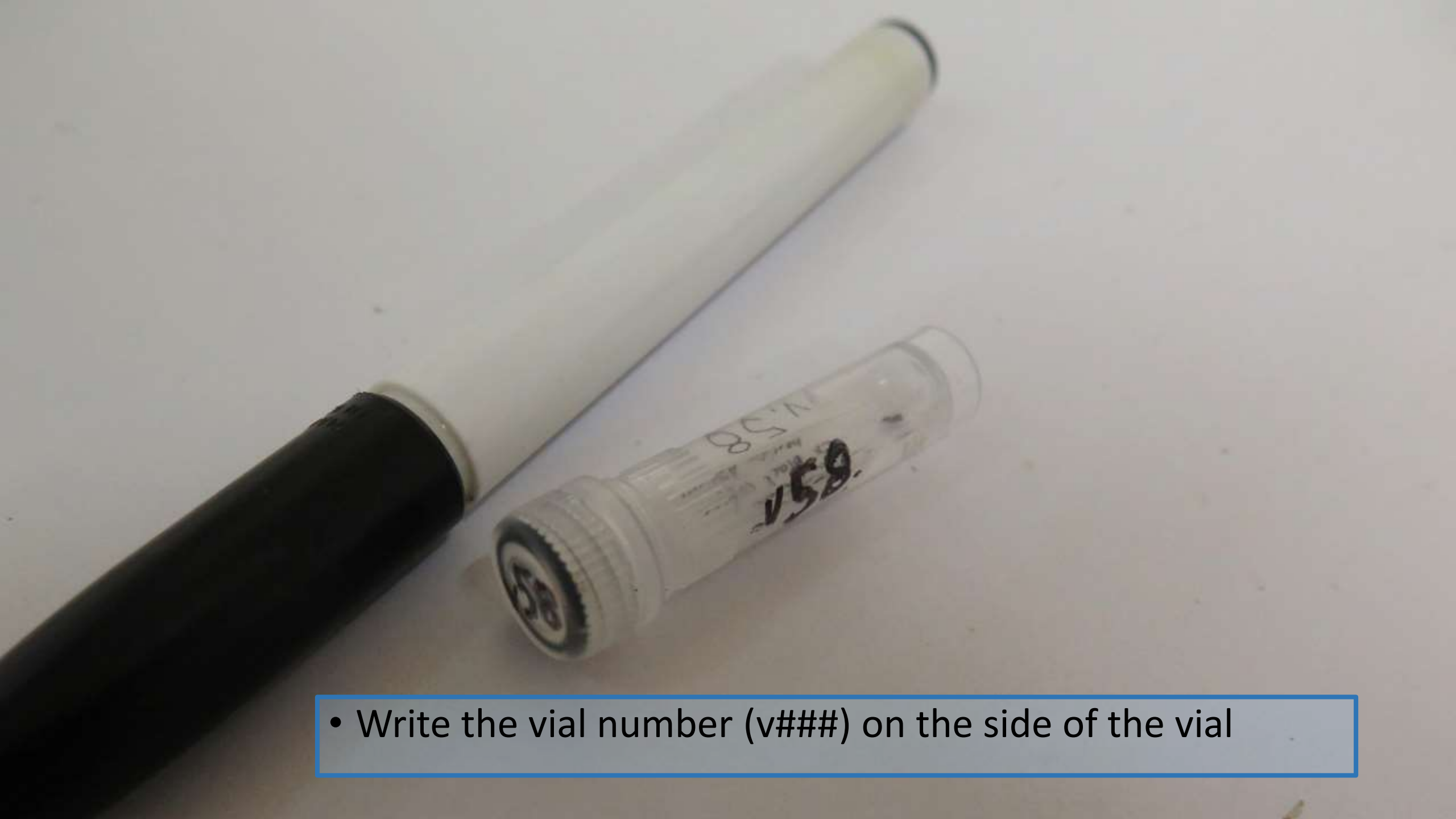
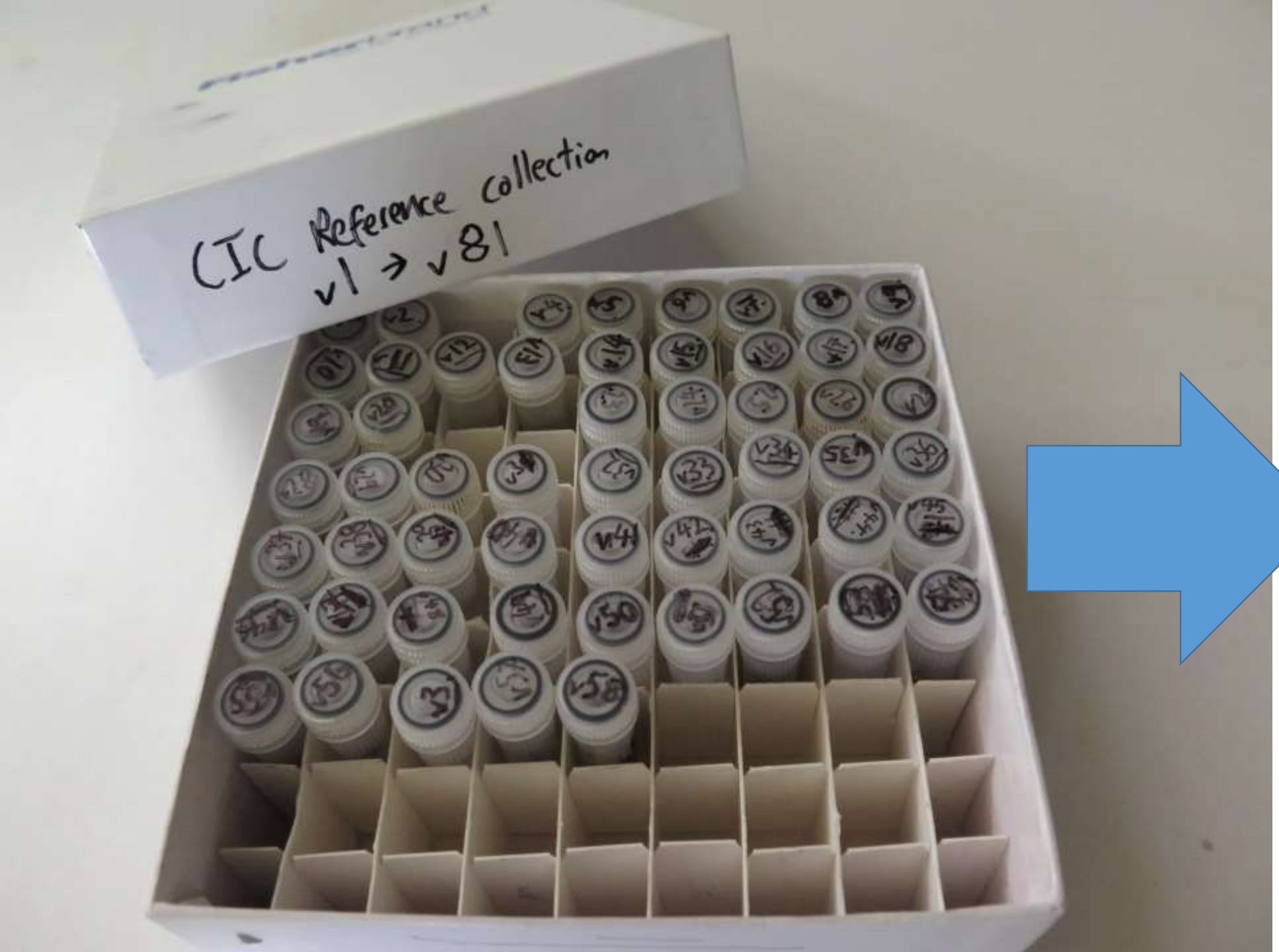


- Write the vial number (v###) on the side of the vial



FREEZER

Coffee Pest Detection protocol

part 1: Data entry

Complete!

Summary of data entry:

- Make sure the specimens are in a small vial with a label.
- In the CIC lab records datasheet, on the “Vials” tab, make a new vial number, and input all recorded information. If any information is missing, contact the collector, and/or leave the cell as “not recorded”.
- Write a label with just the vial number using a pigma pen or pencil to go inside the vial, and carefully write the vial number with a lab marker.
- Put the completed vial in its correct position in the specimen box, inside the freezer.
- Save the spreadsheet. Make a backup.

- Youre done! Now save the excel file (File>save)
- Now would be a good time to make a backup. File>Save As, then name it CIC_lab_records_backup_YYYY-MM-DD
- (e.g. CIC_lab_records_backup_2016-07-14)
- DO NOT WORK ON THIS VERSION! Exit and re-open the working version (called CIC_lab_records.xlsx)

Coffee Pest Detection protocol

part 2: Morphological identification

Coffee Pest Detection protocol

part 2: Morphological identification

1) Look at the specimens with the stereo microscope

- Pour the contents of the vial into a watchglass or small glass petri dish.
- Check that there are no more specimens stuck in the vial or in the lid, if so, move them carefully with the featherweight forceps.
- If the beetles are not submerged, add a little more 95% ethanol. (the shiny surface of ethanol makes identification difficult)


ZEISS
Stemi DV4


95% ethanol
95% Ethanol


PNG. Lae.
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ex black coffee
berries. A35 coll
1.58
85A

- Empty the contents of the vial into a watch glass or petri dish. Use the soft forceps and/or a Pasteur pipette with ethanol to remove any remaining beetles from the vial or the lid

- If the beetles are not fully submerged, add enough ethanol to cover the beetles.

Half submerged
-reflections make identification difficult

Fully submerged
-characters can be seen clearly

- If the beetles are not fully submerged, add enough ethanol to cover the beetles.

Initial identification

- Have all identification resources ready

Draft guide to Identification of Coffee berry borer from similar bark beetles in Papua New Guinea (Version 0.1)

Andrew Johnson, Craig Bateman and Jiri Hulcr

Introduction

The coffee berry borer (CBB), *Hypothenamus hampei*, is a serious pest of coffee worldwide. It is present in every coffee growing region except Papua New Guinea. Correct identification of CBB in PNG is an essential part of preventing it establishing and harming the coffee industry. There are, however, many similar and mostly harmless bark beetles already present in PNG which will fly into CBB traps.

CBB is in a notoriously difficult genus of bark beetles called *Hypothenamus*. The majority of this genus feed on dead plant material, and are not a significant pest. The other economically significant *Hypothenamus* species is the Tropical nut borer (TNB), *Hypothenamus obscurus*

There are other bark beetles which may also be confused with the coffee berry borer. This guide aims to assist the identification of CBB as well as similar bark beetles likely to be encountered and confused with the coffee berry borer. This will assist in identification of similar genera, although not identification to species.

Morphology of the Coffee berry borer

This section will describe the important morphological characters needed to identify CBB from similar bark beetles. For specialist terms used in the descriptions, see the glossary.

See the figures and glossary for information on the technical terminology used in this guide.

- Use the blue microscope.
- Use reflected light only (not from beneath!)
- If available, use millimetre squared paper as a background so beetle size can be estimated.
- Start at the lowest magnification (8x)
- Using the focusing knob, get the beetles in focus.
- Zoom in with the zoom knob, to 32x if needed.
- Use the poking tool to move or turn the beetles.

- Write notes if needed

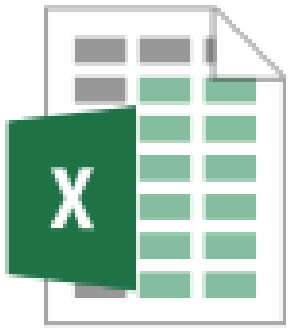
Identification notes

- Size: 1.5mm
- Eye: emarginated
- Antennae: flattened club with sutures and septum
- Setae on elytra: Cannot see clearly, maybe scale-like.

- If useful, you can take a quick photo now using a camera or camera-phone against the microscope eyepiece

Now input into datasheets

- Open the working version of the CIC lab records.
- Check it is the most current version- there should be only one called “CIC_lab_records.xlsx”, all others should be labelled “_backup” or “_copy”



CIC_lab_records.xlsx

CIC_lab_records - Excel

specimen_id(b###)	from_vial	type	tribe	*genus*	*species*	photographed?	id_type	who_identified	note
b1	v21	Scolytinae	Xyleborini	*Xyleborus*	*affinis*	yes	morphological	Andrew Johnson	
b2	v22	Scolytinae	Dryocoetini	*Coccotrypes*	*carphophagous*	yes	morphological	Andrew Johnson	
b3	v56	Scolytinae	Cryphalini	*Hypothenemus*	*crudiae*	yes	morphological	Andrew Johnson	
b4	v56	Scolytinae	Cryphalini	*Hypothenemus*	*eruditus*	yes	morphological	Andrew Johnson	
b5	v56	Scolytinae	Cryphalini	*Hypothenemus*	*areccae*	yes	morphological	Andrew Johnson	specimen damaged

Vials | Specimens | Extracts | PCR | Sequencing | Molecular_Identification

CIC_lab_records - Excel

specimen_id(b###)	from_vial	type	tribe	*genus*	*species*	photographed?	id_type	who_identified	note
b1	v21	Scolytinae	Xyleborini	*Xyleborus*	*affinis*	yes	morphological	Andrew Johnson	
b2	v22	Scolytinae	Dryocoetini	*Coccotrypes*	*carphophagous*	yes	morphological	Andrew Johnson	
b3	v56	Scolytinae	Cryphalini	*Hypothenemus*	*crudiae*	yes	morphological	Andrew Johnson	
b4	v56	Scolytinae	Cryphalini	*Hypothenemus*	*eruditus*	yes	morphological	Andrew Johnson	
b5	v56	Scolytinae	Cryphalini	*Hypothenemus*	*areccae*	yes	morphological	Andrew Johnson	specimen damaged
b6	v58								

- Create a new specimen number (B###)
- Record the vial the specimen was from

CIC_lab_records - Excel

specimen_id(b###)	from_vial	type	tribe	*genus*	*species*	photographed?	id_type	who_identified	note
b1	v21	Scolytinae	Xyleborini	*Xyleborus*	*affinis*	yes	morphological	Andrew Johnson	
b2	v22	Scolytinae	Dryocoetini	*Coccotrypes*	*carphophagous*	yes	morphological	Andrew Johnson	
b3	v56	Scolytinae	Cryphalini	*Hypothenemus*	*crudiae*	yes	morphological	Andrew Johnson	
b4	v56	Scolytinae	Cryphalini	*Hypothenemus*	*eruditus*	yes	morphological	Andrew Johnson	
b5	v56	Scolytinae	Cryphalini	*Hypothenemus*	*areccae*	yes	morphological	Andrew Johnson	specimen damaged
b6	v58								

- Note- One vial can have several identified specimens.
- If they are all the same species, you only need to record one.

Vials | Specimens | Extracts | PCR | Sequencing | Molecular_Identification

CIC_lab_records - Excel

specimen_id(b###)	from_vial	type	tribe	*genus*	*species*	photographed?	id_type	who_identified	note
b1	v21	Scolytinae	Xyleborini	*Xyleborus*	*affinis*	yes	morphological	Andrew Johnson	
b2	v22	Scolytinae	Dryocoetini	*Coccotrypes*	*carphophagous*	yes	morphological	Andrew Johnson	
b3	v56	Scolytinae	Cryphalini	*Hypothenemus*	*crudiae*	yes	morphological	Andrew Johnson	
b4	v56	Scolytinae	Cryphalini	*Hypothenemus*	*eruditus*	yes	morphological	Andrew Johnson	
b5	v56	Scolytinae	Cryphalini	*Hypothenemus*	*areccae*	yes	morphological	Andrew Johnson	specimen damaged
b6	v58								

Vials | Specimens | Extracts | PCR | Sequencing | Molecular_Identification

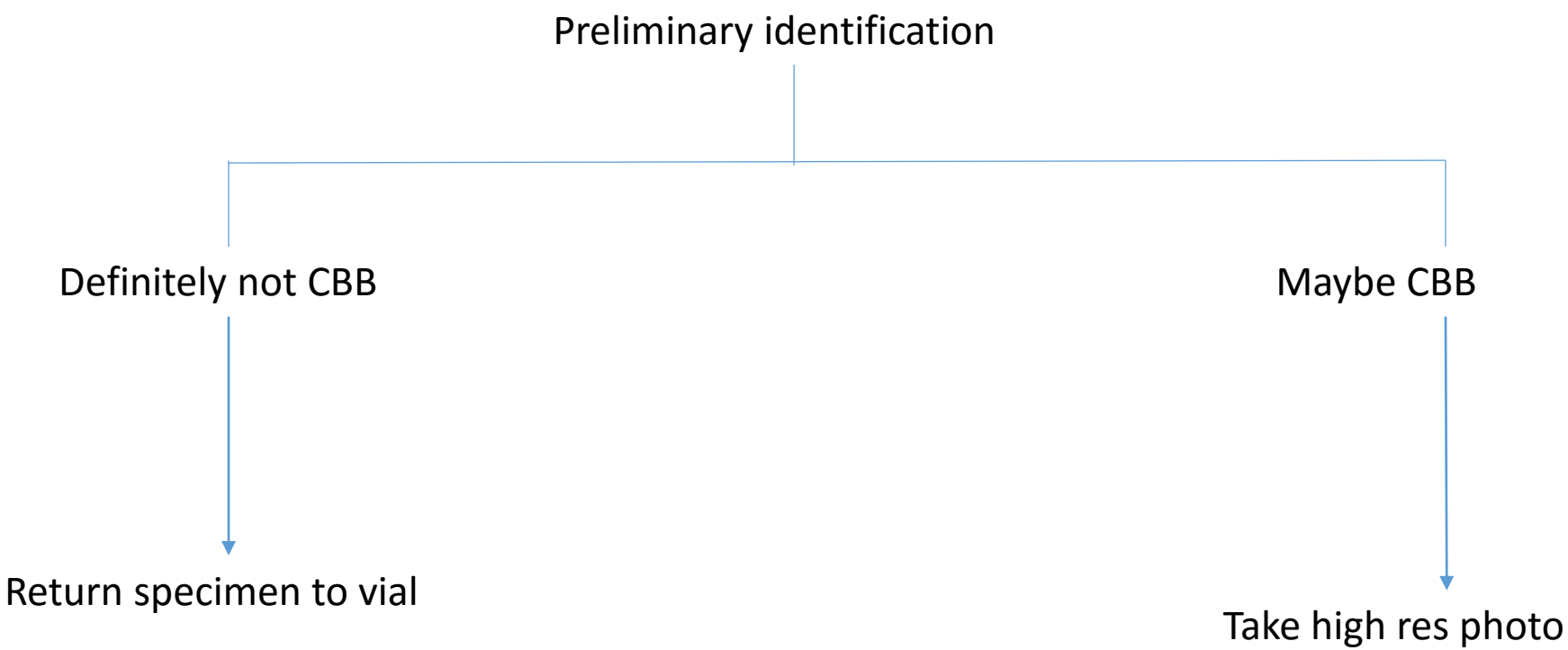
CIC_lab_records - Excel

I7 | Andrew Johnson

specimen_id(b###)	from_vial	type	tribe	*genus*	*species*	photographed?	id_type	who_identified	note
b1	v21	Scolytinae	Xyleborini	*Xyleborus*	*affinis*	yes	morphological	Andrew Johnson	
b2	v22	Scolytinae	Dryocoetini	*Coccotrypes*	*carphophagous*	yes	morphological	Andrew Johnson	
b3	v56	Scolytinae	Cryphalini	*Hypothenemus*	*crudiae*	yes	morphological	Andrew Johnson	
b4	v56	Scolytinae	Cryphalini	*Hypothenemus*	*eruditus*	yes	morphological	Andrew Johnson	
b5	v56	Scolytinae	Cryphalini	*Hypothenemus*	*areccae*	yes	morphological	Andrew Johnson	specimen damaged
b6	v58	Scolytinae		*Hypothenemus*		not yet	morphological	Andrew Johnson	

- Now add the identification information. Add as much as you can based on the guides.
- If it is not CBB but you cant identify it, call it “unknown not CBB”

Vials | Specimens | Extracts | PCR | Sequencing | Molecular_Identification



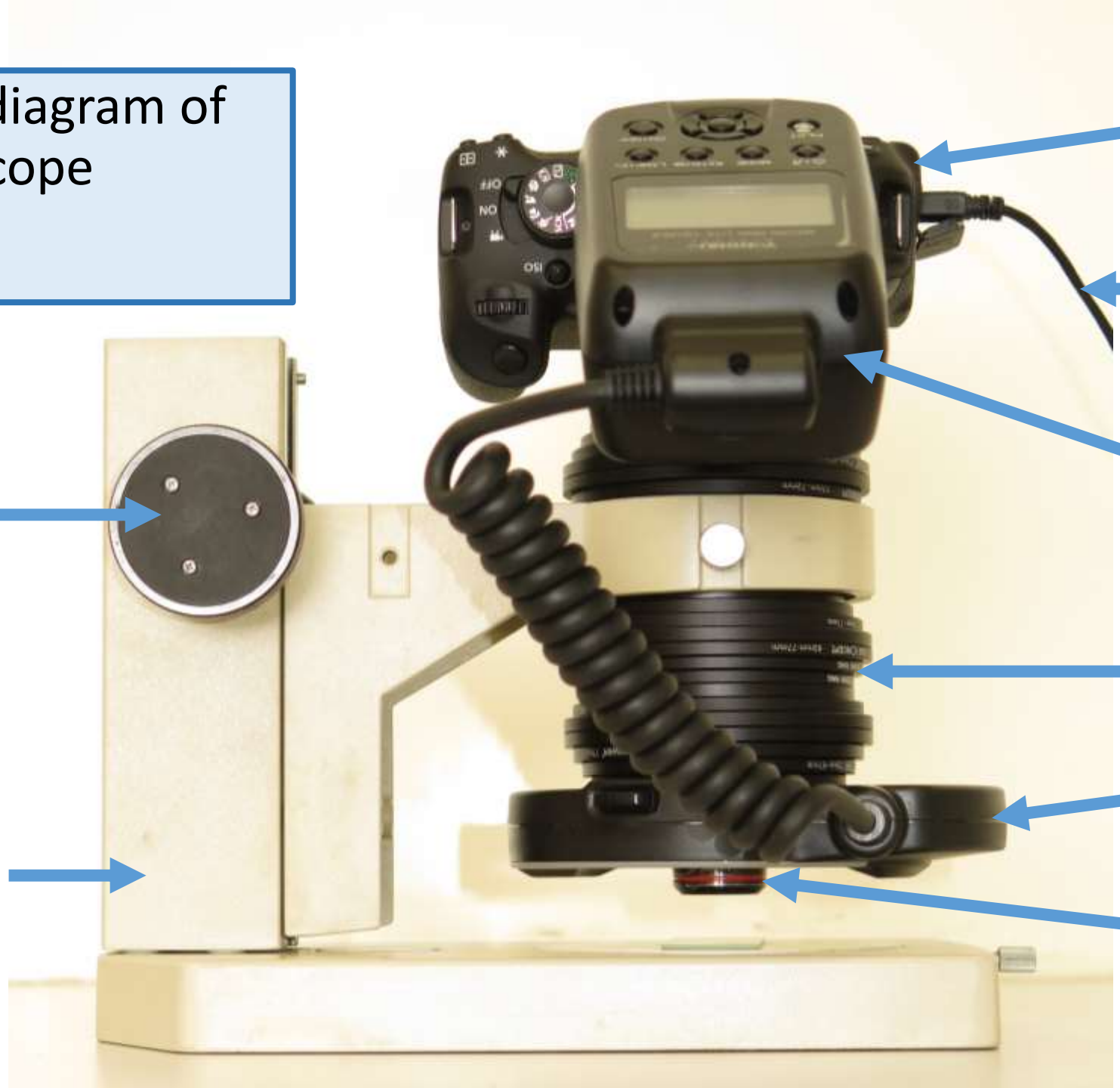
- If you know it is not CBB, you can return the specimen to the vial now

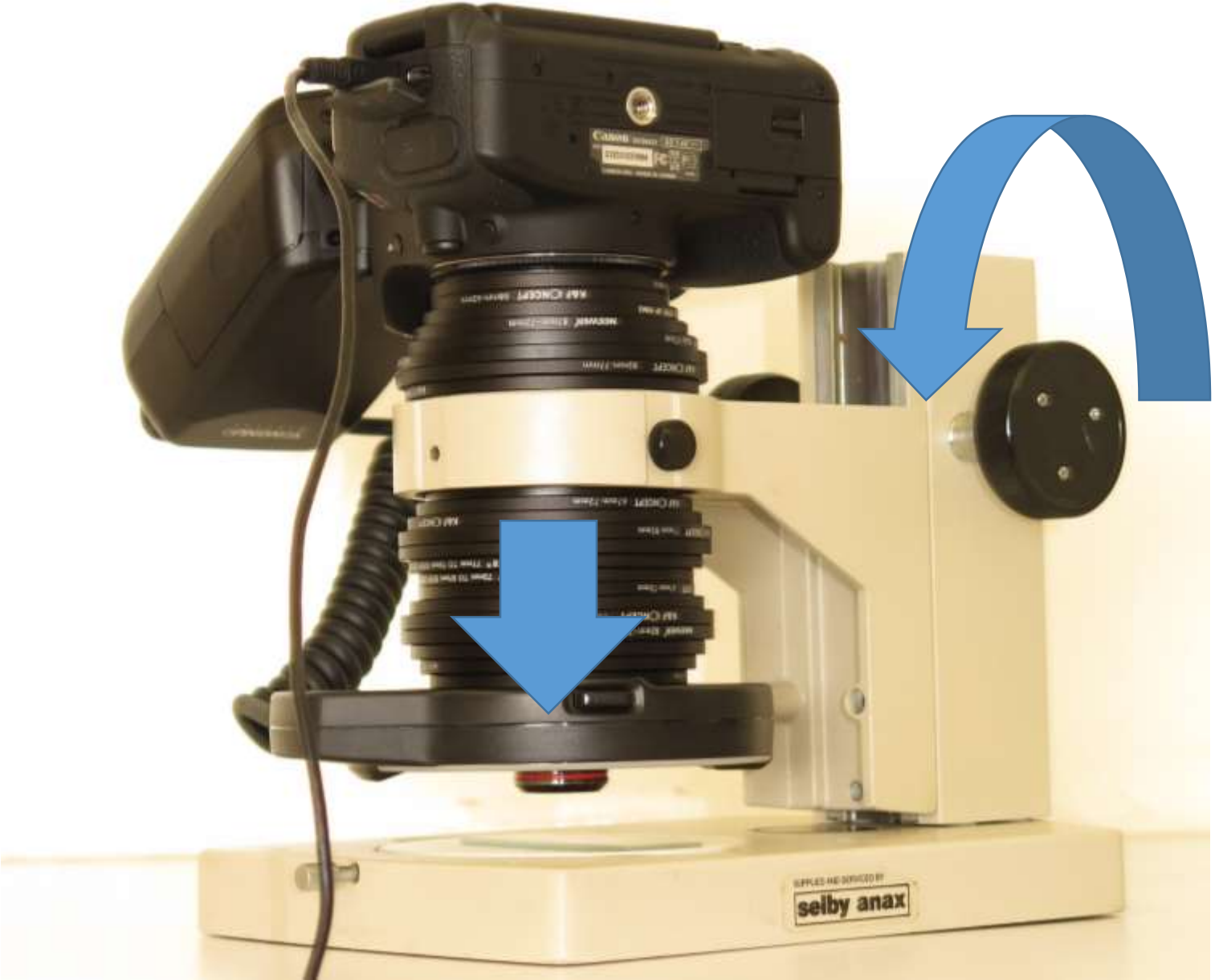
- Now repeat for any different specimens in that vial

Coffee Pest Detection protocol

part 3: high resolution photography

- Labelled diagram of camera-scope




Canon
selby anax

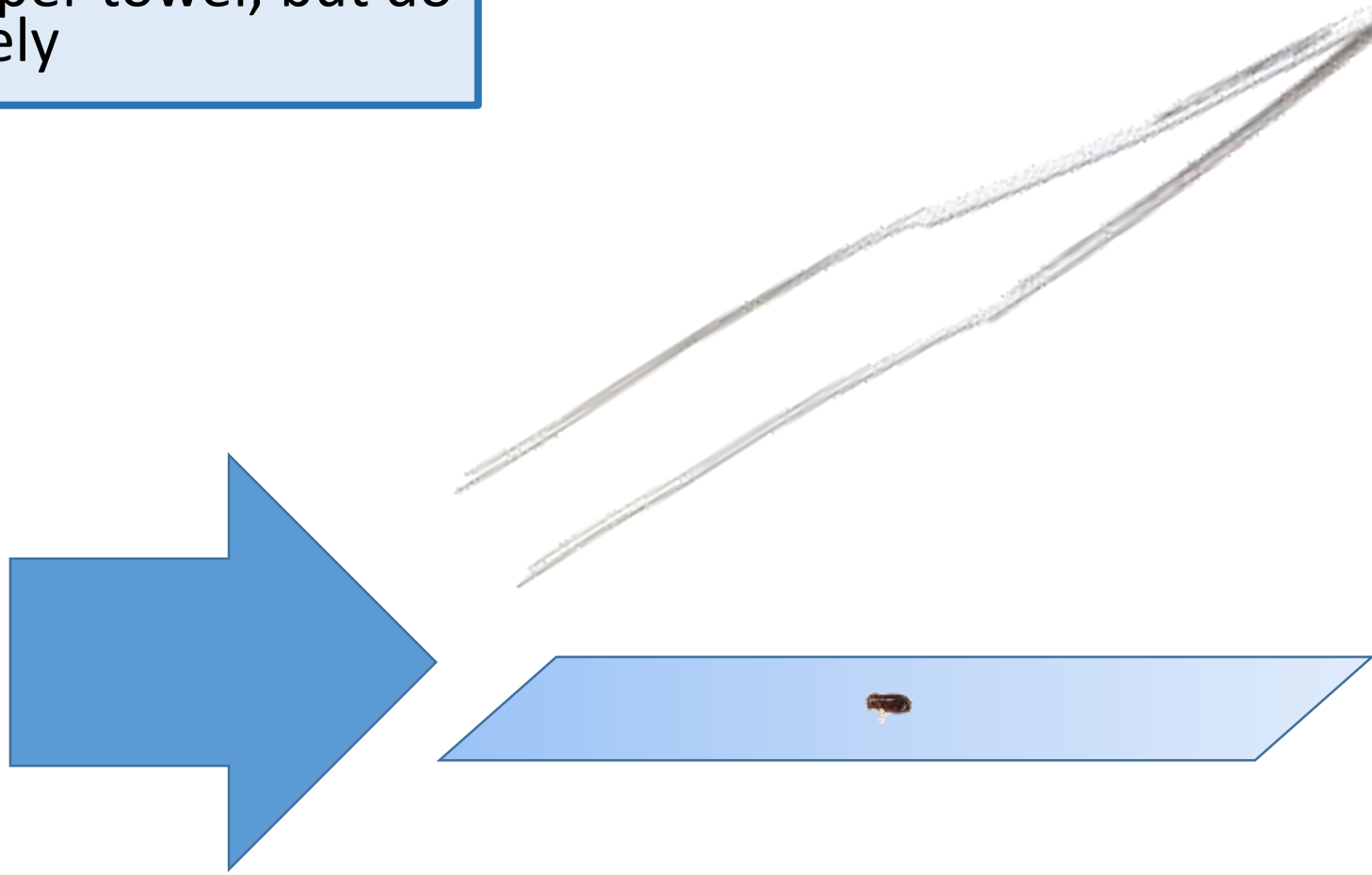

selby anax

- Make sure batteries are fully charged and a complete set of spares is available

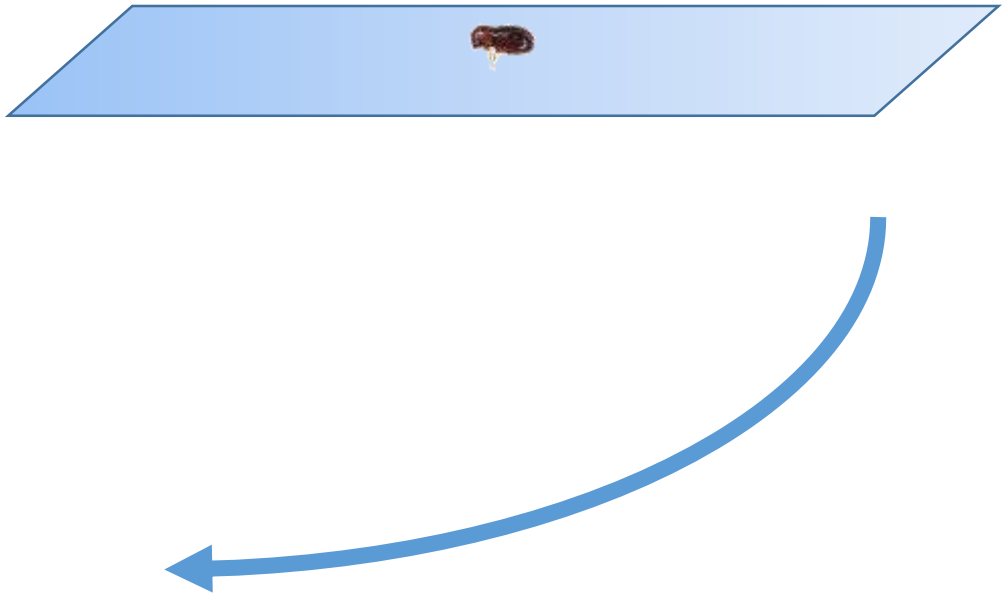
- 4x AA batteries for the ring flash

- LP-E8 battery pack for dSLR

- With the soft forceps, transfer the beetle from the ethanol onto the centre of a clean microscope slide.
- Blot off excess ethanol with paper towel, but do not dry off the beetle completely



- Carefully move the microscope slide under the scope so that the beetle is in the centre and the objective is 3 to 4 cm from the beetle



Be careful!

- The beetle will dry quickly. When it is dry, it will easily be lost by a slight breeze or static charge

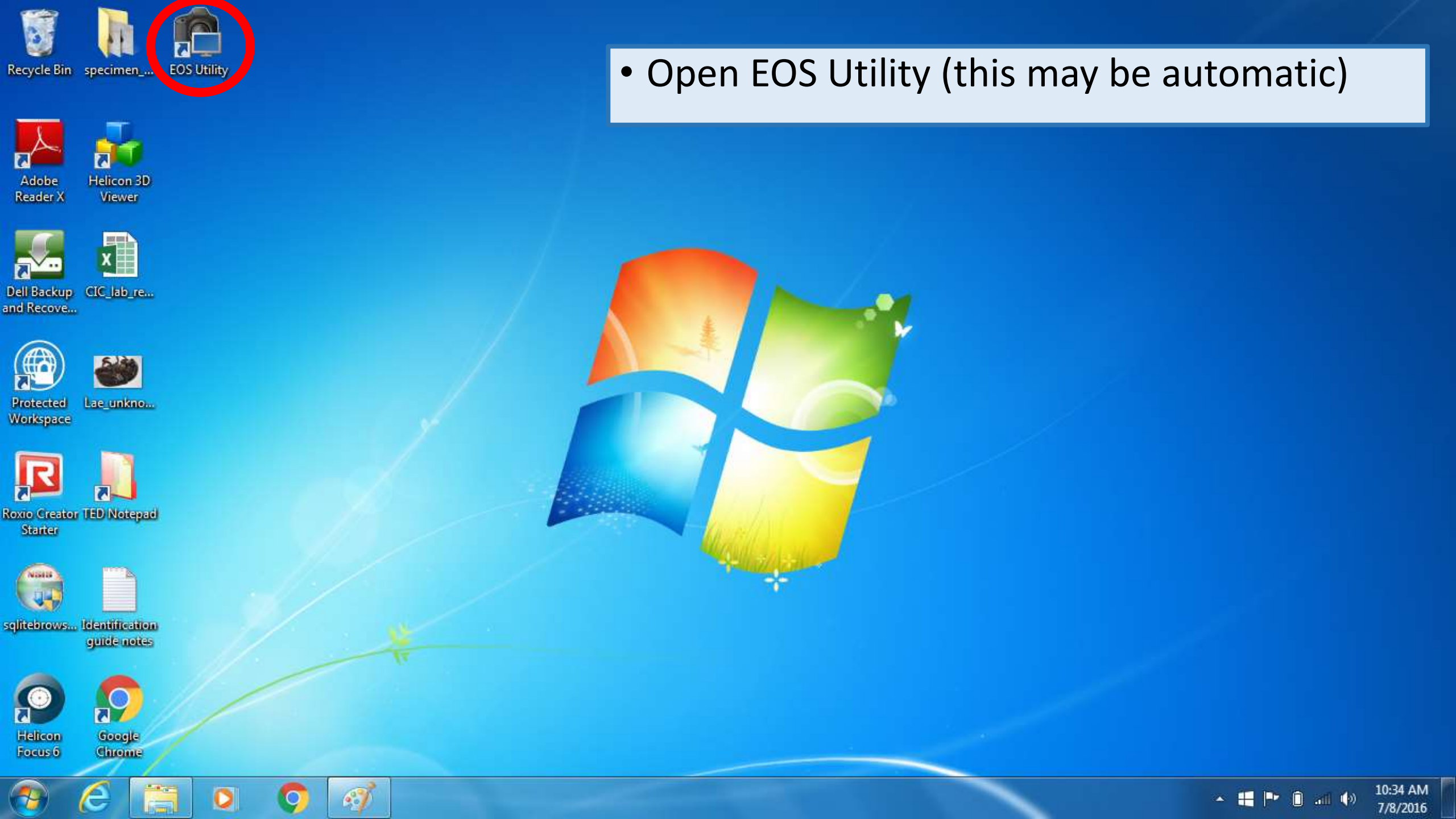
- Refine the focus and position of the beetle.

1. Shine a torch though the viewfinder. You will see a circle of light on the slide.
2. Adjust the focusing knob until this becomes a small, crisp rectangle (this is roughly what the sensor will see)
3. Move the microscope glass slide to get the beetle in the centre of this crisp rectangle.
4. (This will not work while the camera is in live view)

- Plug in the USB cable
- Turn the camera on

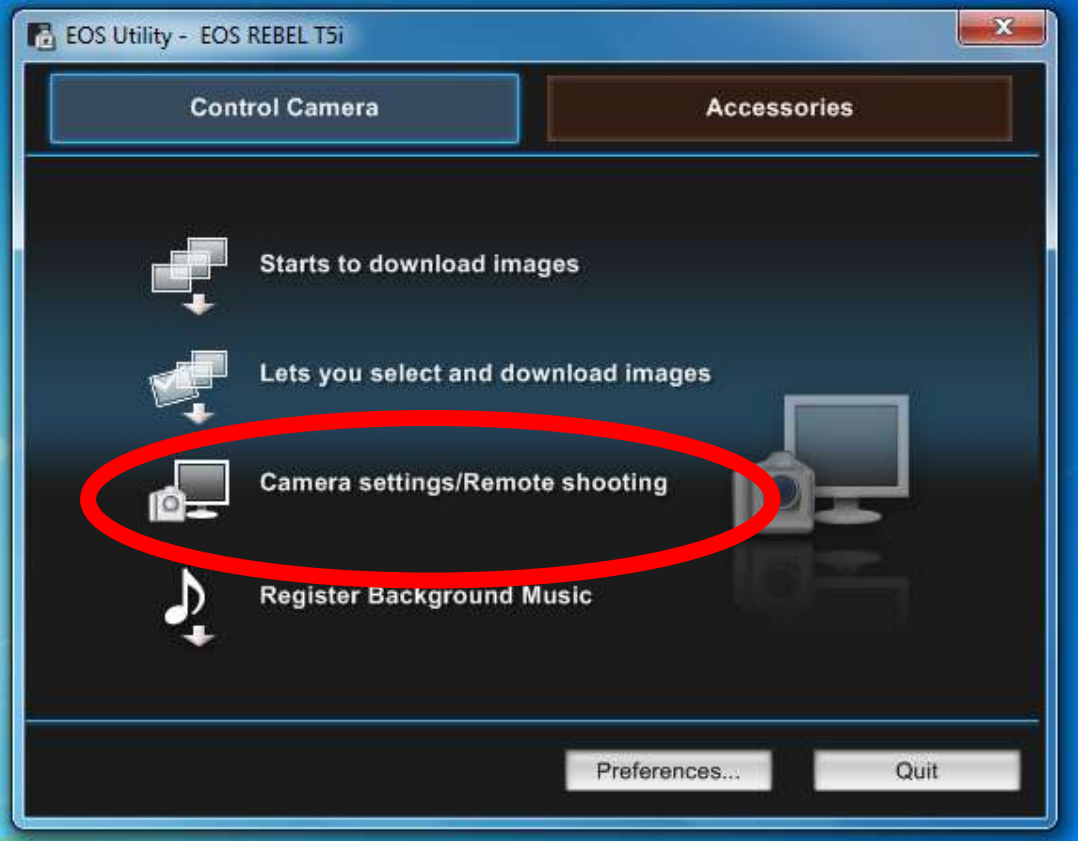
- The camera should be in “M” (Manual)

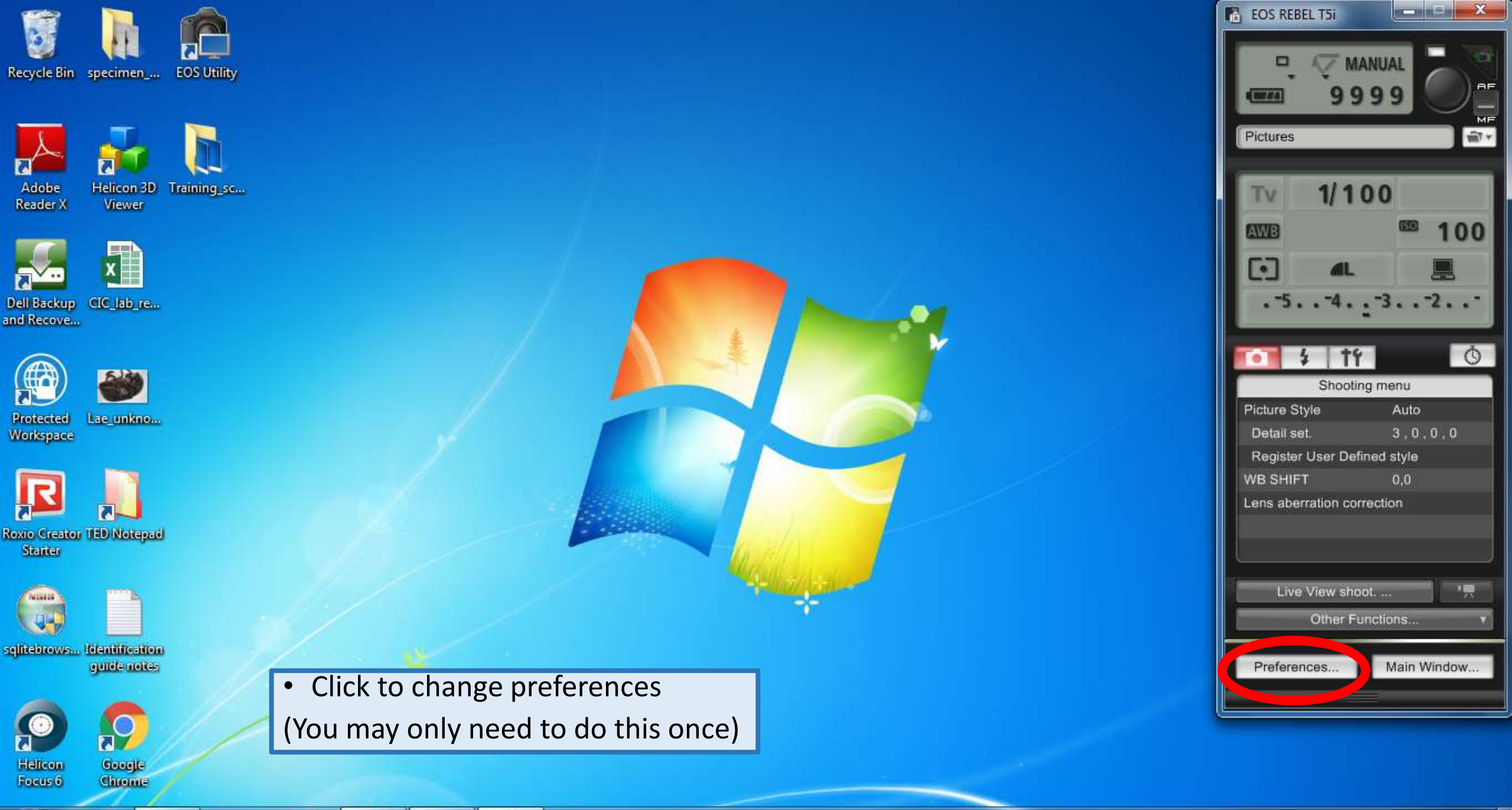
- Note: the lab will not have a camera for one week
- If you need to take a photo, use Bob’s dSLR.
- This does not have usb connectivity.- you will have to use it remotely using the camera controls
- Press the button with a red dot for live view
- Refine the focus
- Set the flash on – 2/3, set the camera on M, shutter speed 1/100.
- Focus just above the beetle, and start the photo stack, taking a picture using the normal camera button.
- Copy the photos from the SD card to the laptop into its own folder, then follow the instructions for stacking



- Open EOS Utility (this may be automatic)

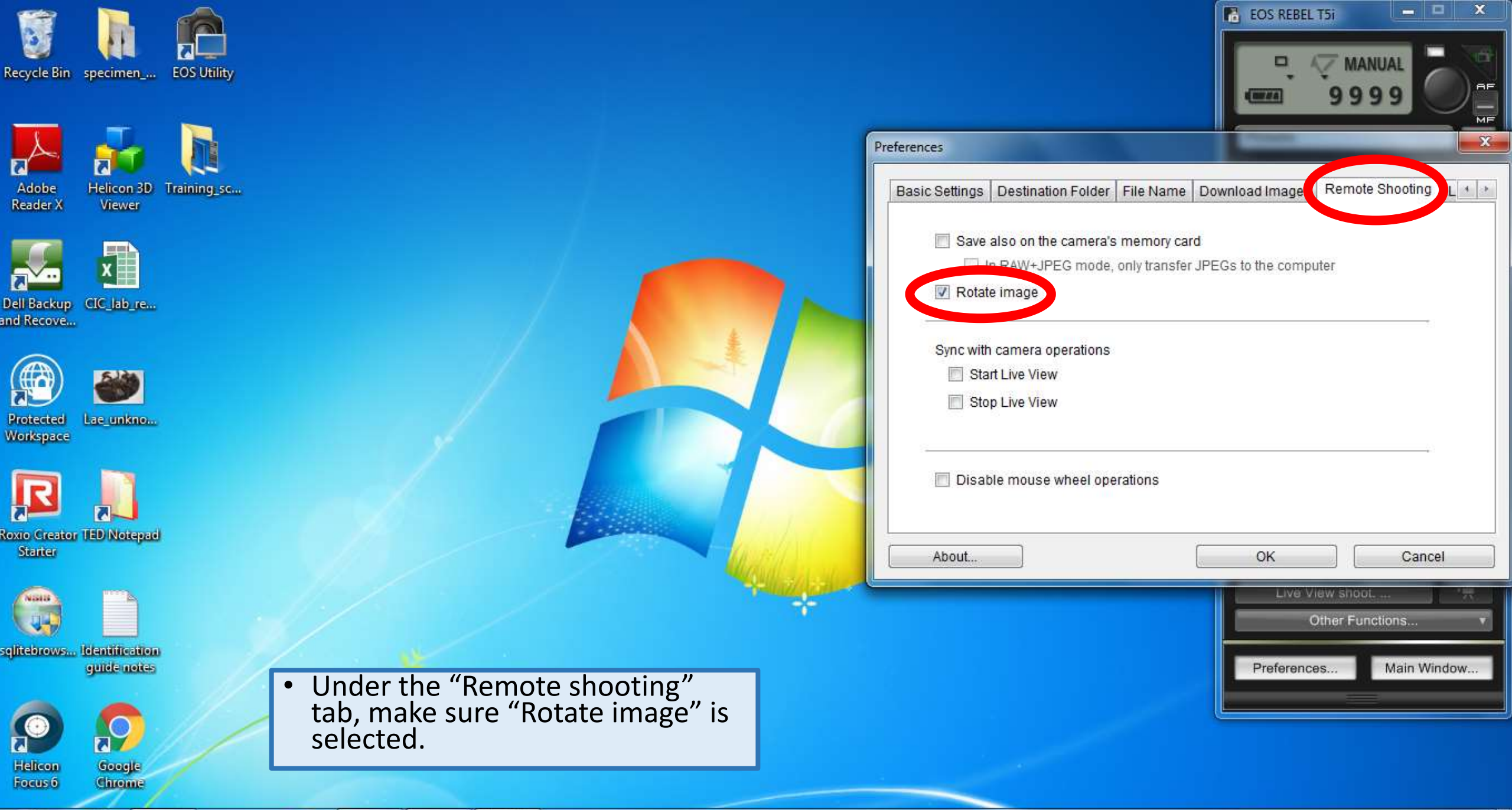
- Click “Camera settings/Remote shooting”



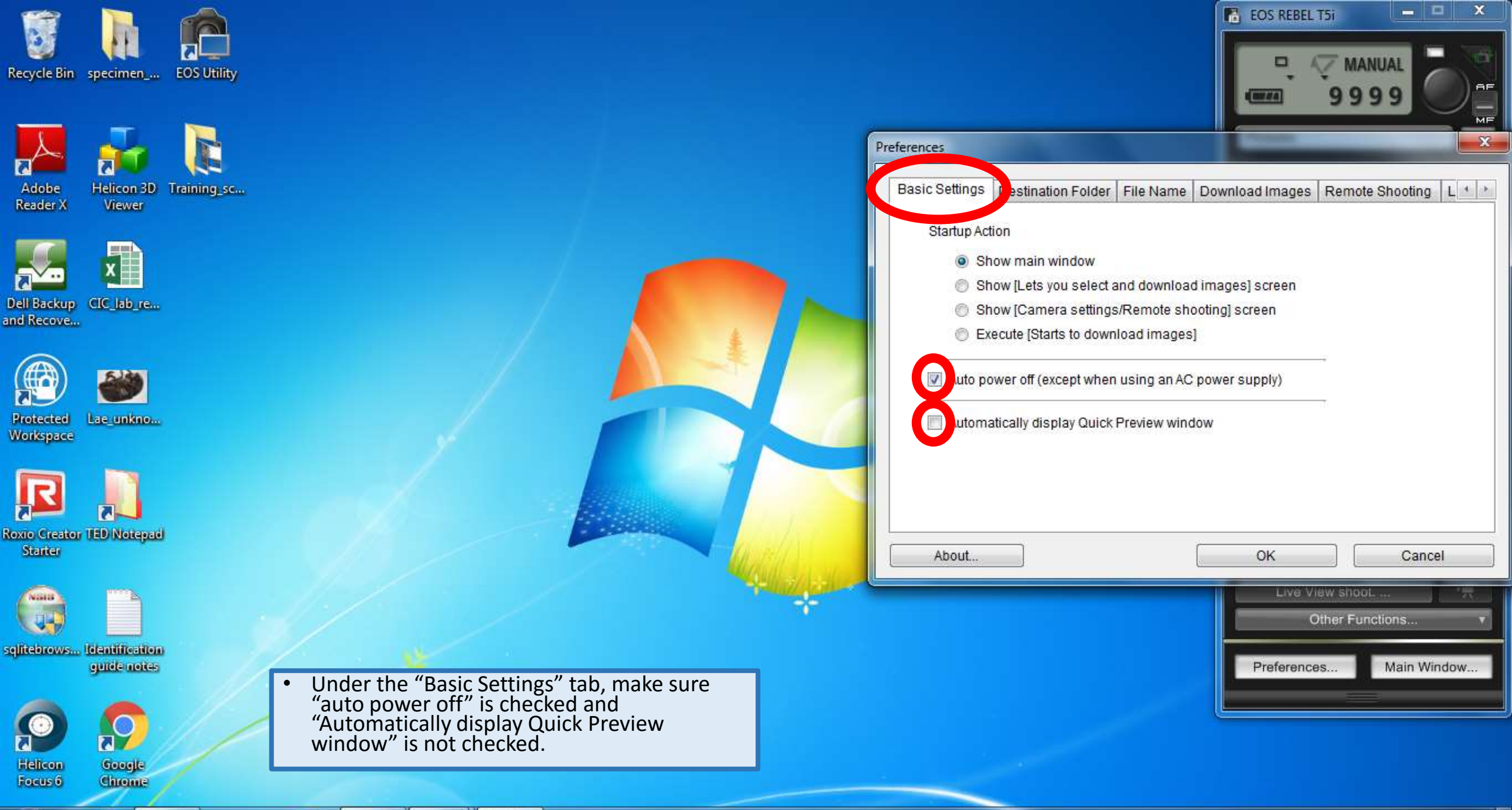


- Click to change preferences

(You may only need to do this once)

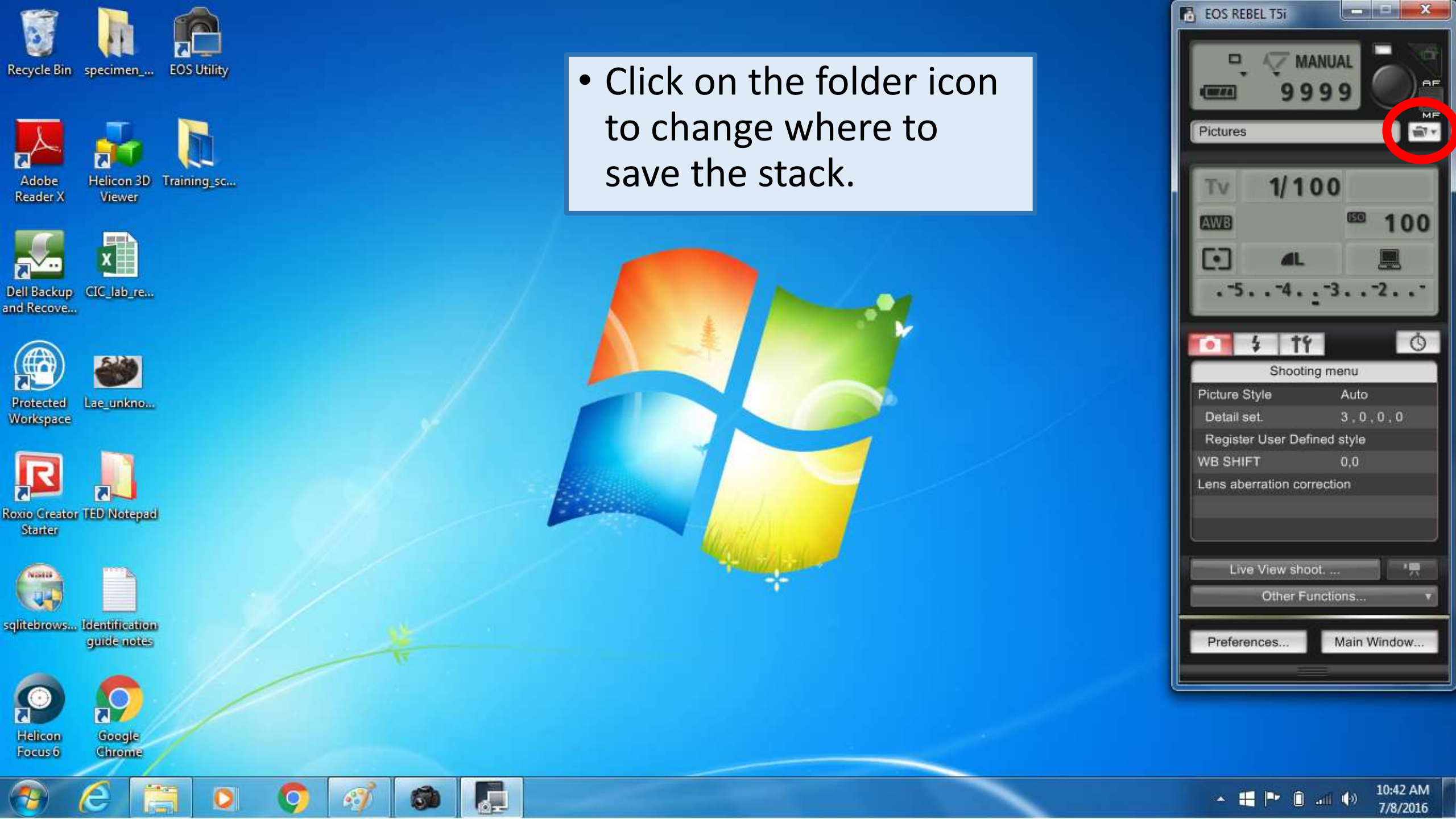


- Under the “Remote shooting” tab, make sure “Rotate image” is selected.

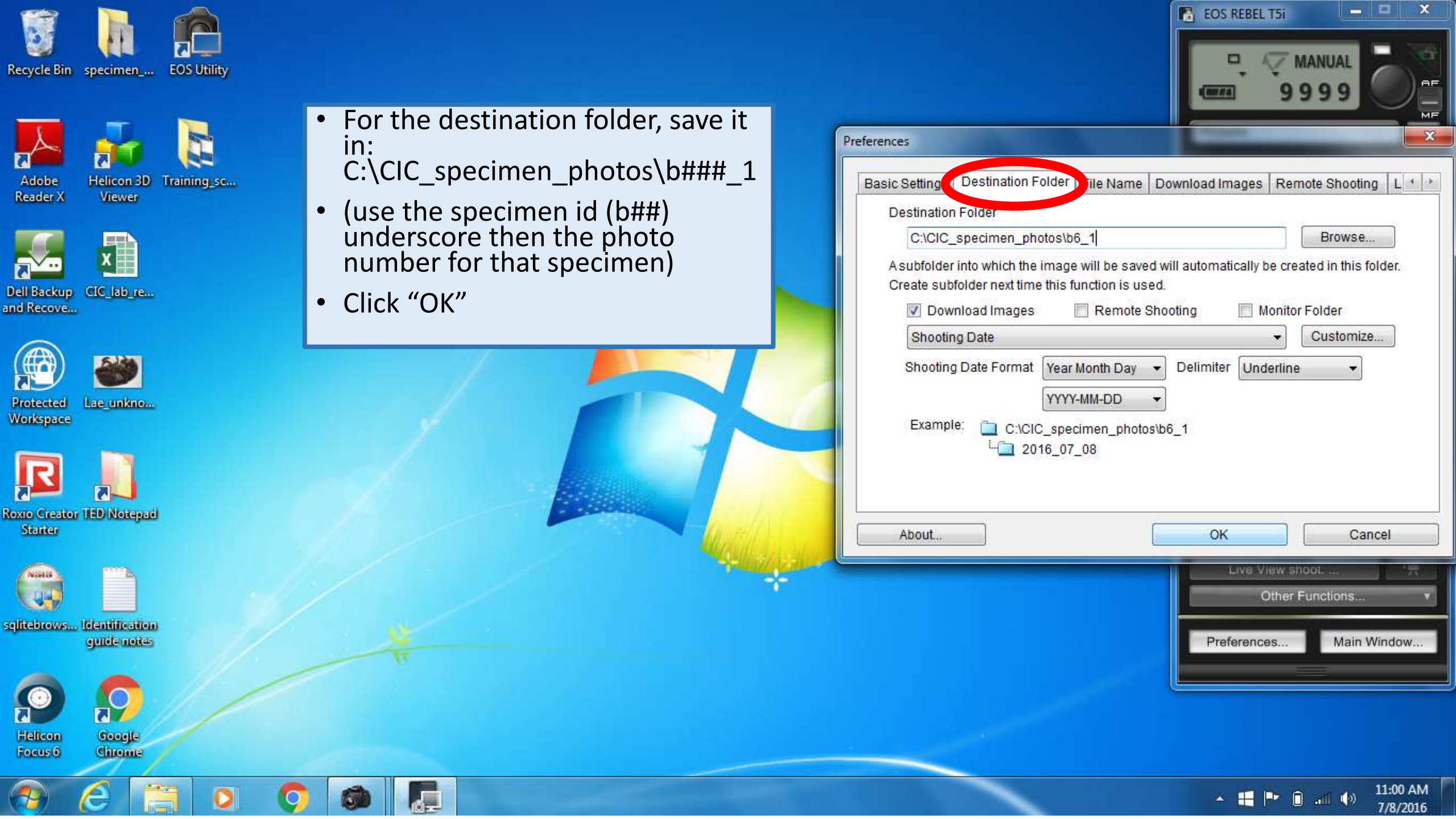


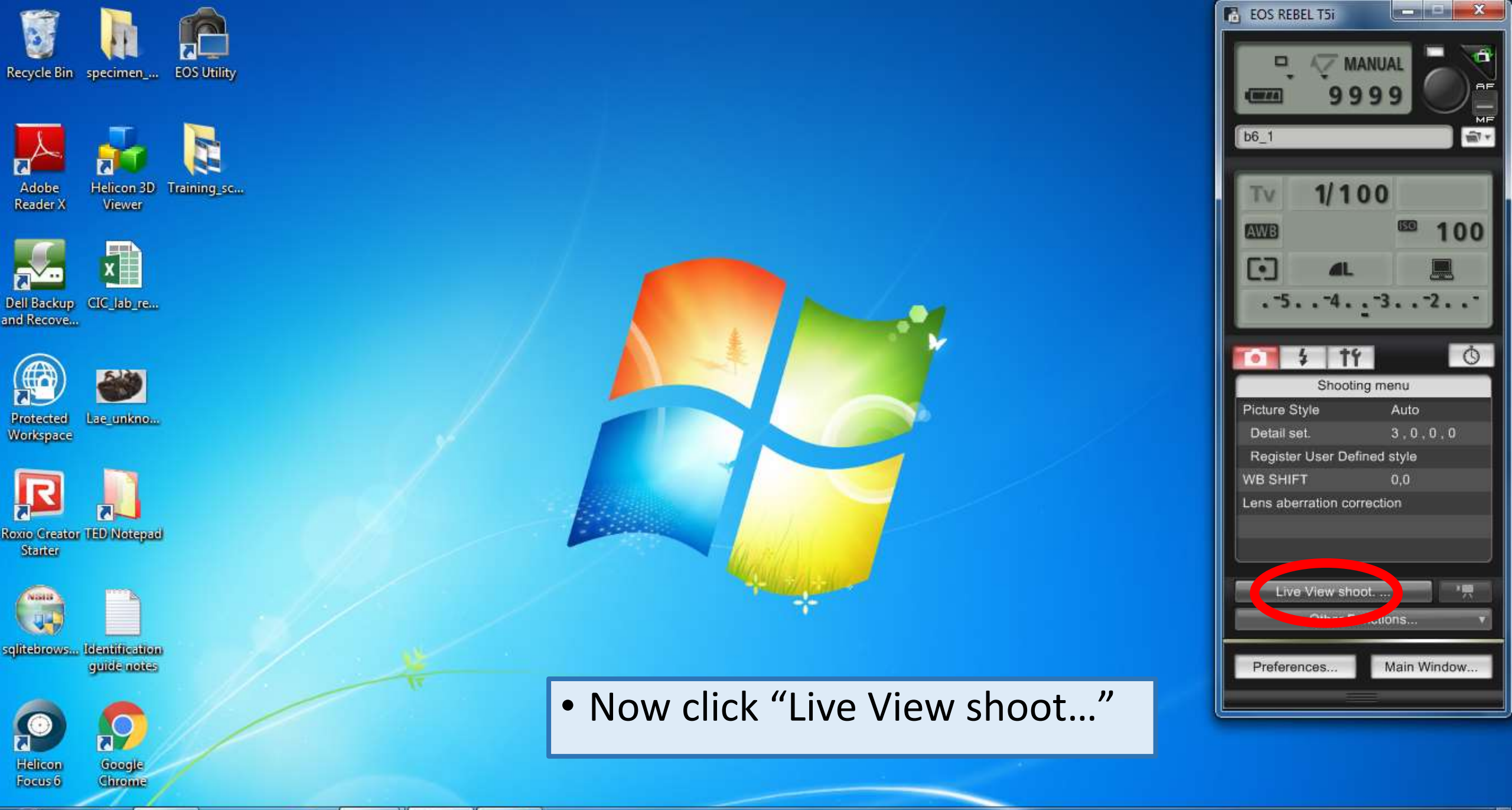
- Under the “Basic Settings” tab, make sure “auto power off” is checked and “Automatically display Quick Preview window” is not checked.

- Click on the folder icon to change where to save the stack.



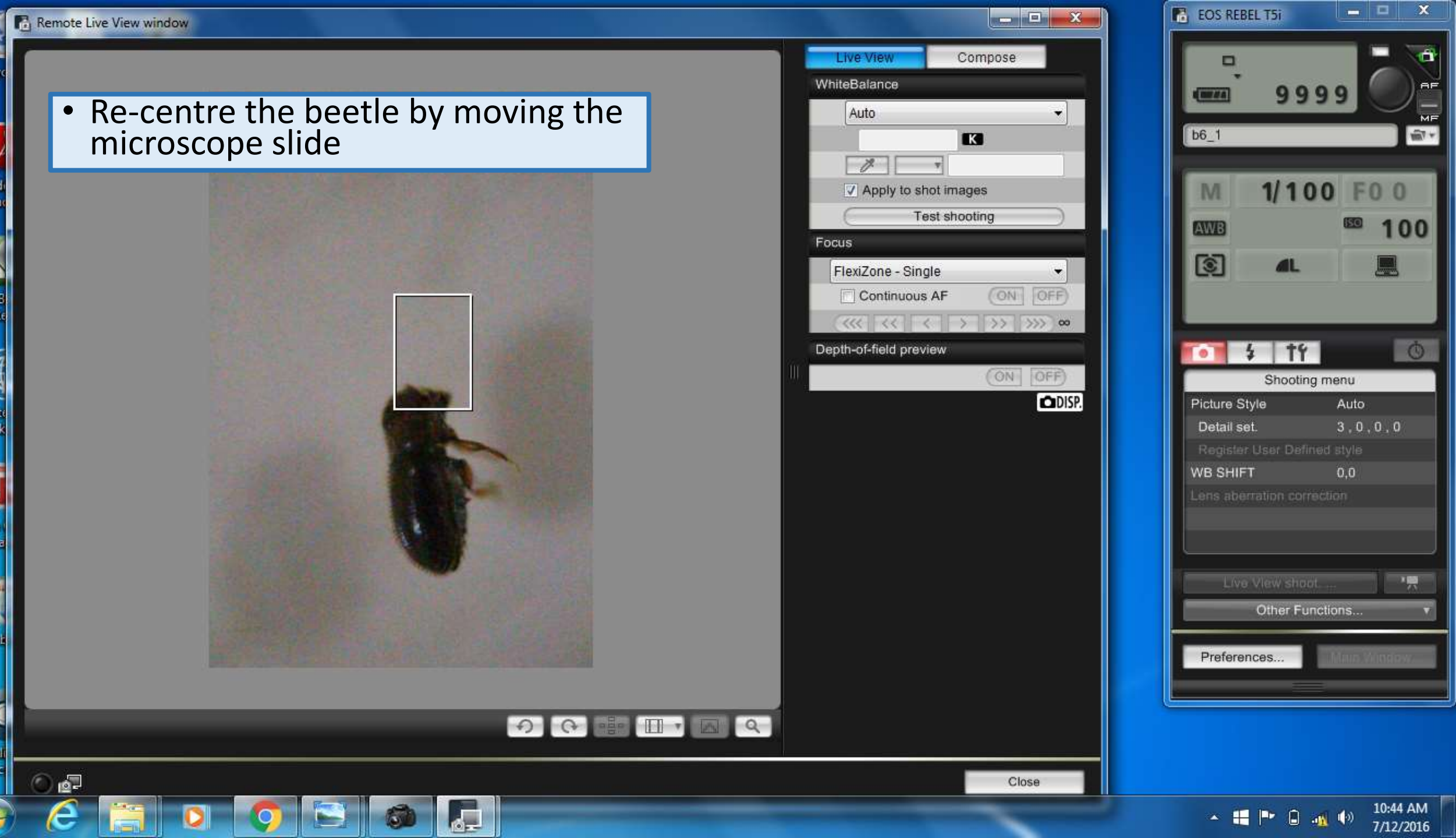
- For the destination folder, save it in: C:\CIC_specimen_photos\b###_1
- (use the specimen id (b##) underscore then the photo number for that specimen)
- Click “OK”

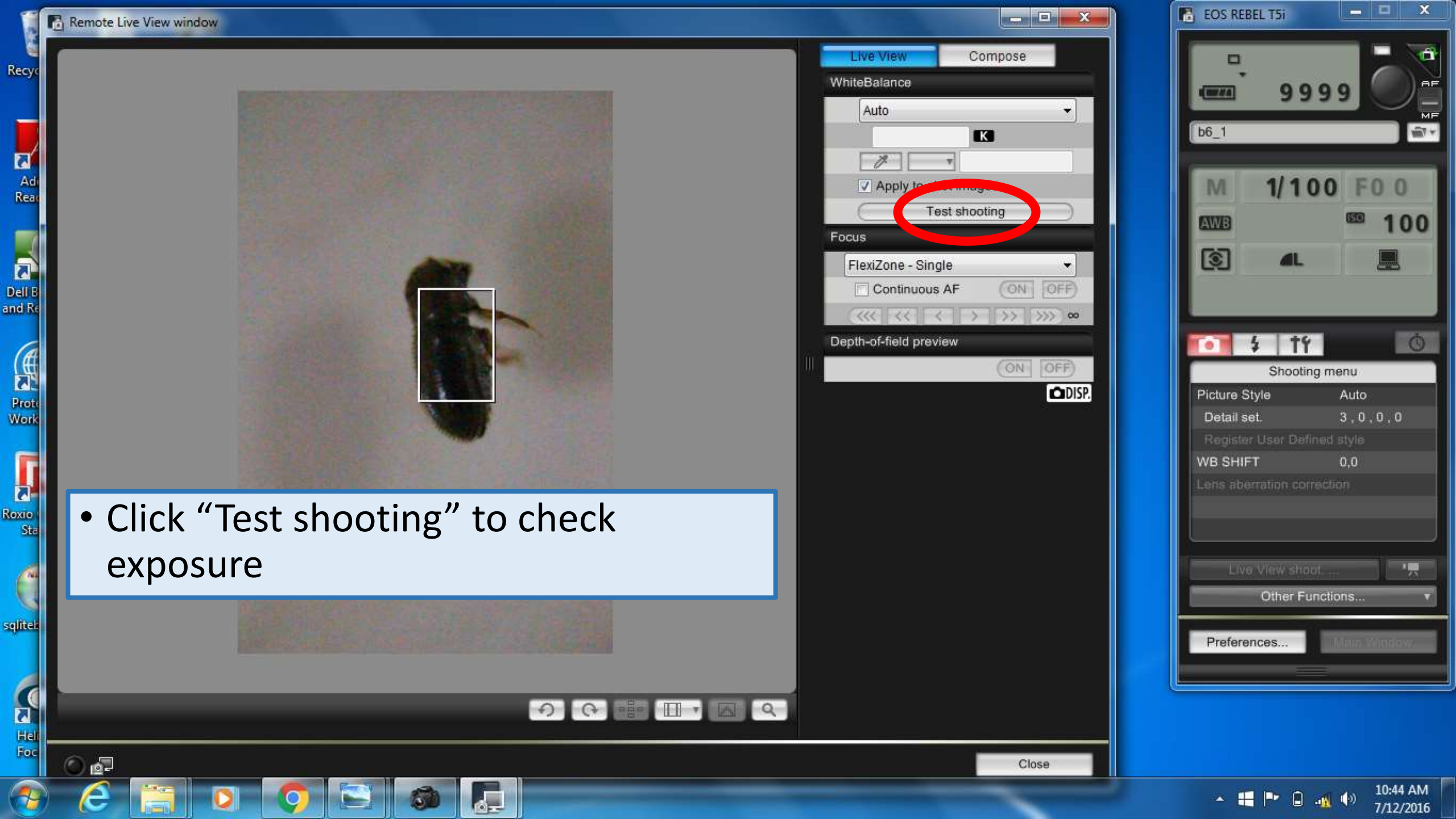




- Now click “Live View shoot…”

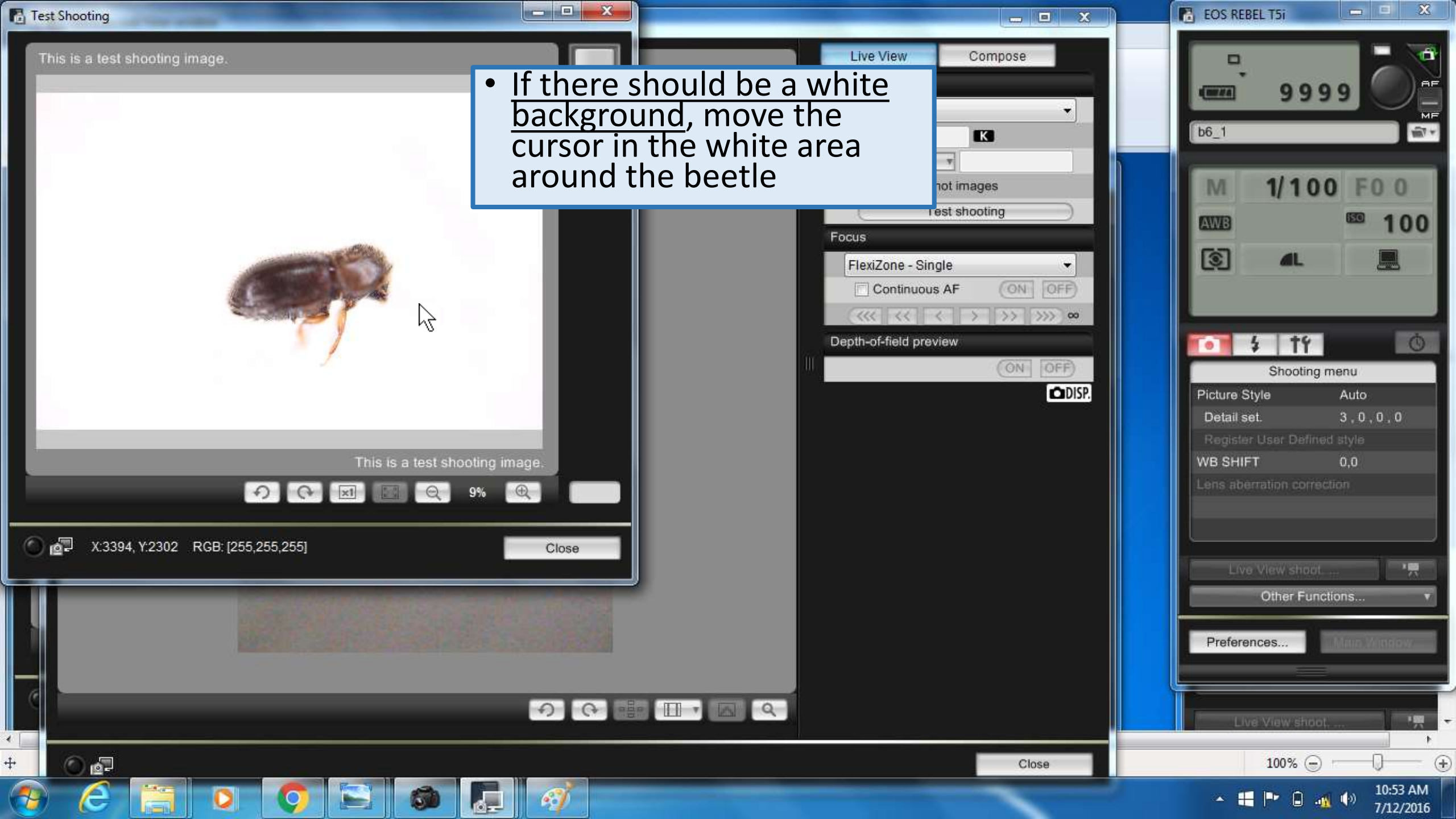
- Re-centre the beetle by moving the microscope slide

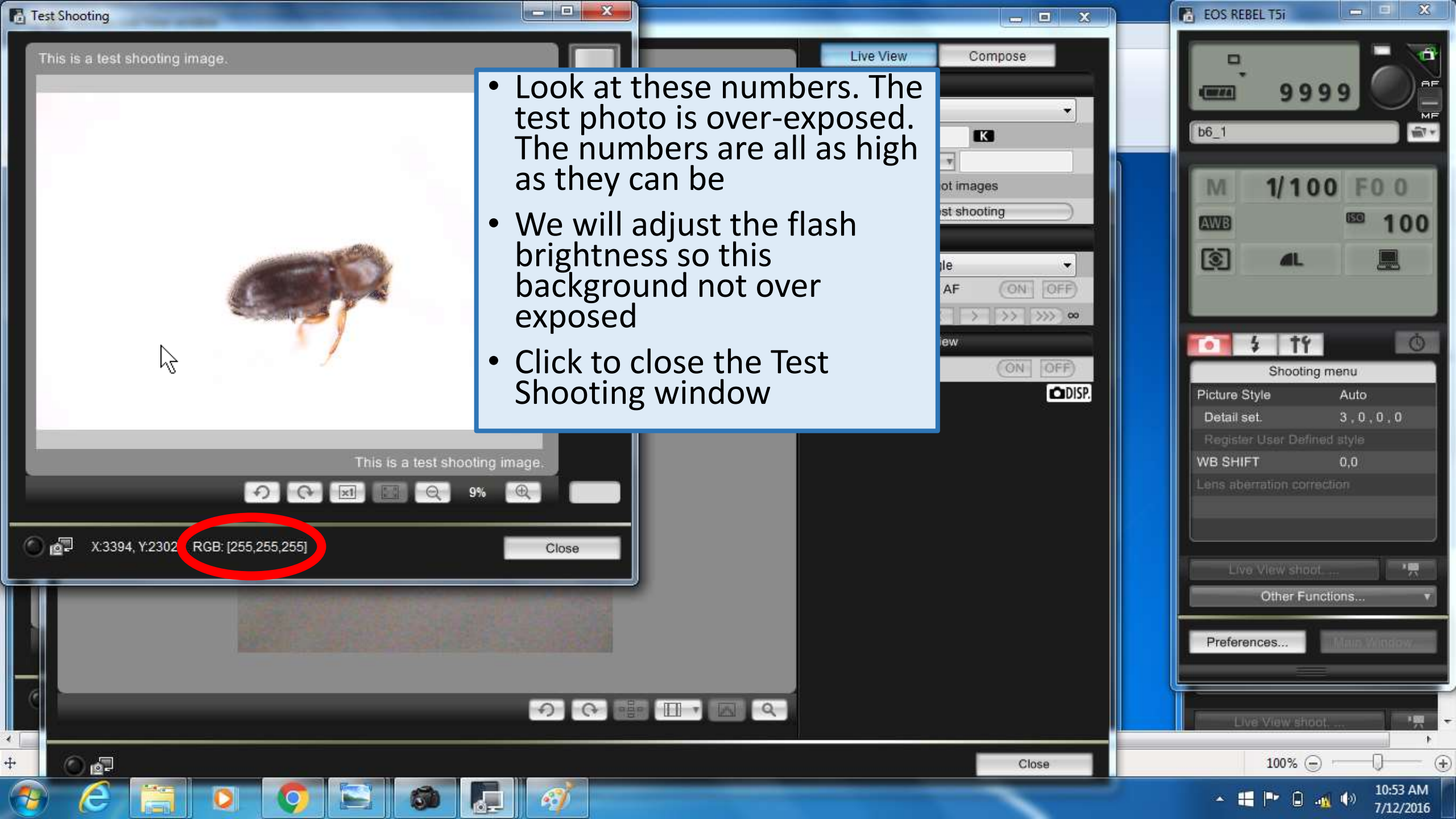




- Click “Test shooting” to check exposure

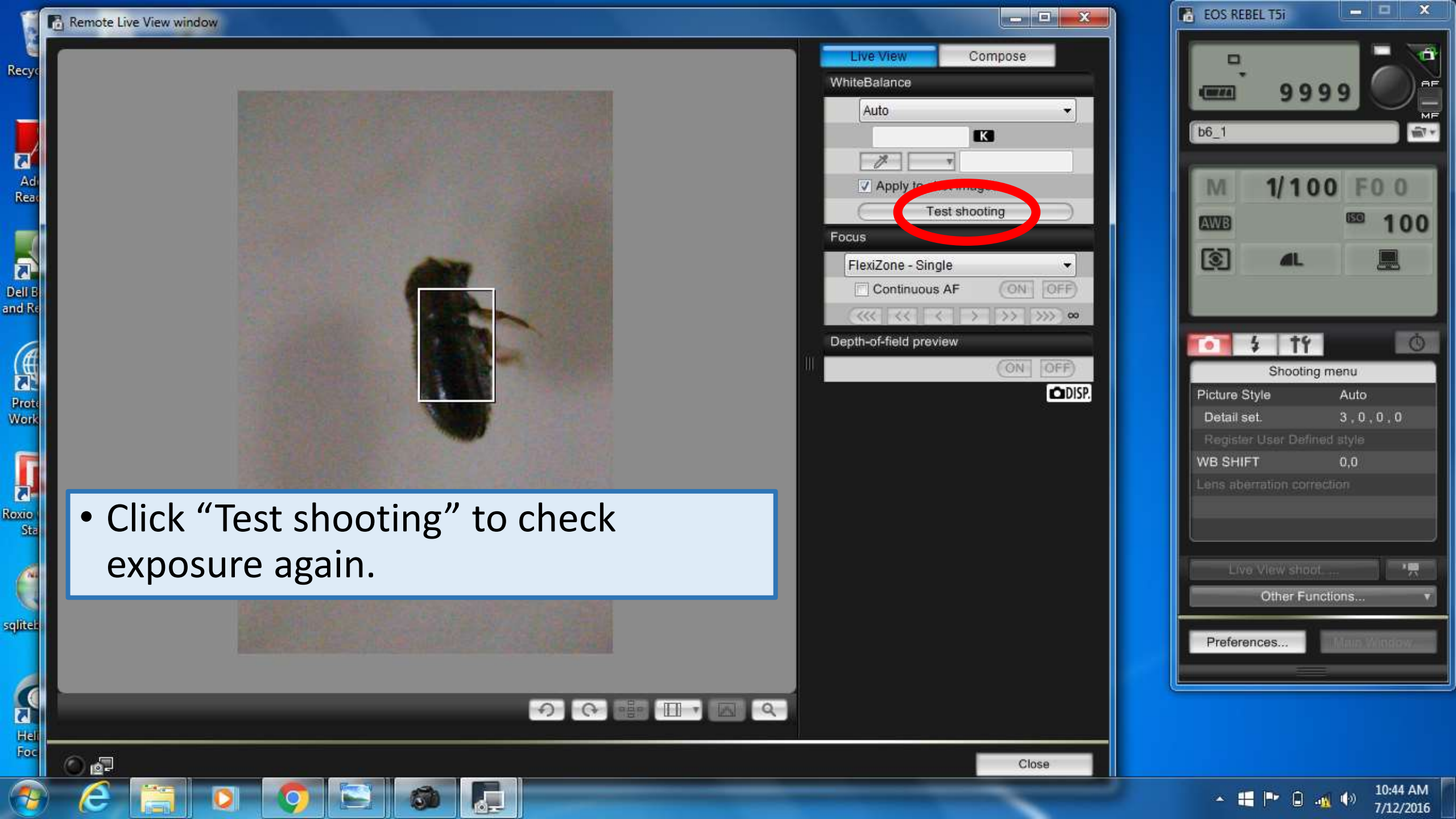
- If there should be a white background, move the cursor in the white area around the beetle



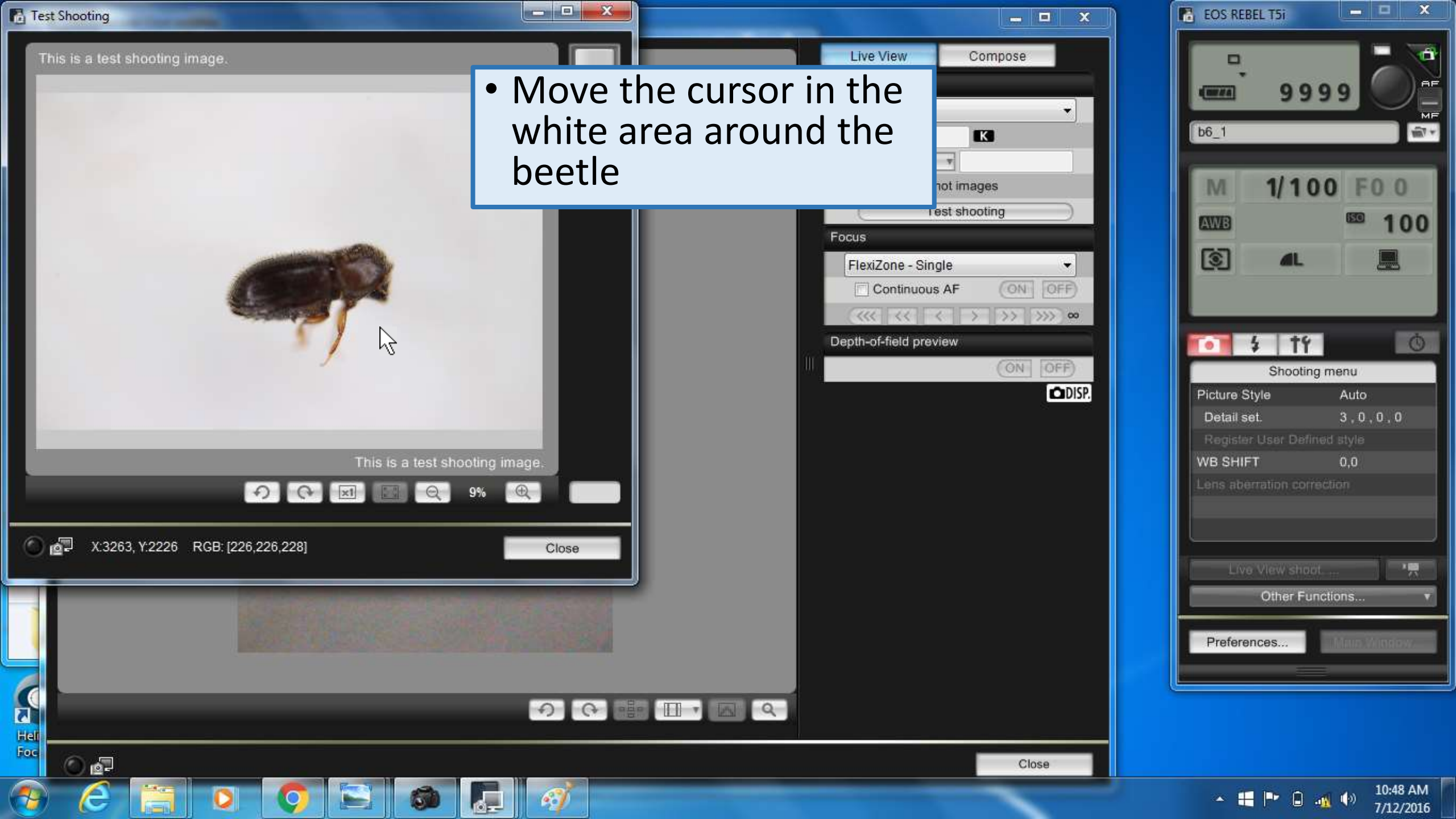


- Look at these numbers. The test photo is over-exposed. The numbers are all as high as they can be
- We will adjust the flash brightness so this background not over exposed
- Click to close the Test Shooting window

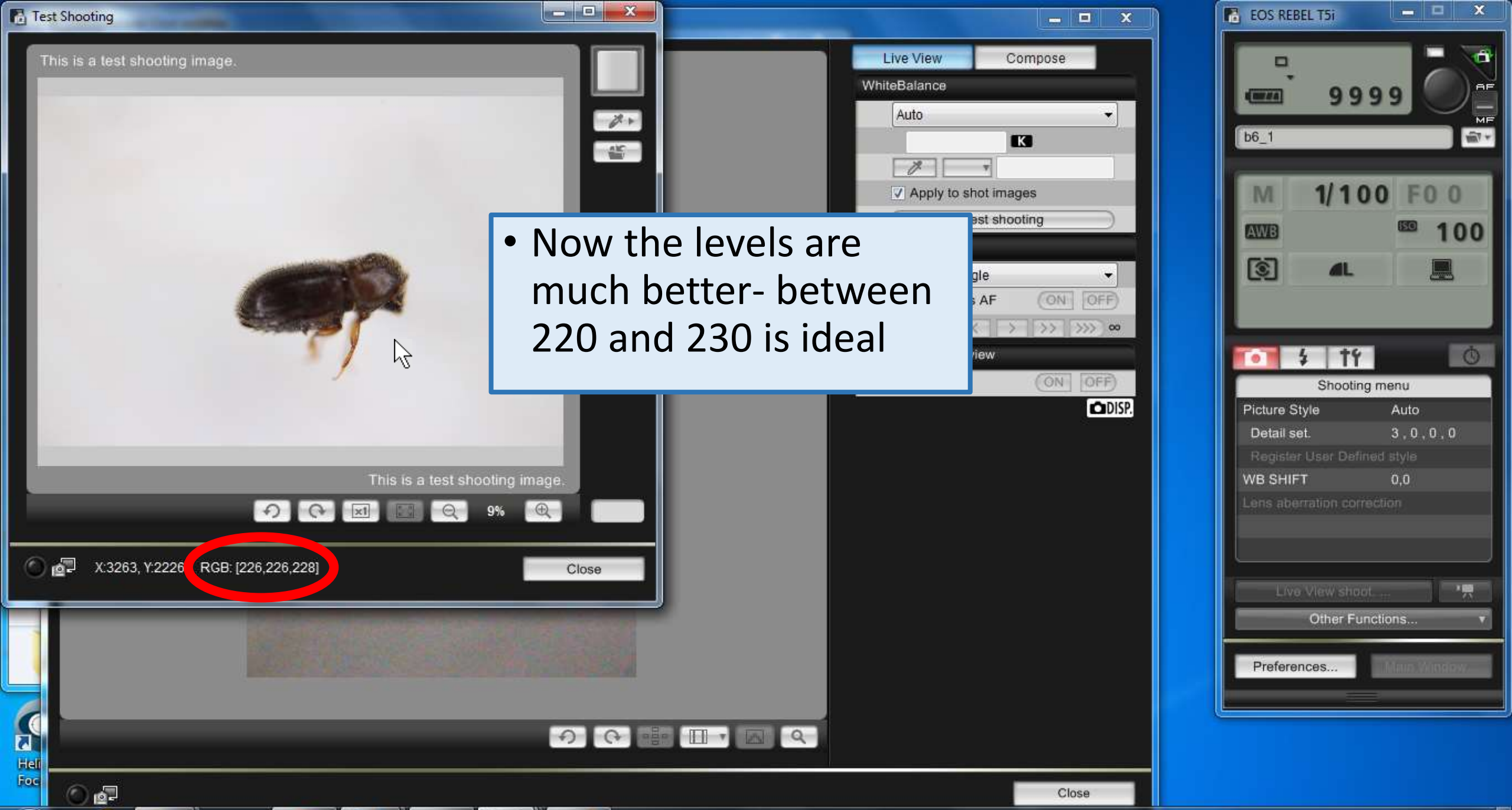
- Click on the left button to reduce the flash brightness to -2/3



- Click “Test shooting” to check exposure again.

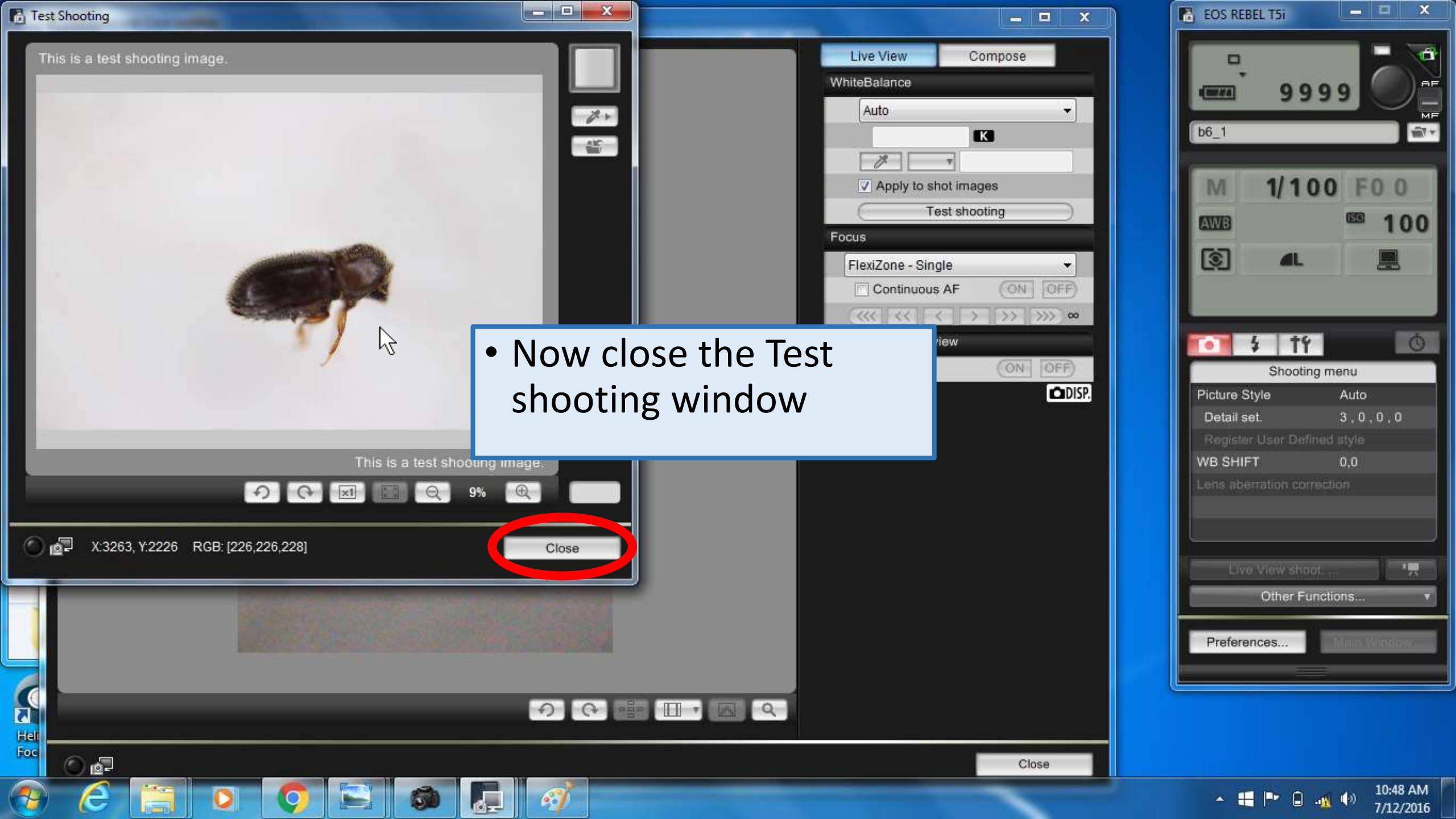


- Move the cursor in the white area around the beetle



- Now the levels are much better- between 220 and 230 is ideal

- If in doubt, just use -2/3. For this setup, it is normally the best brightness for this set-up.



- Now close the Test shooting window

Remote Live View window

Live View | Compose

WhiteBalance

Auto

K

Apply to shot images

Test shooting

Focus

FlexiZone - Single

Continuous AF ON OFF

Depth-of-field preview

ON OFF

DISP.

Close

EOS REBEL T5i

9999

b6_1

M 1/100 F0.0

AWB ISO 100

Shooting menu

Picture Style	Auto
Detail set.	3 , 0 , 0 , 0
Register User Defined style	
WB SHIFT	0,0
Lens aberration correction	

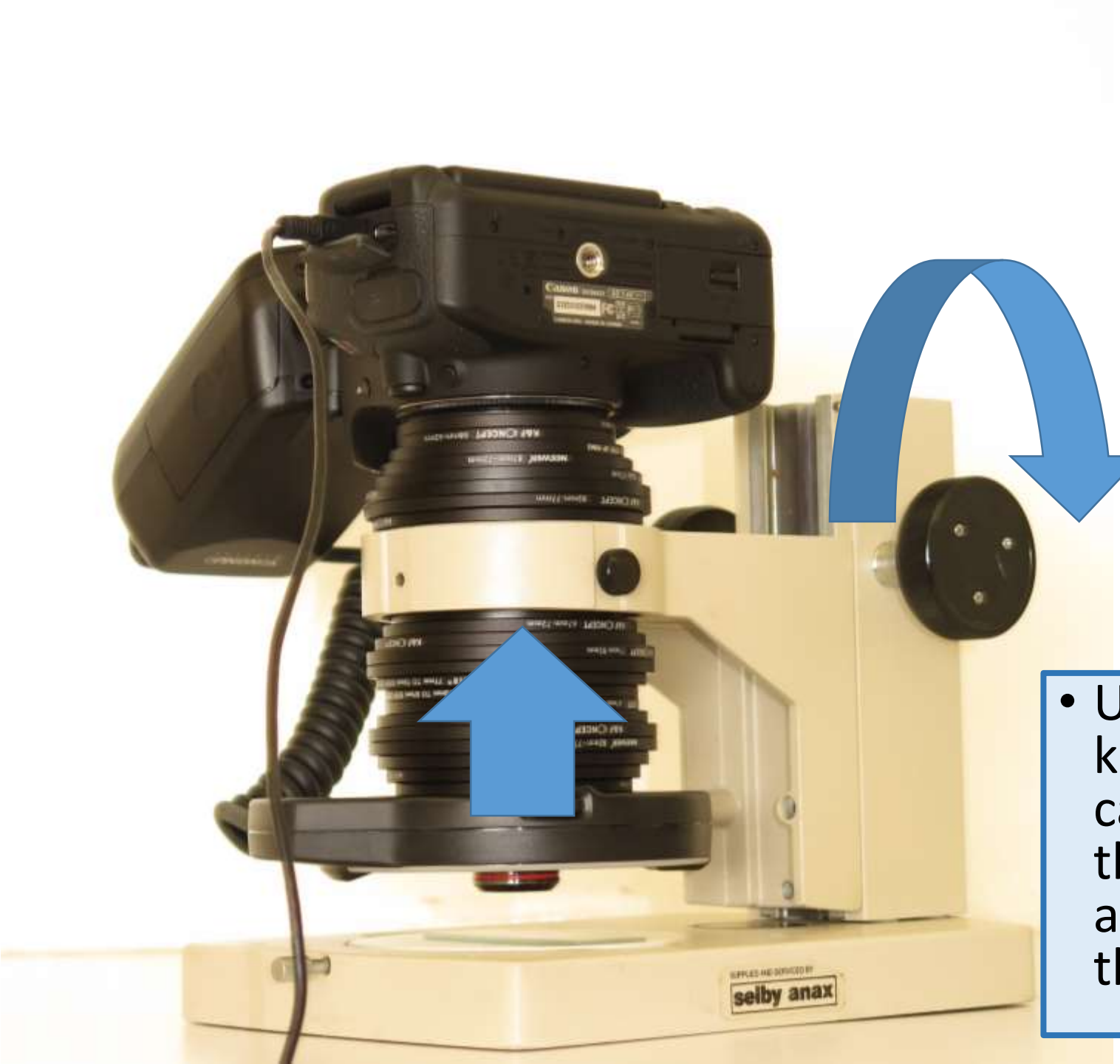
Live View shoot. ...

Other Functions...

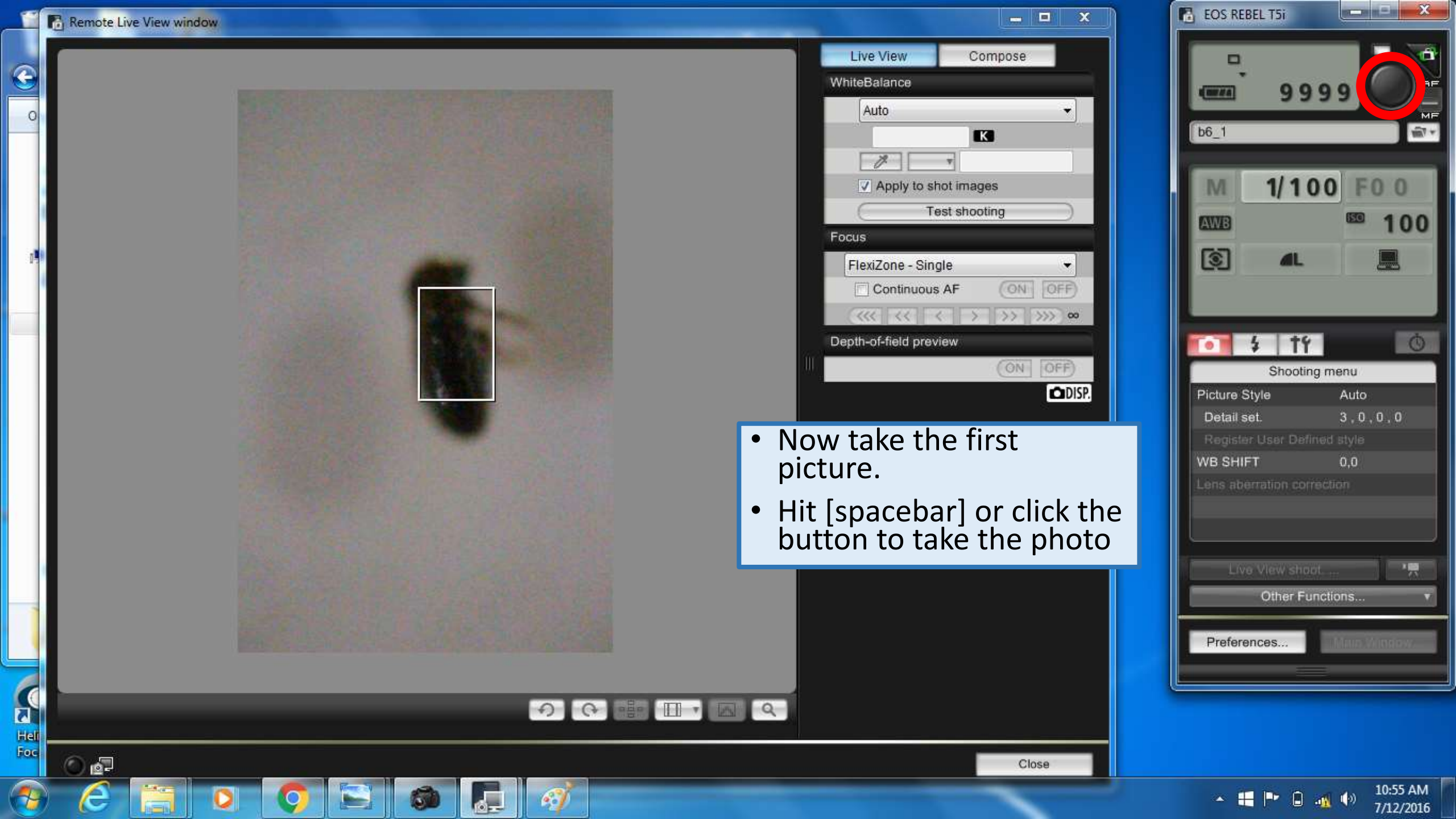
Preferences...

Main Window

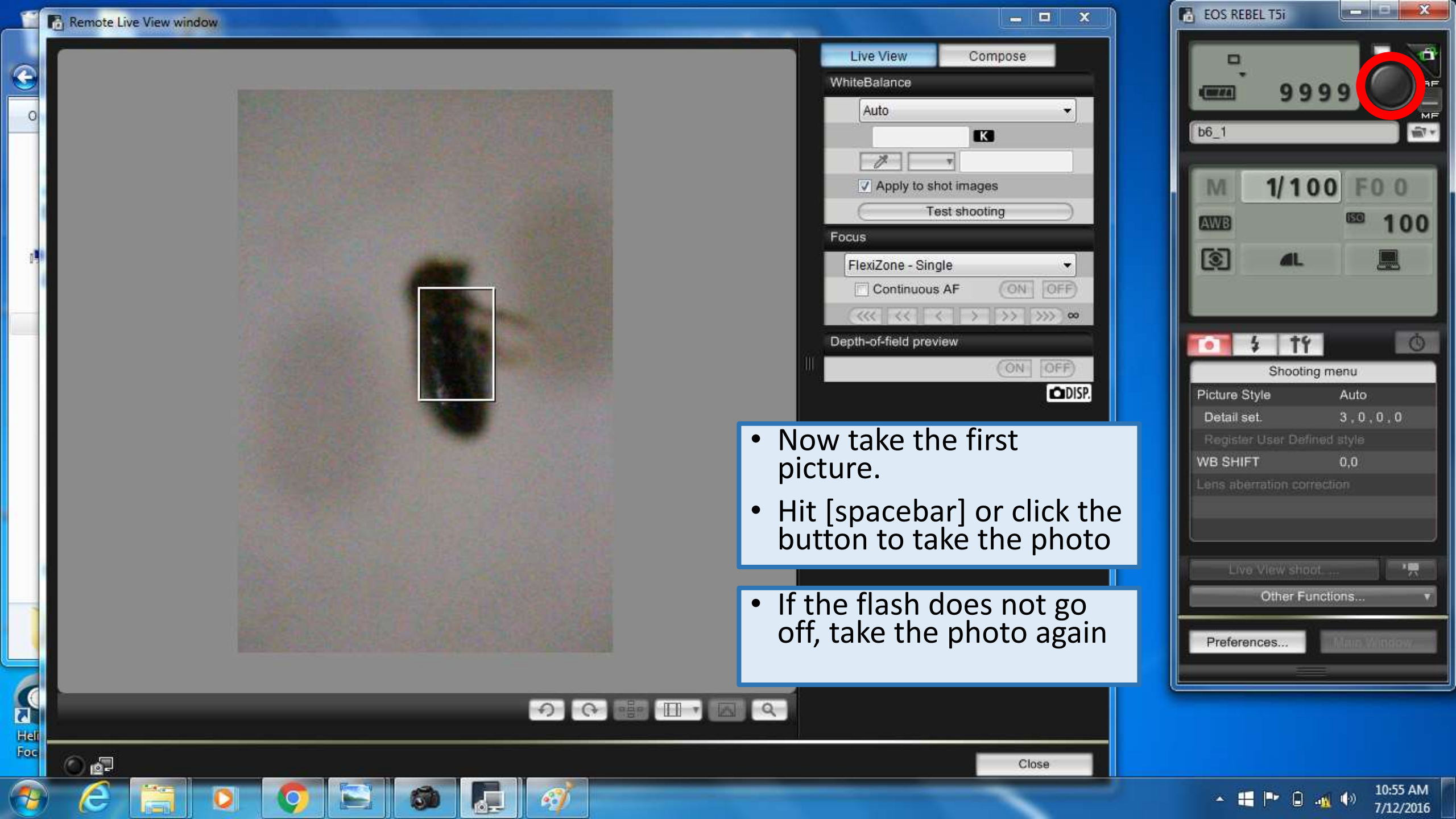
10:44 AM
7/12/2016



- Use the focusing knob to raise the camera scope, so that the focus is just above the level of the beetle

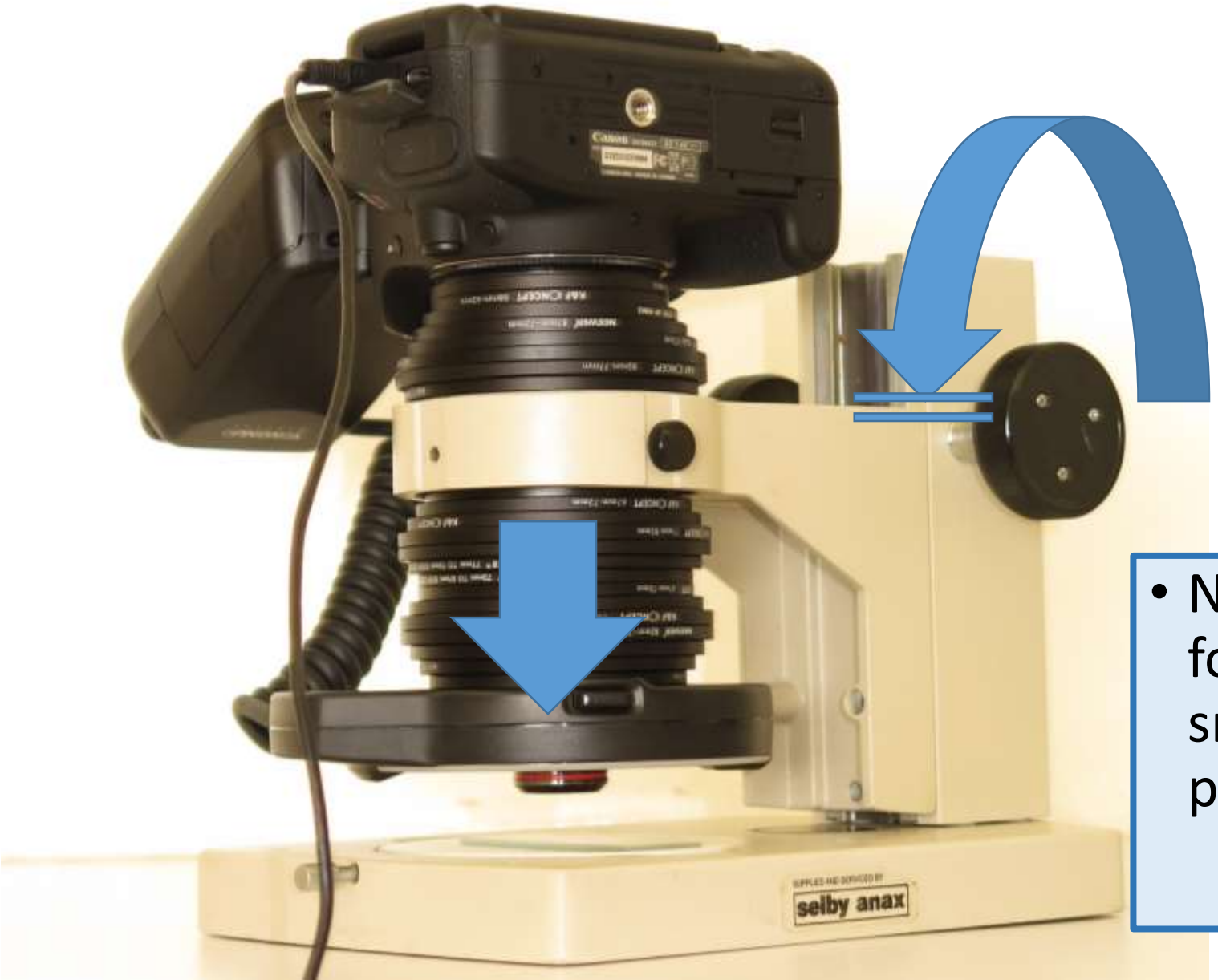


- Now take the first picture.
- Hit [spacebar] or click the button to take the photo

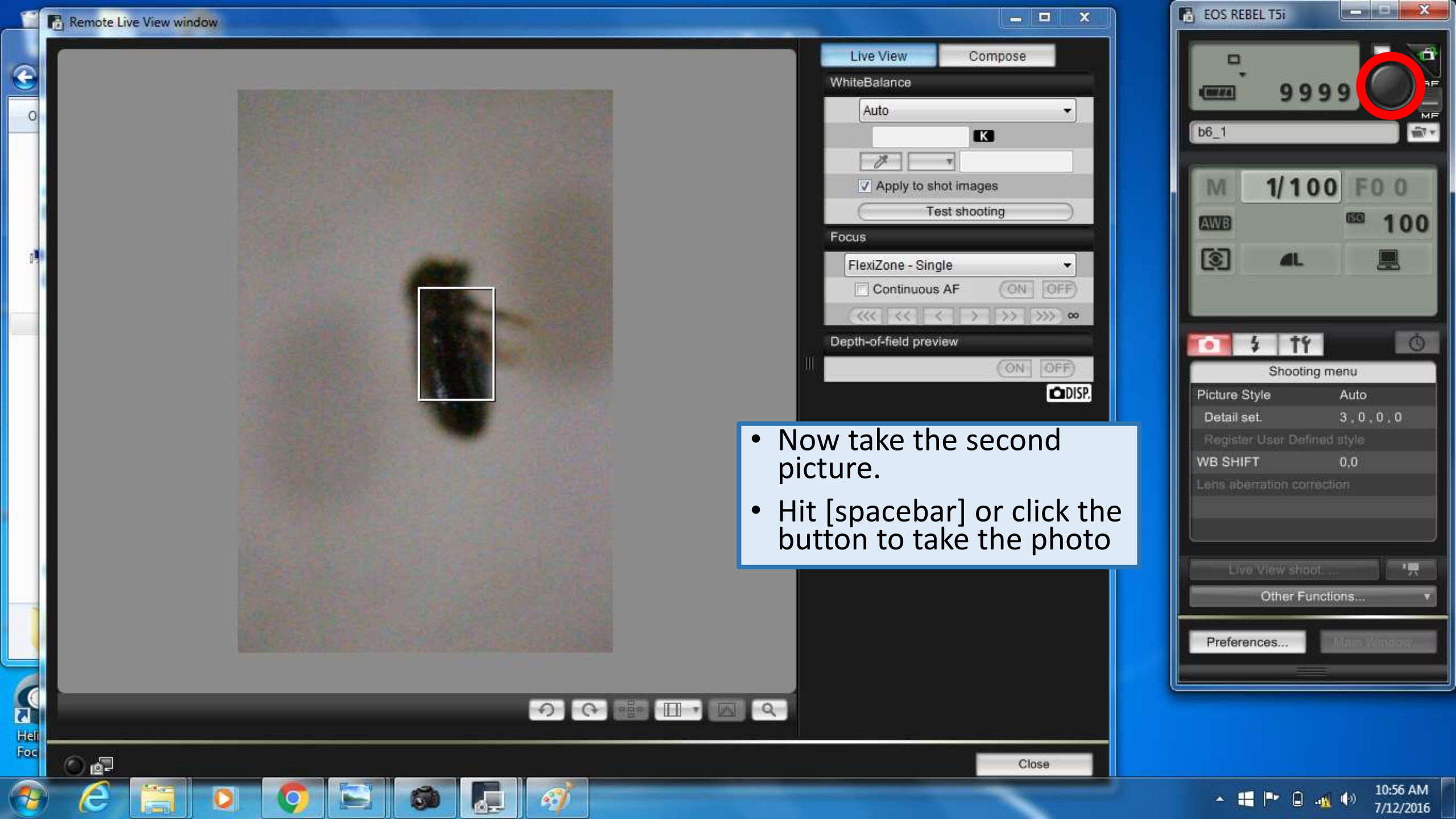


- Now take the first picture.
- Hit [spacebar] or click the button to take the photo

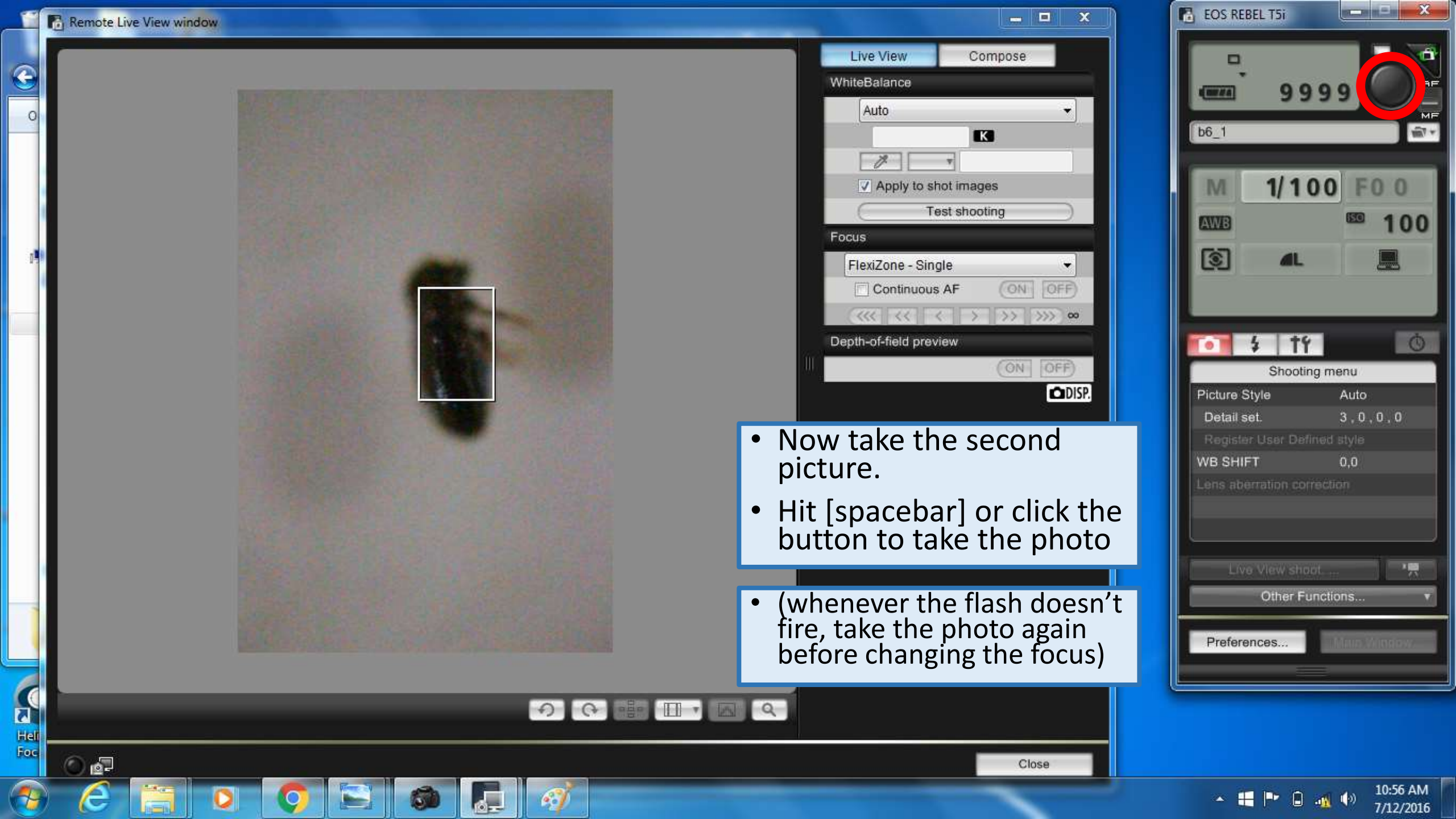
- If the flash does not go off, take the photo again



- Now turn the focusing knob the smallest amount possible

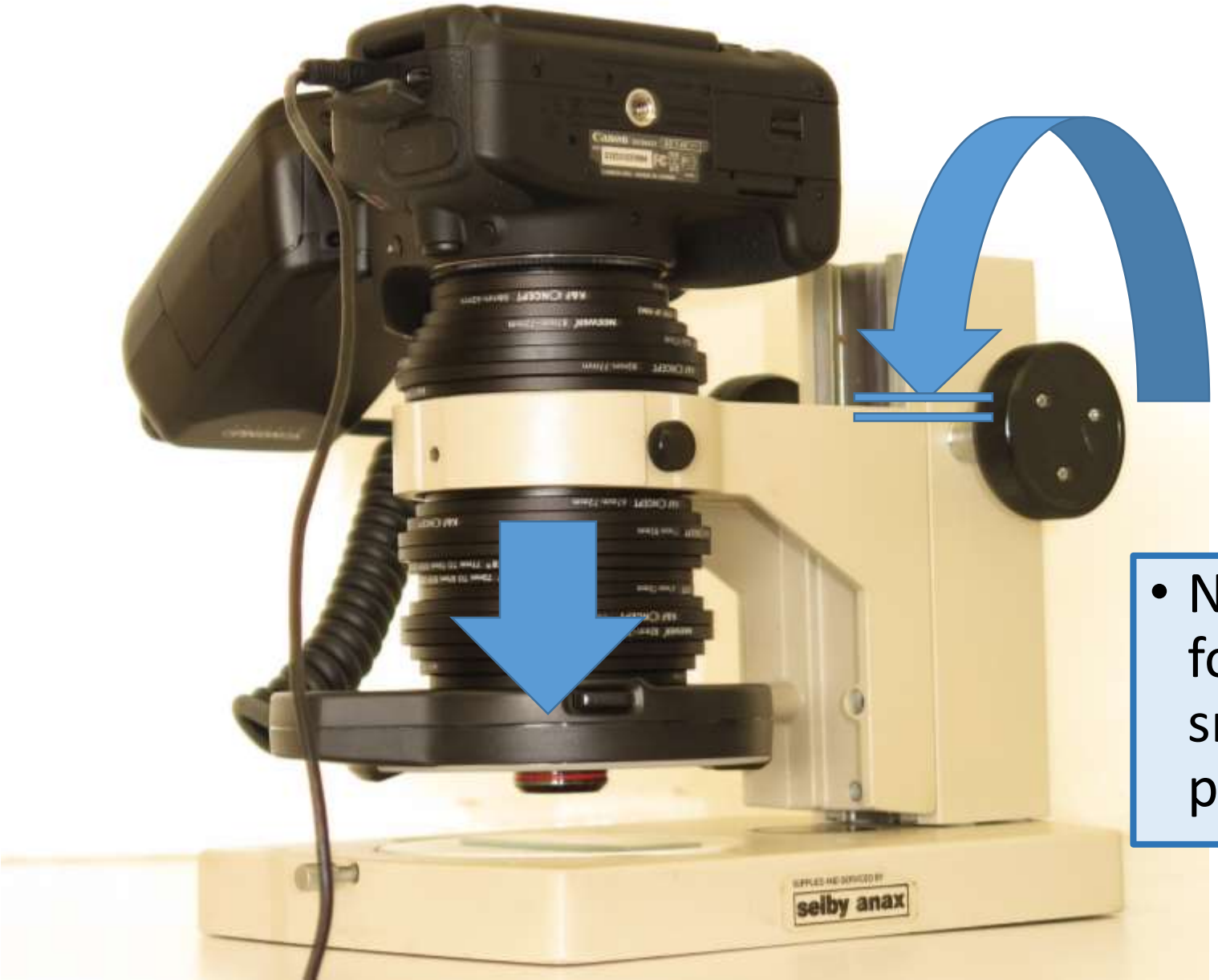


- Now take the second picture.
- Hit [spacebar] or click the button to take the photo

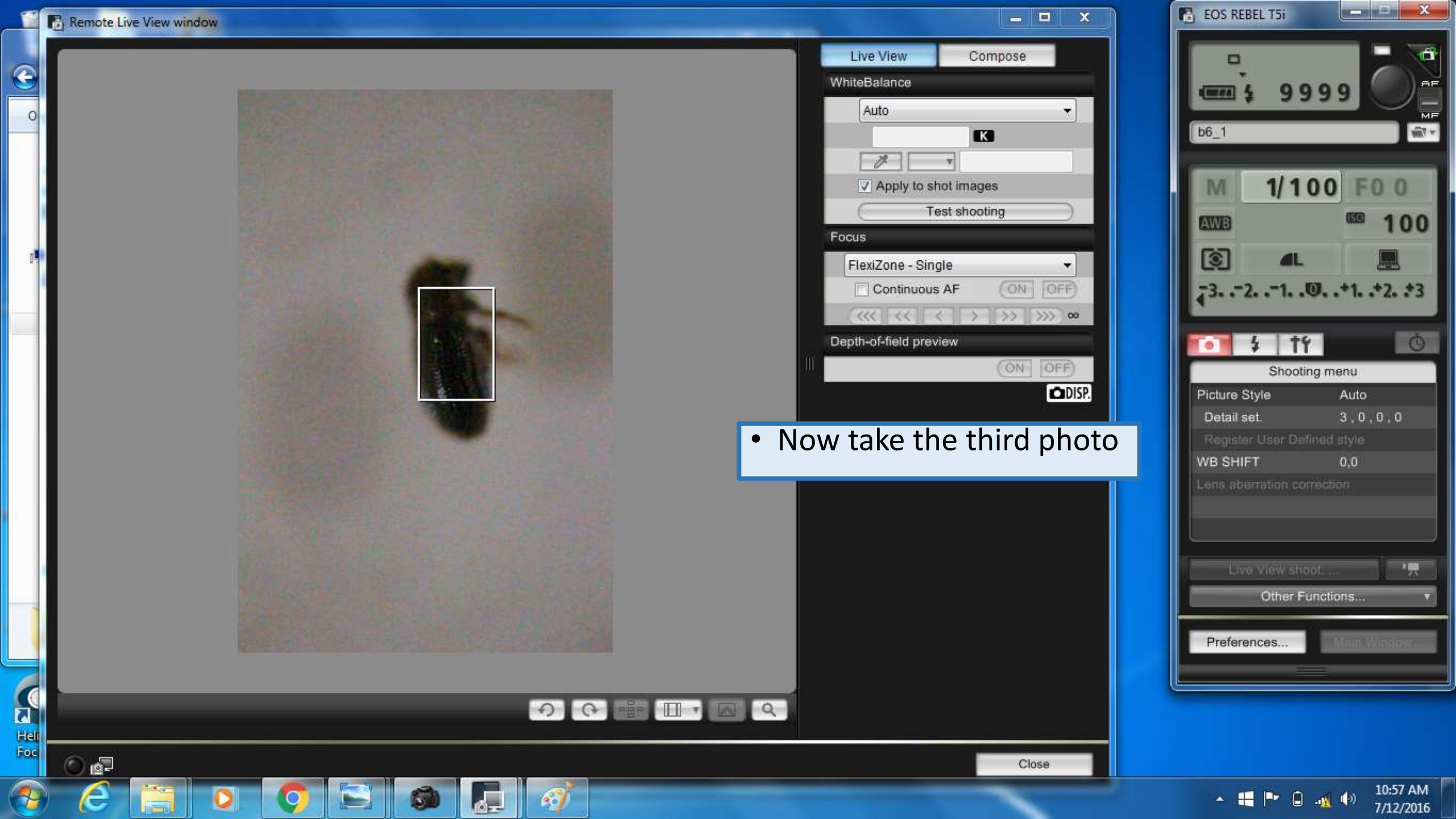


- Now take the second picture.
- Hit [spacebar] or click the button to take the photo

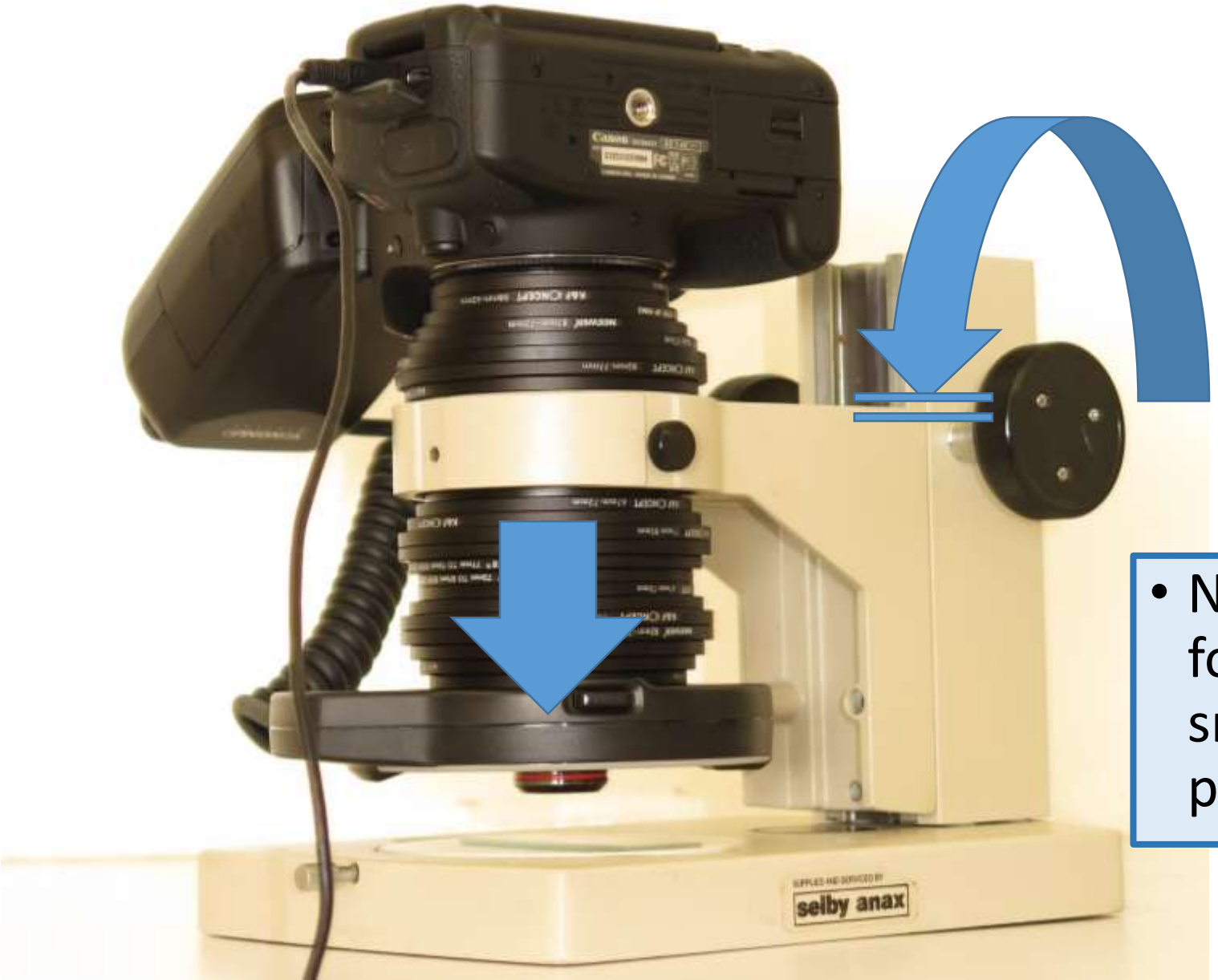
- (whenever the flash doesn't fire, take the photo again before changing the focus)



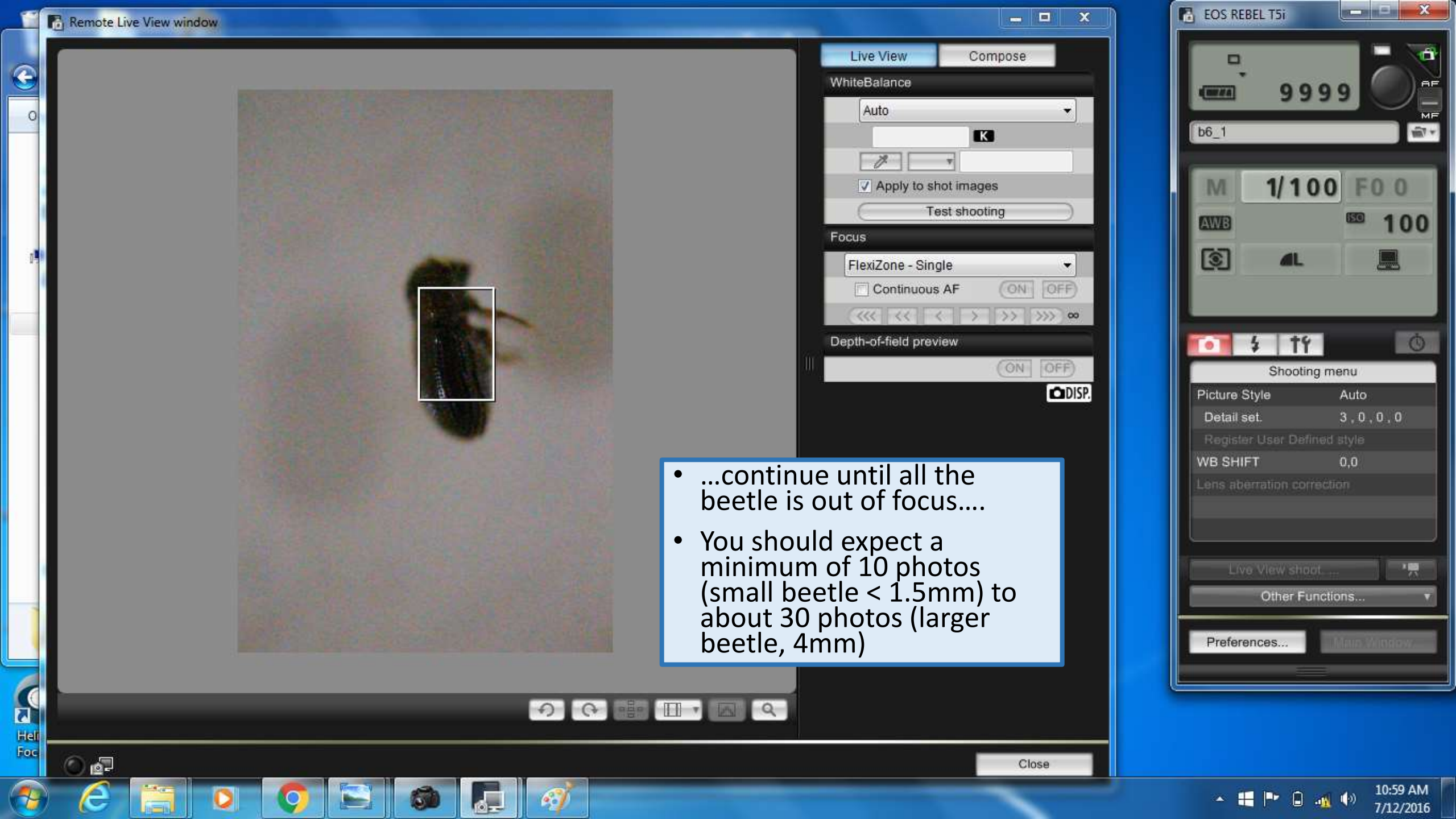
- Now turn the focusing knob the smallest amount possible



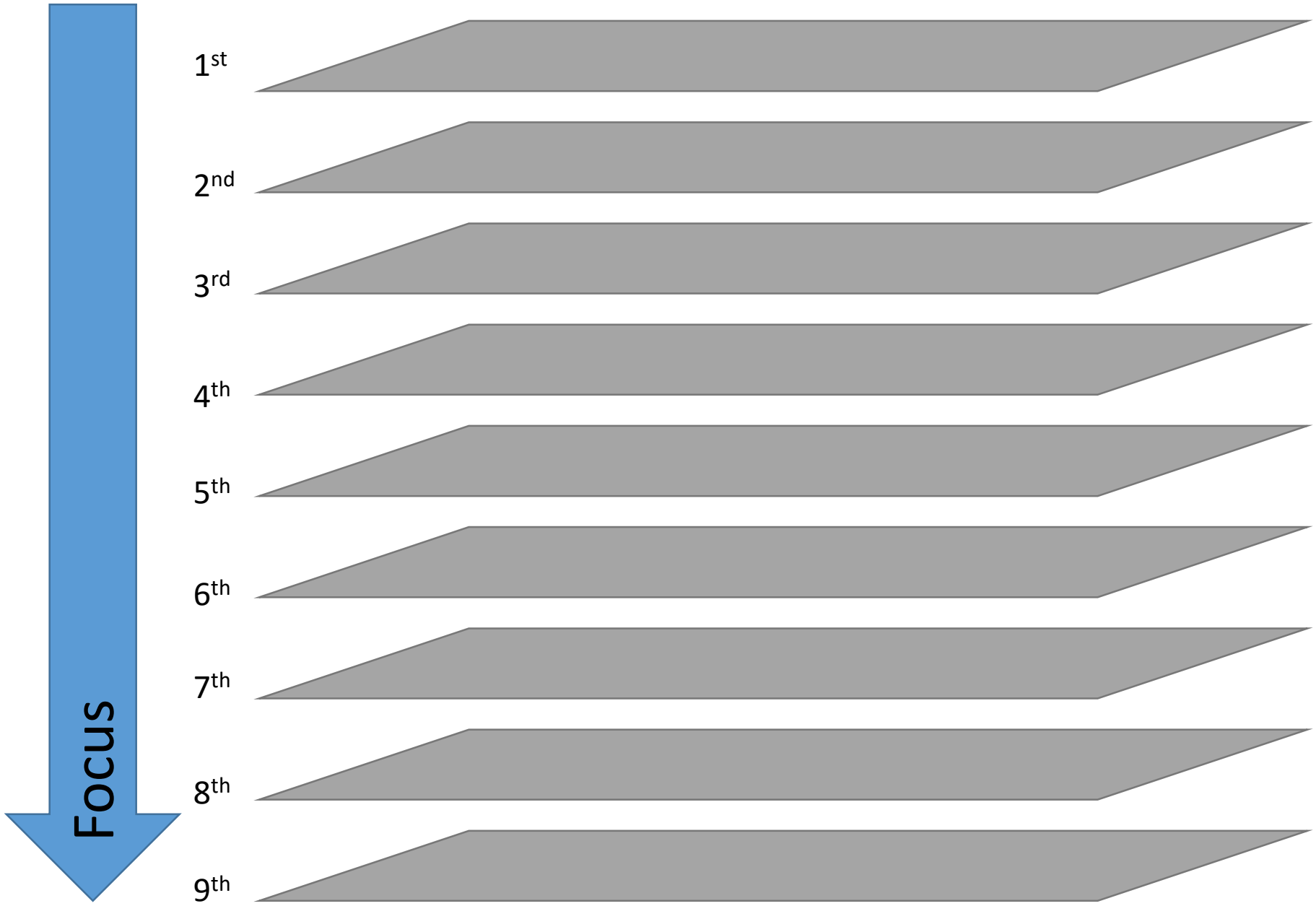
- Now take the third photo



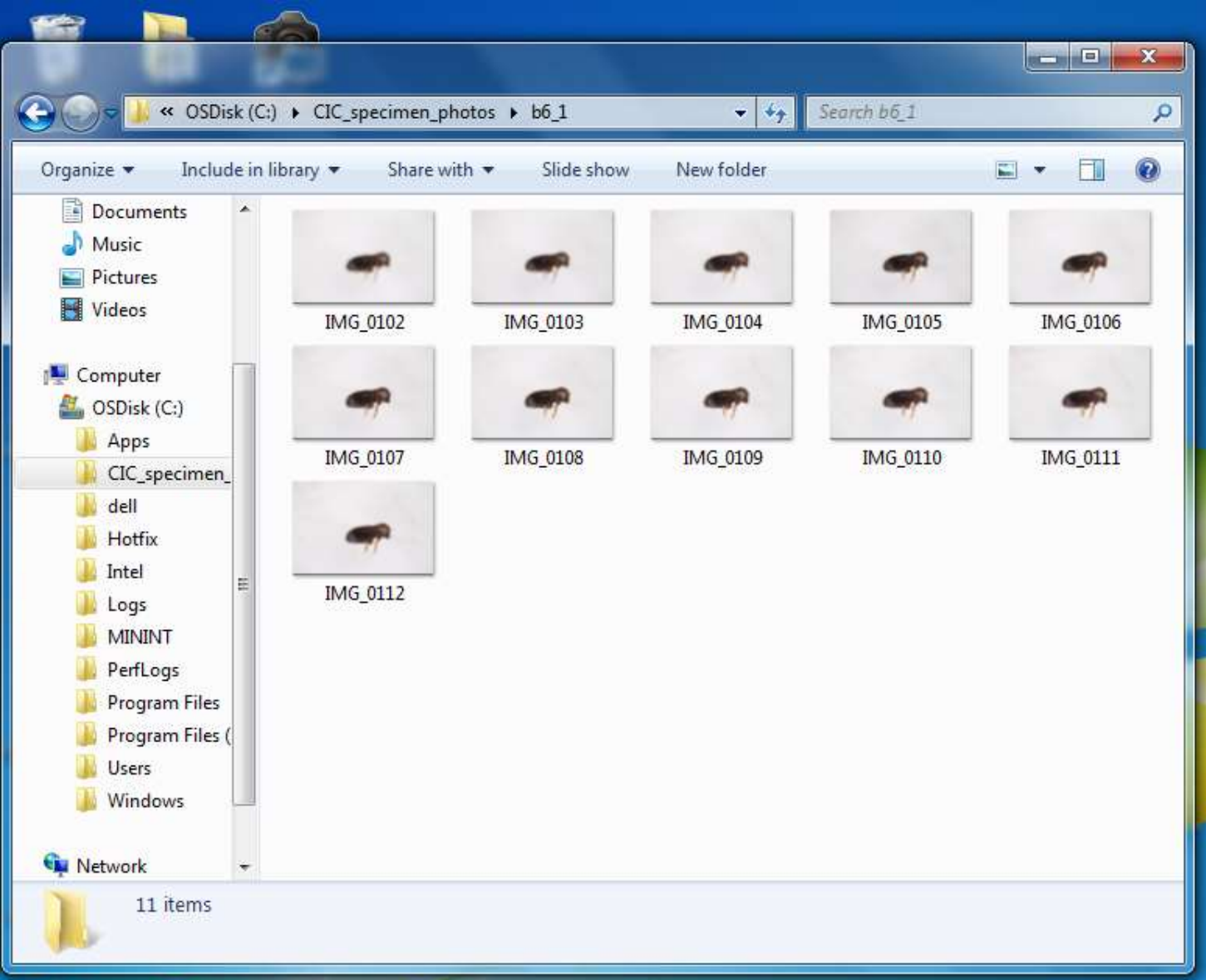
- Now turn the focusing knob the smallest amount possible



- …continue until all the beetle is out of focus….
- You should expect a minimum of 10 photos (small beetle < 1.5mm) to about 30 photos (larger beetle, 4mm)



- Photos should always be taken in order. If you make a mistake, start from the top and make a new stack



- Now check the photos.
- Delete any for which the flash didn't work
- Check all parts are in focus
- Check all photos are in order (the focus does not move up in the middle of the stack)

- Open helicon focus

Helicon Focus 6.5.1 - Trial (19 days left)

File Edit View Help

Render

Rendering Retouching Text/Scale Saving

- Note: There are lots of ways to stack a photo. This is just one example which is easy and reliable…

To add source images please drag images here or use 'File \Open images' menu command

Focus parameters

Source images:

Rendering method:

Method A (weighted average)

Method B (depth map)

Method C (pyramid)

Downscaling:

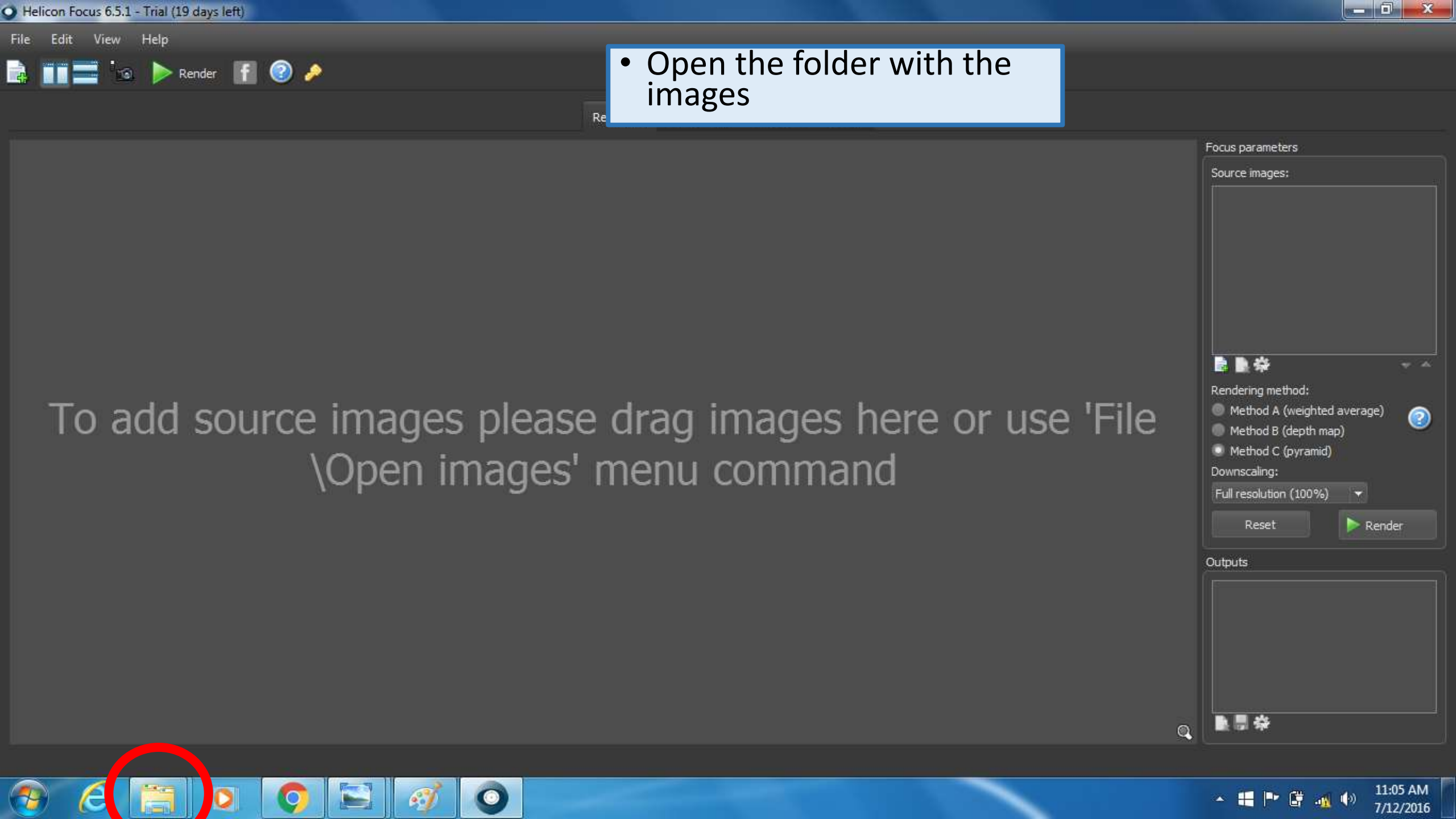
Full resolution (100%)

Reset

Render

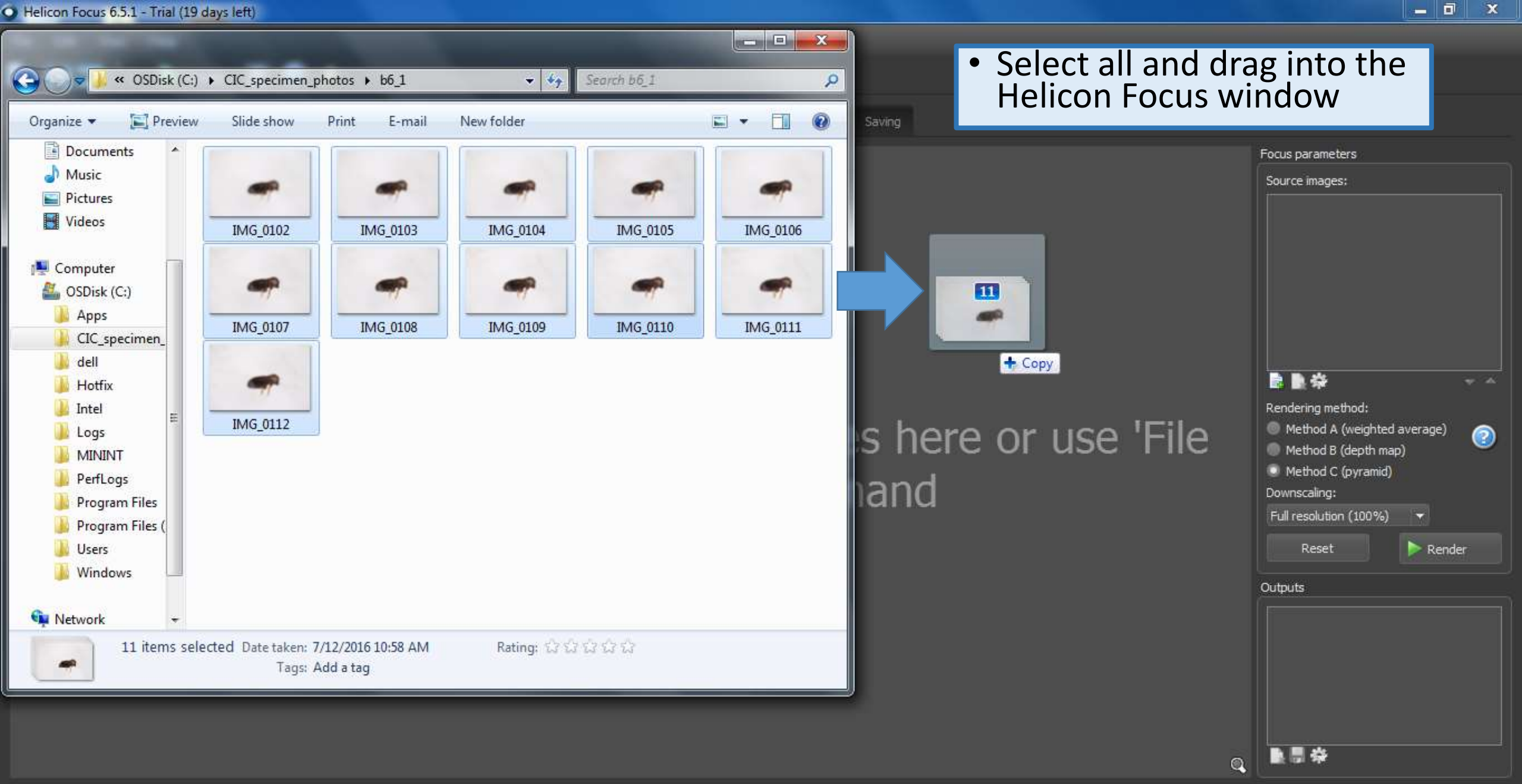
Outputs

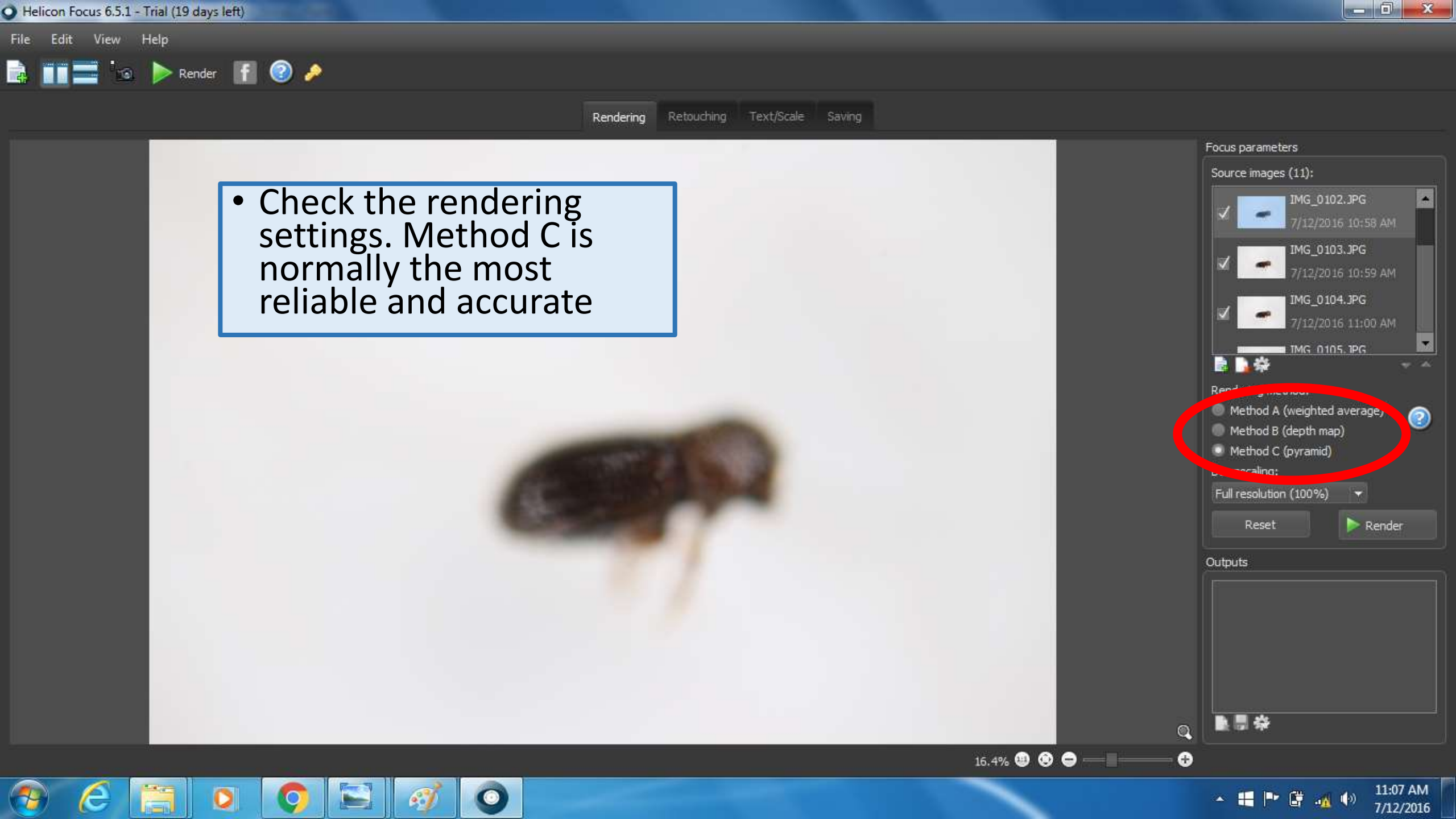
11:05 AM
7/12/2016

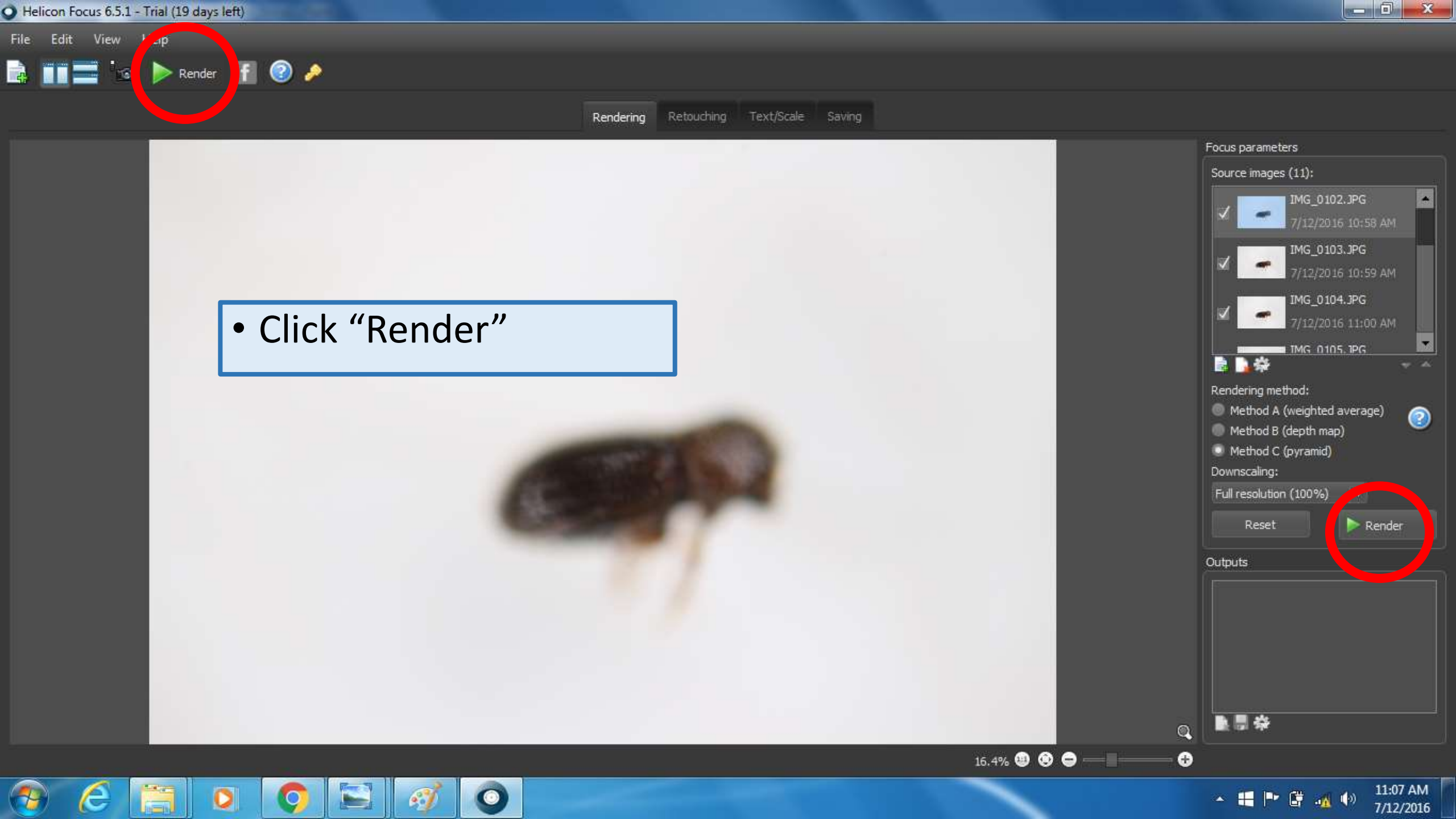


- Open the folder with the images

- Select all and drag into the Helicon Focus window




Helicon Focus 6.5.1 - Trial (19 days left)
File
Edit
View
Help
Render
Rendering
Retouching
Text/Scale
Saving
• Check the rendering settings. Method C is normally the most reliable and accurate
Focus parameters
Source images (11):
IMG_0102.JPG
7/12/2016 10:58 AM
IMG_0103.JPG
7/12/2016 10:59 AM
IMG_0104.JPG
7/12/2016 11:00 AM
Method A (weighted average)
Method B (depth map)
Method C (pyramid)
Full resolution (100%)
Reset
Render
Outputs
16.4%
11:07 AM
7/12/2016


Helicon Focus 6.5.1 - Trial (19 days left)
File
Edit
View
Help
Render
Rendering
Retouching
Text/Scale
Saving
• Click “Render”
Focus parameters
Source images (11):
IMG_0102.JPG
7/12/2016 10:58 AM
IMG_0103.JPG
7/12/2016 10:59 AM
IMG_0104.JPG
7/12/2016 11:00 AM
IMG_0105.JPG
Rendering method:
Method A (weighted average)
Method B (depth map)
Method C (pyramid)
Downscaling:
Full resolution (100%)
Reset
Render
Outputs
16.4%
11:07 AM
7/12/2016

Helicon Focus 6.5.1 - Trial (19 days left)

File Edit View Help

Render

Rendering Retouching Text/Scale Saving

- Wait…

Focus parameters

Source images (11):

IMG_0105.JPG 7/12/2016 11:02 AM

IMG_0106.JPG 7/12/2016 11:03 AM

IMG_0107.JPG 7/12/2016 11:03 AM

Rendering method:

Method A (weighted average)

Method B (depth map)

Method C (pyramid)

Downscaling:

Full resolution (100%)

Reset Render

Outputs (1)

M=C

10.7%

11:08 AM 7/12/2016

Helicon Focus 6.5.1 - Trial (19 days left)

File Edit View Help

Render

Rendering Retouching Text/Scale Saving

- Done. Now click on the “Saving” tab

Focus parameters

Source images (11):

IMG_0110.JPG 7/12/2016 11:03 AM

IMG_0111.JPG 7/12/2016 11:03 AM

IMG_0112.JPG 7/12/2016 11:03 AM

Rendering method:

Method A (weighted average)

Method B (depth map)

Method C (pyramid)

Downscaling:

Full resolution (100%)

Reset Render

Outputs (1)

*M=C

10.7%

11:10 AM 7/12/2016

Helicon Focus 6.5.1 - Trial (19 days left)

File Edit View Help

Render

Rendering Retouching Text/Scale Saving

- Click “Save…”

Save options

Save...

Print...

Open in Helicon Filter...

Export 3D model...

Create animation...

Save depth map...

Export layers...

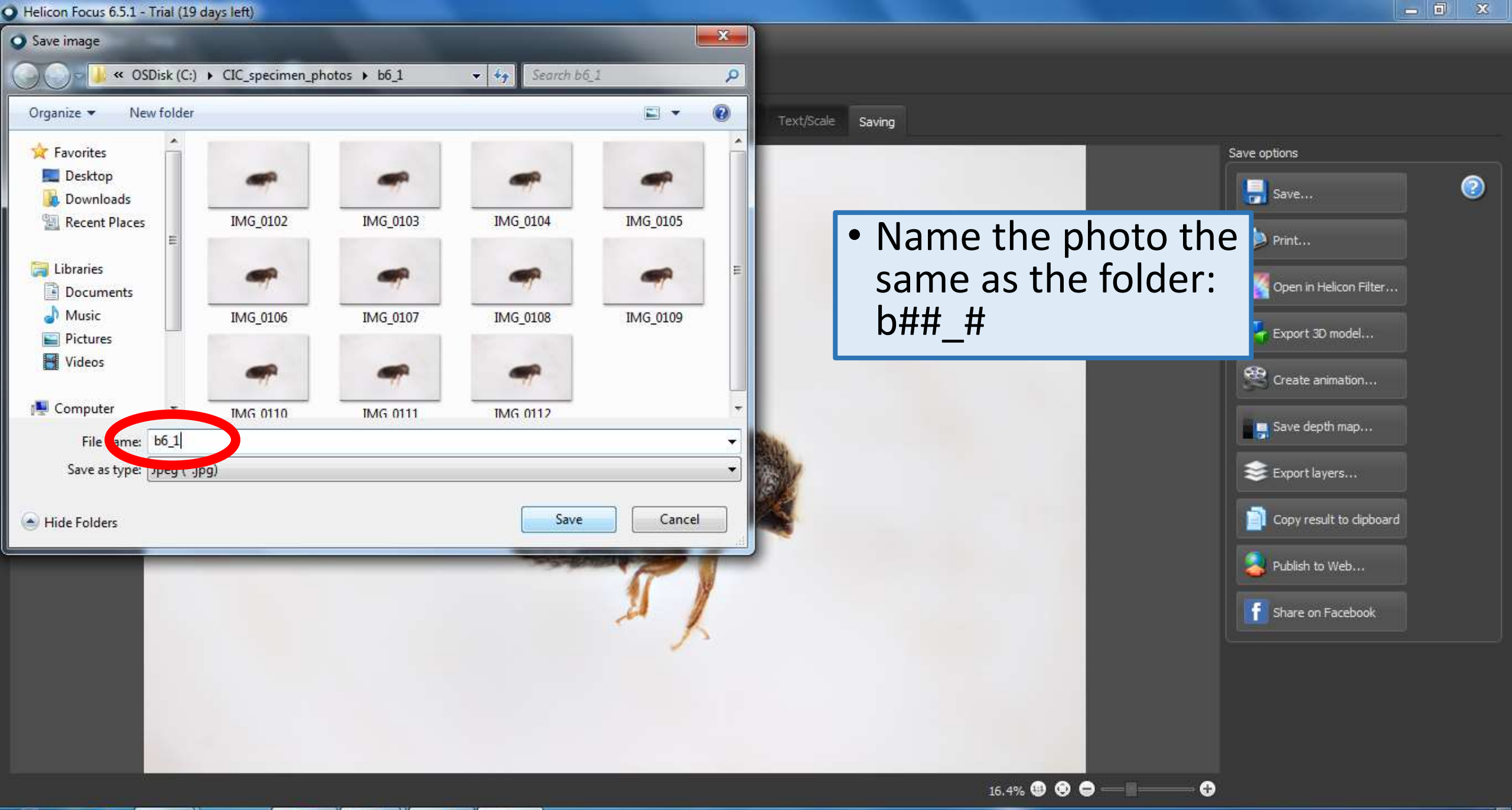
Copy result to clipboard

Publish to Web...

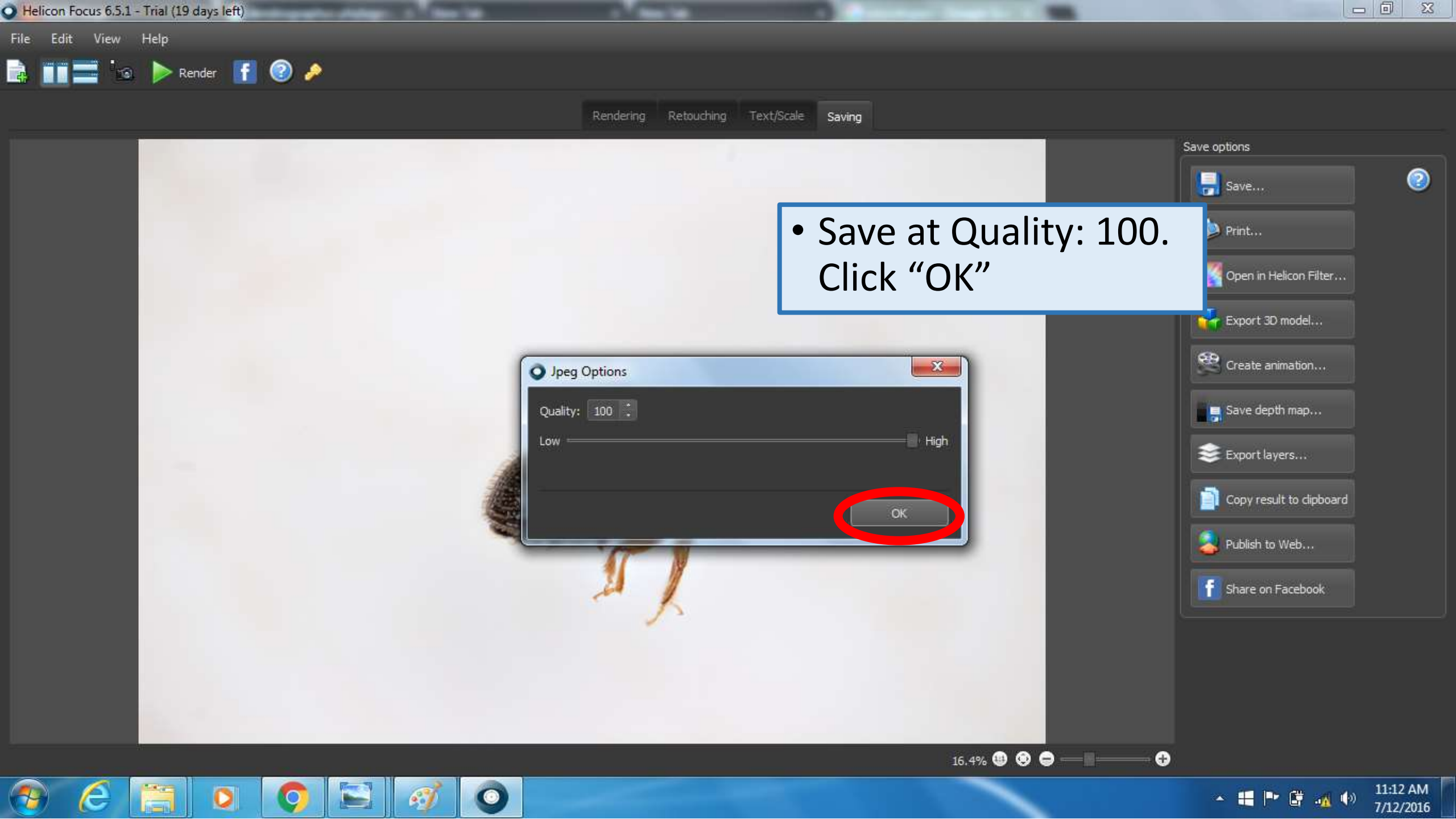
Share on Facebook

16.4%

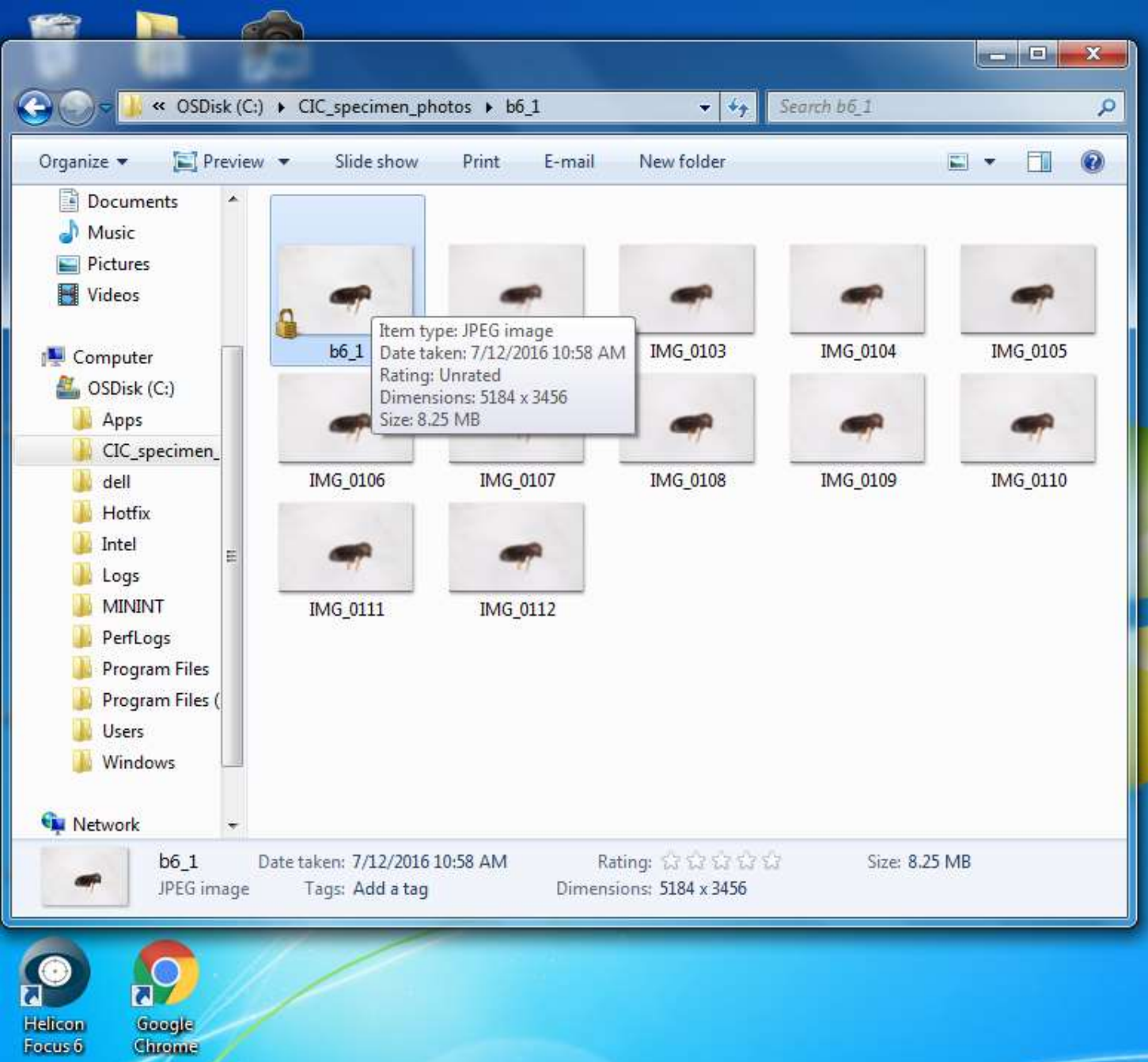
11:10 AM
7/12/2016



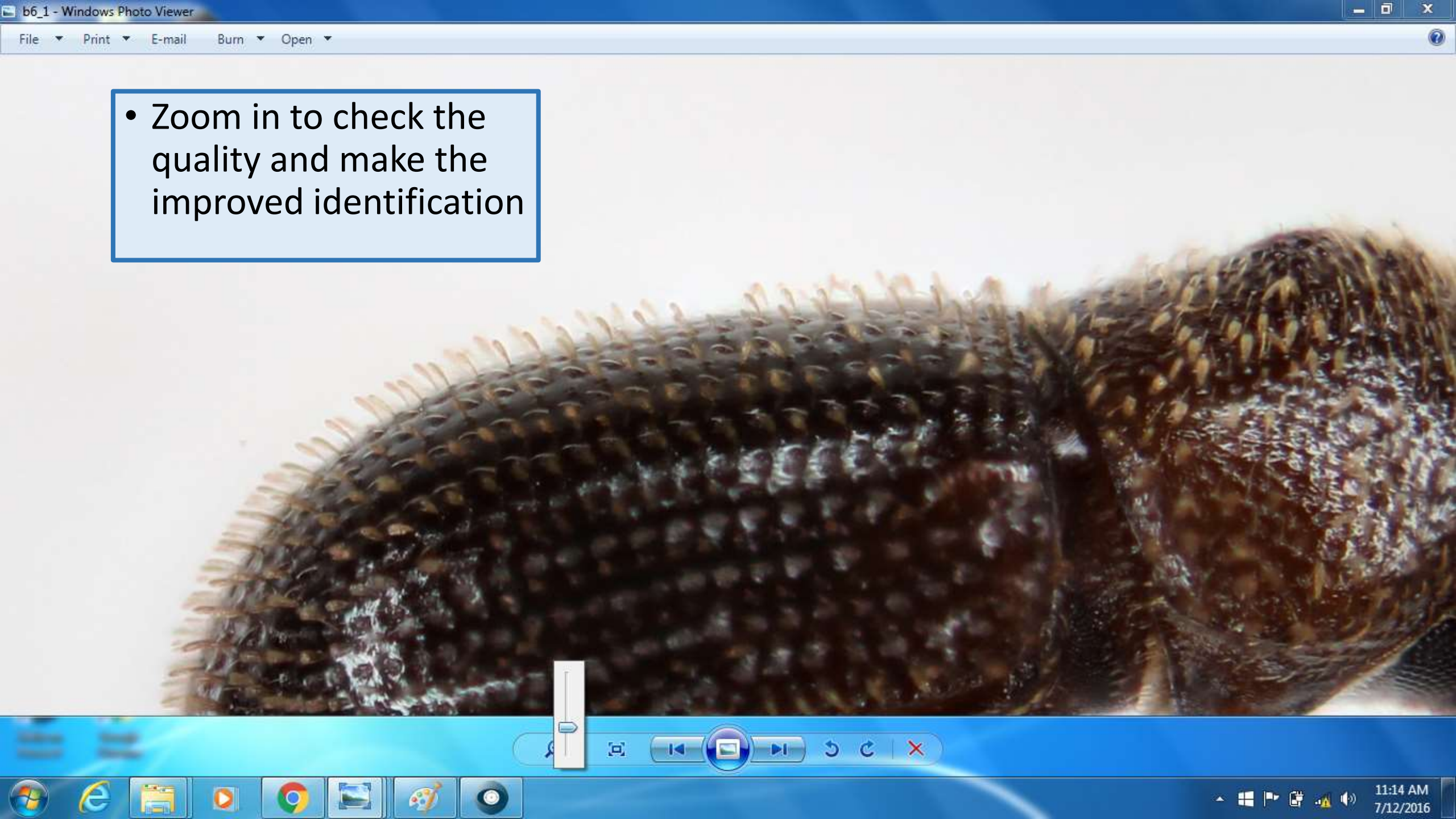
- Name the photo the same as the folder: b##_#



- Save at Quality: 100. Click “OK”



- Now check the photo- open with paint or picture viewer


b6_1 - Windows Photo Viewer
File
Print
E-mail
Burn
Open
• Zoom in to check the quality and make the improved identification
11:14 AM
7/12/2016

How to add a scale bar

- Open the image in Microsoft paint
- In the CIC_specimen_photos folder, there is a file called 1mmScaleBar.png, open this in Micosoft paint as well.
- In the scale bar window, press [Ctrl]+[A] to highlight all, then [Ctrl]+[C] to copy it.
- Now in the beetle image window, zoom out so the whole picture is visible.
- Press [Ctrl]+[V] to paste the scale bar
- Move the scale bar to below the beetle, not covering any part of the beetle.
- Save the image

CIC_lab_records - Excel

specimen_id(b###)	from_vial	type	tribe	*genus*	*species*	photographed?	id_type	who_identified	note
b1	v21	Scolytinae	Xyleborini	*Xyleborus*	*affinis*	yes	morphological	Andrew Johnson	
b2	v22	Scolytinae	Dryocoetini	*Coccotrypes*	*carphophagous*	yes	morphological	Andrew Johnson	
b3	v56	Scolytinae	Cryphalini	*Hypothenemus*	*crudiae*	yes	morphological	Andrew Johnson	
b4	v56	Scolytinae	Cryphalini	*Hypothenemus*	*eruditus*	yes	morphological	Andrew Johnson	
b5	v56	Scolytinae	Cryphalini	*Hypothenemus*	*areccae*	yes	morphological	Andrew Johnson	specimen damaged
b6	v58	Scolytinae		*Hypothenemus*		not yet	morphological	Andrew Johnson	

- Update the spreadsheet:
- Add as much as you can. If you cant identify it, put it as “not CBB”.
- Change the “photographed” to “yes”