How to measure *Anolis* lizard toepad length and width using **ImageJ**

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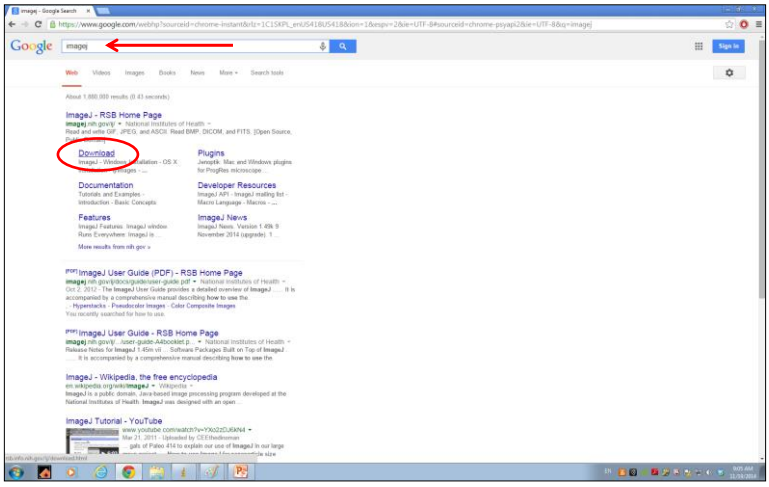
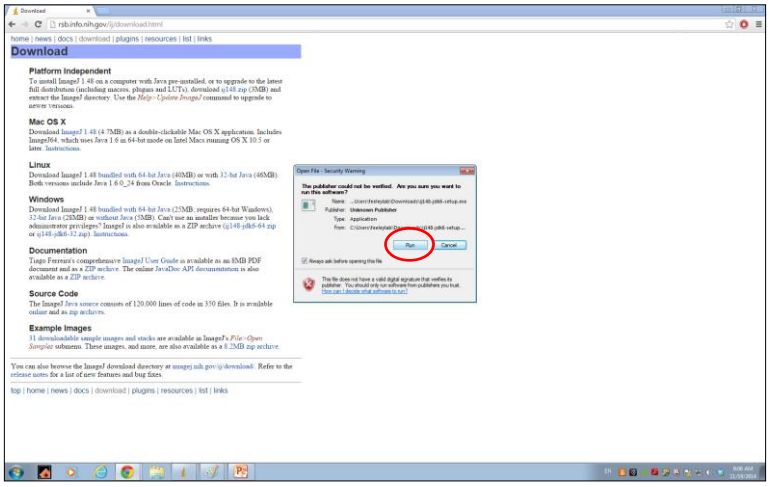
Search for "ImageJ"; when search results are returned click on the **Download** link provided underneath the *ImageJ – RSB Home Page* website link

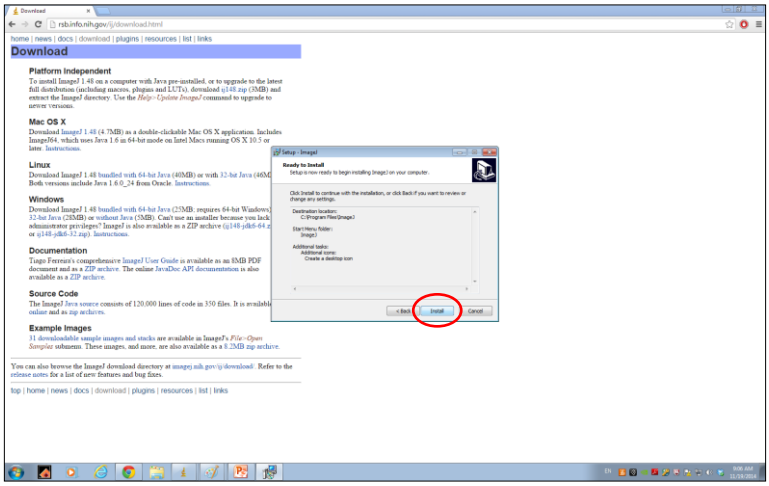


Download the appropriate program for your operating system. Most University computers and Windows laptops will require the 32-bit Java package. Remember to download Java if your computer does not already have it.

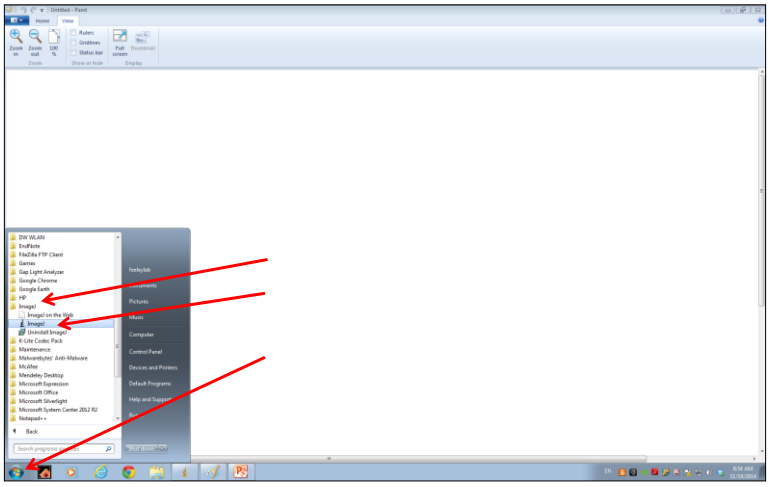
When clicked, this dialog box will appear. Click **Run**.



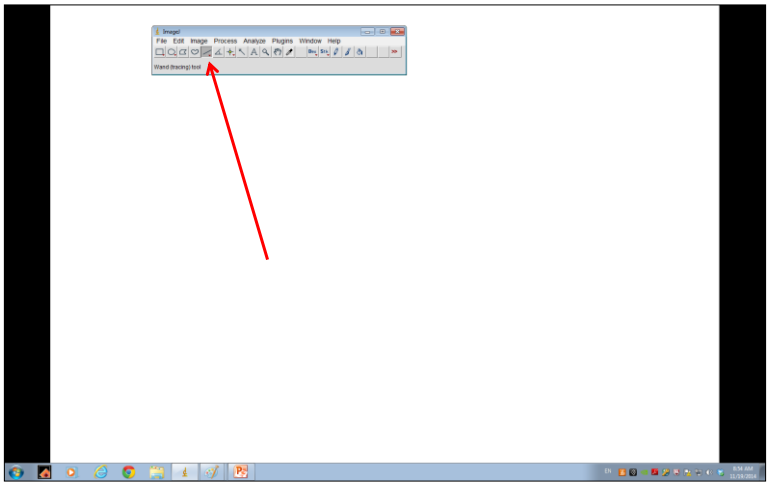
Continue pressing **Next** until you reach this stage. Click **Install**.



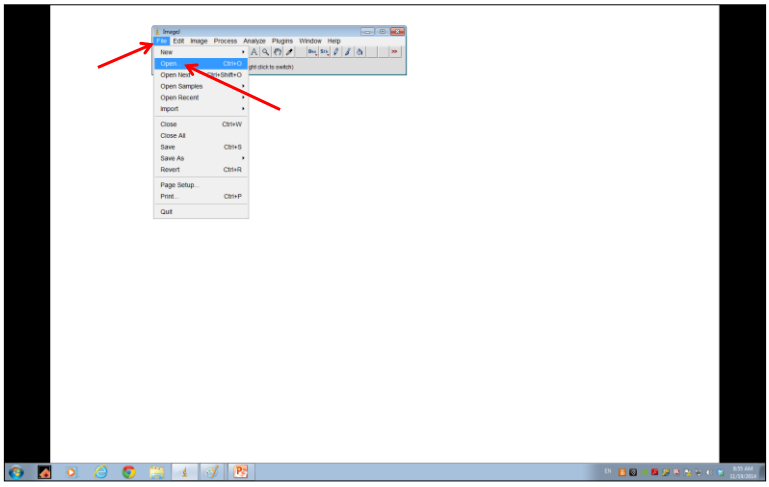
After successful installation, Click **Start** in the lower left corner of your screen, find the **ImageJ** folder, click it, and select the middle option (**ImageJ**).



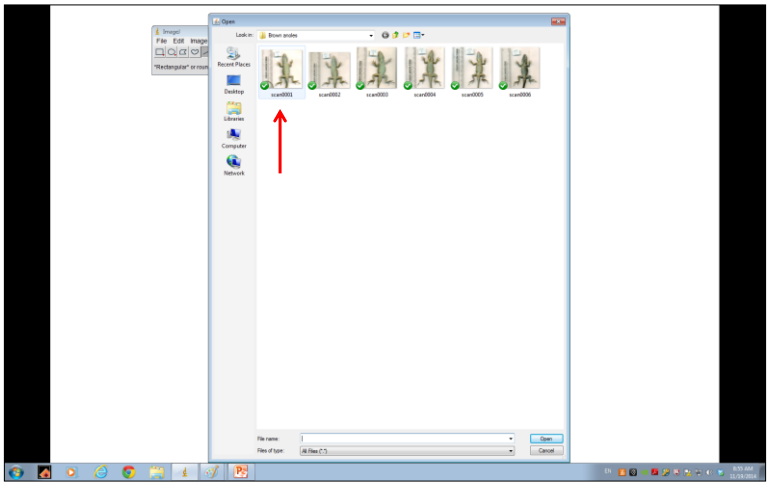
This box will appear. To measure straight line distances, select the option that looks like a straight line.



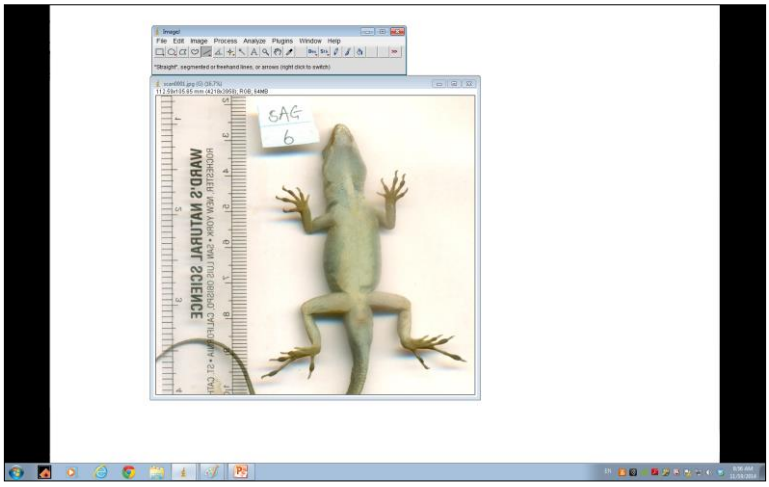
Now, open the picture file which contains the object that you want to measure. Click **File**, then **Open**.



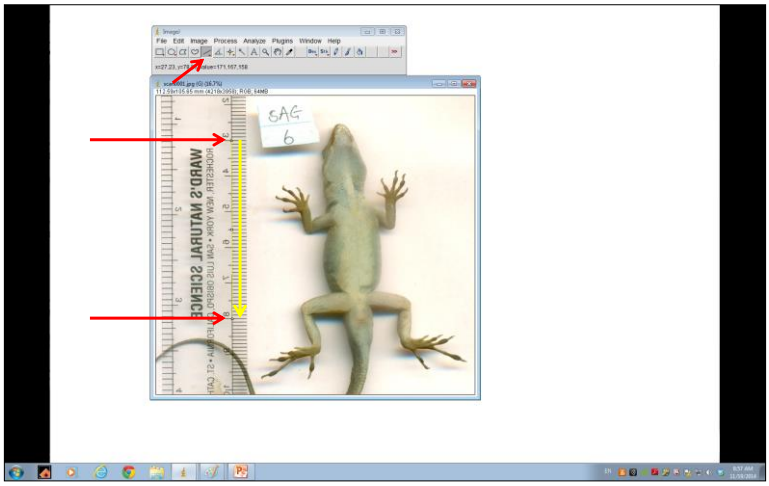
Select the image that you want to use, and click **Open**.



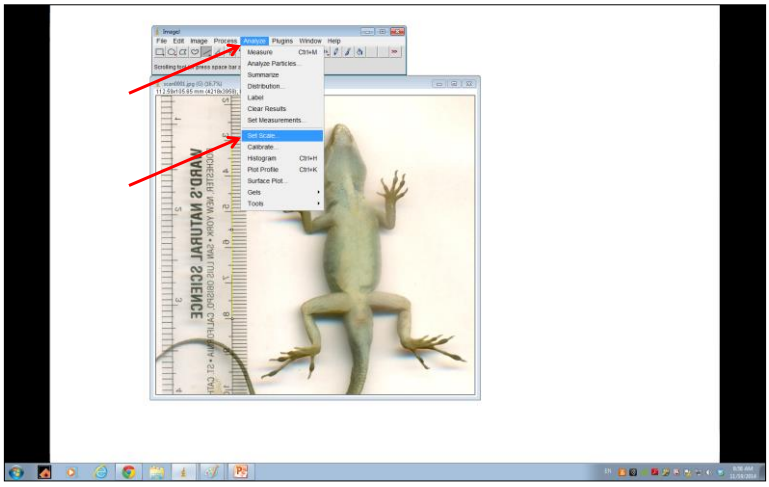
Your image should appear underneath the ImageJ options box.



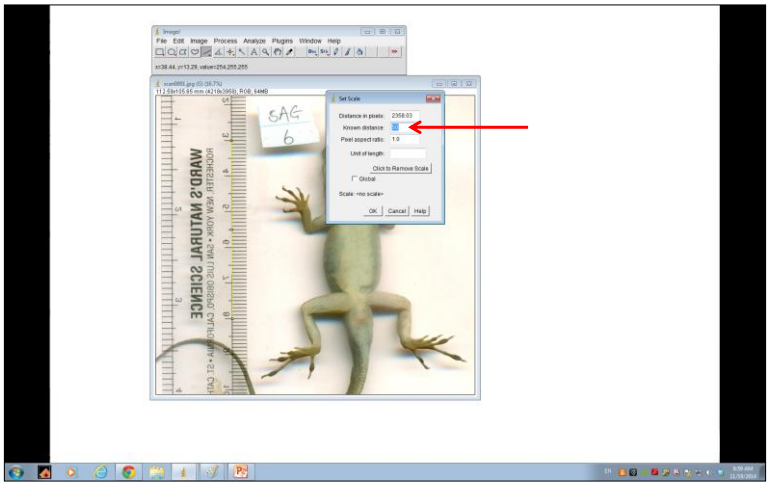
Click on the straight line box again. When you hover over your image, your arrow cursor should now be a cross.
You now need to set your scale bar. Click on a start point, for example here I have clicked at “3”, hold down your button and drag it to your end point (mine is “8”). I have drawn a line relating to 50mm (5cm) on my scanned ruler.



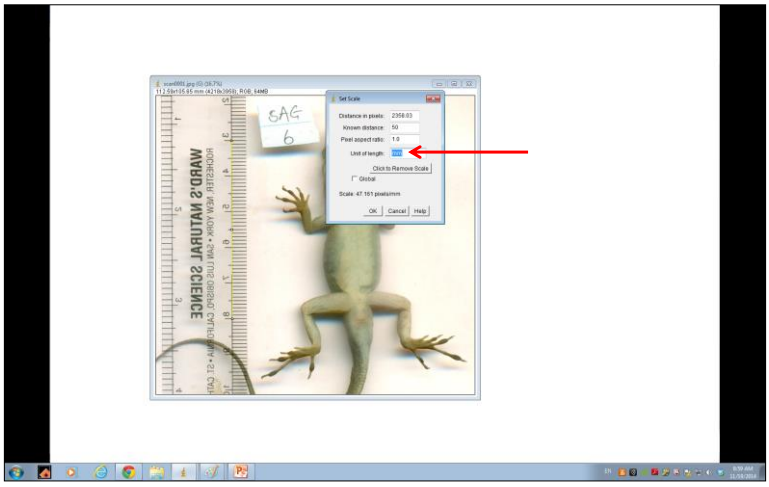
You need to relate this line to the distance, because at the moment it has only measured the length of that line in pixels. Click on **Analyze**, then on **Set Scale…**



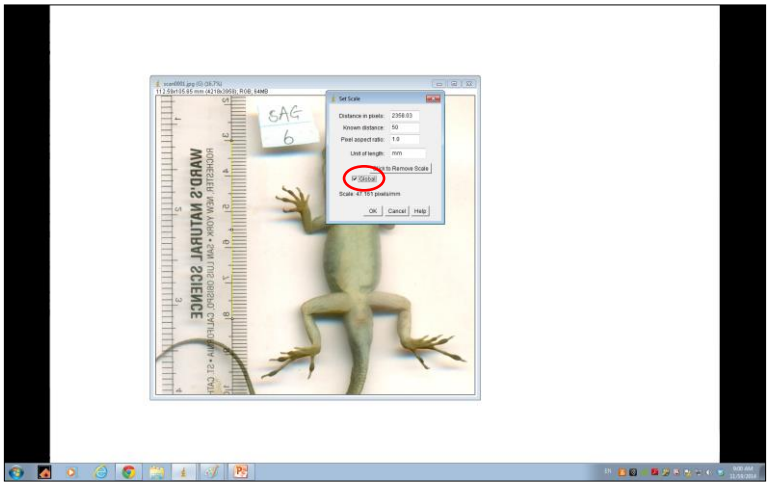
Change the **Known distance** value to your known distance; in this example it is **50** (mm).



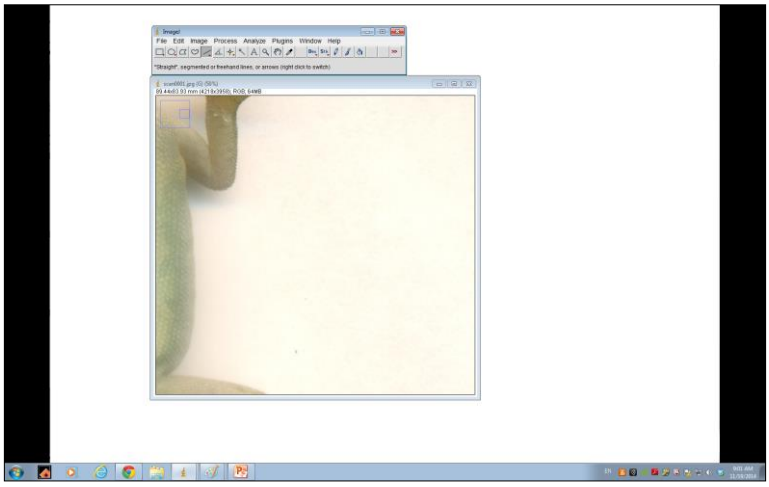
Insert your measurement units; in this example it is millimeters (**mm**).



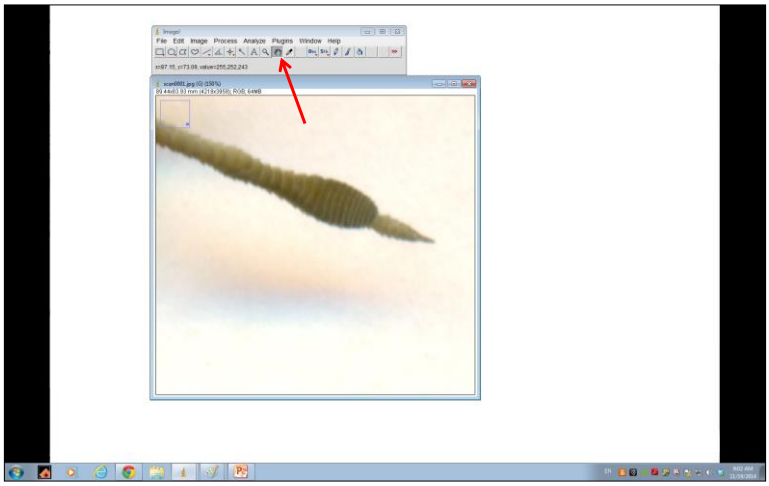
If you have an identical scale bar in all of your scans, and all of your scans were taken at the same resolution, you can click the **Global** option which will maintain your scale bar through all of your images.



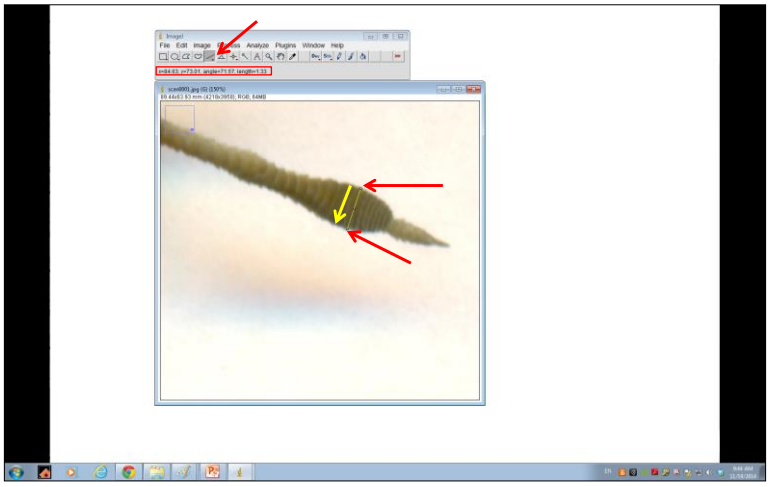
You now have a scale bar to reflect linear distances to, so it is time to measure some toepads. Zoom in by holding down **Ctrl** and tapping **+**.



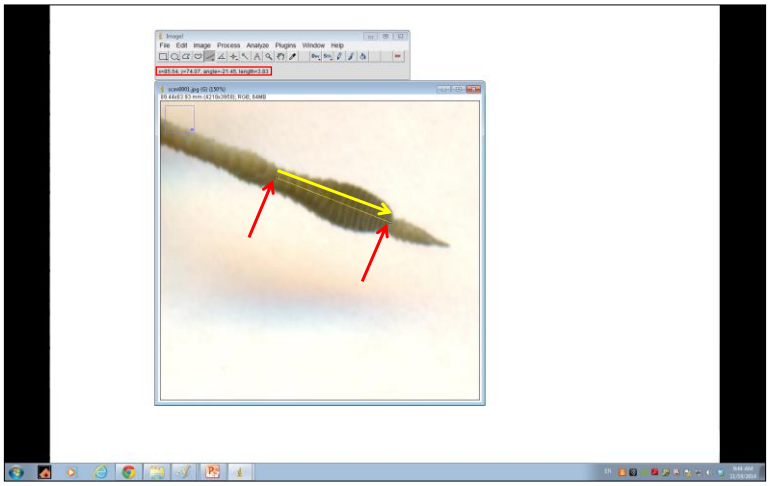
Select the **Hand** option in the Toolbar, and drag your image until you see the section containing the object you want to measure.



Re-select your **Line** option. To measure toepad width, select a point on one side of the widest point of the toepad, click your cursor and then drag it to the other side. The length of this line will be displayed above the image.



To measure toepad length, repeat this process. It is important to note here that you should select the End point that corresponds with the scale where you record up to when performing toepad scale counts. This choice of scale can vary between researchers, but it is important to maintain consistency within your own study.



To continue the fun and move onto the next image, click **File** in the top left corner, and the select **Open Next**. This will open the next scan that is in your Folder. Your scale bar distance will be maintained, however it is important for you to double check it using the Line measure function. If there is a lot of variance, re-set your scale bar. Enjoy!