Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Lab 3 answers**

1. Copy your clipped image into this worksheet (use the snipping tool or print screen). Describe your clipped field as it appears when you display it as a false color infrared image.
   1. Can you tell where the field has the most green vegetation? (note, this answer will vary depending on which field you pick)
   2. When/why would this image be informative?
   3. What are the pixel values of black pixels surrounding the field (the area outside your clipped area, but still within your image)? (Hint: Use the **Inquire tool** in the Home tab, and look at the File Pixel values).
2. Based on your examination of the metadata for your images, answer the following – referring to the clipped image:
   1. What are the minimum and maximum pixel values for band 5 of your original subset image of the field? Note, these should not include 0 values.
   2. When you look at band 5 values for a single pixel in each of the images, how to the File Pixel and LUT Values compare? Write them down and explain. Note, the LUT values should have changed.
3. Answer the following concerning your experiments with contrast stretching.
   1. Describe the difference (if any) between your unstretched field image and the same image stretched by Erdas. Are pixel values the same in the two images (Inquire tool)? How about LUT values (write down the File Pixel Value and the LUT value for band 5 for an easily recognized pixel in your stretched image)?
   2. For your Histogram Equalized contrast stretch, have the LUT values changed for the pixel you looked at in part a (write down the File Pixel Value and the LUT value for band 5). Have the file pixel values changed?

**Part 2 – More on reflectance**

1. Based on your exploration using the inquire tool, answer the following questions:
   1. For dense vegetation, which band has the highest digital number? Relate this to your knowledge of green leaf spectral reflectance.
   2. For dense vegetation, which visible light band (1-4) has the highest digital number? Is this what you would expect? Can you explain why this might be?
   3. Which band has the highest digital number for natural grasslands? Why might this be?
   4. How do the digital numbers for water compare in general with those of vegetation? Why?
2. Either draw the three spectral curves below, or copy and paste the window showing the spectral curves (**Alt-PrnScr** copies the active window the clipboard, and then you can paste [and then crop], or use the **Windows 7 snipping tool** (in **Programs/Accessories** on your desktop) to copy and then paste a user-defined area of your screen (useful!!).
   1. Do these curves resemble what you would expect for these materials? If not, what are the anomalies and why do you think they exist?
3. (a)Which Landsat bands capture differences between clear water and turbid (water with sediment) water? Do you think you could estimate sediment loads using Landsat 8 data? How might you do this? (b) Which landsat bands capture differences in the shrub steppe? Why do you think this is true?