**CSci 4965 and 6965**
**AI for Environmental Conservation**
**Fall Semester, 2023**
**Homework 1**
**Due: Tuesday, September 5, 2023 at 12 noon**

Your homework solution should be be uploaded as a **single pdf file** to the course Submitty website by start of class on the due date.

Please read

D. Tuia et al. Perspectives in machine learning for wildlife conservation. *Nature Communications* **13**,

which is available at `https://arxiv.org/abs/2110.12951` and answer the following questions.

1. **(10 points)** What are a few of the advantages and disadvantages of using camera trap images, especially in comparison to images from hand-held cameras taken by volunteers?

2. **(10 points)** What are some of the difficulties of using statellite imagery to count animals?

3. **(10 points)** Why is identification of species easier than identification of individual animals?

4. **(10 points)** In the era of big data, why is the use of domain knowledge / ecological expertise still important?

5. **(20 points)** Find an issue / idea / technology discussed in the paper that we have not discussed by the end of class on Thursday. Explain the issue and explain some of the beneficial and harmful concerns associated with it.

Please keep your answers brief and specific, no more than 2-3 sentences for each of the first four questions and 4-5 for the last one.