

Observing Forests with Aerial Photography

Improving forest management with UAS imagery

Overview

Remote control aerial vehicles hold a great potential to aid landowners in managing their forests. Mounted digital cameras can take photos from above that hold a wealth of information about the vegetation below. Key contextual and structural information can be interpreted from these images that would help foresters recognize hidden features in their land. Ultimately this project aims to use this data to create local-scale maps that would help foresters keep track of their inventory. With some foresters managing large-tracts of land, this information could help them prioritize their efforts before they set foot in the forest.

Key Question and Methods

Can this imagery be used to differentiate individual tree crowns?

Photographs of the canopy will be taken with digital cameras mounted on r/c aerial vehicles. This imagery will then be processed on a computer to create maps of the canopy. With these images able to show a high level of detail on the canopy, we hope to identify the characteristics of the edges of the tree crowns in images, and use this information to differentiate individual trees. Using this data, we would use our maps to highlight the number of trees in a stand, providing a quick and efficient census method for the landowner.

Furthermore, can we identify tree species from these maps?

Our digital cameras have the ability to photograph images in the near-infrared portion of the light spectrum, which is extremely useful for identifying vegetation in images. Since certain types of vegetation appear different from others when viewed in the near-infrared, we hope to identify different tree species from our images.

A note on safety and privacy

Our remote controlled aerial vehicles are operated by professionally trained staff with landowner permission. These data will only be used with permission of the land owner, who will be provided copies of and retain all rights and access to the collected data. Additionally, data used in derived products and analyses will be conducted in aggregate, with personally identifiable information removed to maintain confidentiality.

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