Research Description: This interdisciplinary research project is trying to understand how the social organization of small Maya communities in Belize, Central America, may interact with the environmental dynamics of tropical ecosystems and increase the environmental carrying capacity local forests. This kind of environmental enhancement is often unplanned and unconscious and results from small-scale, low-level interactions which interact to have unexpected higher-level system properties. In this National Science Foundation-funded project we have been collecting high-resolution multi-spectral land-cover data with unmanned aerial vehicles (drones), as well as survey, worklog and social network data about community organization and agricultural activities in local forests. We are analyzing these datasets with a variety of techniques, including photogrammetry, computational statistics, and agent-based modeling.

Position Description: We are currently looking for a young scientist who is interested to work on this project. This position will initially involve organizing and analyzing spatial data and generate preliminary maps and analyses. A primary goal is to work on ‘stitching’ together thousands of multi-spectral photographs (taken using a drone in 2016 and 2017) using photogrammetry software. There is certainly the possibility of incorporating this work into a student-based project, a poster, or presentation.

Skills Needed: Prior experience or coursework in spatial data analysis and mapping is important. Experience in ArcGIS is important, and R would be a plus. Experience with Pix4d or Agisoft PhotoScan (photogrammetry software) would be ideal, but the software is straight-forward for the computationally proficient.

Additional Information: Research Assistant is expected to participate in the research 5-10 hours a week for 2-4 semesters. Students are able to start immediately.

Contact: Applicants should contact Sean Downey via email- downey.205@osu.edu and provide a resume which includes the student’s major, one paragraph describing interest in the project and their computational/software background/experience.