"Using AI/Data Science and Social Epistemology to Monitor Green Space in Newport News"

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Project Summary: The Newport News Green Foundation (NNGF) is a local non-profit dedicated to the preservation of green spaces in Newport News.[1] As a small organization in charge of roughly 30 properties, 2 of the biggest challenges for the NNGF are: 1). Tracking the wildlife and vegetation on their properties, and 2). Soliciting community participation. Drawing on my work in environmental philosophy, I am proposing a research project focused on social epistemology and the use of two AI/DS platforms (Chronolog and Ebird/Merlin) to better support these goals.

Research Methodology

- **Social Epistemology**: This framework focuses on how the participation of citizens, groups, and social dynamics (e.g., crowdsourcing) can help generate and shape knowledge banks. For this project, the goal is to empower site-visitors to help generate the data the NNGF needs to better monitor the environmental features of its properties. This will be done through the use of 2 AI/DS platforms: Chronolog and Ebird/Merlin.
- **Chronolog Stations:**[2] Allow site users to take photos of a given property and upload them to the Chronolog app. The Chronolog app then creates time-lapse visualizations of the property to offer a temporal presentation of the changing vegetation and visiting wildlife.
- **Ebird/Merlin Stations**:[3] The Cornell institute's AI app, Merlin, allows users to auto-identify birds on their phones. Ebird is Cornell's accompanying app that allows users to log these bird-lists. Installing Merlin/Ebird stations on NNGF properties will allow visitors to scan the property as a hotspot and then upload their bird reports.
- **Objectives & Outcomes:** The project hopes to 1). track onsite user participation and 2). gather environmental data about the green spaces across seasonal changes. On the user side, we predict that initial user participation will stimulate greater future participation as data visualizations become more robust. On the data side, we hope to use vegetation and wildlife data to better plan vegetation controls and wildlife management in the future.

Logistics:

- **Scope:** We plan to install Chronolog and Ebird/Merlin stations on 1-3 properties as a test pilot for a larger rollout in the future (Hilton Ravine, Sarfan Food Forest, and Stoneybrook).
- **Prep:** The Chronolog hardware must be ordered and installed. The Chronolog and Ebird/Merlin signage must be designed, printed and posted, and accompanying software and data accounts set-up and calibrated.
- **Timeline:** 6-12 months total. 3-6 months to design, order, install, and calibrate. Additional 3-6 months to interpret data over the course of the seasons and to assess success.
- **Cost:** $1000. Chronolog stations are $200 each. Ebird/Merlin is free. Additional costs for printing, laminating, and posting ($400). Material cost and faculty labor to be covered by IHub grant.

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[1] https://nngreen.com/
[2] https://www.chronolog.io/
[3] https://merlin.allaboutbirds.org/ and https://ebird.org/home