SSAFE CASE STUDY REPORT

Using Google Earth to Map your Arboretum

Chapter: Collington Retirement Community
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"If you plan a year ahead, plant a seed. If you plan ten years ahead, plant a tree. If you plan a hundred years ahead, teach the people." Chinese proverb.

Summary:
The Arboretum committee was interested in an interactive map that would enable residents and visitors to identify and learn about Collington's trees. Google Earth Pro, a publicly available free software platform, was found to be eminently suitable as it provided a way to minimize project costs yet give us a highly interactive representation of our tree collection.

Objective: Like many communities and arboreta, Collington had developed a database of trees in a spreadsheet format. We wanted a way to translate that format into a visual presentation that was both interactive and informative.

Project Description: In 2021 Collington qualified as an Arbnet Level I arboretum.

Our community includes:

- 185 acres of woodland, wetlands, and residential campus comprises the Collington Arboretum
- *number of residents:* 390 Independent living, 66 assisted living, 0 skilled nursing
- *types of residences* (29 villas, ~175 cottages, ~100 apartments)
- *non-profit or for profit?* Nonprofit
- *'Resident driven' community?* Yes.

Applicability: Google Maps can be used by any community. However, the resolution of aerial photography may limit the scale of the project.

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Methodology (Activities, Steps):
We inherited a previous attempt to map the trees with latitude and longitude coordinates developed by Bill Preston, a resident of Collington. He included only trees on the campus, not the trees in the woodland area. That spreadsheet (.xslx) was converted to the format used by Google Earth (.kml). The location and species of each entry was verified by walking the arboretum with maps in hand. The corrected location (latitude, longitude) was recorded, missing trees deleted, new trees added, and the result verified by our resident taxonomist.

We are currently adding woodland trees to our inventory, and have proposed to label many of those. With the concurrence of the Grounds Committee, all of the Bradford Pears and all of the Sawtooth Oaks will be taken down. We have begun to map lost trees as a result.

Funding Needed (Amount, Sources):
None. Unlike ArcGIS and other commercial mapping packages Google Earth is free. AI programming assistance was free and the Perl programming language was free.

Involvement or Support of Community Administration:
The Collington Administration was not directly involved in the mapping project, although Marketing uses the products. The final interactive Google Earth map was uploaded to two of Collington's kiosks, allowing residents and visitors to pan and scroll, select a tree of interest, and connect with the Wikipedia description of that tree. The administration was involved in installing the software on their kiosks.

Key Challenges:
Previous attempts to map the campus had been made, and this project built upon those resources. AI, the free version of ChatGPT, was asked to generate a PERL script to convert the spreadsheet inventory (.xslx) into a format understood by Google Earth (.kml). Looking again today, I find that the technology has really progressed. I recently found that the conversion .xslx to .kml is now available at https://mygeodata.cloud/. However, I don't know if that conversion is one I would use moving forward.

The main effort of the whole project involved walking every cluster to verify the location and species of the identified trees.
While Google Earth cannot be embedded in a webpage, converting Google Earth to Google Maps to display the arboretum on the web works just as well.

Outcome (Results):
An interactive map of the trees, walkways, benches, and trails is made available to the Collington community in interactive kiosks and on the resident's website. Maps are also displayed in brochures, in newsletter articles, and in printed maps.

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In addition to the interactive inventory, the Google Earth database was used to produce thirteen cluster maps which are used to guide cluster walks once a year. The software was instrumental in producing a map of the woodland trails. It also enabled us to show the location and species of woodland trees to be labeled next year and helps us visualize the future design of interpretive groves in our arboretum.

Lessons Learned:
Google Earth was the right choice for Collington. While we would have liked the ArcGIS approach employed by the University of Maryland and the National Arboretum, we didn't have the budget for that level of effort.

One problem is our inability to do a search of trees on the map: "show all the Pin Oaks" for example. This capability has been suggested to Google as an enhancement.

Next Steps or Follow Up:
We would like to inform other organizations/arboreta about this program and encourage them to use these techniques to educate residents and visitors about the trees in their neighborhood. Knowing your trees has significant practical, environmental, and personal value, from ensuring proper property management and safety to fostering a deeper connection with the natural world.

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Resources:

Google Earth:https://support.google.com/earth/community-guide/256123000/versions-of-google-earth-desktop-web-mobile

Google Earth Pro: https://support.google.com/earth/answer/21955?hl=en

Google Maps: https://www.google.com/maps/

Plantnet: https://plantnet.org/en/ Identify species from a photo.

Collington Arboretum: https://collingtonresidents.org/arboretum/

Collington Arboretum Tree Inventory: https://collingtonresidents.org/tree-inventory/

Collington Arboretum as MyMap:
https://www.google.com/maps/d/edit?mid=1m4R8jldvRTfGBvTFfMjqLIjLzsJlZyE&ll=38.923671895522986%2C-76.825871105&z=17https://www.google.com/maps/d/edit?mid=1m4R8jldvRTfGBvTFfMjqLIjLzsJlZyE&ll=38.923671895522986%2C-76.825871105&z=17

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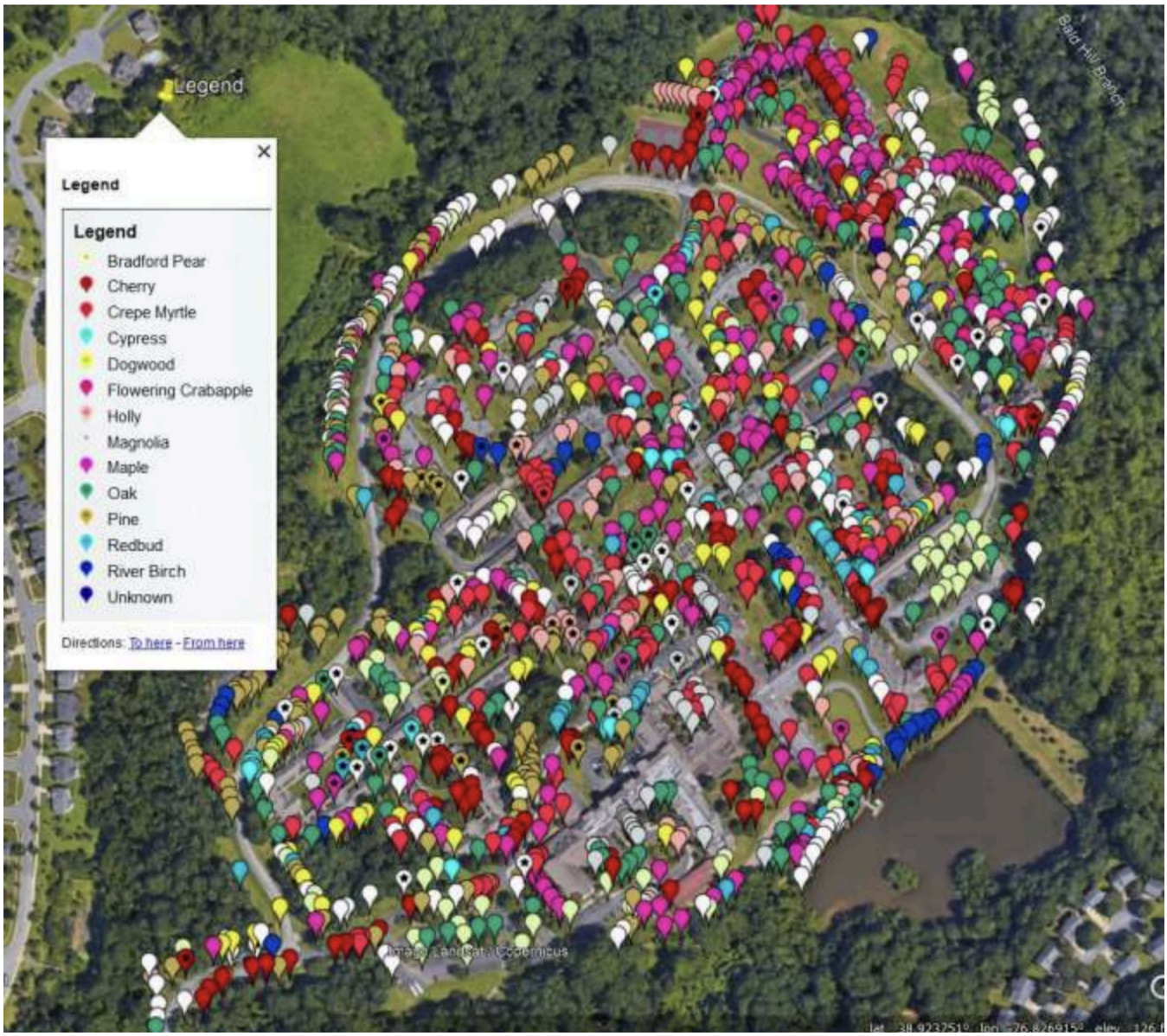
Photos:

Collington Arboretum



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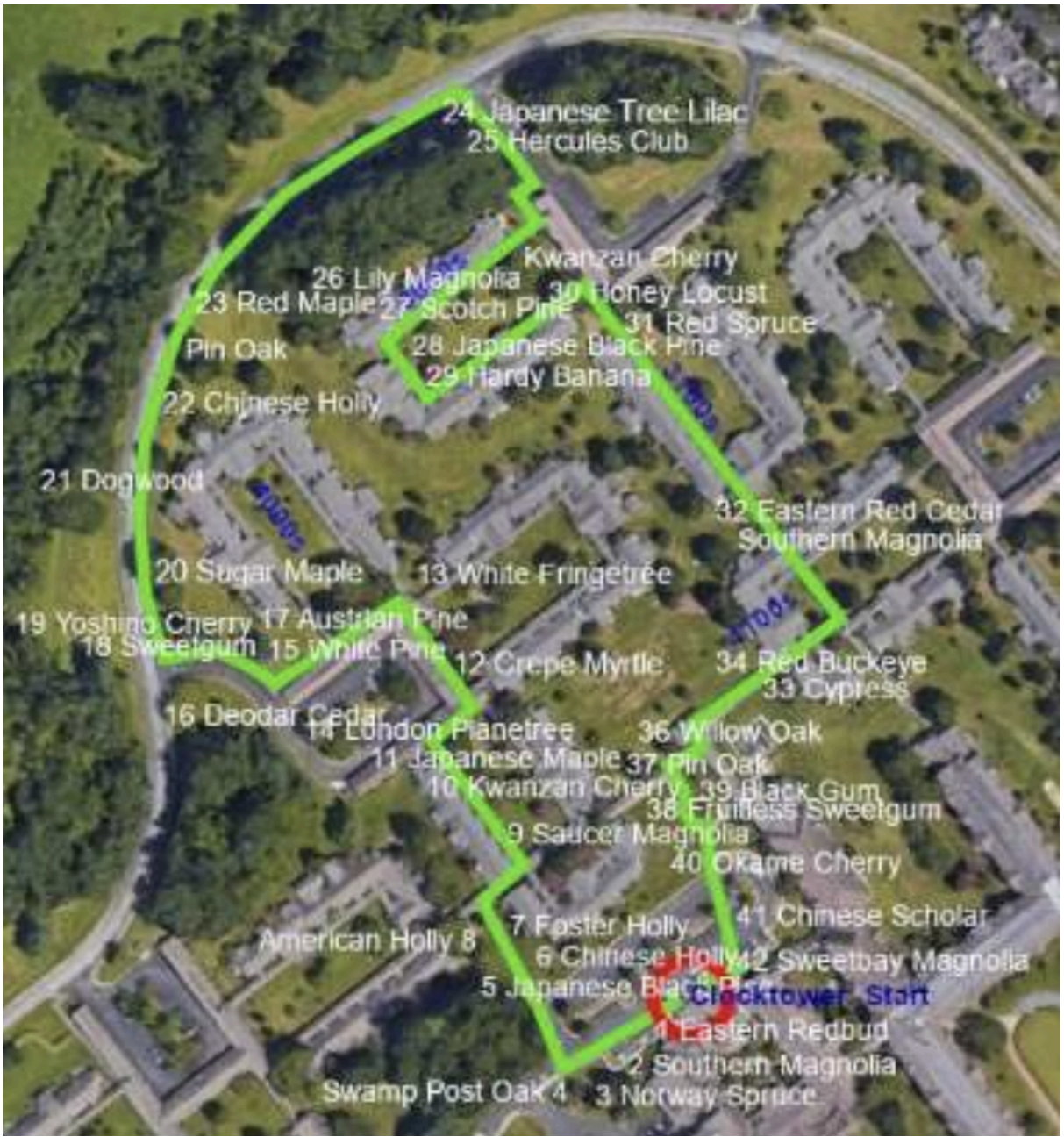
Tree Walk 2



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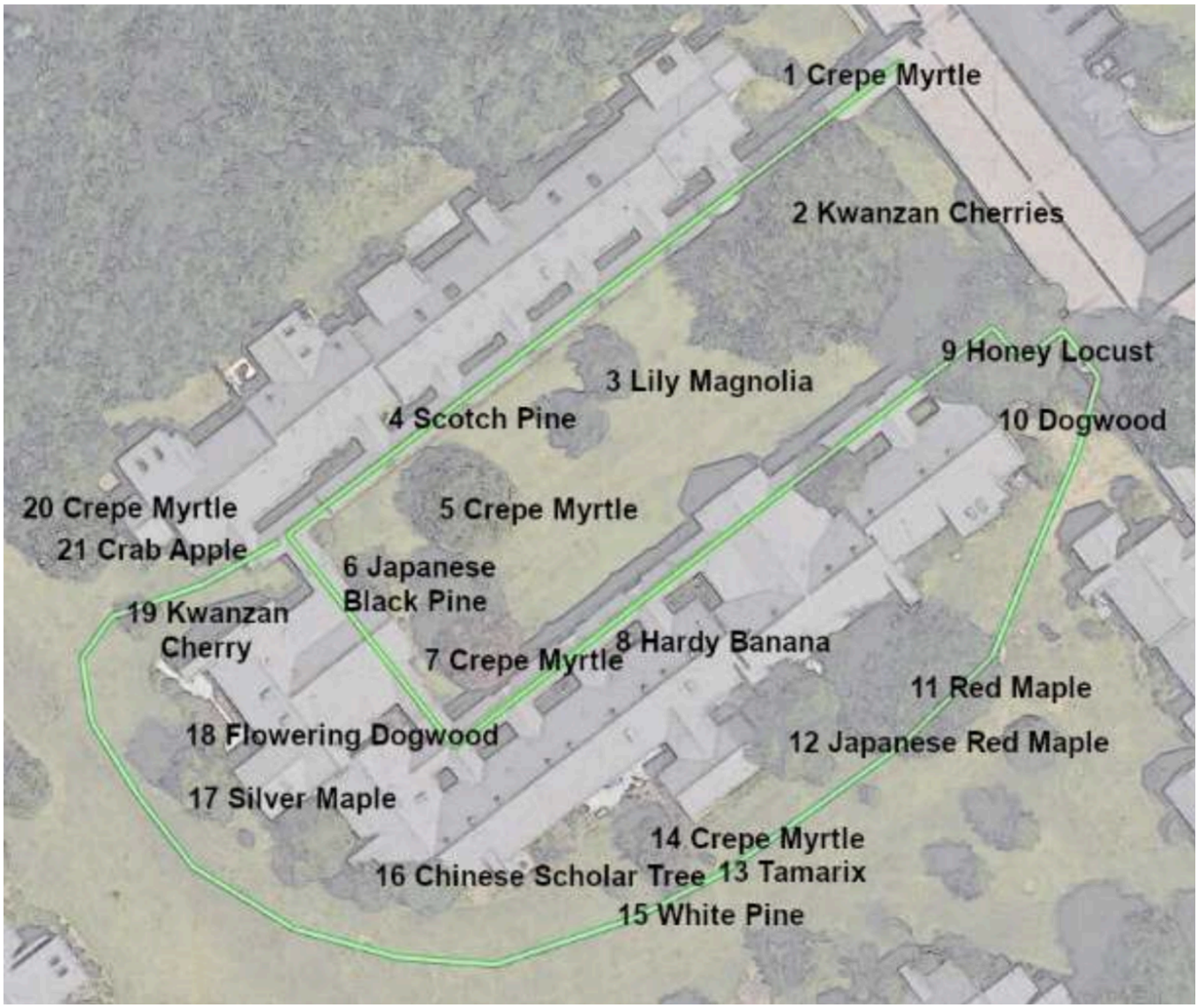
Cluster 3000 Map



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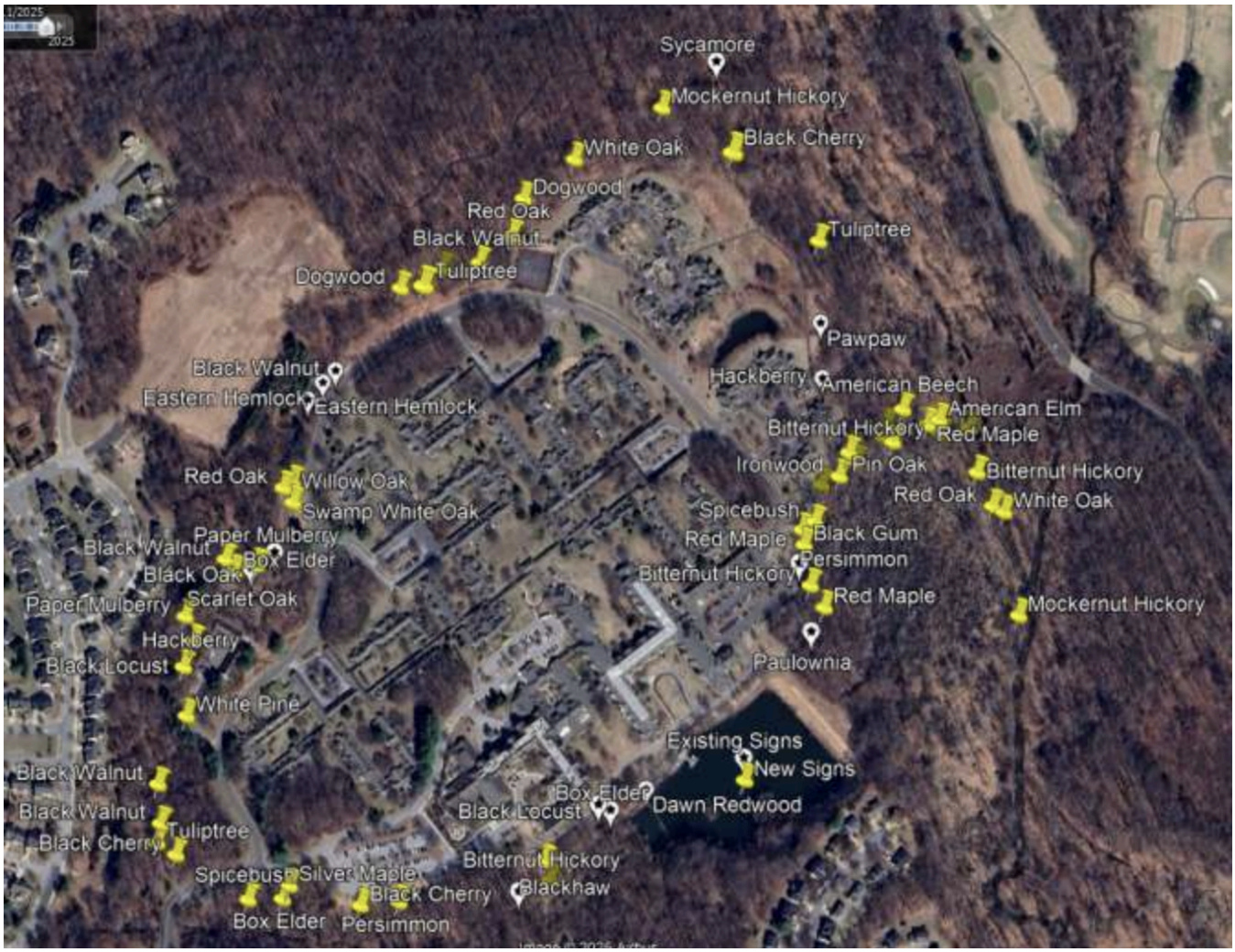
Plan for New Labels on Collington Trails:



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