

Project Overview:

Skytec LLC, in partnership with the Tennessee Department of Environment and Conservation, has developed a state-of-the-art predictive wetland model with a 3-meter resolution for the State of Tennessee. This initiative leveraged an enhanced version of the Esri Wetland Identification Model, optimized for large-scale application across statewide geography. The model integrates advanced Deep Learning tools to accurately recognize wetland features in aerial or satellite imagery. Key inputs for the model included LiDAR-derived predictor variables, high-resolution imagery, and approximately 75,500 acres of meticulously curated wetland training data.

Key Deliverables:

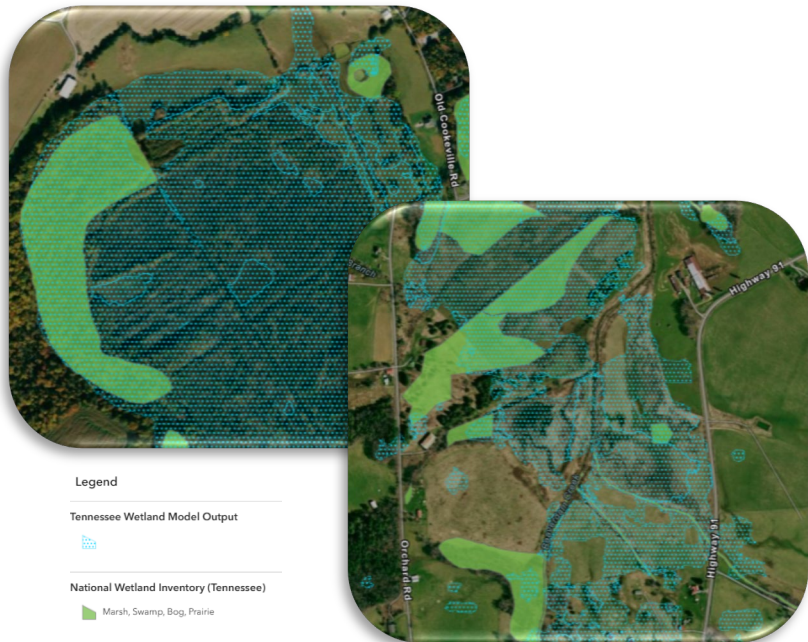
- Statewide predictive wetland layer demonstrating 2x increase in wetland area
- Wetland connectivity analysis post-Sackett
- Coarse classification of wetlands based on 1-m resolution deep learning land cover

Technology Collaborators:

- Esri
- Microsoft
- Planet Labs

Timeline: 3 months

Model Output Examples



Impact:

The development of a predictive wetland model was essential due to the outdated nature of the current authoritative Tennessee dataset, the National Wetland Inventory (NWI), which has not been fully updated for 30-40 years. Given the continuously changing landscape, this new dataset will enable stakeholders to make more informed decisions in various contexts, including, but not limited to, regulatory reviews, development siting, and conservation priority setting.