
CUSTOMER STORY

Esri and Ecobot Reduce Wetland Delineation Time by 50 Percent



Environmental Science and Engineering Partners (ESE) is an environmental consulting firm focused on responsibly moving business forward through environmental problem-solving.

ESE clients include utilities and energy companies that often are working with large acreage projects with the potential for a host of environmental regulatory hurdles to jump through for project implementation. Esri and Ecobot tools help create high levels of efficiency, saving time and money for both ESE and its customers.

Customer—ESE Partners, located in Austin, Texas

Challenge—The firm needed to complete several months of wetland desktop assessment and field delineations in less than two weeks for a 3,000 acre solar farm in eastern Texas.

Solution—The ESE team implemented geographic information system (GIS) technology-based solutions in concert with Esri's offline wetland delineation application partner, Ecobot.

Result—The project was completed on time. The level of project efficiency was increased by over 50 percent, and the profit margin increased by 35 percent.



Utilizing functions available in Esri's Arc Hydro toolbox, including the Topographic Wetness Index (TWI), my team was able to hone in on areas that contain wetlands on thousands of acres. Then in the field, we were able to complete 31 wetland sample points during a single day because of Ecobot—more than twice our usual productivity.

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Nevin Durish,
Senior Biologist, ESE Partners

The Challenge

ESE Partners was contracted to complete a more than 3,000 acre wetland delineation project on a proposed solar farm in eastern Texas. The site contained hundreds of isolated pothole wetlands and other potential “waters of the United States” (WOTUS). An aggressive timeline was set by the US Army Corps of Engineers (USACE), with ESE having two weeks to complete the delineation of all jurisdictional and nonjurisdictional wetlands.

With a team of only two wetland scientists available at the time, ESE had to strategically approach the initial desktop assessment of potential wetlands, conduct all mobile work, and incorporate the resultant field data and geospatial information into final maps to submit to the USACE. Typically, a project of this magnitude could take multiple months for a seasoned team to complete with twice the staff.



The Solution

Using tools available in Arc Hydro, the ESE team proactively determined the likelihood of wetland presence on the site from lidar, digital elevation model (DEM), and Topographic Wetness Index (TWI) data available for the area. Combined with high-resolution aerial photography, team members built a model that allowed them to focus their limited mobile work efforts to the areas most likely to contain wetlands.

They then used Ecobot to collect field data and map the wetland boundaries. Wetland polygons collected in the field were uploaded to Ecobot's servers in the cloud and immediately downloaded for use in ArcGIS. There, the team was able to create a final wetland delineation map for the purposes of Section 404 and 401 water quality certification permit applications for permanent and temporary impacts to WOTUS as well as isolated wetlands.



ArcGIS Online screenshot of a portion of this project showing data points (pink) as well as wetland and stream features (in red) observed and recorded in the field using Ecobot.

Detail of two wetlands (shown in light green) with upland and wetland sample points (shown in pink) as recorded in Ecobot and final map created in ArcGIS Online.



Results

The ESE team was able to execute the project on time and within budget, aided by the Esri and Ecobot partnership, reducing the team's level of effort by 50 percent in the office and field, and resulting in a 35 percent increase in profitability.

Ecobot (available on iOS) enabled ESE to complete 250 sample points and record 90 wetland units in less than 14 days—almost three times faster than a typical timeline of a project this size. In total, this powerful alliance of desktop and mobile applications allowed ESE to complete the wetland delineation not only on time and on budget but also in half the time anticipated.

50%

REDUCED EFFORT

30%

PROFIT INCREASE

250

SAMPLE POINTS

90

WETLAND UNITS

14

DAYS TOTAL

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