



Natchez Trace Parkway

Project Descriptions

The Gulf Coast Network (GULN) conducts long-term ecological monitoring on two indicators of ecosystem health –called vital signs– along the Natchez Trace Parkway: water quality and terrestrial vegetation. Breeding landbirds are also a monitoring priority, but because of pre-existing Breeding Bird Survey Routes, the network assists rather than manages a bird monitoring program. In addition to regular monitoring, the network provides technical support by assembling and updating records on adjacent land use for the park.

Water quality is measured at 33 permanent sites four times a year: spring, summer, winter and fall. Samples are taken from a subset of the many streams, creeks and rivers that cross or run along the parkway. Field measures include water temperature, specific conductance (SpC), pH, dissolved oxygen (DO) turbidity and nitrate. Samples are collected for post-field analysis of *Escherichia coli* (E. coli).

Terrestrial vegetation is sampled within 32 fixed 20 meter x 20 meter plots to determine the composition and condition over time of vascular plant communities. All plant species are identified, and in nested subplots, the relative frequency and percent cover of each species are recorded. Data are also collected on tree growth, recruitment and mortality. All plots are sampled once every four years.

Technical support: Breeding Bird Survey Routes span the length of the parkway and are sampled annually as part of the North American Breeding Bird Survey program of the United States Geological Survey (USGS). The Gulf Coast Network assists in these surveys on an as-needed basis, by completing data collection at the pre-determined stations along the routes. At each station, an observer records every individual bird heard or seen during a three minute period.

Technical support: Adjacent land use is a central and complex management challenge, given that the parkway intersects with 25 counties across three states. The network provides support by obtaining disparate public datasets, organizing them on an ArcGIS platform, assessing land-use change with geoprocessing models, and presenting results. Adjacent municipal parcels are compared over time to detect change in their geometry and GIS attributes (e.g., ownership, zoning, and permitting).



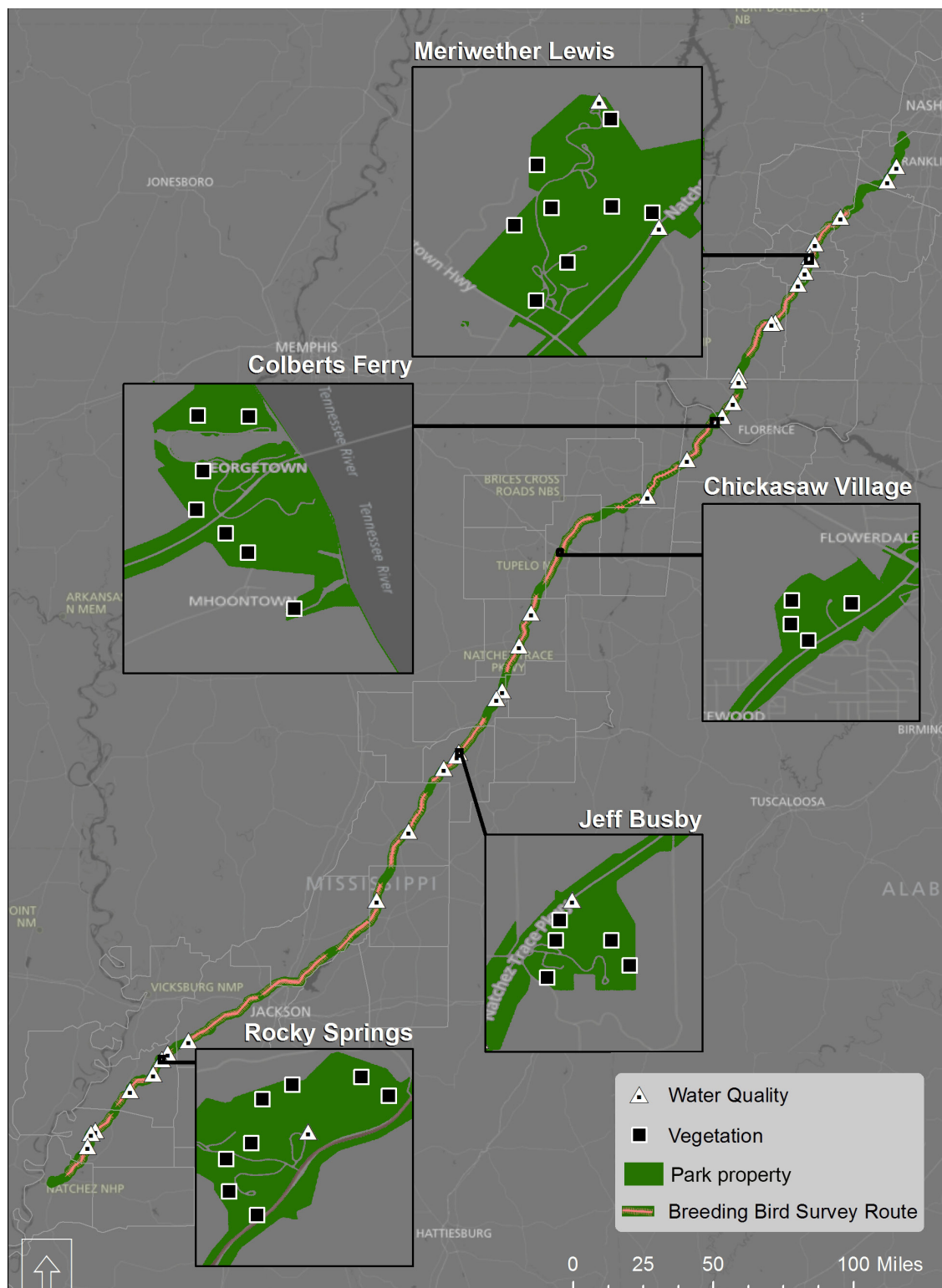
The Gulf Coast Network monitors water quality along the parkway by taking water samples from Jackson Falls and other streams, creeks and rivers along the parkway.



The network monitors the coverage and frequency of plant species, like this deerberry (*Vaccinium stamineum*), in long-term plots at five areas along the parkway.

The network's 65 permanent sampling locations, plus the Breeding Bird Survey Routes, are mapped on the next page.

GULN Vital Sign	Number of Sampling Points	Sampling Frequency	Monitoring Start Year
Water Quality	33	Quarterly each year	2010
Terrestrial Vegetation	32	Every 4 Years	2021



For more information, visit <https://www.nps.gov/im/guln/index.htm>