

The Mississippian Floyd Shale in the Black Warrior Foreland Basin, Alabama and Mississippi, Carrie A. Kidd and William A. Thomas, University of Kentucky, Department of Earth and Environmental Sciences, Lexington, KY 40506, carrie.kidd@uky.edu, geowat@uky.edu

The fill of the Black Warrior Basin is a middle Mississippian to Pennsylvanian southwest-thickening synorogenic clastic wedge, the lower tongue (Pride Mountain Formation, Hartselle Sandstone, and lower Floyd Shale) of which thins northeastward between the underlying Tusculumbia Limestone and overlying Bangor Limestone. The organic-rich Floyd Shale has recently gained attention by being comparable to the unconventional gas play in the Barnett Shale, Fort Worth Basin. Interpreting the sequence stratigraphy of the Lower Mississippian clastic wedge will be useful for describing the geometry and distribution of hydrocarbon reservoir sandstones in relation to the probable Floyd Shale source.

Sequence stratigraphy has recently been applied to foreland basins with some success, making it possible to interpret the balance between subsidence and sea level change, and to define a temporal framework for the filling of the foreland basin. Data from geophysical well log correlations and well cuttings support an interpretation of the sequence stratigraphy of the Pride Mountain Formation, Hartselle Sandstone, Floyd Shale, and Bangor Limestone. The Pride Mountain Formation and Hartselle Sandstone include stacked barrier-island and marine-bar facies that grade northeastward into carbonate-platform facies. The Pride Mountain and correlative lowermost Floyd Shale thin over the Lowndes-Pickens fault block in the southern part of the basin. The Bangor Limestone includes a southwest-sloping carbonate ramp, which is distinctly cyclic. The toe of the ramp passes into black shale, which represents a condensed section deposited in the deeper parts of the basin within the Floyd Shale. The Bangor ramp and Floyd black shale lap across the Lowndes-Pickens block with no thickness anomaly.