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# Executive Summary—Assessment of Undiscovered Oil and Gas Resources of the Black Warrior Basin Province of Alabama and Mississippi

By U.S. Geological Survey Black Warrior Basin Province Assessment Team

## Overview

The U.S. Geological Survey (USGS) assessed the undiscovered oil and gas resources of the Black Warrior Basin Province in northeastern Mississippi and northwestern Alabama (fig. 1). This assessment is based on the geologic elements of each total petroleum system (TPS) defined in the province,

including (1) hydrocarbon source rocks (source-rock maturation, and hydrocarbon generation and migration); (2) reservoir rocks (sequence stratigraphy and petrophysical properties); and hydrocarbon traps (trap formation and timing). Using this geologic framework, the USGS defined two TPSs and three assessment units (AU) and estimated the volume of undiscovered oil and gas resources within each AU.

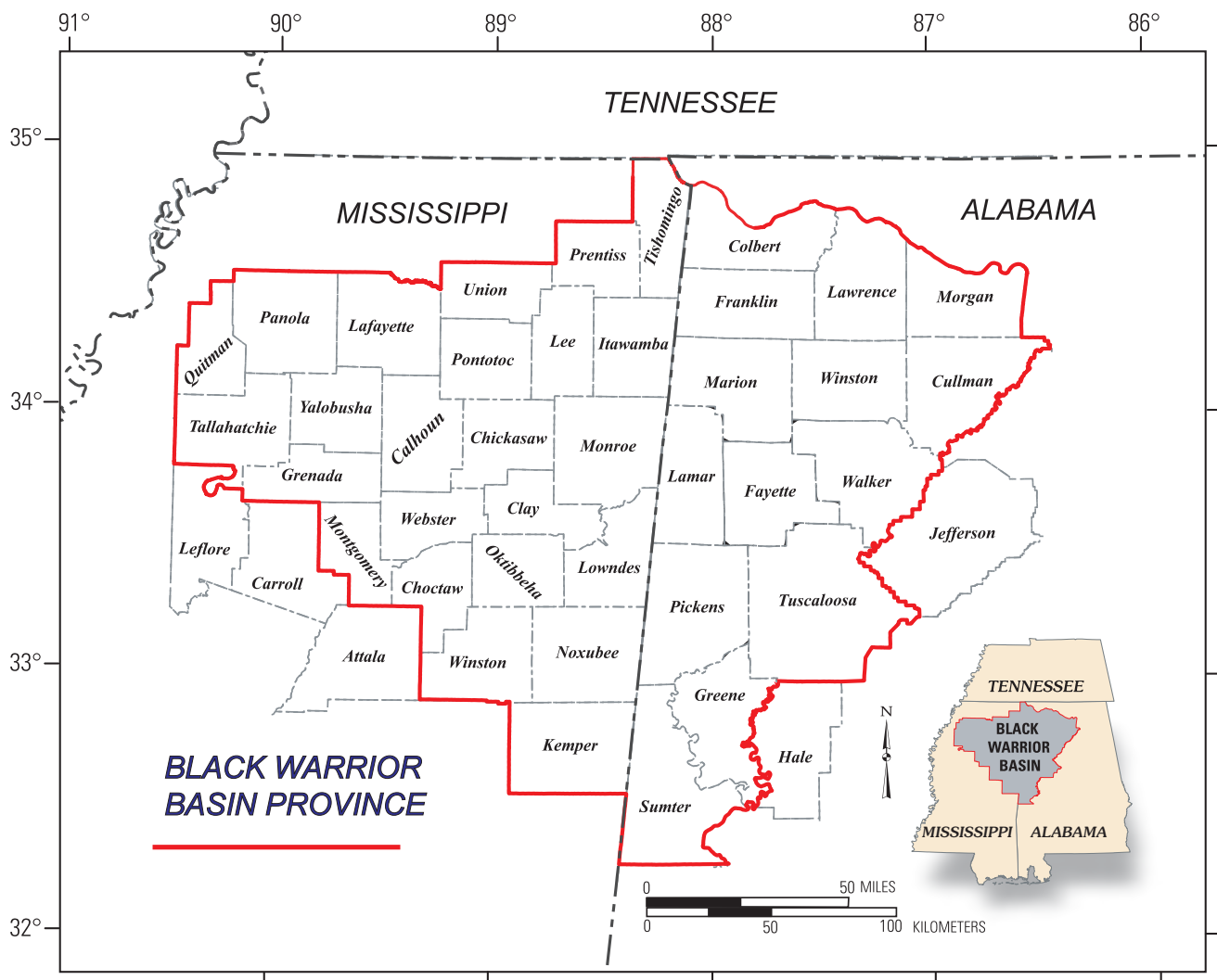
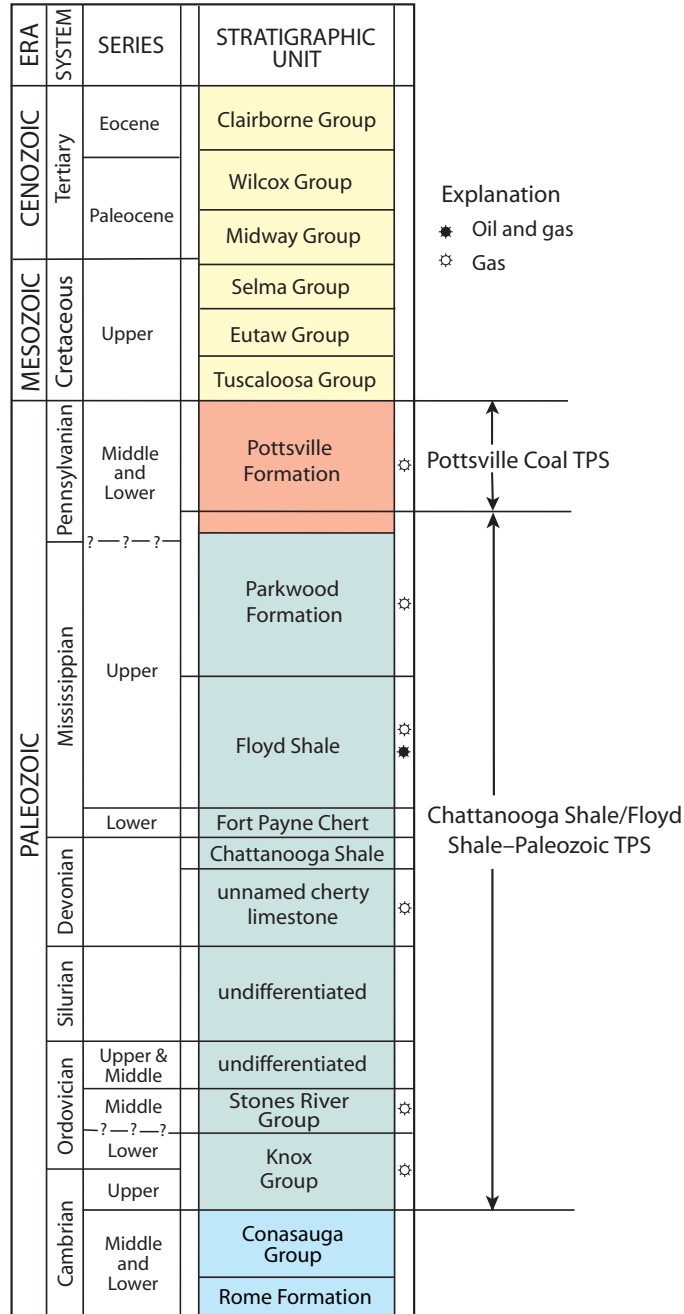


Figure 1. Location of the Black Warrior Basin Province in northwestern Alabama and northeastern Mississippi.

## Assessment Units

The two TPSs identified within the Black Warrior Basin Province are the Chattanooga Shale/Floyd Shale–Paleozoic TPS and the Pottsville Coal TPS (fig. 2). Two AUs were identified within the Chattanooga Shale/Floyd Shale–Paleozoic TPS: (1) Pre-Mississippian Carbonates AU, which is defined by gas trapped primarily in Cambrian and Ordovician platform-carbonate reservoirs by basement-controlled fault blocks; and (2) Carboniferous Sandstones AU, which is defined by gas

and oil trapped in Upper Mississippian and Lower Pennsylvanian deltaic and shallow-marine sandstone reservoirs by a variety of basement-involved fault blocks, stratigraphic traps (sandstone to shale facies changes), and a combination of structural and stratigraphic traps. The Pottsville Coal TPS contains the Black Warrior Basin AU, which is defined as the potential for gas having been generated and trapped in Lower and Middle Pennsylvanian coals, primarily in the Alabama portion of the Black Warrior Basin.



**Figure 2.** Generalized stratigraphic column for the Black Warrior Basin showing stratigraphic units within the Chattanooga Shale/Floyd Shale–Paleozoic and the Pottsville Coal Total Petroleum Systems (TPS). Modified from Montgomery (1986) and Carroll and others (1995, their fig.1).

