

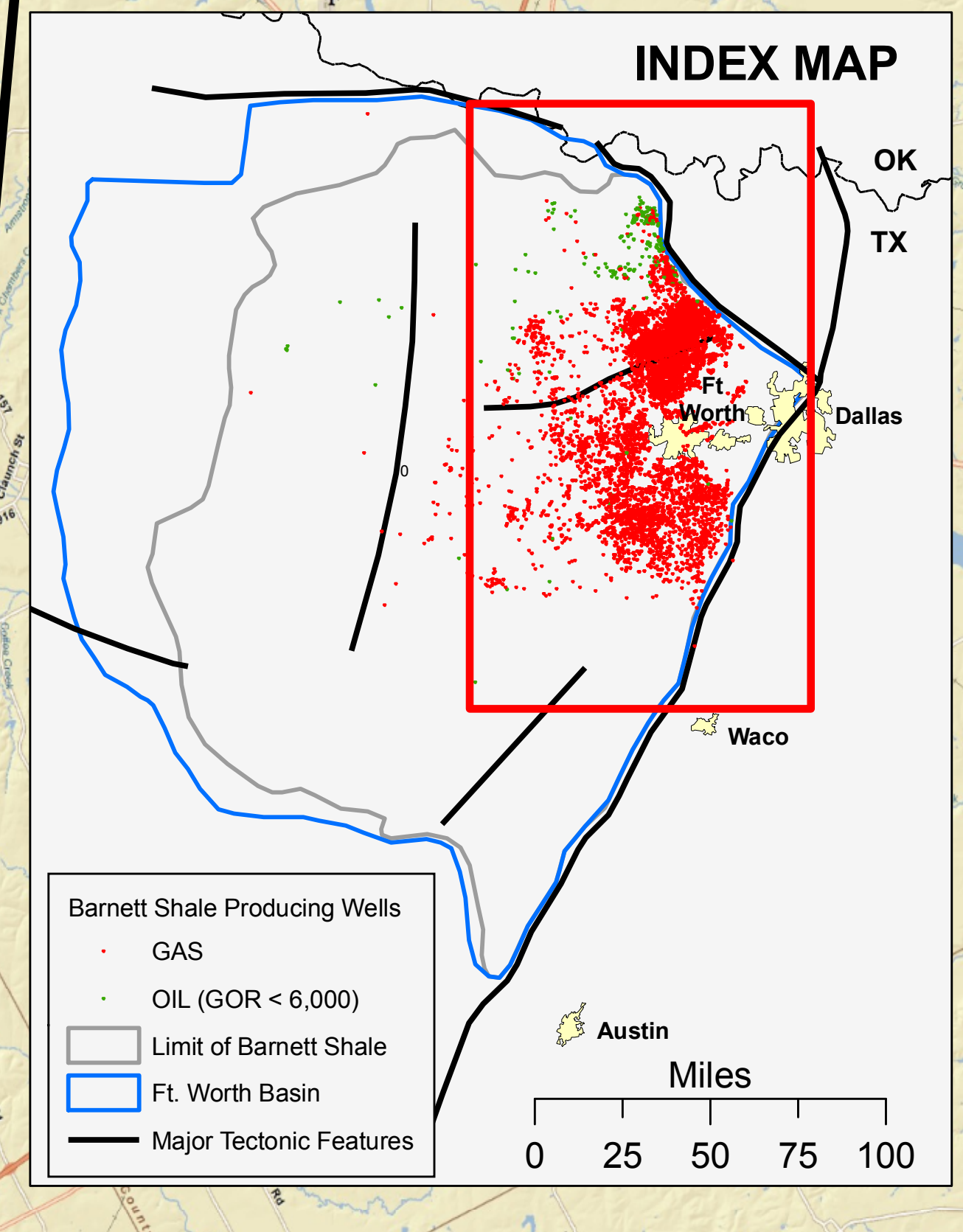
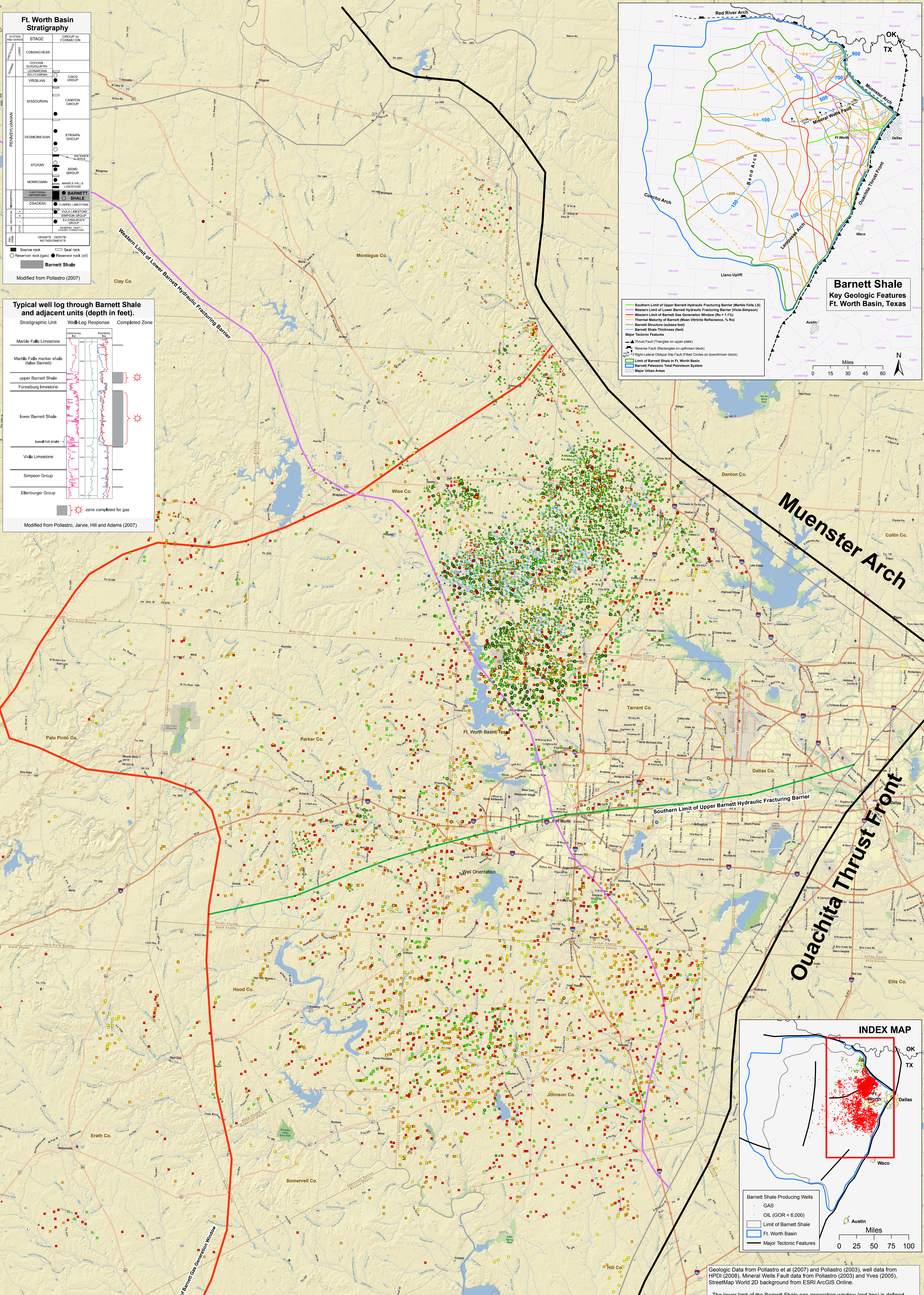
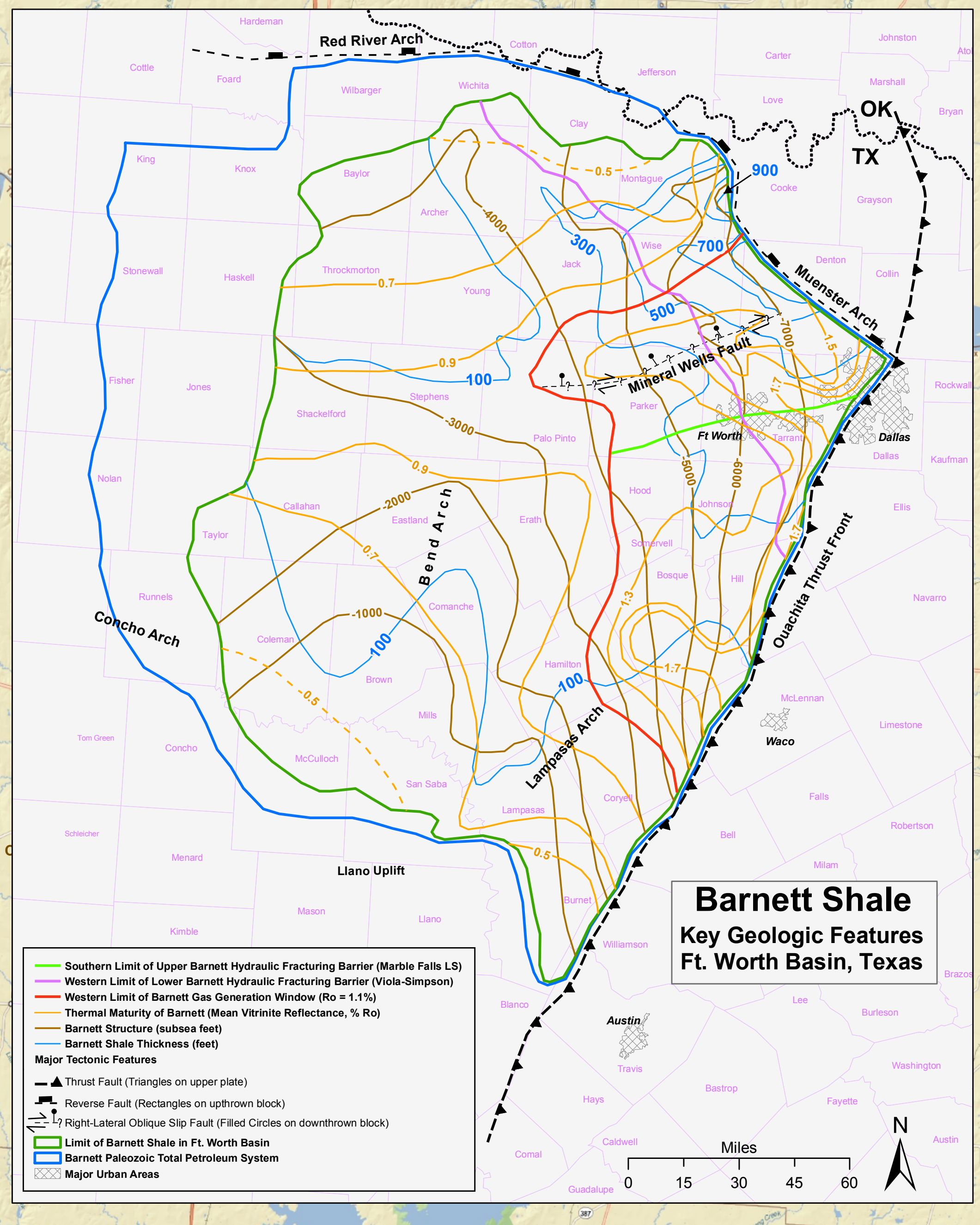
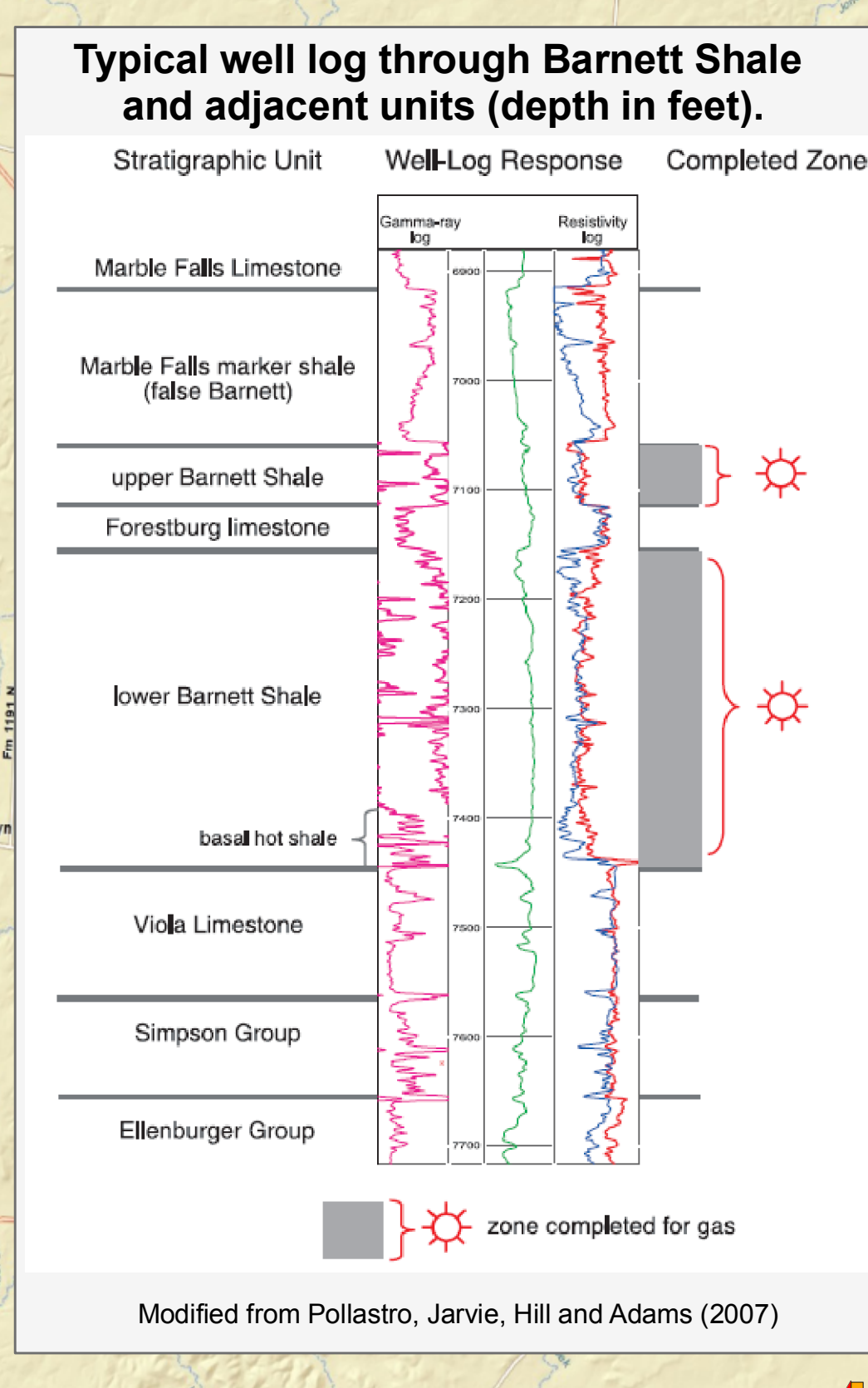
Barnett Shale, Ft. Worth Basin, Texas Wells By Year of First Production & Orientation

Ft. Worth Basin Stratigraphy

STAGE	GROUP OF FORMATION
DOMANICHEAN	CHERO GROUP
LEONARDIAN	CHERO GROUP
VIRGILIAN	CHERO GROUP
MISSOURIAN	CANYON GROUP
DESMOINESIAN	STRAWN GROUP
ATOKAN	OUTER BELT
MICROBIAN	BEND GROUP
OSAGEAN	CHERRY LIMESTONE
	VIOLA LIMESTONE
	SIMPSON LIMESTONE
	ELLENBURGER LIMESTONE
	ELLENBURGER GROUP

■ Source rock
 □ Seal rock
 ● Reservoir rock (gas)
 ○ Reservoir rock (oil)

Modified from Pollastro (2007)



Geologic Data from Pollastro et al (2007) and Pollastro (2003), well data from HPDI (2008), Mineral Wells Fault data from Pollastro (2003) and Yves (2005), StreetMap World 2D background from ESRI ArcGIS Online.

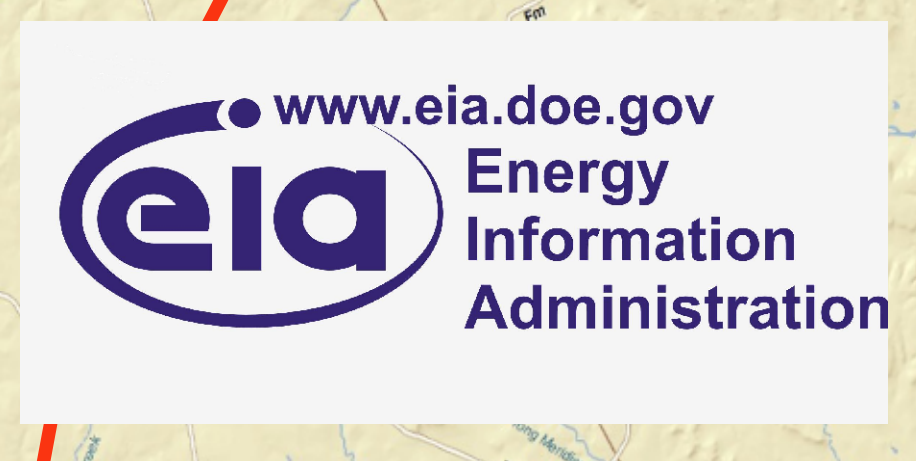
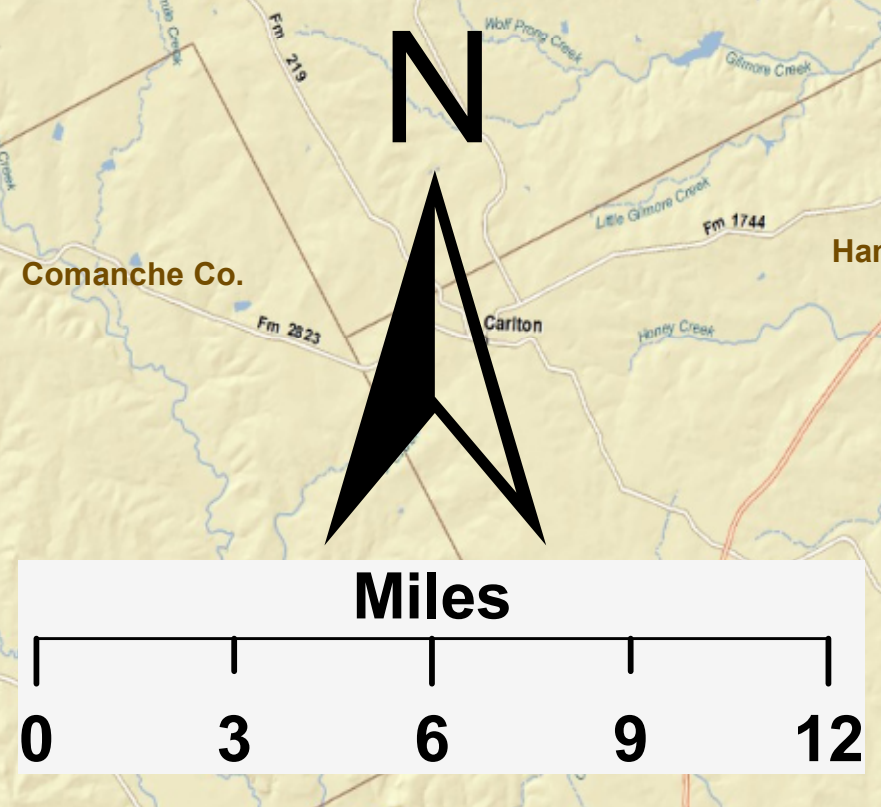
--The lower limit of the Barnett Shale gas generation window (red line) is defined by the vitrinite isoreflectance value of $R_o = 1.1$ (Jarvie et al. 2003, 2005). Areas east and northeast of this line have the potential for nonassociated gas production, while areas to the west and southwest may produce oil from the Barnett (Pollastro, 2007).

--Southern limit of Upper Barnett hydraulic fracturing barrier (green line): the Barnett is overlain by an impermeable limestone barrier (the Marble Falls Limestone) to the north of this line, which confines hydraulically induced fractures to the Barnett during well stimulation. To the south the sedimentary facies changes to shale.

--Western limit of Lower Barnett hydraulic fracturing barrier (purple line): the Barnett is underlain by an impermeable limestone barrier (the Viola-Simpson Limestone) to the northeast of this line, which confines hydraulically induced fractures to the Barnett during well stimulation.

Map Projection: UTM-15, NAD83 Map Date: October 2008

Authors: Samuel H. Limerick (1), Lucy Luo (1), Gary Long (2), David F. Morehouse (2), Jack Perrin (1), and Robert F. King (2)
 (1) Z. Inc., (2) Energy Information Administration



Surface Locations of Producing Barnett Shale Wells

Year of 1st Production (well count)	Well Orientation (well count)
● 1969 - 1989 (58)	□ Horizontal (5500)
● 1990 - 2000 (713)	□ Vertical (3915)
● 2001 - 2004 (3123)	□ Directional (511)
● 2005 (1091)	— Southern Limit of Upper Barnett Hydraulic Fracturing Barrier (Marble Falls LS)
● 2006 (1587)	— Western Limit of Lower Barnett Hydraulic Fracturing Barrier (Viola-Simpson)
● 2007 (2136)	— Lower Limit of Barnett Gas Generation Window (Ro = 1.1)
● 2008 (1218)	— Major Tectonic Features
	□ Approximate Limit of Barnett Shale in Ft. Worth Basin

