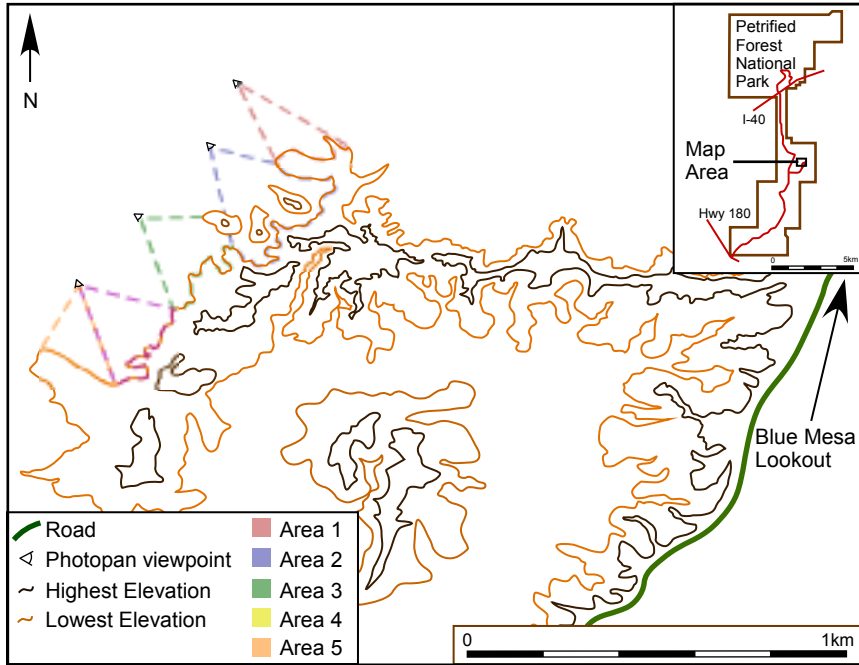


# Construction of a high-resolution spatial and temporal alluvial facies model for the Sonsela Member, Chinle Formation (Mid Norian), Arizona, USA

A - Map of the study area within the Petrified Forest National Park. Colored areas show the panoramic photo location and view of each sub-divided Area (shown below is Area 1).



This study examines a 1km long exposure of Late Triassic cyclic alluvial deposits and paleosols within the Petrified Forest National Park. The study area was separated into 5 individual study areas (see A) for which high-resolution panoramic photos were taken. During the summer of 2008, eight measured sections and 60 paleosols were described as to grain size, depositional style, and pedogenesis. Observed field characteristics were mapped on high-resolution panoramic photos to determine the 2-D distribution of alluvial features (see B). Samples of paleosols and sandstones were obtained and will be analyzed for grain size, bulk geochemistry, thin section petrography and micromorphology, and isotopes.

The main goals of the study are:

- To document changes in paleosol and depositional style, and develop a conceptual model that relates the two.
- To combine information about changing alluvial style through time in order to develop a better understanding of the relationship between reservoir quality and evolving fluvial style and climate.

B - Detailed 2-dimensional map of Sonsela Area 1 butte (see A) showing fluvial architectural elements, pedogenic development, paleosol tops, and location of both measured sections and paleosol profiles.

