Field Trip: Petrified Forest National Park

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AASG
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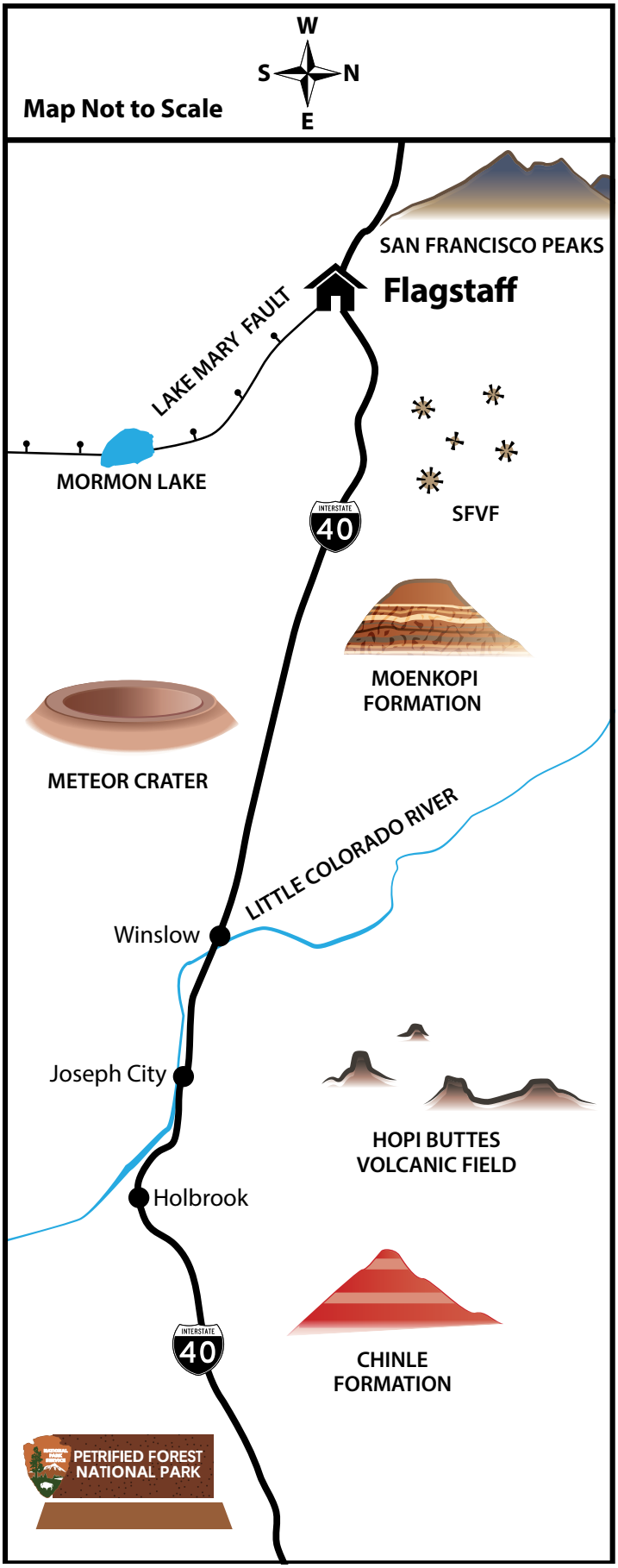

San Francisco volcanic field. The field comprises 610 vents emplaced over 6 Ma, the largest vent in the San Francisco Peaks.

Eastern San Francisco volcanic field. This is the youngest part of the volcanic field. The ~1000 year old Sunset Crater resides here and future volcanic activity will almost certainly occur in this area.

Meteor Crater. Photo by Alan Levine, CC BY 2.0, Flickr

Meteor Crater formed nearly 50,000 years ago when a nickel-iron meteorite 50 meter diameter, struck the Earth. In 1960, Eugene Shoemaker (US Geological Survey) worked out the details of crater formation by studying Meteor Crater.

The Triassic Moenkopi Formation, comprising thinly bedded mudstones and sandstones, crops out along Interstate 40 near Meteor Crater extending eastward to Holbrook.

Volcanic maars and diatremes of the ~ 7 Ma Hopi Buttes volcanic field crop out north of Interstate 40.

Painted Desert. Photo by NPS, CC BY 2.0, Flickr

Petrified Forest National Park. The park, which began as a national monument and became a national park in 1962, covers ~ 400 km^2. The Late Triassic Petrified Forest Member of the Chinle Formation crops our here and is one of the greatest petrified wood sites in the world. In 2012, AZGS published the first large-scale, 1:50,000 geologic map of the park. Bill Parker, your park guide, is a co-author.

Image courtesy of National Park System

The Dying Grounds—Petrified Forest National Park

AASG 107th Annual Post-Meeting Field Trip

Dr. William Parker, Vertebrate Paleontologist
Adam Marsh, PhD student at University of Texas and seasonal paleontologist

Dying Grounds Field Trip

The Dying Grounds (PEFO Vertebrate Fossil locality 122) is a fossil locality located in the Blue Forest area of Petrified Forest National Park. The site was first discovered by researchers from the University of California at Berkeley in 1921 and is in the upper part of the Blue Mesa Member of the Upper Triassic Chinle Formation (Martz and Parker, 2010). The site has a minimum depositional age of 220.124 +/- 0.068 Ma using High precision U-Pb dates from detrital zircons (Atchley et al., 2013). Drab colored paleosols at the site suggest that it was a pond or small oxbow lake setting. Fossil vertebrates and coprolites are extremely common and the fauna is dominated by aquatic taxa such as freshwater sharks and bony fish, metoposaurid amphibians, and phytosaurian reptiles. Rarer terrestrial taxa are also represented by aetosaurian, crocodylomorph, and shuvosaurid reptiles (Long and Murry, 1995; Parker and Martz, 2011).

References

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Acknowledgement

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