

# ***Nevada Petroleum Society Annual Field Trip – 2008***

## **The Sheep Pass Formation: Sedimentation and Tectonics Within the Late Cretaceous to Eocene Sevier Hinterland**

**May 31 through June 2, 2008**

### **Field trip description:**

Our three-day field trip for 2008 will focus on the Cretaceous-Tertiary Sheep Pass Formation in east-central Nevada. This unit was deposited during the transitional time between the Sevier and Laramide orogenies, and was deposited in the hinterland of the contractional zone, west of the Sevier thrust front. The trip will be led by Peter Druschke, who is completing his PhD dissertation on these rocks at the University of Nevada, Las Vegas. A detailed itinerary is attached. Maximum number of participants is 30.

### **Logistics:**

- The field trip will be based in Ely, Nevada, returning there each night. Your field trip fee includes dinner Saturday and Sunday evening, and a guidebook. Participants are responsible for their own lodging, breakfast, lunch and transportation. A block of rooms is reserved at the Jailhouse Motel at a rate of \$58/night single, \$64/night double. Participants should call the motel at 800-841-5430 and reserve the rooms they require. Tell the desk that you are part of the NPS field trip. Alternatively, participants can make their own lodging arrangements; there are many motels in Ely, and there is camping in the National Forest nearby. All participants need to arrive in Ely Friday night (May 30) or early enough Saturday morning to join the trip leader (as specified below).
- There will be two group dinners, Saturday and Sunday nights, at the Hotel Nevada. These are prepaid as part of your registration fee. NPS will provide some snacks and water. You will want to bring a cooler and lunch each day.
- Transportation will be provided by the participants, and carpooling on field days will be required. High clearance and 4WD is recommended; two-passenger trucks will be discouraged, to limit the number of vehicles.
- We hope you will be able to stay for the entire three days. However, we have designed the itinerary so that the most important stops are on Saturday and Sunday. You are free to leave the trip Sunday evening or Monday. Also, staying in Ely Monday night is optional. The trip will officially end at the end of the field day, Monday June 2.

**The trip starts at 8am, Saturday May 31**, in the city park on Aultman Street (US 50) opposite the old High School building (south side of the main street, which is US 50). This will be the daily starting place. **Physical Considerations:**

The trip involves a fair bit of walking off-trail, some in steep terrain. Eastern Nevada is piñon-juniper forest and open sagebrush - cheat grass country. Elevations are in the 6000' to 8000' range. In May-June temperatures can vary widely, and it may be dry or wet. Spring in eastern Nevada often features mosquitoes and biting gnats. Come prepared for field work: field boots, hat, wind jacket, sunscreen,

bug dope, and lots of water. Bring lunches you can pack in. Please let the leaders know if there are any special needs you will have during the trip.

**Sponsor a student?** Please let us know if you would like to sponsor a student, and include \$50 in your check for that purpose. There will be four slots set aside for students.

Detach this form and mail with your check to:

**Nevada Petroleum Society, P.O. Box 11526, Reno, NV 89510-1526**

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Name: \_\_\_\_\_ name for badge

Address \_\_\_\_\_ e-mail address

Affiliation (optional) \_\_\_\_\_

Phone number \_\_\_\_\_ cell phone number

Fee (\$100 regular before May 1, \$120 after May 1, \$50 student)

check number \_\_\_\_\_ and date paid \_\_\_\_\_

Emergency contact number and name:

\_\_\_\_\_  
The Sheep Pass Formation: Record of latest Cretaceous to Eocene extension within the Sevier hinterland of east-central Nevada: Leader - Peter Druschke, University of Nevada Las Vegas

**Field trip synopsis:**

Day 1: We will spend our first day in the field within the Sheep Pass Formation (SPF) type section of the southern Egan Range near Lund, Nevada. Prepare yourself for rough road access and a weekend spent largely afoot in Sheep Pass Canyon. As we walk through the lower members of the SPF, we will discuss issues related to depositional environments, tectonic setting, petroleum source/reservoir characteristics, and age/stratigraphic correlation. We will also see examples of Paleozoic megabreccia blocks within the basal SPF, as well as evidence for soft-sedimentary folding and slump deposits within the lacustrine and fluvial members. There will also be the opportunity to examine the unconformity separating the SPF from underlying beds of the Ely Limestone, Scotty Wash Sandstone, and Chainman Shale.

Day 2: In the morning we will return to Sheep Pass Canyon to walk part of the basal SPF contact southward from Sheep Pass Canyon and discuss the validity of the "low-angle sub-Tertiary unconformity" concept, and its significance for Late Cretaceous to Paleogene paleogeography. We will see examples of syn-depositional normal faults within the basal

SPF that are overlapped by the upper members of the SPF. In the afternoon we will travel south to examine exposures of the Shingle Pass fault. Here we will have the opportunity to discuss evidence for 3-4 km of stratigraphic throw on the low-angle Shingle Pass and Ninemile faults, and evidence for their involvement as portions of a Cretaceous-Paleogene basin forming-fault system. Shingle Pass also provides exposures of the SPF that are overlapped by megabreccia derived from the Ely Limestone, and are in turn overlapped by the volcanoclastic Garrett Ranch Group. We will compare evidence from remote exposures in Sheep Pass Canyon that suggest renewed regional Middle(?) to Late Eocene normal faulting, and fanlomerate deposition.

Day 3: For the final day we will travel south of Ely to spend the morning examining exposures of the SPF along the eastern flank of Ward Mountain in Sawmill Canyon. Sawmill Canyon provides excellent exposures of conglomerate, sandstone and lacustrine limestone of the "tuffaceous SPF," unconformably capped by the Charcoal Ovens Tuff. We will discuss the use of "type 1" and "type 2" stratigraphic subdivisions of the SPF to distinguish between non-tuffaceous deposits of the SPF type section and Middle(?) - Late Eocene tuffaceous lacustrine deposits correlated to the SPF. New U-Pb detrital zircon, (U-Th)/He zircon ages and  $^{40}\text{Ar}/^{39}\text{Ar}$  sanidine ages of tuff interbedded with the SPF and from the Charcoal Ovens Tuff indicate that sections of the "tuffaceous SPF" in fact overlap with the deposition of the Stinking Spring conglomerate in Sheep Pass Canyon, part of the basal Garrett Ranch Group. Together the SPF type section and exposures of the "tuffaceous SPF" provide evidence for at least two episodes of extension in the latest Cretaceous-Paleocene and the Middle-Late Eocene. The afternoon will be open for return travel.