

Rocky Mountain (63rd Annual) and Cordilleran (107th Annual) Joint Meeting (18–20 May 2011)

Paper No. 8-10

Presentation Time: 8:00 AM-6:00 PM

THE CONFUSION RANGE, WEST-CENTRAL UTAH: A SEVIER-AGE FOLD-THRUST BELT IN THE HANGING WALL OF THE SNAKE RANGE DÉCOLLEMENT

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The Confusion Range in west-central Utah comprises ~5000 m of Ordovician to Triassic miogeoclinal strata in what has previously been described as a broad structural trough or synclinorium. Published structural interpretations have featured complex and geometrically unlikely internal deformation, with generally minimal overall shortening. In contrast, our work suggests that the Confusion Range is best characterized as an east-vergent fold-and-thrust belt with significant (>10 km) horizontal shortening during the late Jurassic to Cretaceous Sevier Orogeny. The Confusion Range lies east of and structurally above the Snake Range core complex, and likely originally formed the sedimentary cover to the complex.

We utilize existing mapping and new field data to construct a series of balanced and retrodeformable cross sections across the Confusion Range and adjacent Tule Valley. In our interpretation, a series of frontal and lateral ramps in IPz strata in the subsurface on the west side of the range are the primary influence on structural geometry. Ramp anticlines and anticlinal duplexes in IPz strata result in faulted and rotated detachment folds in uPz strata. The apparently synclinal aspect of the Confusion Range results from two different sets of thrust structures that uplift and expose IPz strata on the flanks of the range. A major ramp anticline with an east-dipping frontal limb forms the Buckskin Hills on the west side of the range, whereas an east-vergent thrust fault (Kings Canyon Thrust) and subsurface ramp form the west-dipping east flank of the range. High-angle normal faults bound the range and contribute to the present structural and topographic relief, but evidence of extension within the range is limited.

The Confusion Range presently occupies an unusual structural position in an apparent “keystone” above oppositely-dipping, regional low-angle normal faults: the west-dipping Sevier Desert detachment and the east-dipping Snake Range décollement. Localized Mz shortening in the Confusion Range is separated from the Sevier frontal thrust zone to the east by long flat-on-flat faults inferred to underlie the House Range and Sevier Desert basin. Significant localized shortening in the Confusion Range apparently preceded mid-Tertiary extensional collapse and formation of the Snake Range core complex.

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[General Information for this Meeting](#)

Session No. 8--Booth# 41

[From Contraction to Extension: The Mesozoic to Cenozoic Tectonic Evolution of the Northern Great Basin \(Posters\)](#)

Riverwoods Conference Center: Grand Ballroom

8:00 AM-6:00 PM, Wednesday, 18 May 2011

Geological Society of America *Abstracts with Programs*, Vol. 43, No. 4, p. 15

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