Upper Triassic metavolcanic and metasedimentary strata in the study area are intruded by the Hurricane Divide and Craig Mountain Plutons of the Late Jurassic-Cretaceous Wallowa Batholith. The Clover Creek Greenstone is overlain by the Martin Bridge Limestone, which is in turn overlain by the Hurwal Argillite; although the sequence is in normal stratigraphic order, contacts are generally tectonic. Concurrent with Early-Middle Jurassic regional deformation, during which the strata were folded about northeast trending axes and intruded by intermediate to mafic dikes, emplacement of the plutons of the Wallowa Batholith
The plutons intruded vertically through the greenstone and limestone and then horizontally above the greenstone. This resulted in intense penetrative plastic deformation particularly of the Martin Bridge Limestone. Emplacement of the Hurricane Divide Pluton followed a northeast axis, and resulted in isoclinal folding and the formation of northerly trending synformal anticlines in the Martin Bridge atop a zone of uncoupling between the plastic limestone and the more rigid underlying Clover Creek metavolcanic basement. Subsequent final emplacement of the Craig Mountain Pluton caused cross folding of these anticlinal structures.

Granitic plutonism was followed by regional uplift with associated faulting and erosion. Miocene Columbia River Basalt flood lavas were injected along many of the more northerly trending of these faults. This magmatism was concurrent with or followed by block uplift on the order of 1800 m of the Wallowa Mountains along the Wallowa Fault.