The Precambrian Farmington Canyon complex crops out in the Wasatch Mountains between Ogden and Bountiful, Utah. Additional exposures are present at Durst Mountain and at Antelope Island.

East of Ogden, between Ogden Canyon and Strongs Canyon, the Farmington Canyon complex has been thrust eastward over Lower Cambrian Tintic Quartzite and Middle Cambrian shales and limestones of the Ophir Formation and Maxfield Limestone. This thrust is named the Ogden thrust. Similarly, at Durst Mountain, east of Morgan Valley, the Farmington Canyon complex has been thrust over lower Cambrian Tintic Quartzite and Middle Cambrian shales and limestones. This thrust fault is the Durst Mountain thrust. If the back thrust is restored, it appears that the two similar thrusts involving the Farmington Canyon complex could have once been continuous. Such a reconstruction requires a minimum of 12 mi (19.3 km) of thrust displacement of the complex eastward over the sequence of basal Cambrian rocks.

This evidence is significant for two reasons: (1) the Farmington Canyon complex of the Wasatch Mountains may not be in place, but may be allochthonous above a decollement at depth; and (2) the Paleozoic-Mesozoic sequence east of Morgan Valley may also overlie the same decollement, which would increase the potential for petroleum plays in the area.

The northern Utah uplift, proposed for this area by A. J. Eardley and discussed by M. D. Crittenden, may result from a sequence of Farallon subduction and seafloor spreading and crustal extension since the Miocene. A plunging section of the South Granite Mountains fault system is at least 70%. In summary, the complicated faulting history resulted from crustal extension since the Miocene.

In the Leppy Hills, a series of 11.6 Ma volcanic flows is separated from the underlying Permian limestone by an angular unconformity of about 15°, indicating the Paleozoic sedimentary rocks dipped gently and the area had low topographic relief as little as 11.6 Ma. Faulting ended by the Pleistocene, for Quaternary deposits overlap the faults.

Most of the rocks in the Leppy Range dip 10°-60° west. Normal faults are common and generally trend north. During extension, the limestone beds deformed brittlely and faulted while shaly beds were stretched ductily. The fault surfaces range from distinct planar zones with narrow gouge zones to large brecciated zones. Commonly, breccia fragments are covered with concentric bands of fibrous calcite that indicate a cavity filling. Calcite-filled extension fractures increase in abundance toward fault zones. Locally, up to 25% of the rock volume is veined. Some faults up to 100 m (330 ft) long curve to become subparallel to bedding, producing a spoon-shaped geometry, with the bowl of the spoon facing upward. Multiple generations of faulting have subsequently rotated faults and beds. Space problems along curved faults on the tens of meters scale were accommodated by: (a) intense brecciation and formation of calcite-filled veins or voids, (b) cataclastic flowage of limestone or ductile flowage of shale into the space, or (c) antibiotic faulting or "passive listric folding" of the hanging wall.

The extension in the Leppy Hills, calculated along the simplest cross section, is at least 70%. In summary, the complicated faulting history resulted from crustal extension since the Miocene.