## A very simplified geologic history of the Basin and Range region of east-central Idaho Surface of Paleozoic sea Hundreds of millions of years ago: Layers of Paleozoic-age sediments, which will become sedimentary rocks like limestones, sandstones, and shales Future thrust faults Ancestral Rocky Mountains One hundred to three hundred million years ago, a collision of tectonic plates to the west compresses the rocks deposited above: Paleozoic sedimentary rocks (compressional folded and faulted in Late Paleozoic (compressional faults) and Mesozoic compression fault) Paleozoic Early 540 to 251 million years ago Cenozoic Surface of "the age of invertebrates" continental Mesozoic Mesozoic: Cenozoic volcanic rocks 251 to 66 million years ago erosion divide (Challis Volcanics) Tens of millions of years ago, "the age of reptiles" Cenozoic: after the rocks above are 66 million years ago partly eroded, lava erupts to present (north of, and long before, the "the age of mammals" lavas of the modern Snake River Plain): One of the dikes through which Future faults on the west sides of the magma moved upward to Lost Rivers, Lemhis, and Beaverheads give the Challis Volcanics In the last ten million Modern years, western North continental divide America is stretched: River sediments Alluvial fan Pioneers and Big Lost River Valley & valley of Sawtooths Lost Rivers Beaverheads White Knobs Lemhis Little Lost & Pahsimeroi valleys Birch Creek & East Warm Springs Creek West This is a very generalized crosssection omitting many details. It also involves a The same pattern can western side-step to the north be extended to the Tendoy to allow inclusion of the Sawtooths Normal faults Normal faults Valley sediments and the east-dipping Sawtooth Fault. Mountains in Montana east (extensional faults) (extensional faults) of, but parallel to, the Beaverheads. Today, in less detail than above, Beaverheads but in three dimensions: Sediments Lemhis Paleozoic Sedimentary Bedrock Pahsimero; Lost Rivers Challis Volcanics Lost River Lava Flow Pioneers "Basin and Range" is a term most commonly applied to the north-south mountain ranges (the "Ranges") and the sediment-filled valleys between them (the "Basins") of Nevada and Utah. However, the northernmost part of the region is in east-central Idaho. It has been separated from the rest of the Basin and Range by the volcanism of the Snake River Plain. A much more complete understanding of the geology of the region shown can be gained from Link, P.K. and Janecke, S.U., 1999, Geology of East-Central Idaho: Geologic Roadlogs for the Big and Little Lost River, Lemhi, and Salmon River Valleys, in Hughes, S.S., and LBR 2/2019 Thackray, G.D., eds., Guidebook to the Geology of Eastern Idaho: Pocatello, Idaho Museum of Natural History, p. 295-334.