

Heart of the Blue Mountains

The John Day River is the longest river in Oregon. Shown here in Grant County, the central portion of the river cuts through some of Oregon's oldest rocks. These "terranes" originated far out in the Pacific Ocean before colliding with and being annexed to North America. Most of the map is underlain by Baker Terrane rocks, which result from deep, muddy ocean floor environments that existed 250 million years ago. The Izee Terrane to the south in the Aldrich Mountains is a much shallower and younger formation, roughly 180 million years old. Both of these terranes were

deposited well to the west of the present-day North American landmass. They were attached or "accreted" to this continent approximately 140 million years ago. Within the rocks of these terranes even the fossil remains of plants and animals are decidedly exotic to North America. Atop all of these terranes, layer upon layer of Miocene epoch Columbia River Basalt Group lavas create the high plateaus of northeast Oregon (for geologic time scale, see Geologic Ages, pages 144-145). Sandwiched between these lavas and the older terranes, fossil-rich rocks of the Clarno, John Day, Mascal and Rattlesnake Formations provide a

superb near-continuous 50-million-year record of life in Oregon from the Eocene through Miocene epochs. The soft crumbly volcanic ash of these fossil-bearing rock formations combined with low rainfall characteristic of areas east of the Cascade Mountains creates a "badlands" topography over much of the area shown on this map. Faults, folds and intrusive rocks across the area trend northwest by southeast as shown by the pathways of many of the streams and valleys.

