

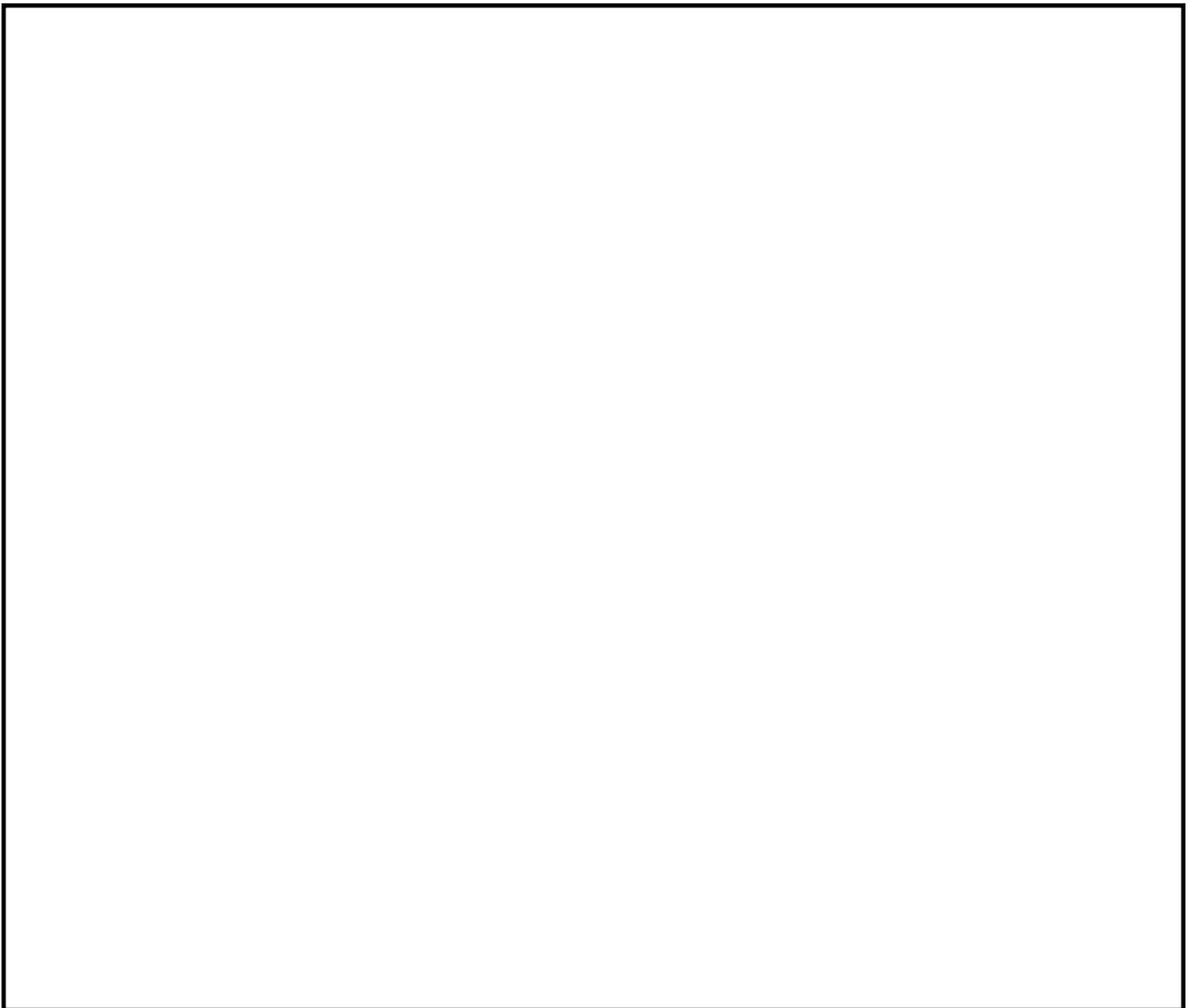
Willamette Valley



Expert Group

Landscape

The Willamette Valley is located in Western Oregon. It is an area of land surrounded by mountains. The valley is nestled between the Coast Range to its west, and the Cascade Range to its east. There are many farms in this area as the soil is extremely fertile and great for agriculture. Cities such as Portland, Salem and Eugene are also in this area.



Geological Event

Geologically, the processes of erosion and deposition have most recently influenced the Willamette Valley. Erosion occurs when wind and water carry away or remove rocks and soil from the surface of the land. Heavy rain and snowmelt in the mountains carry away sediments. The wind or water move land particles from the mountains to the valley. This process is called deposition.

During the most recent Ice Age, the Missoula Floods filled the Willamette Valley with flood waters up to 300 feet deep. These floods left nutrient-rich sediments that make up the valley floor today, which is excellent for farming.



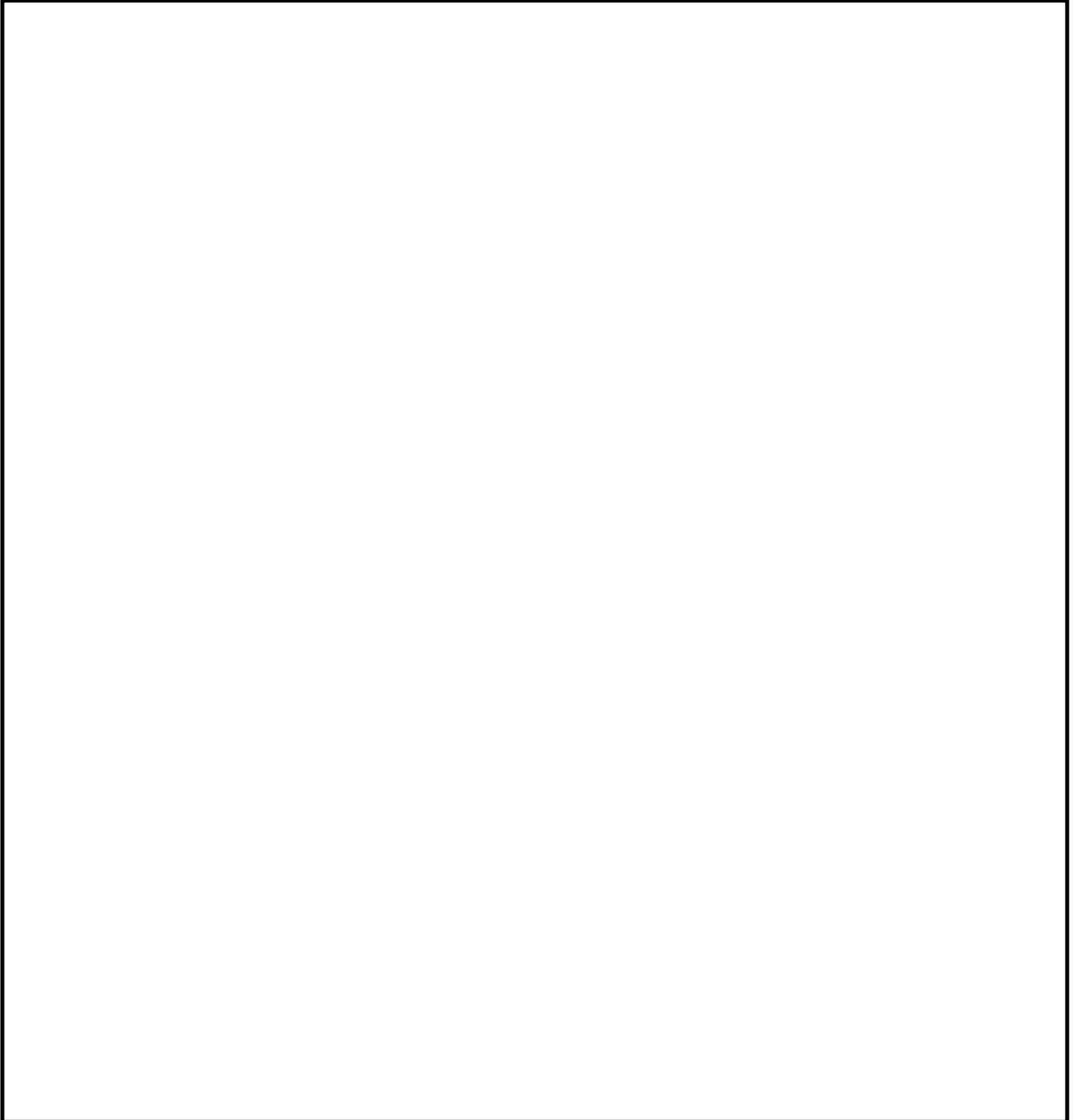
Rock Formation Evidence

Sedimentary rocks are prevalent in the valley. These rocks are formed from deposition and create layers. The waters of the Missoula Floods reached a height of 2,000 feet and speeds of 100 miles per hour, carrying topsoil from the midwest and depositing it in the valley. The flood also left large chunks of foreign rock that were rafted in, still encased in glacial ice. These boulders are called glacial erratics.



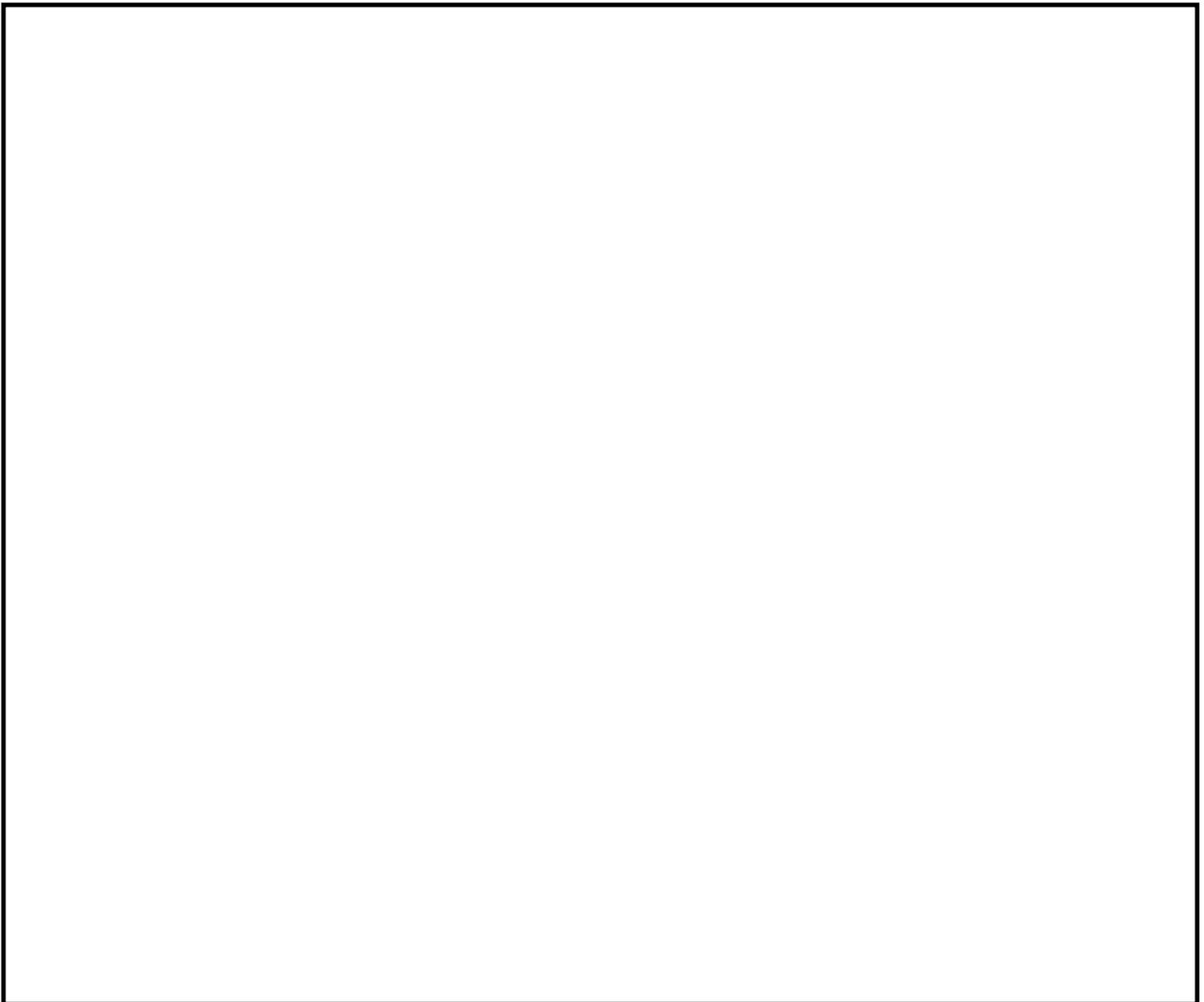
Changes over Time

Over time, the valley has become a popular place to live. The valley holds about 70% of Oregon's population. The sprawling suburbs of Portland, Salem, and Eugene are threatening farmland and forestland.



Large-Scale System Interactions

The large-scale interactions include the formation of the Coast Range and the Cascade Range through plate tectonics. The uplift and tilting of the Coast Range block and Western Cascades formed the trough-like Willamette Valley. Deposition by the Missoula Floods left fertile soil in the valley. Erosion from water, wind and chemicals has changed the valley over time.



Biogeology

Humans created dams to control the water for irrigation and to prevent flooding. This process limits the amount of deposition that occurs now, but allows for farming. Dams protect cities that would be destroyed by flooding. Many buildings in the Willamette Valley have been retrofitted to help them withstand the effects of earthquakes.

