

The Shikaribetsu River and the Tokachi Plain

The fluvial processes of the Tokachi River and its tributaries which include the Shikaribetsu River played a significant role in creating the Tokachi Plain as it is today. Rivers eroded the land they passed, carried and spread volcanic debris, and deposited sediment. Over many millions of years, these and other geological processes caused wetlands to form where there was once sea. These wetlands subsequently became the Tokachi Plain.

How rivers shape the landscape

Rivers erode landforms and transport and deposit sediment, which creates new landforms.

Erosion

Rivers erode their beds and banks, shaping the landscape as they flow. In their upper course, rivers erode the land mostly vertically as they flow down steep mountain slopes and carve out deep gorges and valleys. At lower elevations, their current is slower so the erosion is lateral as well as vertical, making them wider.

Transportation

Rivers transport sediment, which can include sand, volcanic ash, gravel, pebbles, and small rocks. The faster the flow of the river, the greater the amount of sediment carried. At lower elevations, rivers begin depositing the sediment, creating new landforms.

Deposition

Rivers deposit sediment when their current slows, resulting in the creation of landforms such as alluvial fans, meanders, levees, floodplains, and deltas. They slow as they become wider and shallower and reach lower altitudes with flatter land, and also when the volume of eroded material increases. Rivers deposit larger and heavier materials first, and smaller, lighter materials such as fine sand and silt last.

How a bay became a plain

As the Shikaribetsu River flowed down from the mountains and reached lower altitudes,

it began to slow. The land became flatter and more open, and the river could spread out freely and infiltrate the land's surface, depositing sediment. As the amount of deposited sediment increased, the riverbed rose, causing the river to overflow its banks. This process repeated, with the river depositing sediment over a broader area as it found new paths and flowed farther down toward the sea. This formed a large alluvial fan, a fan-shaped landform of deposited sediment. Over time, the Tokachi River and its tributaries such as the Shikaribetsu River deposited enough sediment to fill the bay. The large volume of sediment deposited over time created a vast plain ideal for agriculture.