14. Orthorectification

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An **orthoimage** (or orthophoto) is a single aerial image in which distortions caused by relief displacement have been removed. The scale of an orthoimage is uniform. Like a planimetrically correct map, orthoimages depict scenes as though every point were viewed simultaneously from directly above. In other words, as if every optical axis were **orthogonal** to the ground surface. Notice how the power line clearing has been straightened in the orthophoto on the right, below in Figure 6.15.1.

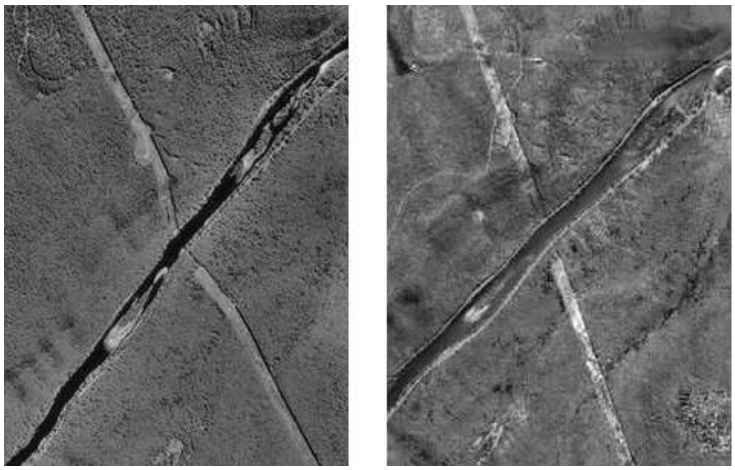

Figure 6.15.1 Comparison of a vertical aerial photograph (left) and an orthophoto.

Relief displacement is caused by differences in elevation. If the elevation of the terrain surface is known throughout a scene, the geometric distortion it causes can be rectified. Since photogrammetry can be used to measure vertical as well as horizontal positions, it can be used to create a collection of vertical positions called a **terrain model**. Automated procedures for transforming vertical aerial photos into orthophotos require **digital terrain models**.

Since the early 1990s, orthophotos have been commonly used as sources for editing and revising of digital vector data.

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