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"Legacy of mining: Aerial photography in southeastern Kansas and northeastern Oklahoma."

Abstract: For more than a century, beginning in the mid-1800s, mining lead, zinc and coal in the Tri-state district supported economic growth in the region. Both ground and aerial photographs were employed to promote the mining industry. Mining was portrayed in positive terms as essential for national industrial development, economic strength, and military needs. Following World War II, however, Pb-Zn mining began a long decline, and most of the mines were closed by 1970. By the late 20th century, the negative consequences of uncontrolled mining had become readily apparent, and the positive image of mining was replaced by a legacy of severe pollution, collapsed and wasted land, ruined communities, and serious environmental and human-health issues. New methods of remote sensing were utilized. Satellite imagery and manned-space photography provide synoptic, region-wide overviews of the devastated landscapes. We have applied small-format aerial photography (SFAP) for obtaining large-scale images that depict surface features in great detail. Kites and a helium blimp are utilized to acquire vertical and oblique views using radio-controlled camera rigs. Pictures taken from heights of less than 150 m have exceptionally high spatial resolution (2-5 cm). Preliminary SFAP has been collected already at West Mineral and Galena in Kansas as well as Picher, Oklahoma. SFAP of a passive water-treatment facility at Commerce, Oklahoma demonstrates the potential of this method for highly detailed investigations of relatively small sites (few hectares). Repeat visits to these and other sites will provide imagery for documenting the effectiveness of reclamation and remediation efforts in future years.