

Identifying and Documenting the Mountains Lowered by MTR in Appalachia – Methodology Summary

A United States Geological Survey (USGS) Topo Map index grid covering the entire Mountaintop Removal (MTR) region was digitally superimposed onto the following aerial imagery datasets using ArcGIS software: 2003 Statewide Addressing and Mapping Board (SAMB) color ortho photos 2-foot resolution for West Virginia; 1995-98 Digital Ortho Quarter Quads for Virginia; 2004 National Aerial Imagery Program (NAIP) 1-meter aerial imagery for Kentucky; and LANDSAT TM 2005 and 2006 images for the entire region. Each topo map quadrant was inventoried using all imagery available for that area to locate surface mine sites. Each mine site was analyzed for surface mining that crossed the summit ridge, the primary divide between 1:24,000-scale stream basins. Where mining did cross the ridgeline, a combination of aerial imagery and USGS Digital Topographic Maps or Digital Raster Graphic (DRG) was used to determine the amount of overburden, if any, that had been removed and the subsequent amount of elevation lost. Where 50 feet or more of overburden had been removed from the original contour, a point was established with latitude/longitude coordinates documenting that mountain's location. Additional map resources such as historical and current USGS topographic maps and DeLorme's™ statewide Atlases were used to document names for each ridge and mountain identified wherever possible.

Some 470 lowered mountains were documented using this method in 2006. In 2009, 32 additional mountains were located using more current imagery from the National Aerial Imagery Program for all four MTR states, bringing the total number of lowered mountains to 502¹. Additional QA/QC later in 2009 has since corrected that number to 500, however, a complete inventory of lowered mountains was not carried out in 2009 even though new mining activity on additional mountain sites is known to be occurring². Summit ridge removal is known to be occurring on at least one of these mountains sites, hence it is safe to conclude that at least 500 mountains have been lowered due to MTR activity in Appalachia.

Citations:

1. Geredien, Ross. 2009. Assessing the Extent of Mountaintop Removal in Appalachia: an Analysis Using Vector Data. Technical Report for Appalachian Voices, Boone, NC.
2. Geredien, Ross. 2009. Post-Mountaintop Removal Reclamation of Mountain Summits for Economic Development in Appalachia. Technical Report for the Natural Resources Defense Council, New York, NY.