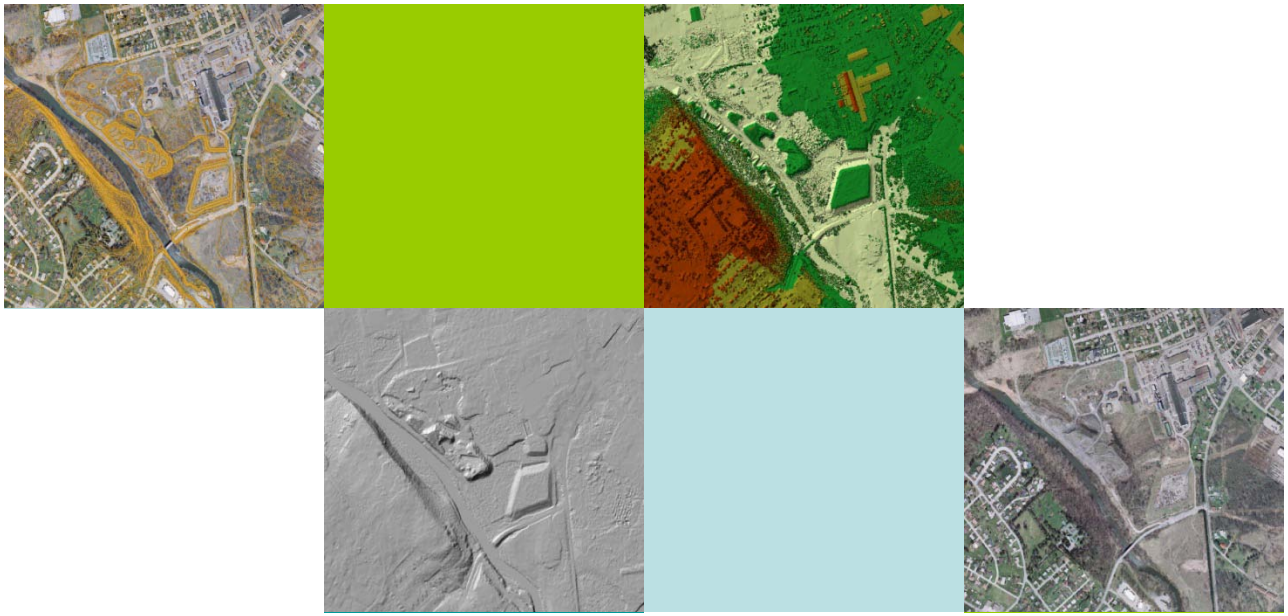
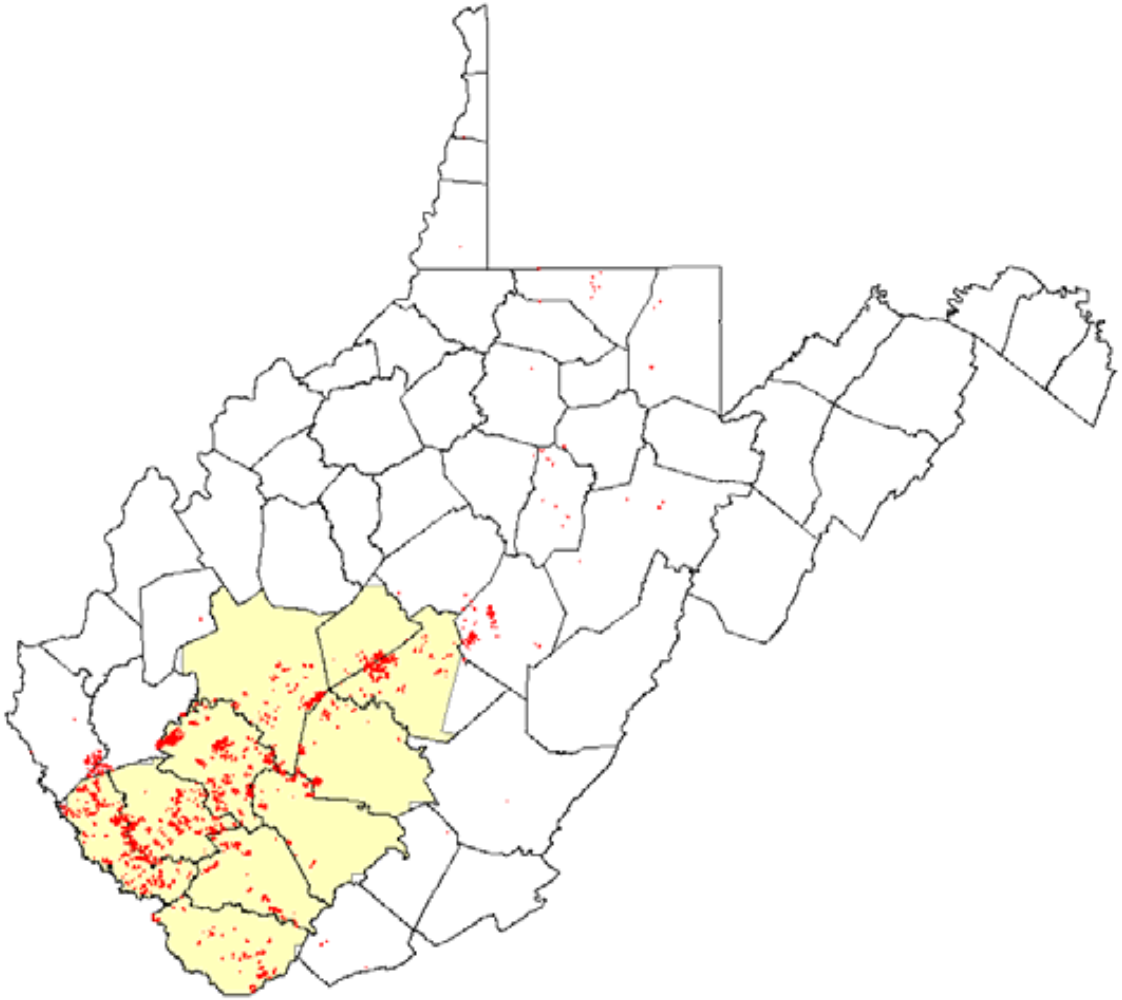
Characteristics of Mining Fills in West Virginia in 2009



TIPS Steering Committee Meeting

May 13, 2010

The problem: determine the number of miles of streams under valley fills in southern West Virginia

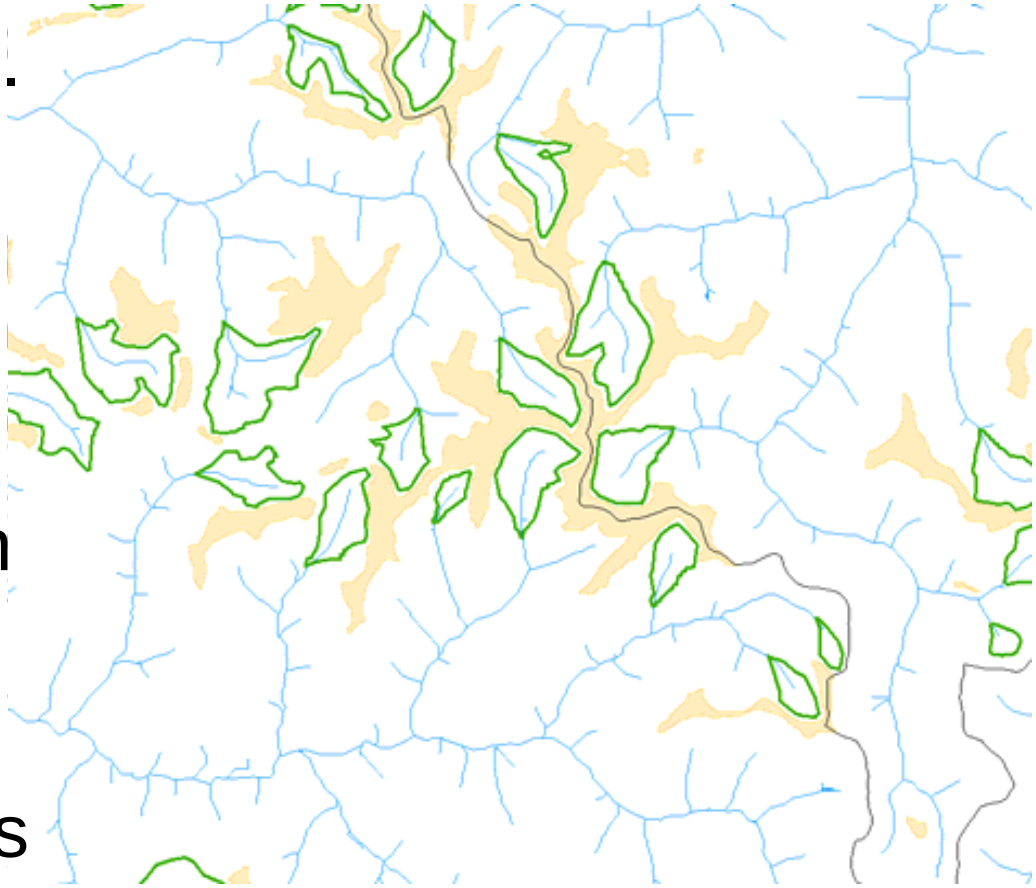


Resources were provided

With the funding Interferometric synthetic aperture radar (IFSAR) elevation data was purchased for 10 counties in southern West Virginia.

The geospatial solution: created data not in our existing database.

- Initial difference grid. Cut areas are red, fills blue.
- Results of initial reclassification.
- Initial vector polygon fill inventory.
- Final inventory, shown with cut areas added



Results of using a geospatial approach in 2001

- **479.9 mi of streams were under fills.**
- 1,329 fill polygons covering an area of 38,633 acres (60.4 sq mi).
- 513 (38.6%) of the fills identified did not overlap any fill captured from permit map sources.

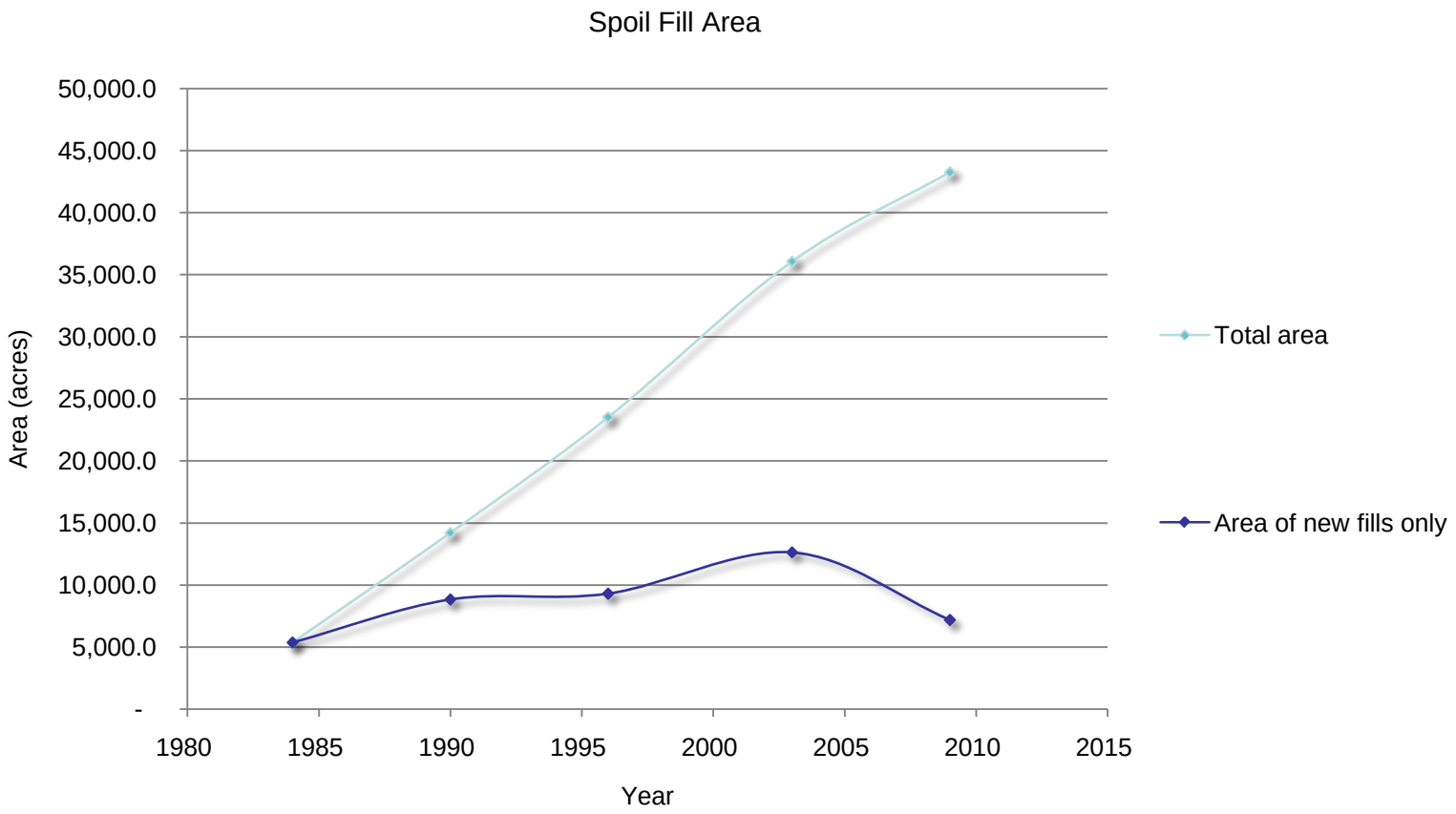
In anticipation of EPA's renewed interest in valley fills …

- The decision was made in late 2008 to:
  - Update our valley fill inventory.
  - Look at the trends over time related to numbers and sizes of fills.
  - Look at stream loss from the perspective of perennial vs. intermittent streams.
  - Create two feature classes
    - spoil fills and …
    - refuse structures.

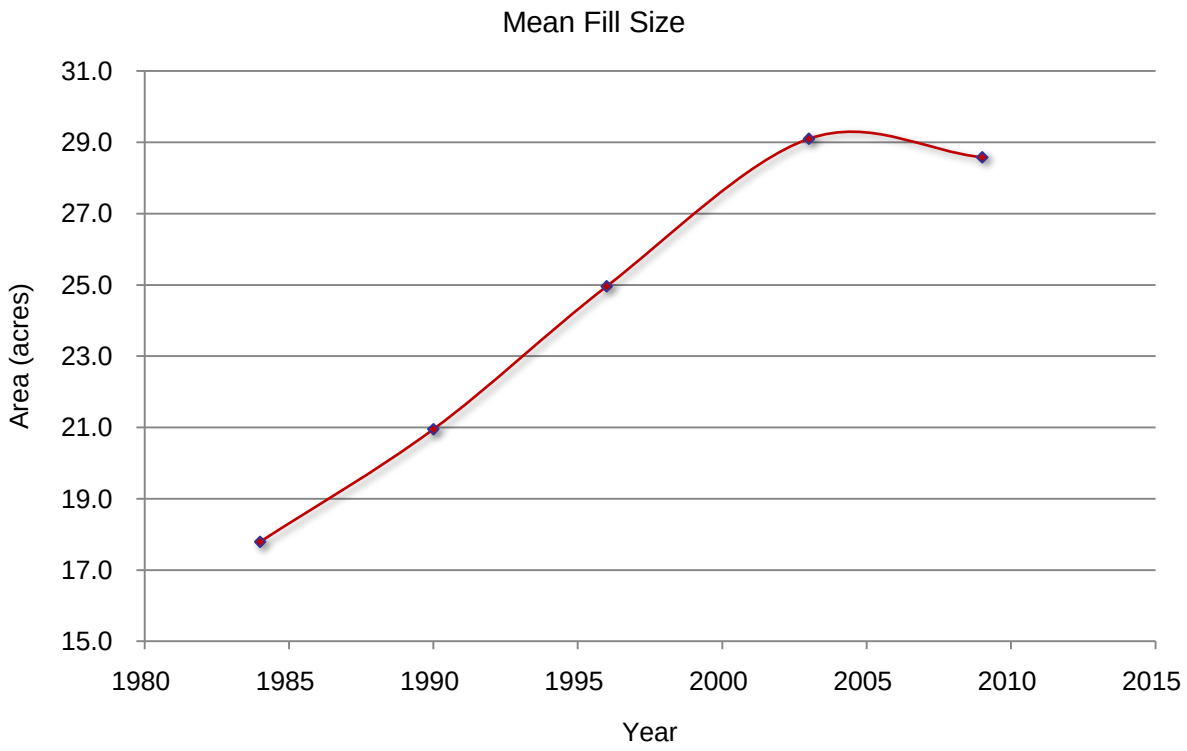
Data sources much better than in 2001

- Landsat TM, TM+ imagery
  - 1984
  - 1990
- Statewide aerial imagery:
  - 1996 – 1998 colorIR 1 meter
  - 2003 natural color, 2 foot pixel
  - 2007 natural color, 1 meter
  - 2009 natural color, 1 meter
- A historical atlas of refuse dumps

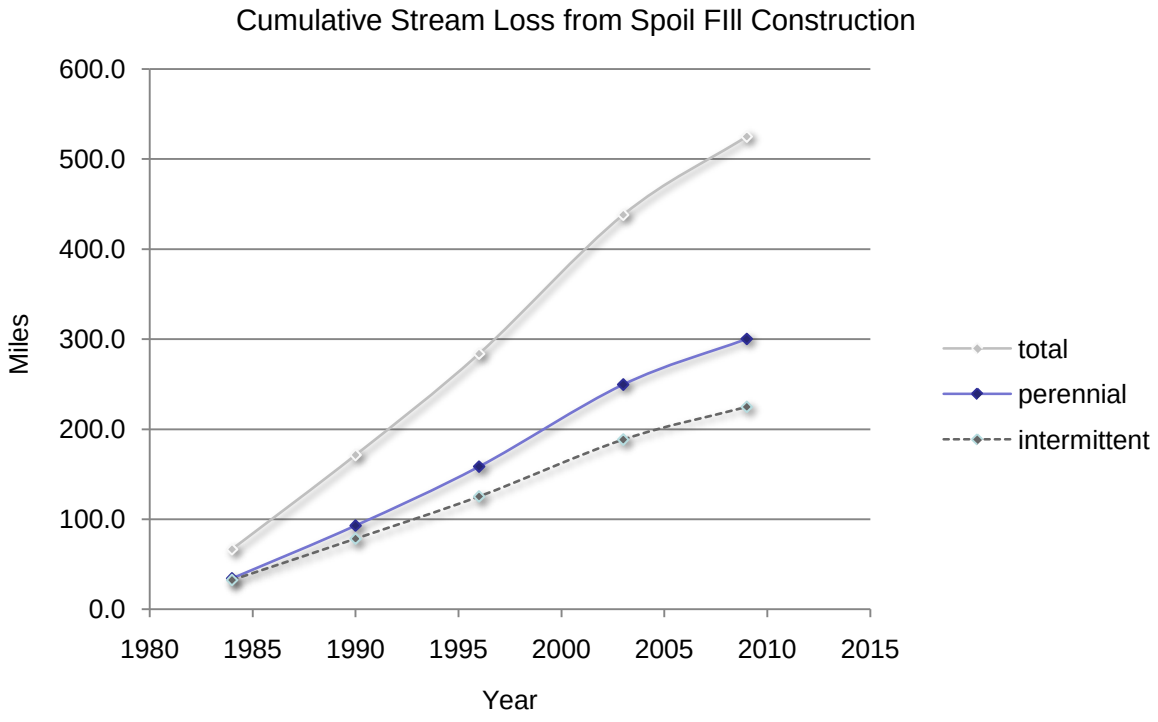
Area occupied by spoil fills, 1984-2009 (excludes refuse fills)



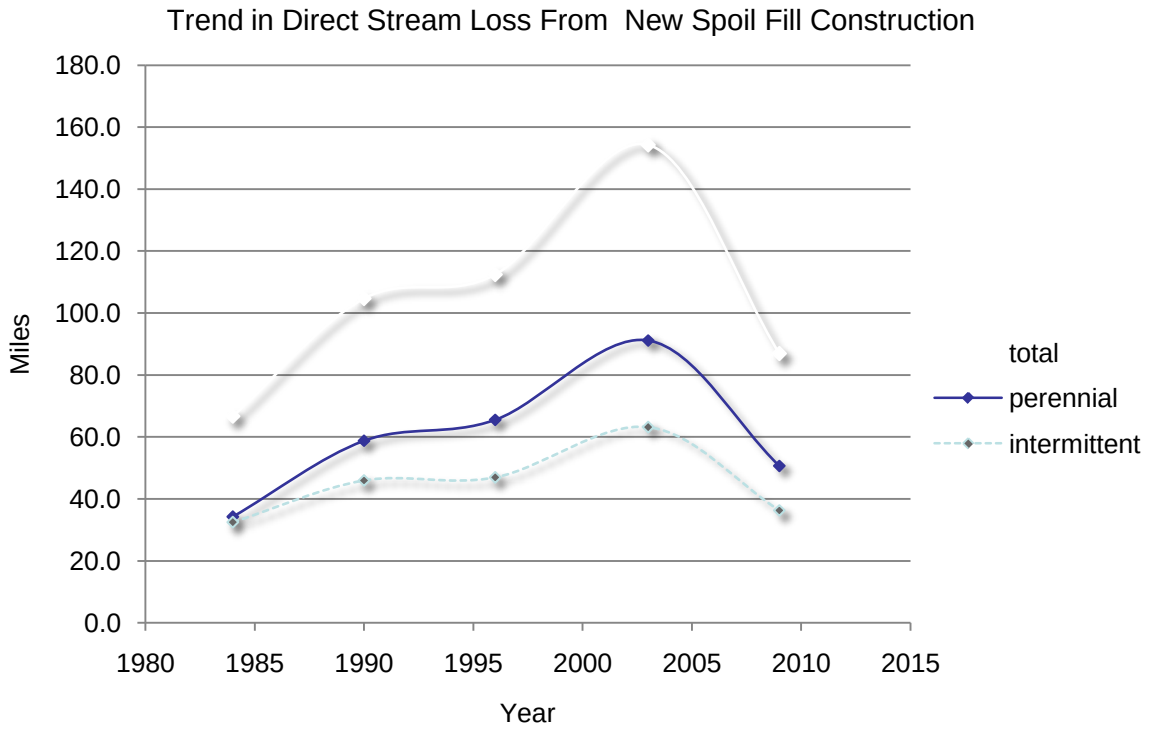
Trend in mean size of new fills, 1984-2009

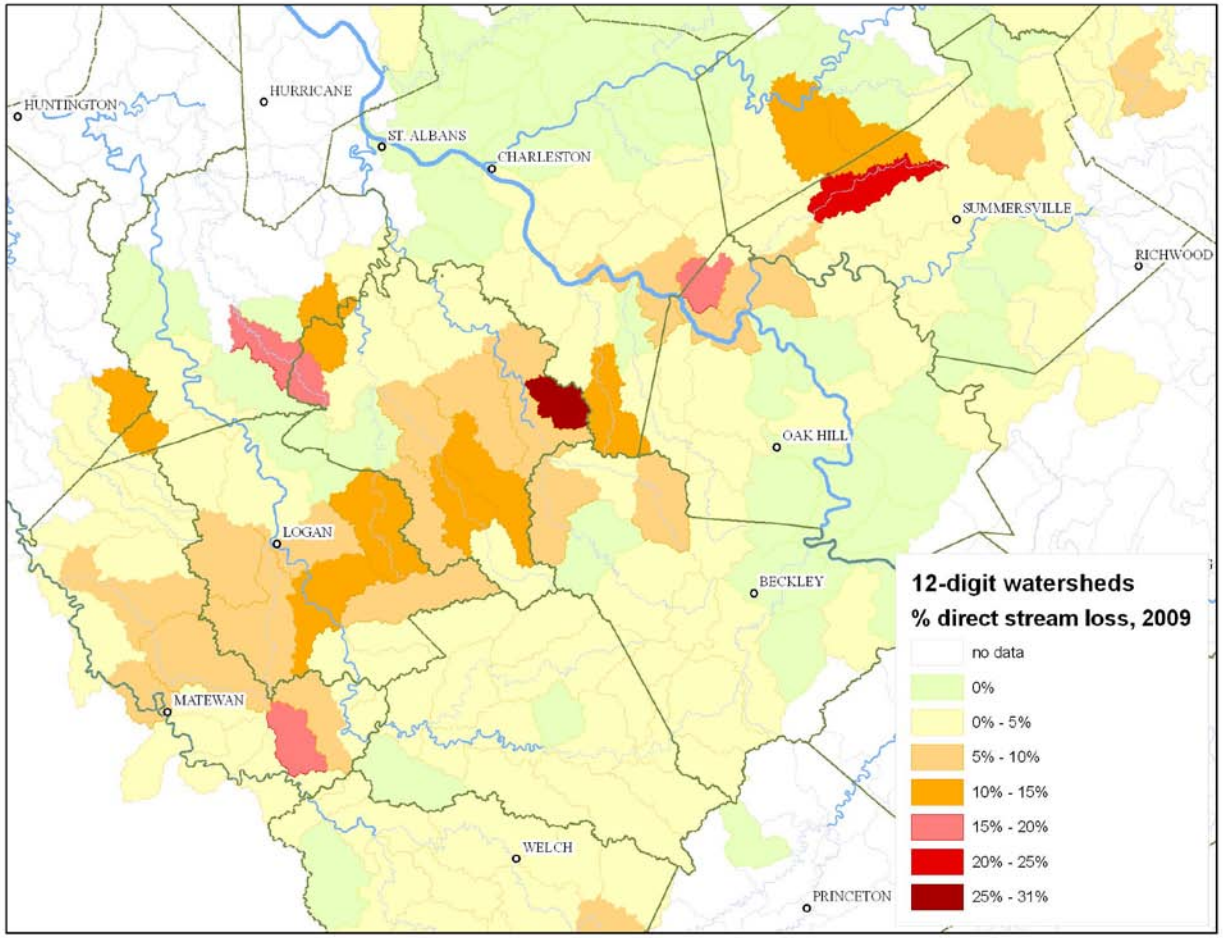


Cumulative stream loss due to spoil fill construction reached 525 miles by 2009



•Direct stream loss from new fills started since the previous year



Watersheds most impacted by direct stream loss from mining fills

- Stream loss exceeded 10% in fourteen watersheds