

Assessing Forest Response to Ice Storm Damage Using Multi-temporal Landsat Imagery

A catastrophic ice storm occurred in central and eastern Kentucky in mid-February, 2003, depositing up to two inches of ice on tree limbs across the region - damaging stems and branches and uprooting some trees completely. The objective of this study was to expand our understanding of how forests respond to ice storm events by improving our ability to monitor post-storm changes in forest condition using multi-spectral, multi-temporal satellite imagery.

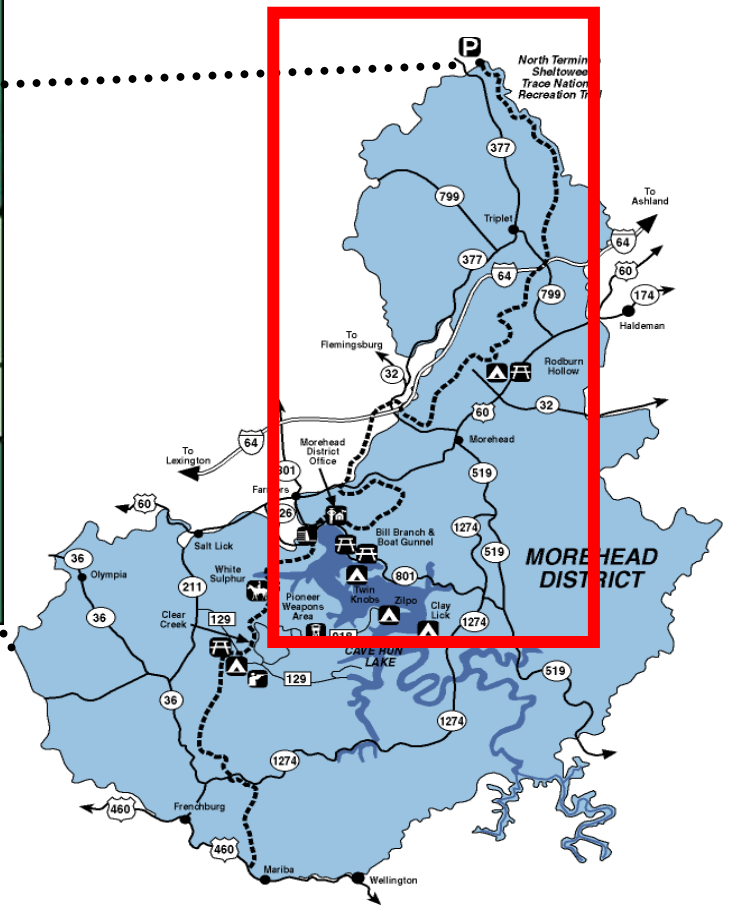
Results showed that:

- a) Landsat Thematic Mapper imagery was able to detect different levels of forest damage (high, moderate, and low) in the Daniel Boone National Forest.
- b) Different forest community types in the study area incurred different levels of damage from the ice storm.
- c) Spectral changes in forest communities were largest in the first post-storm period (2003-2002) compared to the second period (2004-2002).
- d) The time of year in which the satellite imagery was acquired (June vs. September) affected the sensitivity of spectral data to forest damage.

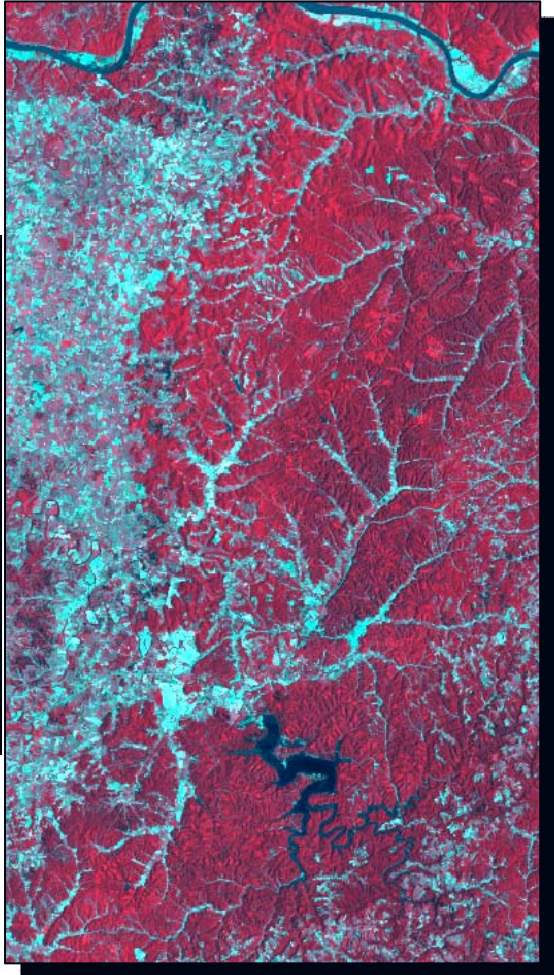
Results will be used to facilitate the rehabilitation and planning efforts in areas impacted by this storm and improve our ability to use satellite imagery to assess and monitor forest response following ice storm events (e.g., by determining the optimal time of year for satellite image acquisition).



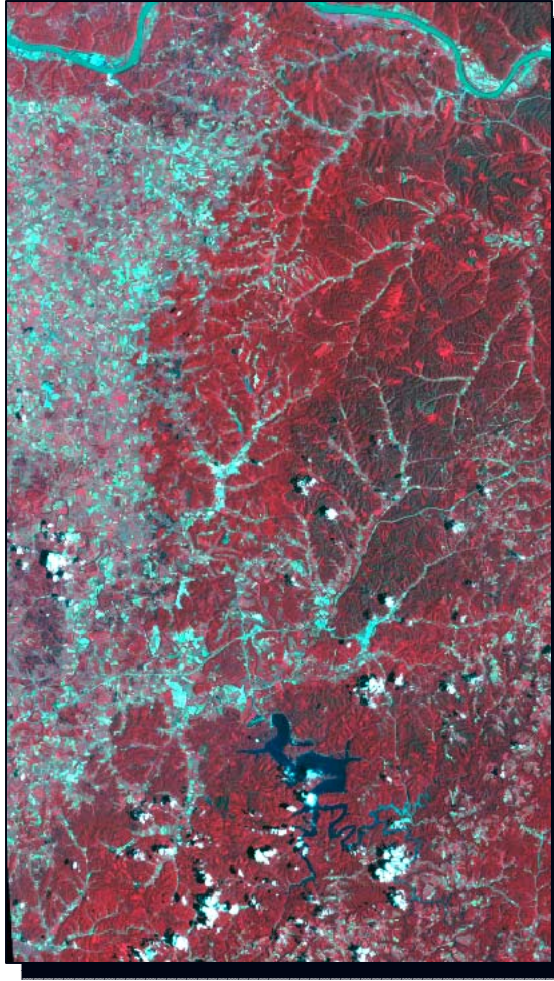
S. Parkansky

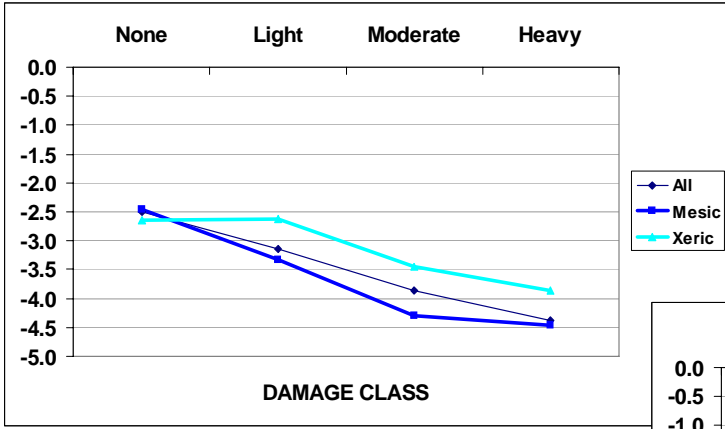


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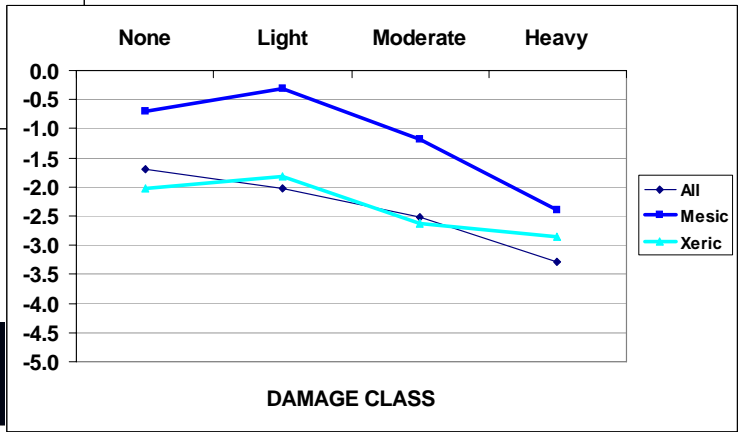


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