

Potential of pest and host phenological data in the attribution of regional forest disturbance detection maps according to causal agent

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Near real time forest disturbance detection maps from MODIS NDVI phenology data have been produced since 2010 for the conterminous U.S., as part of the on-line ForWarn national forest threat early warning system. The latter has been used by the forest health community to identify and track many regional forest disturbances caused by multiple biotic and abiotic damage agents.

Attribution of causal agents for detected disturbances has been a goal since project initiation in 2006. Combined with detailed cover type maps, geospatial pest phenology data offer a potential means for narrowing the candidate causal agents responsible for a given biotic disturbance. U.S. Aerial Detection Surveys (ADS) employ such phenology data. Historic ADS products provide general locational data on recent insect-induced forest type specific disturbances that may help in determining candidate causal agents for MODIS-based disturbance maps, especially when combined with other historic geospatial disturbance data (e.g., wildfire burn scars and drought maps). Historic ADS disturbance detection polygons can show severe and extensive regional forest disturbances, though they also can show polygons with sparsely scattered or infrequent disturbances. Examples will be discussed that use various historic disturbance data to help determine potential causes of MODIS-detected regional forest disturbance anomalies.