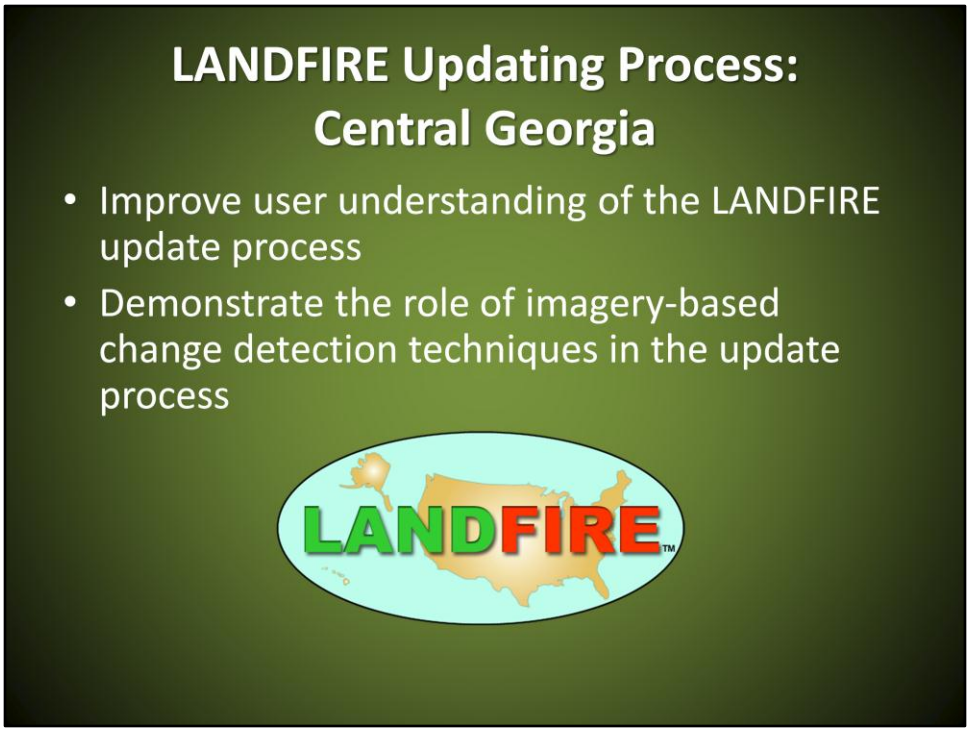


- LANDFIRE continues to update and improve program products. It is important that current and potential users understand how the products are updated not only because they use those products, but because users can play a vital role in the update process.
- This presentation focuses on an area in Central Georgia, and demonstrates how a Landsat imagery-based change detection technique is applied in the LANDFIRE update process.

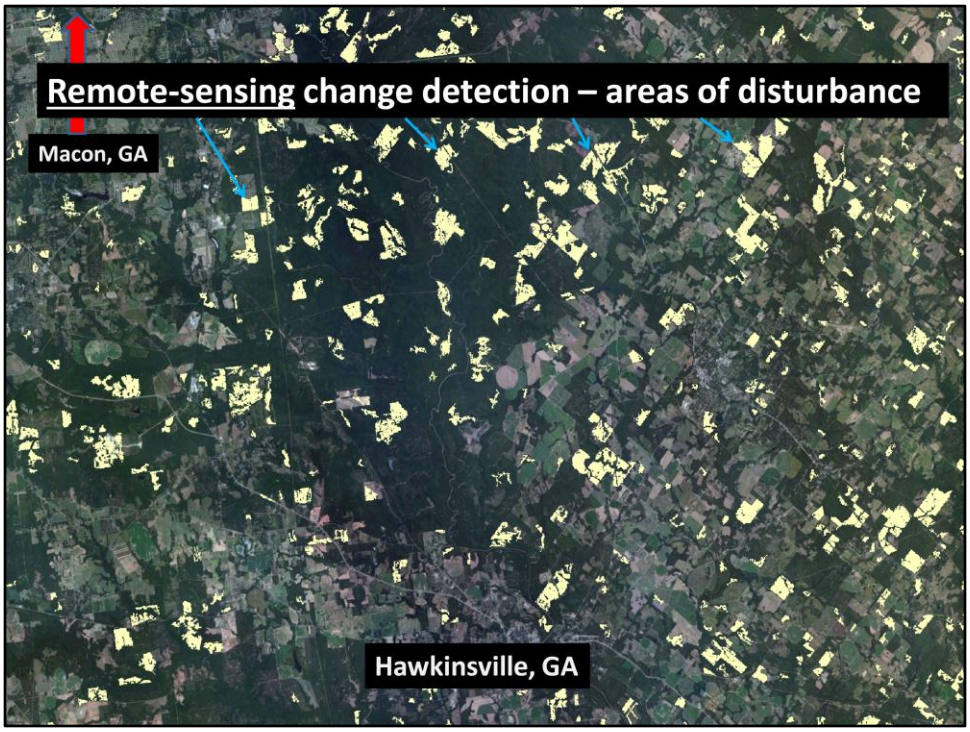
- This example focuses on an area in Central Georgia between Macon (to the Northwest) and Hawkinsville (to the South)
- This is a Bing natural color aerial image
- Ownership in this area is largely private, with the exception of some state wildlife management areas.

- LANDFIRE uses three data sources for biennial updates:
  - Modeling Trends in Burn Severity (MTBS) wildland fire data,
  - the boundaries of vegetation disturbance 'events' submitted by local individuals, and
  - a remote sensing change detection process using Landsat imagery.

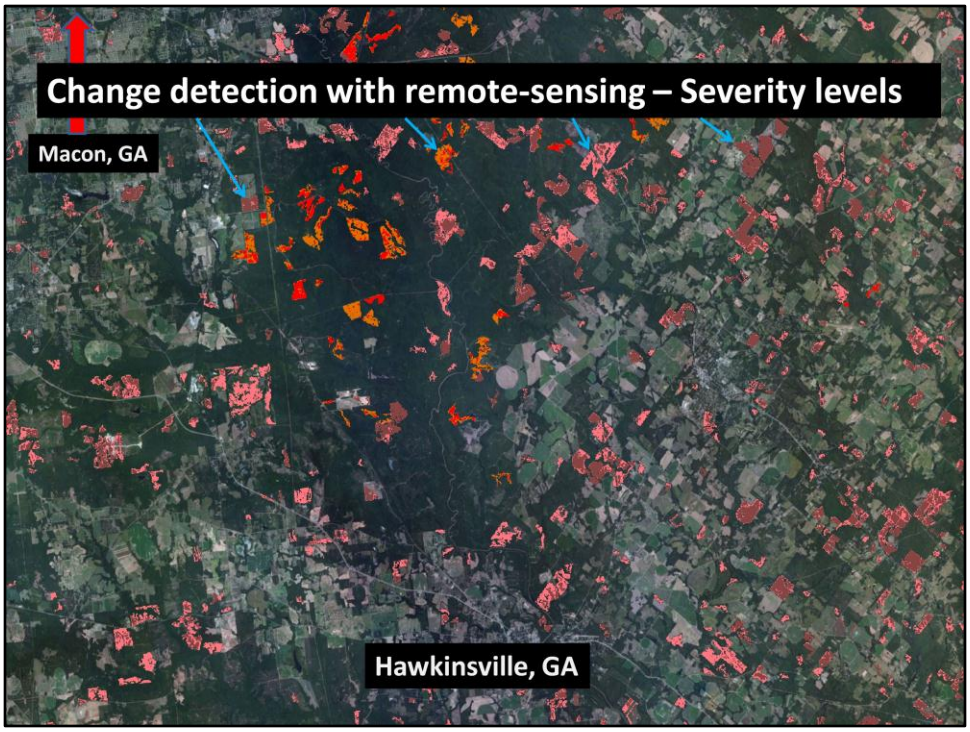
- For this area, there were no events submitted to LANDFIRE. Similarly, as LANDFIRE gathered data from national data bases there were no events for this area and no fires were identified in Monitoring Trends in Burn Severity (MTBS). The update process in this area relied solely on a remote-sensing change detection process to identify disturbances that occurred 2001 to 2008.

In this area, there were no wildfires large enough to be included in the MTBS data base, and no disturbance events (insect damage, forest harvest/clearing, controlled burns, etc.) were reported to LANDFIRE or other federal data systems.

Note: The LANDFIRE 'Events' data is a compilation of activities that LANDFIRE has tried to capture as part of the updating process. These activities include: Development, Clearcut, Harvest, Thinning, Mastication, Other Mechanical, Wildland Fire, Wildland Fire Use, Prescribed Fire, Weather, Insecticide, Chemical, Insects, Disease, Insect/Disease, Herbicide, and Biological.

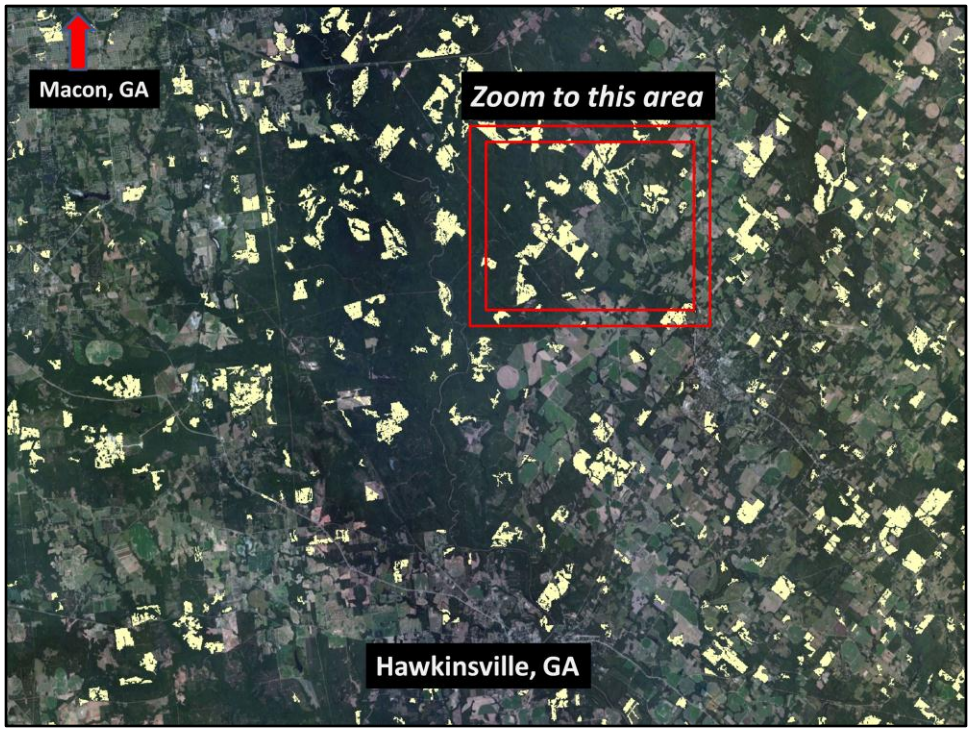


- The remote-sensing change detection process identified a number of disturbances, as identified in this image by tan shaded polygons (highlighted by blue arrows) overlaid on the original Bing aerial image.
- There was considerable activity in this area that needed to be incorporated into updated LANDFIRE product.
- Given the typical activity in this area, these disturbances are likely either forest harvests or thinning.

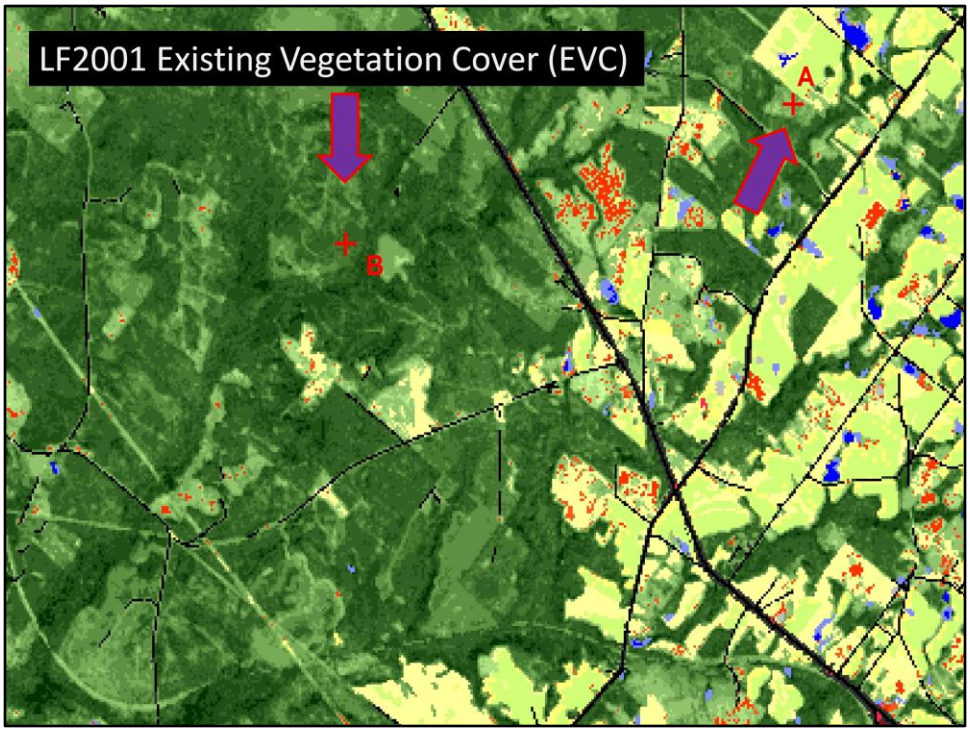


- LANDFIRE goes beyond identifying the occurrence of a disturbance, but also attempts to determine the cause and the severity of disturbance.
- This shows either Mechanical Remove or ~~a~~ fire with high or medium severity (highlighted by blue arrows).
- There is often corroborating evidence that a disturbance occurred. For instance, a wildland fire might be present in MTBS, be submitted as a LANDFIRE Event, and be identified in the remote-sensing process.
- In the case of these disturbances, however, there is no corroborating evidence to build confidence in the resulting product—LANDFIRE only has the remote-sensing process. Given the typical activity known in this area, these disturbances are likely either forest harvests or forest thinnings with a few small fires. LANDFIRE labeled these events accordingly.

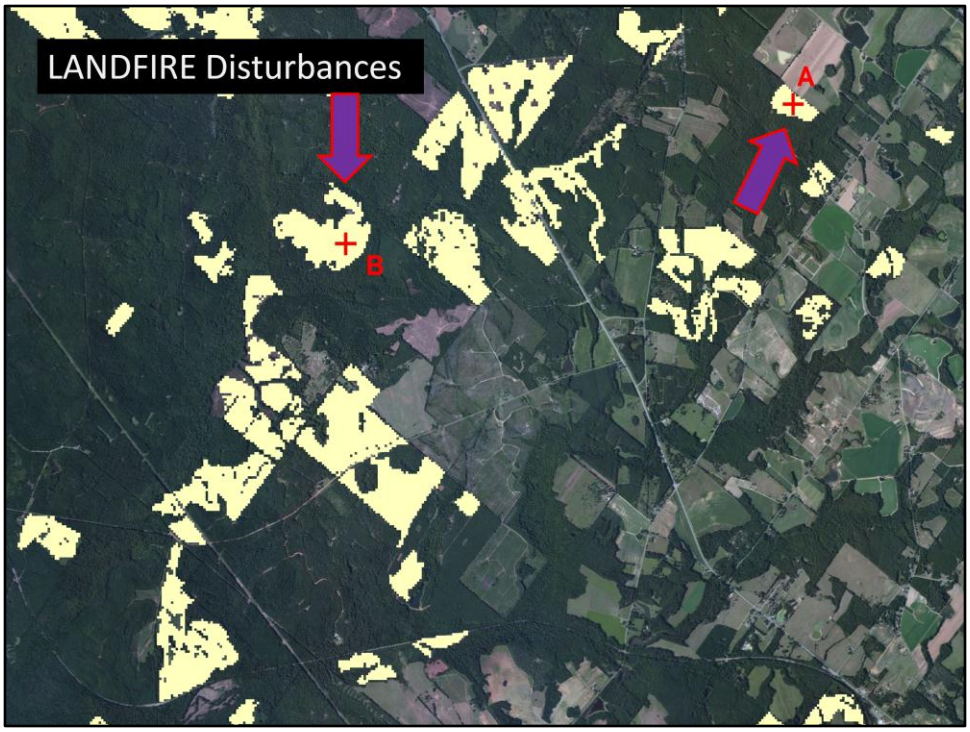
KEY NOTE: This is one way local staff can impact LANDFIRE—provide fire or treatment boundaries/polygons (e.g. "LANDFIRE Events") to the program.



Let’s zoom in to the area with the double red square on the remotely-sensed disturbance map overlaid on the natural color Bing aerial image.

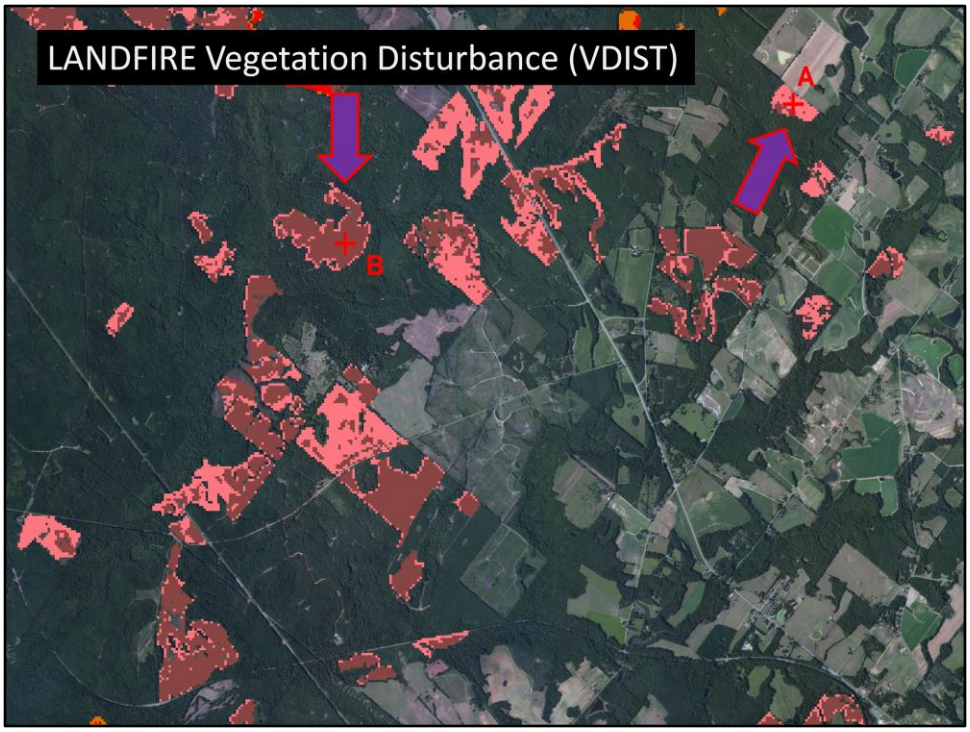


- Notice two particular locations indicated by the purple arrows/outlined in red — one labeled “A” and one labeled “B”
- This shows the LF2001 (LF_1.0.5) Existing Vegetation Cover (EVC) product which presents the canopy cover in percent (0-100%) of forest types.
- Darker greens indicate higher forest cover.
- Point A:Tree Cover is in the 40-50% range,
- Point B: Tree Cover is in the 70-80% range,



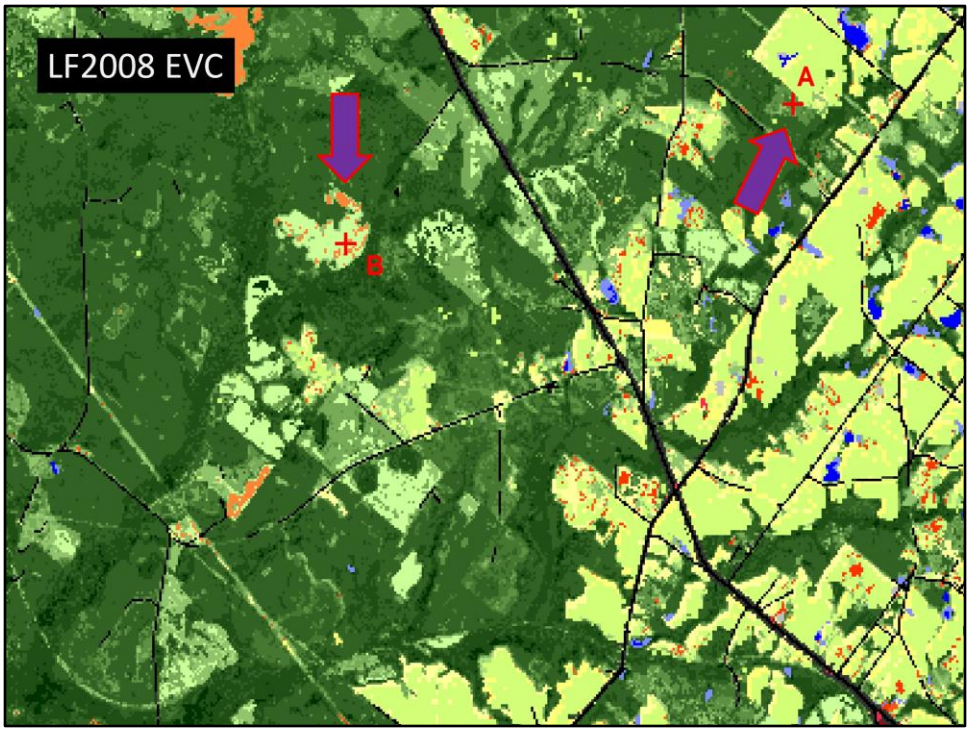
Point A: A disturbance occurred in 2001 and was captured in the remotely sensed data.
Point B: A disturbance occurred in 2008 and was captured in the remotely sensed data.

This is the LANDFIRE Existing Vegetation Disturbance (VDIST) grid based on the changes detected in the remotely-sensed Landsat data.



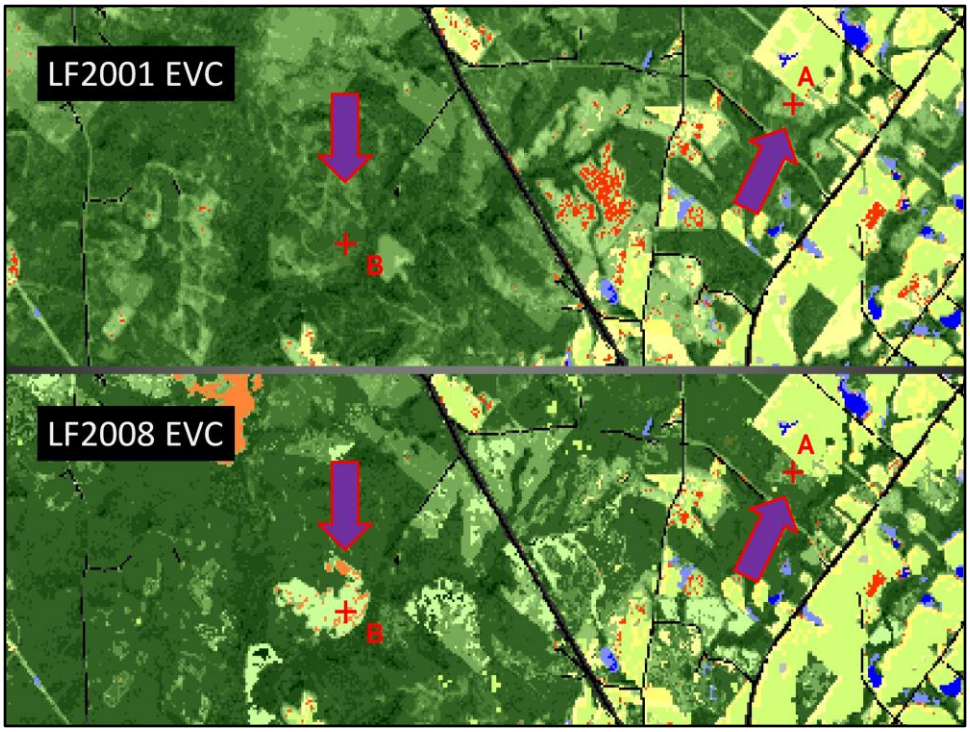
Point A: Disturbance type is Mechanical Remove, medium severity, time since disturbance - 6 years.
Point B: Disturbance type is Mechanical Remove, high severity, time since disturbance - less than 1 year.

This is the LANDFIRE Existing Vegetation Disturbance (VDIST) grid showing levels of severity based on the changes detected in the remotely-sensed Landsat data.

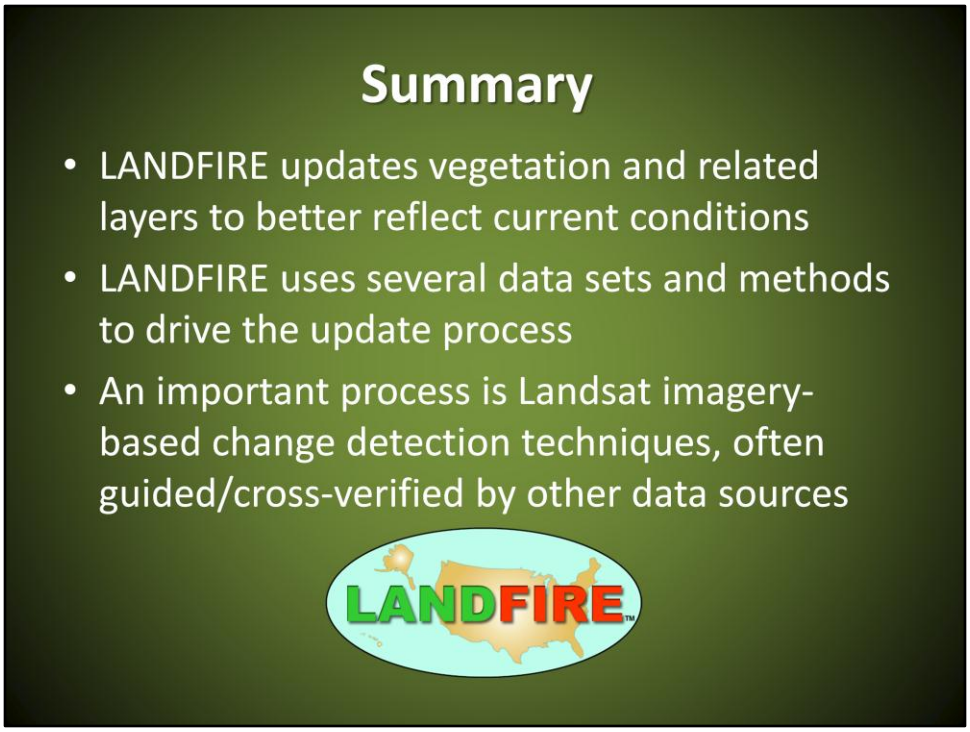


This is the LF2008 (LF_1.0.0) Existing Vegetation Cover (EVC) representing landscape conditions at the end of CY2008.
Point A: Tree Cover increased to 50-60% through growth (original 40-50%)
Point B: Tree Cover decreased to 10-20% because of a harvest (original 70-80%)

There may be corresponding changes in Existing Vegetation Type (EVT) and/or Existing Vegetation Height (EVH) depending on the type and severity of the identified disturbance. However, LANDFIRE can identify vegetation changes using imagery-based change detection techniques, even in the absence of other sources of information.
This process is strengthened when there are multiple sources of disturbance/change information.



You can see that Existing Vegetation Cover (EVC) is indeed changing in the intervening 7 to 8 years.



- LANDFIRE currently updates vegetation and related spatial layers on a 2 year cycle—the next delivery is LF2010 in the Spring of 2013
- The update process is based upon other national mapping programs (MTBS – Monitoring Trends in Burn Severity, NLCD – National Land Cover Database, NWI – National Wetlands Inventory, NASS – National Agricultural Statistics Service, etc.), submitted disturbances from the field, and an imagery-based change detection technique.
- This presentation demonstrated the role of an imagery-based change detection technique in the absence of additional information.
- The user community can participate in the update process by submitting disturbance information to national data bases and/or LANDFIRE. In addition, point and feedback data/information is important as part of the LANDFIRE mapping process.