BRANDENBURG FORESTRY AUTHORITY

PROTECTING AND MAINTAINING STATE WOODLANDS WITH BROAD-AREA IMAGERY

German agency manages vast forests with Planet analysis since 2013

CHALLENGE

Enable the Brandenburg Forestry Authority to better monitor, manage, and protect state forest resources

SOLUTION

Periodical monitoring of forest vitality with Planet imagery and analysis

RESULTS

- Accurate detection of forest health issues at defined time windows and intervals
- Provides detailed broad-area oversight at high-resolution previously unattainable by the agency
- Reduction in time spent on ground-based searching and mapping by 60 percent
- Targeted application of insecticides decreases the amount and cost of use across woodlands
- Enhances planning of salvage logging in damaged areas
- Makes evidence-based decision-making more transparent to the public, private forests owners and environmental protection agencies

Change is a fact of nature in the pine forests of the German Federal State of Brandenburg. The Brandenburg Forestry Authority manages the task of monitoring woodland health, responding to changes throughout the year and making decisions to treat and protect state forests. But nature can be unpredictable. For example, outbreaks of defoliating insects affect pine forests in the region each year. The Brandenburg Forestry Authority must detect and pinpoint the location of outbreaks so they can plan and execute suitable preservation measures.

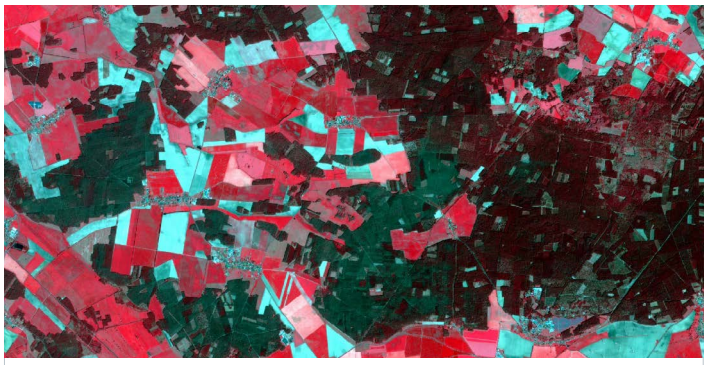
Brandenburg Forestry officials recognize the power of information to help carry out their mission. “Frequent monitoring of forest health is critical to sustainably manage our 273,000 hectares of state-owned forest,” says Dr. Katrin Moeller, Supervisor of the Forest Protection Department at the State Forestry Authority. “We also act as a service partner for private forest owners. We need to know where and to what extent pests, diseases, or other problems are changing forest conditions. Planet is helping us fulfill that mission.”

ADDRESSING THE LIMITATIONS OF TRADITIONAL HEALTH MONITORING METHODS

Previously, state foresters faced challenges in monitoring and caring for the woodlands. “Finding points of infestation and accurately delineating damaged areas are difficult and labor-intensive activities for ground crews,” says Moeller. “At the same time, using satellite imagery was not always effective due to our cloudy springtime weather. We could not count on getting useful, cloud-free images during the window of time when pests, like defoliators, become active.”

The Forestry Authority looked for cost-effective ways to increase the timeliness and accuracy of results. “Pines have the ability to regenerate in most cases by growing new needles, but that can depend on early detection and treatment,” says Moeller. “Also, we needed more precise zoning by type and severity of damage to tailor treatment measures.”

State foresters had carried out research projects driven by satellite imagery insights, but the coverage frequency did not produce reliable enough results for operational integration of remote sensing. However, with Planet’s imagery resolution and revisit time, satellite imagery became a real operational asset in 2013. “Planet imagery addresses these challenges by providing more frequent updates and higher resolution than any previous imagery.”



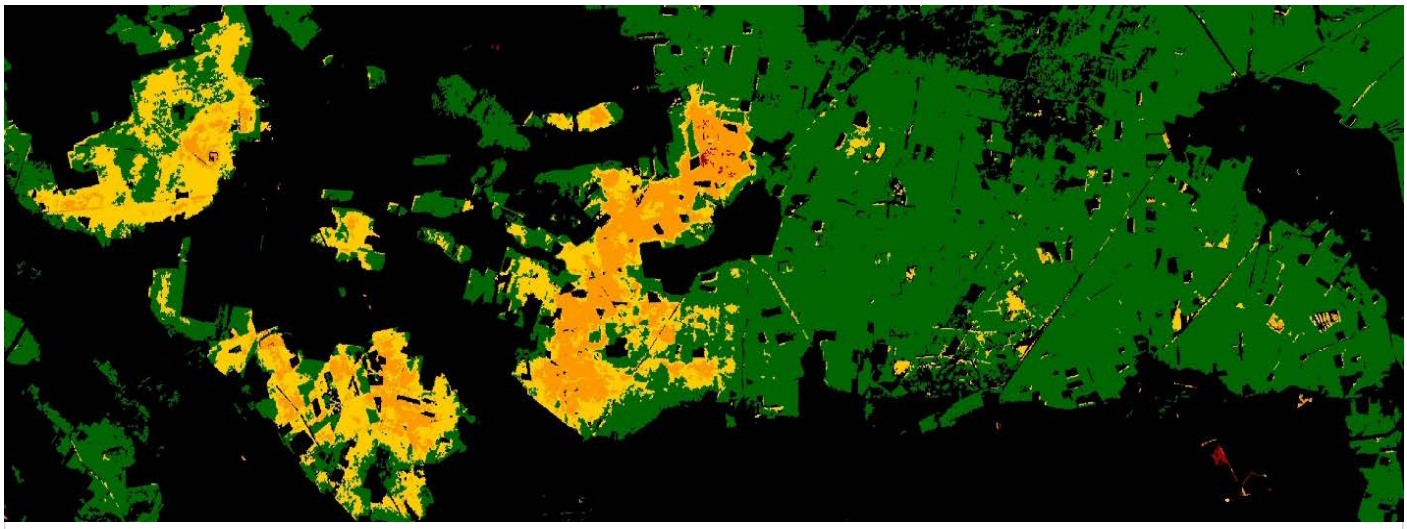
Partly defoliated, pine sawfly (*Diprion pini*) infested pine plantation area near Herzberg, southwest Brandenburg, Germany. PlanetScope imagery, 3 m pixel size. May 11, 2017. Color infrared image.

> “Planet’s service is valued not only by the central state forest research facility, but also by the managers and the operating field personnel of the forest districts.”
>
> DR. KATRIN MOELLER, Supervisor, Forest Protection, Brandenburg Forestry Authority

INTEGRATING FOREST VITALITY MONITORING INTO BRANDENBURG SYSTEMS

Planet collects satellite imagery of the forest at high frequency within time windows specified by the Forestry Authority. Foresters can then compare images from different points in time for analysis. Using refined algorithms, Planet can extract information from the images to produce reports and color-coded maps pinpointing areas of disturbance or change. “Planet worked with us to integrate this information into our existing Forest Information System,” says Moeller.

The analysis of the integrated data leads to a higher accuracy in delineating infestation areas and undertaking the tedious and time consuming visual assessment of defoliation within forests. Assessment, verification and reporting duties are directed and executed with accurate, timely health mapping. Further, this data is used to reliably identify and zone risk areas for the following seasons.



Forestry vitality analysis derived from infrared imagery on page 2. This defoliation map depicts four categories of estimated percent canopy loss ranges. PlanetScope imagery, May 11, 2017.

no/little defoliation	moderate defoliation	severe defoliation	complete defoliation
needle loss: 0%–20%	needle loss: 20%–50%	needle loss: 50%–90%	needle loss: 90%–100%

DELIVERING ACCURACY AND SAVINGS WITH PLANET MONITORING

Planet's monitoring service helps foresters quickly and accurately detect damage in trees. "Planet's satellites gather images frequently during the time frames we need to assess," says Moeller. "With the accurate mapping enabled by high-resolution Planet imagery, our foresters can go directly to affected areas, reducing the time spent on ground-based searching and mapping by up to 60 percent."

Increased frequency and accuracy also facilitate the planning of treatment measures. "By enabling early detection, the timeliness of Planet imaging helps limit the amount of damage from an infestation," says Moeller. "Together with precise zoning and classification of damage, this can reduce the amount and cost of insecticide required to treat an infestation."

In areas at risk for illegal activities such as timber theft, Planet satellite imagery helps ensure violations are identified. After natural disasters such as severe windstorms, Planet imagery helps in planning salvage logging operations. "Imaging improves the accuracy of our salvage work, which helps prevent further degradation of timber and keeps losses at a minimum," says Moeller.

CULTIVATING THE PUBLIC INTEREST AND INCREASING TRANSPARENCY

Adding a new layer of information and analysis provided by Planet has improved the decision-making capabilities of the Forestry Authority. "Satellite imagery not only informs our decisions now, but also helps us make the deliberative process more transparent to the public," says Moeller. "Images have the unique capability to clarify complex issues."

The Brandenburg Forestry Authority now has powerful new tools to meet the ongoing challenge of managing forest resources while reducing the time and cost involved. "Planet satellite imagery helps the state deliver a better return on investment for our citizens," says Moeller.

FOR MORE INFORMATION

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