LIDAR DATA USAGE CAPABILITIES FOR FORESTRY AND FOREST BIOLOGICAL DIVERSITY EVALUATION

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Airborne LIDAR (Light Detection And Ranging) has recently become a meaningful technology in forest resource management, particularly with the ability to provide a means to evaluate three-dimensional forest structure at broad spatial scales. We set two objectives to our study. Firstly, we used LIDAR data to detect streams located under forest canopy and to analyse structural diversity of riparian forests:

- Watercourses real coastline and Floodplain area delineation;
- Delineation of the true protected areas of rivers;
- Water shading calculations;
- Planning of open areas for better water quality.

We also provided arguments on guidelines for maintaining of complex water-forest ecosystems:

- Water basin division in micro basins to determine the impact of the forestry compartment management on the water quality indicators:
  - Runoff;
  - Sedimentation.
- Drainage systems:
  - Real drain Territories;
  - Sludge pond.
- Catchment soil balance calculations.

Secondly, we used LIDAR data to create DEM and DSM as a means to analyse fine-scale structural indicators of biodiversity and topographical variation of areas designated for Woodland Key Habitats conservation:

- Pine forest openings;
- Horizontal stand structure (capercaillie habitats);
- Large woody debris dimension;
- Regeneration near the forest stand, openings, eco tree groups;
- Abandoned agricultural lands overgrowing dynamics.

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