DATA
ACCOMPANYING REPORT

/2011 visual assessment of tree crowns/

Description of the sample plots

The implementation of the intensive monitoring program in Bulgaria was organized in 3 stationary areas. Their localization was based on the existing information about the history of forest management, the forest-economic district structure of the country, sources and nature of pollutants as well as requirements for technical equipment of the areas. In the beginning of 2010, after consultation with crown condition expert team, sample plot 0002 (Staro Oriahovo) was replaced with SP 0004 in the same region.

The following stations were determined:

- **Vitinia (0001)** - This area is situated in the western part of Middle Stara planina (the Balkan mountain), on the territory of Vitinia State forestry district. It is representative for the beech forests. The region is under the influence of local and regional pollution sources;
- **Staro Oriahovo (0004)** – It is situated in the eastern part of Stara planina, “Gorska baraka” area of the Staro Oriahovo State forestry station. The region is representative for oak forests. There are regional pollution sources. In the beginning of 2010 a new sample plot (0004) was installed by taking into consideration the location in relation to the station for automatic monitoring of the atmospheric pollutants and meteorological parameters, plot for collection of depositions in the open field, tree species and density. 50 new trees were selected and numbered for assessment of crown condition.
- **Yundola (0003)** – This area is situated in the western part of the Rodopi mountains, in the “Starina” area, on the territory of the experimental training forest station Yundola of the University of Forestry /UF/. It is representative for coniferous forests and is far away from local pollution sources.

The monitoring activities were prepared in compliance with the ICP Forests Manual.

Crown assessment

The sample plots include 145 numbered trees for crown assessment. Observation of the tree health status including assessment of defoliation in 5% steps, discolouration in 4 classes, social status in 4 classes, crown shading on a six-pointed scale, visibility using 4 codes, removals and mortality are all assessed following the classifications given in the Manual. The assessments were made in the end of June for oak stand in Staro Oriahovo station and in the end of July for Yundola and Vitinia stations. For each model tree an assessment of the damages, caused by biotic and abiotic agents was made. For the precise determination of the damage causes and agents, samples from the affected parts (leaves, twigs, pieces of decayed wood) were analyzed by using biological and microscopic methods.

Crown condition

Vitinia

In 2011 the majority of the studied beech trees had a defoliation of between 10% and 15%. 2011 data show the reducing of the trees with discoloration from 2 to 4degree. Compared with the previous years, an improvement of the condition of the stand is observed. The identified damages, caused by leaf-gnawing and leaf-mining insects, were minimal. Fruit bodies of *Stereum hirsutum*, *Pleurotus sp*., *Fomes fomentarius*, *Trichaptum biforme*, and stromas of *Xylariaceae* were found on dry, fallen stems, branches and stumps. Canker (*Nectria sp*.), trunk rot and fruit bodies of *Pleurotus sp*. were found on single-standing live tree trunks. Almost all trees from the sample plot had damages, caused by *Ectoedemia liebwerdella Zimm*.

Staro Oriahovo

The evaluation, carried out in 2011, regarding the indicator ‘defoliation’ of the Hungarian oak stand, showed that the majority of the trees had a defoliation of between 15% and 30%. In comparison with the previous years, the trend is towards improvement of the health status of the observed stand. Damages caused by leaf-gnawing and leaf-mining insects, tortrix moths and gall wasps were found. Great capricorn beetle (*Cerambyx cerdo*) was also found.

Yundola

Regarding the indicator ‘defoliation’, a slight decrease of the observed model trees at ‘0’ degree was determined. In comparison with the previous years, a predominance of the healthy and slightly affected by defoliation model trees was determined, although in comparison with 2009, the number of the medium and strongly defoliated trees was increased. Rhizomorphs of a fungus from the *Armillaria species*, causing root rot, was found on stumps and fallen stems. Besides the existing broom rusts, some single new ones were found on several trunks. The fungi *Trichaptum abietinum* and *Gloeophyllum sepiaria* were found on dry wood and stumps.