2014 national report on health status of main tree species on the basis of defoliation

Bulgaria

The forest condition survey in 2014 is conducted on 159 Level I permanent plots of the national systematic grid and includes a total of 5439 sample trees. Observations on the defoliation, biotic and other stress factors are carried out at sample plots on the coniferous tree species *Pinus sylvestris* L., *Pinus nigra* Arn., *Picea abies* (L.*)* Karst. and *Abies alba* Mill., as well as on the deciduous tree species *Fagus sylvatica* L., *Quercus frainetto* Ten., *Quercus petraea* (Matt.) Liebl., *Quercus cerris* L., *Quercus rubra* L., *Tilia platyphillos* Scop. and *Carpinus betulus* L.. The total number of the assessed coniferous sample trees is 2336 and the number of the deciduous trees is 3103.

The predominant part of the observed trees (74 %) has a degree of defoliation up to 25 %. The highest percentage of trees (21.7%) in the defoliation classes 2-4, has these with average degree of defoliation. In comparison with the results of the studies, carried out in 2013, the percentage of healthy trees is increased by 8.7%, and the percentage of the slightly affected by defoliation trees is decreased by 1.2%. The share of highly defoliated and dead trees (defoliation classes 3-4) is decreased with about 2.5 percentage points

The assessed deciduous trees are in better condition than the coniferous. 80.1% of the observed deciduous trees and 65.9% of the coniferous trees have a degree of defoliation up to 25 %. The best condition of the deciduous tree species up to 60 years of age is determined in plantations of *Querqus rubra*, where 97.5% of the observed trees have a degree of defoliation up to 25%, followed by *Fagus sylvatica* L. (86.7%) and *Quercus frainetto* (80.9%). Above 60 years of age, the best condition is determined in *Carpinus betulus*, where the degree of defoliation is no more than 60% followed by *Quercus frainetto* with 97.5% defoliation up to 60% and Fagus sylvatica where 95.5% of the trees have defoliation up to 25%. The crown condition of *Fagus sylvatica*, *Quercus cerris*, *Quercus frainetto* and *Quercus rubra* improved compared to 2013. Only *Quercus petraea* is in a relatively worse condition, where the defoliation in classes 3-4 is slightly increased.

The best condition of the coniferous tree species above 60 years of age is determined in *Picea abies*, where 100 % of the observed trees had defoliation up to 25 %, followed by *Pinus sylvestris* (65%) and *Pinus nigra* (56.8%). The best condition of the observed plantations above 60 years of age shows *Picea abies*, where 89.7% trees are with defoliation below 25%, followed by *Abies alba* – 88.9%. The plantations of *Pinus sylvestris* have the highest percentage of trees (9.7%) with in the defoliation classes 3-4. Compared to 2013, the crown condition of *Picea abies* and *Pinus sylvestris* is improved and for the rest of the coniferous tree species retains stable.

The described biotic damages and their causes do not lead to significant changes in the condition of the assessed trees.