Bulgaria

# Monitoring and assessment of ground vegetation

In order to implement the planned activities in 2017, the intensive monitoring programme has been carried out at 4 sample plots – SP0001 Vitinia, SP0004 St. Oriahovo, SP0003 Yundola and Complex Background Monitoring Station (CBMS) Rojen (SP0005). CBMS Rojen was included in the level II surveys in 2016.

In accordance with the adopted methodological approach, the size of the studied subplots was increased from 1 to 40 $m^2$, with total survey area of 400 $m^2$.

## Floristic composition and phytocoenotic structure

- ***The phytocenotical survey in SP0001 Vitinia*** was carried out in the first decade of July 2017.

The habitat at Vitinia station refers to type 9130 - *Asperulo-Fagetum* beech forests, subtype - Mesophyte beech forest on relatively poor soils, which is associated with the association Festuco drymejae-Fagetum.

The observation in 2017 shows that there have been changes in the horizontal structure of phytocoenosis, outlining 6 microgroups, which are partially altered compared to 2015. Changes within the microgroup boundaries are mainly associated with changes in the light regime under the slopes as a result of fallen trees and the development of the undergrowth. The specific response of the different species to the changed habitat conditions and the competition between them is also essential. In the vertical structure of phytocenosis are distinguished most often 3 layers. The comparison with the established in 2005, 2015 and 2017 a vertical structure shows, that the vertical segmentation of phytocenosis is more stable compared with horizontal.

The analysis of the results of the study confirmed established in other studies patterns, concerning the impact of grass cover on the regeneration process, which is more pronounced for total coverage over 50%. Negative impacts have species *Festuca drymeja* and *Luzula luzuloides* when forming groups with greater density.

- **The phytocenotical survey in SP0003 Yundola** was carried out in the end of August 2017.

The observed changes in the quantitative ratios of shrub-grass species during the observed 2017 period are assessed as natural and modified by different forms of anthropogenic impact.

The analysis of the process of regeneration shows that the grass cover has an impact on it, more strongly expressed when the coverage is over 50%. The compact moss cover has the most significant influence. Thickly tufted wheat and acid grasses also have a negative impact on the regeneration processes.

- **The phytocenotical survey in SP0004 Staro Oriahovo** was conducted in the last decade of July 2017.

The observed changes in species coverage and occurrence during the 2017 monitoring period compared to 2015 and the average indicators for the past 10 years are assessed as natural, ecotopic and phytocyclic fluctuations and partly anthropogenic impacts, incl. the impact of passing feral pigs.

*Lysimachia nummularia* L., Staro Oriahovo

The analysis of the observed plant community shows that it is characterized by a horizontal and vertical continuum, which is expressed in the absence of clearly defined boundaries between microgroups and layers.

The summary analysis confirms the impact of shrub and grass sinusias on the process of restoration, which is more pronounced when the coverage is over 40%.

- **The phytocenotical survey in SP0005 CBMS Rojen** was conducted in the second decade of August 2017.

This is the first study of the regeneration processes at a complex monitoring background station Rojen. For this reason, it is not possible to assess and outline trends.

## Conclusions

The observed variations in coverage and species occurrence during the 2017 monitoring period ranged around the average in the last 10 years, which allowed these changes to be assessed as ecotopic and phytocyclic vegetation fluctuations.