

Slovakia

aFMM	Guidelines Deliverable D1.3 May 2020	Demonstrations sites Deliverable D1.4 July 2020
<p>Sustainable multi-functional management in partly uneven-aged mixed stands</p>	<p>The primary objective of forestry is a sustainability of the forest ecosystem in the area through promotion of its ecological stability. In areas where sustainability have been significantly weakened, the aim is to bring them back to a close to nature state as quickly as possible.</p> <p>The aim of the model is to build partly uneven-aged, close-to-nature mixed species stands. The main idea is to apply a selective cut, in the later stages of forest stand development in the formerly even aged stand. The intention is to maintain the permanent canopy cover and ensure a natural regeneration.</p> <p>As a result, continuous tree felling with target dimensions during the extended regeneration period is proposed. In younger life stages, the pre-commercial and commercial thinning aiming to maximal horizontal and vertical differentiation of stand structure are planned.</p> <p>In the first part, the Guidelines describe the short characteristics of the model and then move into the specific management measures that can be used to apply in the proposed alternative model. The second part of the Guidelines describes the importance of natural regeneration and the effort to reduce the proportion of secondary spruce stands outside their natural distribution. The third part focuses on ensuring the minimization of costs required by the application of this model with a focus on</p>	<p>At the case study area Podpoľanie we have several good examples of transformation to selective forest or permanent multi-layered forest stands. In most cases, these are Pro Silva objects with a well-defined target structure.</p> <p>For the application of this alternative model, a demonstration object was selected in the district of Mikulášska, FMU Hriňová, in stands No. 222, 223 and 224. The demonstration object consists of three research plots in different phases of transformation. The first two plots are in the transformation phase, the last plot is in the final phase. The tree species composition is dominated by spruce 70-100%. Occasionally beech and larch are represented. The age of forest stands is 65, 85 and 95 years respectively. The plot areas are 50 x 50 meters.</p> <p>The locality is also known from Travellab, but unfortunately most of the forest stands in the area were significantly disrupted by the wind calamity in 2018.</p> <p>Information about the demonstration object includes a description of the object, fotodocumentation, maps, as well as virtual visualization using the Sibyla growth simulator and subsequent 3D structures demonstration under Virtual Cave framework.</p>



	<p>qualified forestry personnel, the accessing of forest stands by forest roads and transport lines and the needs for more modern technological equipment, which may be to some extent disadvantage of applying this model in practice.</p>	
<p>Sustainable timber production in even-aged mixed species stands</p>	<p>Even aged mixed forest stands are the goal of a flexible age forest model. The main idea is to follow the classical concept of the forest of age classes but introducing more flexible rotation and regeneration periods limited by minimum allowable rotation ages. The expected impacts are balanced and maximized total volume production from larger areas, minimizing risks, improving ecological stability and preventing natural injurious agents, promoting species diversity and the nature of the tree species composition. The disadvantages of this model refer to increase the intensity of lobbying of timber traders for higher harvests responded by less responsible forest owners and possible deterioration of the some regulative and cultural services in the initial stages of implementation. The introduction of the concept of a minimum allowable rotation period (MARP) will give greater freedom to strategic planning decisions.</p> <p>The first part of the Guidelines sets out the minimum length of rotation periods and possible combinations of rotation and regeneration periods. The second part describes the procedures of the thinning and regeneration felling that ensure the achievement of the objectives set by the alternative model. The third part describes the possibilities of applying an alternative model with its advantages and disadvantages and its impact on individual forest owners and managers.</p>	<p>The spruce-dominated non-original forest stands at the case study area Podpoľanie were ideal for application of more flexible age-class model. In forest stands number 18 and 129, in the locality Snohy at the forest management unit Poľana, 8 research plots were established for research of increased variability of rotation periods in combination with different lengths of regeneration periods. There are four variants of rotation periods - very short, short, normal and extended rotation periods and two variants of regeneration periods - short and long regeneration period. The demonstration object will verify the possibilities of natural forest regeneration for various combinations of rotation periods and regeneration periods. The age of stand N. 129 is 70 years and the stand N. 18 is 90 years. In both forest stands are dominated by spruce (up to 95%), beech is rarely represented now (up to 5%), although according phytocoenological survey the site should be dominated by beech. The next generation of forest resulting from natural regeneration is expected to be dominated by beech.</p> <p>Research on forest management with a short rotation period is only at beginning to be implemented, so results are not yet visible directly in the field.</p> <p>Information about the demonstration object consists of a description of the object, photodocumentaries, maps as well as a visualization using the growth simulator Sibyla and subsequent 3D structures demonstration under the Virtual Cave framework.</p>

<p>General</p>	<p>Introductory of the Guidelines deal with the evaluation of valid forestry legislation in Slovakia and focuses on the possibilities of planning management measures. The following is a description of the reasons for the creation of specific alternative models (conceptions) and the possibility of their application in practice. Both alternative models are described in detail in the next text. This guide is completed with a list of used and recommended literature, from which the interested person can learn more about the issue.</p> <p>Information will be available on the home page http://gis.tuzvo.sk/ALTERFOR-sk/ as text and pdf files for download. Where possible, other materials, reports, compilations, articles will also be available in pdf format. Visualizations of individual demonstration objects will also be available. The homepage is hosted by the Technical University in Zvolen, Department of Forest Resource Planning and Informatics.</p>	<p>Maps, descriptions, results will also be available on the homepage http://gis.tuzvo.sk/ALTERFOR-sk/</p>
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