

## **Evaluating forest conversion scenarios using new modeling possibilities; Forest Stand Simulator (BWINPRO-S)**

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Today, there is an interest in multi-species uneven-aged forests as these forests eminently suited to the multiple purposes of modern forests, as fonts of biodiversity, as aesthetic environment, for soil conservation, and, not least for economic timber production. To achieve this goal in Europe, models ought to be made to convert man-made even-aged stands to uneven-aged stands.

Forest conversion modeling consists of developing methods to predict growth of existing and goal stands, simulate the effect of decided alternative silvicultural regimes for the practices of conversion process, and seek the best practice for the given set of objectives. This research is to give tools to the practice of foresters to plan for the conversion of the existing spruce forests into mixed beech-spruce forests. The projected procedure consists of the preparation of stand data (stand prescription), goal simulation of stands and tries to detect the best possible scenario for forest conversion planning.

To do this, a virtual forest enterprise using inventory data of the north Black Forest of Germany have been developed. Then, using the distance-dependent/independent forest stand simulator Bwinpro-S, some silvicultural interventions have been modeled. To analyze different possible forest conversion scenarios, different aspects of forest stands characteristics have to be considered to get tools to compare them from ecological and socio-economical points of view. Finally the scenarios have been evaluated considering criteria and indicators of MCPF. Then, output of simulation of developed silvicultural scenarios has been used to help making decisions on the silvicultural practices; time and place (stand) of essential operations during rotation period (60 years) of forest conversion processes.

We finally have come to conclusion that new modeling methods (forest simulators) and their outstanding advantages can improve considerably our decisions on forest conversion planning although some disadvantages and limitations. At last we foresee some future perspectives in this field.