

## A U S T R I A

### Little table, spread yourself?

Since the forest dieback hardly any issue at the BFW has been so controversial that intermediate results had to be published while evaluations are still going on. The BFW's study on potential wood and biomass supply, HOBI ("Holz- und Biomasseaufkommensstudie"), is in a stage where first results cannot only be presented, but can also be explained in greater detail.

There are already (too) many studies on this topic; some have been completed, others are still underway – unfortunately they also contradict each other in parts. There has so far been no comprehensive work which leaves hardly any room for contradictions. For this reason the BMLFUW charged the Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW) with the present project. The BFW is holding an abundance of information on this topic which substantially exceeds the rich database of the Austrian Forest Inventory (ÖWI). The aspects forest growth, economy, ecology, and legal framework conditions are integrated into the study in an interrelated way. In addition, the BFW cooperates with external partners, primarily with the Institute of Forest Growth Research of the Vienna University of Natural Resources and Applied Life Sciences (BOKU).

#### Look to future requires models

The outcome of the study comprises forecasts that reach to the year 2020. Numerous models had to be developed to enable such forecasts. For the field of "forest growth" we had the possibility to make use of the long-term preparatory work carried out for the forest growth simulator PROGNAUS, mainly at BOKU. This model family allows to make each individual of the 80,000 of ÖWI's sample trees grow for the next 20 years as a function of its location and its "competitive situation" in the stand. What happens if this tree dies, or if new trees grow as sample trees of ÖWI? Also these eventualities can be illustrated as realistically as possible using models.

However, the heart of the wood and biomass yield forecast is the modelling of the future utilisation. It determines to an essential extent the potential which will be available in future decades provided sustainability of growing stock or of increment. In HOBI two utilisation scenarios have so far been evaluated. The first one reflects the utilisation behaviour of the past (business as usual); the second calculates the possible utilisation quantities provided a constant growing stock of 325 m<sup>3</sup> o.b./hectare (according to ÖWI 2000/2002). For this purpose the potential utilisations had to be determined by means of several stand- and site-related data for each of the ÖWI sample areas. But the results achieved from these two scenarios reflect only a theoretical potential (Table 1).

Table 1: The development of growing stock and utilisation until 2020 for the two scenarios Business as Usual and constant growing stock in million solid cubic metres of stem wood over bark (m <sup>3</sup> o.b.) Source: BFW						
Mio m <sup>3</sup> stem wood o.b.		2000	2005	2010	2015	2020
Business as Usual	Growing stock	1,095	1,137	1,178	1,217	1,253
	Utilisation		19.8	20.5	21.4	22.2
Constant growing stock	Growing stock	1,095	1,095	1,095	1,095	1,095
	Utilisation		28.6	29.2	29.7	30.4

#### Numerous limitations

First, the values of Table 1 are given in solid cubic metres of stem wood over bark (m<sup>3</sup> o.b.). According to the rules of the Austrian Timber Trade Practices (ÖHHU), however, these values have to be split into usual market segments and, further, must be supplemented by the volume of the branches and the needles. Also the typical logging

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residues, such as pieces of tree tops or soft spongy pieces, is expressed in figures. As a result, the utilisation scenario "constant growing stock" shows a potential of approximately 33 million cubic metre equivalents annually including logging residues, bark, branches, and needles.

In a further step it has to be checked whether these segments, which are theoretically suitable for modelling, can be harvested with a positive contribution margin (CM 1) and logged to the road. For only in that case can they become part of the available potential. It is therefore indispensable to identify a timber harvesting procedure and a logging technology for all ÖWI sample plots. Moreover, future timber prices have to be put in the models. The concluded economic limitations reduce the theoretical potential already substantially. But there are more limitations.

### No modern litter utilisation

As a matter of fact ecology sets bounds to the possible utilisation of coniferous branches with needles. The nutrient deprivation resulting from this type of utilisation was therefore quantified and compared to the site-specific nutrient pool. When determining the available potential the results were taken into account above all for branches and needles. Depending on their nutrient balance they have been divided into three categories (Figure 1): Harvest using tree logging method possible, problematic, or this harvesting method should not be applied. It becomes apparent that harvesting using the tree logging method is unproblematic on only 43% of the productive forest area.

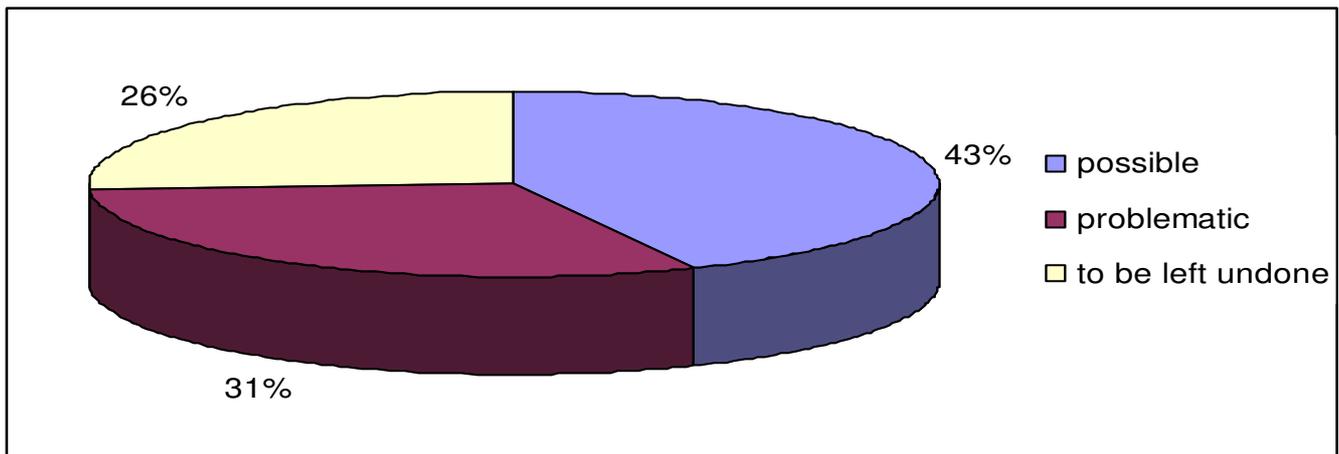


Figure 1: Utilisations applying the tree logging method for coniferous wood without topping are possible on only 43% of the productive forest area without nutrient shortages. ©BFW

### Potential of 25 million m<sup>3</sup> under bark

Considering the above-mentioned restrictions we get the "available" potential of 24.8 million m<sup>3</sup> under bark annually until 2020 for the utilisation scenario "constant growing stock". This result cannot automatically be compared with other utilisation statistics from the past, such as the utilisation according to ÖWI 2000/2002 or the timber felling report (HEM). For Figure 2, these utilisation statistics have therefore been adjusted to allow comparison all the same. What is important when comparing with ÖWI results is that they refer to the period from 1992 to 2002, as the utilisations observed were carried out during that period. For comparisons with the 2005 timber felling report (HEM 2005) one should keep in mind that the latter tends to slightly underestimate. The extra 7.6 million m<sup>3</sup> under bark compared to the most recent Austrian Forest Inventory and the extra 5.6 million m<sup>3</sup> under bark compared to the HEM are thus to be interpreted with care.

### Reckoned without the host?

One thing is clear: Whether anything is felled and how much is utilised in Austrian forests will always be decided by forest owners. From the results of the Austrian Forest Inventory (ÖWI) we have known for quite some time that the largest additional potentials are available in private forests. Additional incentives have to be provided

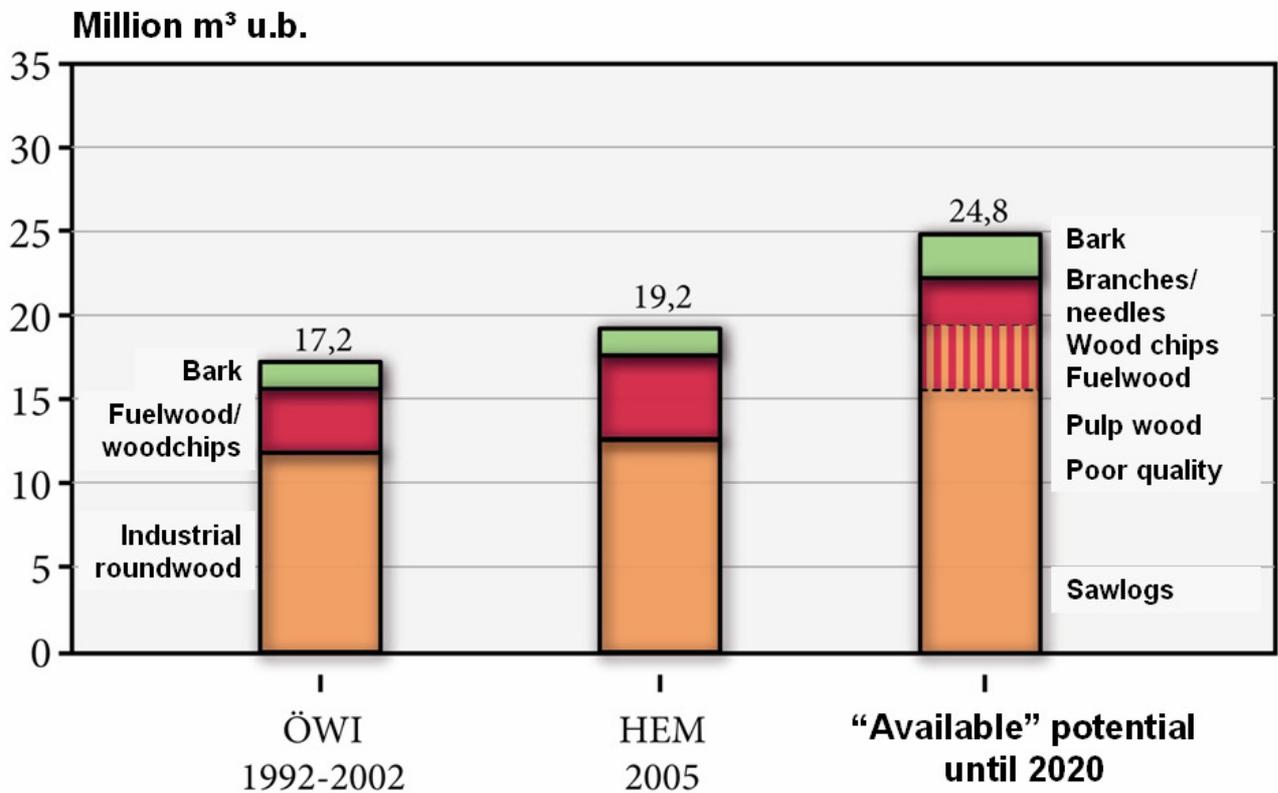


Figure 2: Comparison of the utilisations carried out according to ÖWI and HEM with the potential available according to the scenario "constant growing stock". ©BFW

there to raise the interest in utilisation. This might be joint timber marketing or the targeted promotion of utilisations at difficult sites in order to avoid the excessive exploitation of the favourable locations. A great portion of the potential will certainly relate to intermediate felling. Also in this area targeted incentive schemes or promotion measures are of importance to ensure that forest tending, which is silviculturally necessary and useful also from the economic point of view, does not fall prey to exaggerated timber mobilisation in the context of final utilisation.

#### Perspectives

The BFW study has not yet been completed. In the near future additional scenarios will be calculated that assume higher timber prices or a slight decline in the growing stock. Also for intensified thinning activities a separate scenario will be calculated. In addition, nature conservation objectives will be considered to a greater extent. The project will be completed and its results will be available on the internet in autumn 2008.

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