

PRESENT STATE OF BEECH BARK DISEASE IN GERMANY¹

Klaus J. Lang²

Abstract.-- Beech bark disease can be found at present time in young and old stands (20-150 years old) of *Fagus sylvatica*. The present state of the disease may be described as "normal" and apart from some cases, it is no threat to the existence of the stands.

In Germany beech bark disease always was the most important disease in beech forests, especially in older ones. Again and again it was the cause of great financial losses because of the very fast decomposition of wood. Moreover the break down of big trees gave rise to silvicultural problems because so called weeds complicated natural regeneration.

In practice foresters therefore try to restrict financial losses by removing trees with heavy scale infestation and necrotic bark or slime flux from the stands. Past experience has shown that people always overlook trees with symptoms of beech bark disease and that in consequence many beeches break down and can be only used for firewood.

Trees which are removed because they show scale infestation or slime flux are put in the same category as others which have to be felled because they are damaged by drought, for example.

The fact that there are different opinions concerning the causes of the symptoms leads to their subjective estimation and makes some information more or less doubtful. Therefore it is rather difficult to get exact data which refer only to damage by beech bark disease in the proper sense. In spite of the factors of uncertainty mentioned above I wish to try to describe the current state of the disease in the Federal Republic of Germany.

Let's begin in the south of our country. In Bavaria, especially in the northern parts where the greatest beech stands are located, in 1979 in 31 forest districts 16000 cubic meters of beech and in 1981 in the same forest districts about 9000 cubic meters had to be felled because the trees were damaged. Unfortunately it is not possible to evaluate clearly to what extent beech bark disease and the drought of 1976 contributed to this 25000 cubic meters of dying or dead trees. Between 1979 and 1981 the damages observed in this region decreased, but this does not necessarily mean that beech bark disease has clearly decreased. On the contrary, many observations and much information led us to the conclusion that the state of the disease development is different in the different parts of the country. This statement is not new because in the past there were also reports on increasing and decreasing disease intensity for different regions at the same time. This may be realized even in places which are not far from each other. Damage is mainly reported from beech stands over 80 years old. Increasingly there are observations in the northern part of Bavaria that *Cryptococcus fagisuga* also attacks beeches younger than 30 years. In some places many young trees died so that the foresters fear that, from the viewpoint of silviculture, the plots are to give up as lost especially because the best-growing individuals are predominantly attacked. In the past little attention was paid to the scale insect in young stands.

In 1981 in the southwest of the Federal Republic of Germany (Baden-Württemberg and Rheinland-Pfalz) beech bark disease increases in a great number of forest districts were reported. Dr. Bogenschütz,

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²Forest Pathologist, Lehrstuhl für Forstbotanik, Amalienstrasse 52, D-8000 München 40

from Freiburg, and I visited some of these areas. Beside old damage we found forest districts where actual beech bark disease with insects, slime flux, Nectria, falling bark and so on could be seen.

The disease appears scattered on single trees or concentrated on a rather few beeches which are standing not far from one another. In some cases it seems that the progress of the disease is fast, but the trees are not yet killed and it will perhaps take a lot of time until they break down. (In one case the trees were marked and will not be removed so we shall get further informations on the duration of the disease.)

In the Saar Territory after 1976 Cryptococcus was more often reported than in the years before.

In 1980 in one forest district 5500 cubic meters of beech had to be felled, but again the role of drought cannot be clearly calculated. Since 1980 the disease decreased but there were some exceptions. In most cases single trees in old stands were infected and showed symptoms. From younger stands it is reported that many trees can recover from the attack, a fact which was reported elsewhere, too.

It seems that in the southern and southwestern parts of Germany beech bark disease, at the moment, generally plays no great role, and occurs only on limited areas. Damages are significant on these limited areas and do play an important role, however.

In Nordrhein-Westfalen and Niedersachsen no striking increase of beech bark disease was observed in the last years. Of course the disease is not absent but the damage is estimated as "normal" which means that beech bark disease can be found concentrated in small areas and on few individuals scattered in the stands.

During the last years in Hessen a distinct decrease of beech bark disease has been reported. Though at present time there are many stands attacked by the disease, forest officers do not speak of a dramatic situation. In a few cases a very intensive outbreak of the disease is reported on beeches 50-150 years old.

In the northern part of Germany, in Schleswig-Holstein, after 1975 and 1976 damages caused by drought were common. In connection with this, slime flux and wood destroying fungi are part of the appearance of the damaged trees. The damages appeared very rapidly in this region perhaps as a result of the special soil conditions, which are in many cases characterized by shallow upper soil layers where the beeches form root systems which do not penetrate deeply into the ground. These soils are normally well supplied with water.

At the present time Cryptococcus fagisuga occurs in stands which are 20 to 40 years old. Slime flux as a consequence of scale attack and mortality is restricted to small groups of trees and single trees. It is reported that scales seem to be concentrated on understory trees and beeches which are exposed; for example at the periphery of a stand.

The present situation in the Federal Republic of Germany may be summarized as follows. In general it can be stated, that after 1976, when precipitation was poor, damages on beech increased. These damages should not only be attributed to beech bark disease because weather conditions and partly special soil conditions may have also played an important role. With regard to beech bark disease, in the proper sense, the situation is so far un-homogeneous since within our country there are reports of increasing and decreasing disease intensity at the same time. At the moment reports of reduced disease predominate.

In all regions where Fagus sylvatica occurs we can always find trees which are heavily attacked by Cryptococcus fagisuga and which show other typical symptoms. Therefore the present state of the disease in our country may be described as "normal". Certainly it is interesting that the disease has been repeatedly observed in younger stands where in the past it was more or less ignored or overlooked.

SUMMARY

After 1976, a year with very low rainfall, damages on beech trees increased. It seems to be sure that these damages are not the result of beech bark disease alone. The disease can be found today in young and old stands (20-150 years old) but apart from a few cases, it is no threat to the existence of the stands.

Normally beech bark disease occurs in Germany on single trees in all beech stands, especially in

the old ones, or concentrated in rather small areas. This is in general also the present state in our country.

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RESUME

La situation actuelle de la maladie de l'écorce du hêtre en République Fédérale d'Allemagne

Depuis 1976, année exceptionnellement sèche, enregistre en beaucoup de points de la RFA des dommages et des pertes accrues concernant le hêtre. Toutefois, il semble certain que ces pertes ne soient pas uniquement dues à la maladie de l'écorce du hêtre, mais également en grande partie à la sécheresse, particulièrement en ce qui concerne les peuplements sur sols peu profonds. La maladie sévit actuellement aussi bien dans les peuplements jeunes qu'agés (20-150 ans). A quelques exceptions près, la maladie ne peut toutefois pas être considérée comme menaçant les peuplements infestés.

La maladie de l'écorce du hêtre se rencontre dans pratiquement toutes les hêtraies de manière isolée, en particulier sur des arbres âgés; ou bien se manifeste en foyers d'infection de dimensions très souvent réduites. La situation actuelle de la maladie en RFA peut être qualifiée de "normale".

ZUSAMMENFASSUNG

Zum gegenwärtigen Stand der Buchen-Rindennekrose in der Bundesrepublik Deutschland

Nach 1976, einem Jahr mit sehr geringen Niederschlagsmengen, wurden in vielen Teilen der Bundesrepublik Deutschland verstärkte Schäden und Ausfälle an Buchen verzeichnet. Es scheint jedoch sicher, daß diese Schäden nicht alleine durch die Buchen-Rindennekrose verursacht wurden, sondern zu einem großen Teil durch Trockenheit. Dies gilt besonders

für Buchen auf flachgründigen Standorten. Zur Zeit ist die Krankheit sowohl in jungen als auch in alten Beständen (20-150 Jahre) anzutreffen. Abgesehen von einigen Fällen, stellt sie jedoch keine Bedrohung für den jeweiligen Bestand dar.

Die Buchen-Rindennekrose kommt praktisch in allen Buchenbeständen an einzelnen, besonders an alten Bäumen vor, oder sie tritt gehäuft auf meist kleiner Fläche auf. Der gegenwärtige Stand der Krankheit in der Bundesrepublik Deutschland kann als "normal" bezeichnet werden.