

## A Strategy for Protecting the World's Tree Resources

These comments are provoked by Charles L. Wilson's editorial (PLANT DISEASE 71:863, 1987) calling for strategies to prevent the introduction of exotic tree pathogens into our country. His plea is long overdue. Introductions of this kind in the 20th century have resulted in chestnut blight and Dutch elm disease. The devastation of these native American resources probably has exceeded \$1 trillion, based on current market values.

If we are to protect our forest and shade tree resources from further devastations like chestnut blight and Dutch elm disease, it is important to have some knowledge of the conditions that could explain the introduction of the chestnut blight to New York City about 1904 and the origin of the Dutch elm disease in Europe.

I have long been familiar with ecological evidence that could give reasonable answers to the conditions raised above. This comes largely from my long career in forest pathology and entomology, first, from 1933 to 1937 with the Division of Forest Pathology of the U.S. Department of Agriculture and since 1939 with the National Park Service.

In the mid-thirties, I discovered that the Dutch elm disease fungus is exceptionally adaptable as a saprophyte on green cut wood and bark of almost any hardwood species. When I informed Haven Metcalf, chief of the Division of Forest Pathology, of this, his prompt response was, "This means, like the chestnut blight, it will never be possible to eradicate this disease." These diseases should serve as double reminders to quarantiners not to allow foreign logs to

enter their ports, since there are no practical means for screening exotic pathogens that can lurk in these logs as saprophytes.

Teak log imports can easily be implicated in the introduction of chestnut blight to North America, as well as explaining the origin of the Dutch elm disease in Europe. Teak (*Tectona grandis*) is the world's queen of cabinet woods. It is in very high demand worldwide. Immense production in tropical Asia, including Burma, Thailand, and India, amounts to more than 0.5 million tons each year. Much of its production is exported as logs or lumber in foreign commerce. Following is some circumstantial evidence that could link worldwide commerce in teak logs with the introduction of chestnut blight, an Asiatic disease, into North America, and the introduction of the Dutch elm disease fungus from Asia to Europe, granting that the latter is indigenous to Asia, as well as the chestnut blight.

1. Both pathogens can grow saprophytically on a wide diversity of hardwood logs. Teak would therefore probably be no exception, particularly in respect to the Dutch elm disease fungus.

2. North America's largest seaport is New York, which no doubt handles the bulk of teak log imports for this continent. This may explain the introduction of chestnut blight at this seaport at the beginning of this century.

3. Europe's largest seaport is Rotterdam, which no doubt handles the bulk of teak log imports for that continent. This may explain why this seaport was one of the first locations for discovery of the Dutch elm disease in Europe in 1919, where European bark elm beetles were already on hand for vectoring this epiphytotic.

The latest potential threat to North America's tree resources is a new strain of

the Dutch elm disease in Europe that is much more violent than any previously known strains. Some claim that this exceptionally virulent strain had its origin in North America. Of immediate concern to us is that European elms in this country continue to show exceptional tolerance for strains of the Dutch elm disease, so it seems highly probable that the new European virulent strain of the Dutch elm disease has not, as yet, been introduced to North America. The North American veneer industry apparently has shown the wisdom of not importing elm veneer logs from Europe, probably aware of the drastic effects that this new virulent strain could have on North America's supply of elm veneer logs for this industry.

The obvious strategy for protecting the world's tree resources from further man-made ecological disruptions is for the world community to ban all the foreign trade in logs because of their high potential for spreading pestilences that can do immense permanent damage to the world's tree resources. These bans need not apply to foreign trade in lumber, free of bark, since finished products pose very low risks in the spread of ecological problems.

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This section is designed to help APS members understand more about APS Sustaining Associates. Information was supplied by company representatives. Each month different companies will be featured. A complete listing appears in each issue of *Phytopathology*.

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