New and spreading diseases in German urban areas

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Introduction
During the last years a number of new diseases have been emerged on trees in German urban areas. Furthermore there are a lot of already known diseases which have noticeable spread. This development leads to modified host-parasite relationships and seems often to be associated with climatic changes. By means of selected examples with recent particular attention new and spreading diseases in German urban areas are presented in the article.

Materials and methods
All demonstrated examples are exclusively or at least partially based on results of own investigations which are described in detail in following publications: Schumacher et al. 2007 a and 2008 a (for Annulohypoxylon cohaerens), Schumacher & Leonhard 2008 (for Splanchnonema platani, Sphaeropsis sapinea and Pseudomonas syringae pv. aesculi), Robeck et al. 2008 (for Cryptostroma corticale) and Schumacher et al. 2007 b, c and 2008 b (for Chalara fraxinea).

Selected examples
By the ascomycete Annulohypoxylon cohaerens is shown how a well known saprophyte fungus becomes parasitic under physiological stress of its host. The fungus caused noteworthy damages on beech trees of different age after the summer flood of 2002 (fig. 1 and 2).
Fig. 1: Crown symptoms of diseased beech trees (left) and fresh cut stump with extended decay in the sapwood (right)
Increased temperature and the absence of frost events in many cases allow the invasion and establishment of thermophilic or frost-sensitive pathogens. Actual examples in Germany are the Massaria disease of Plane tree caused by *Splanchnonema platani* (fig. 3) and the Diplodia blight of Pines caused by *Sphaeropsis sapinea*. Detected in the year 2003 in South Western Germany Massaria disease has spread very quickly throughout the whole country. The Diplodia blight of Pines is already known in Germany since the 1980th but has conspicuously extended in recent years and damage can be now observed in nearly each city.
Extreme meteorological conditions with extraordinary heat and drought in summer can result in outbreaks of diseases. In 2005 the sooty bark disease of Maple caused by Cryptostroma corticale was recorded for the first time in Germany. In the following years the disease has been notified in some other places, too. Probably the extreme hot and dry summer periods in 2003 and 2006 led to the current outbreaks.

Fig. 3: Symptomatic of the Massaria disease of Plane tree: infected bark with fruit bodies of the conidial state (left) and cross-section area of a diseased branch with white rot in the upper region (right).
Fig. 4: Recently died trees of Sycamore with typical symptoms of sooty bark disease of Maple.

Finally some completely new pathogens occurred on different tree species like the new bleeding canker of Horse Chestnut caused by *Pseudomonas syringae* pv. *aesculi* (fig. 5) or the new ash decline caused by *Chalara fraxinea* (cf. presentation and article: “new dieback on ash…”).
Fig. 5: Symptomatic of bleeding cankers of Horse Chestnut caused by *Pseudomonas syringae* pv. *aesculi* (left) and caused by *Phytophthora cactorum* (right).

Although *Pseudomonas* damages do not seem to be lethal for infested trees the new disease complicates the diagnoses because of its similarity to bleeding cankers caused by aggressive *Phytophthora* species. The new ash decline is known only in Central and Northern Europe so far. The knowledge about the impact of the disease and its recently described agent *Chalara fraxinea* is still low. First research activities have now started.

**References**


