

## Hazards associated with Climbers in Trees

Climbers, regardless of whether they are a twiner, tendril climber, grappler or self clinging, all have a detrimental effect when the tree is used as the support. Some more so than others, depending upon the tenacity, type and density of the climber. Though, not necessarily grown intentionally with the tree in mind as support, climbers will, in their search for light find their way into any structure that can provide a path to uninterrupted light, and will ascend until the limit of the supporting structure (tree) is reached. Though not parasitic, they will provide a number of negative attributes that can end with the death and/or complete failure of a tree.

The negative attributes associated with climbers are:

- i) **Smothering of the trees crown;** Most climbers typically pose a much faster growth rate than its support. This leads to the shadowing of the leaf area and the reduction in photosynthetic capacity of the tree, therefore declining vigour.
- ii) **Constriction of the trees vascular tissue;** As the climber grows, so does the tree, in particular the stem and branches increase in girth. As a consequence, the climber becomes tighter, cutting into the vascular tissue and restricting the conductive ability – effectively the climber acts as a tourniquet, reducing the essential transport of water and nutrients, leading to a decline in the vigour.
- iii) **Vascular chaff and tear;** The tightening of the climbers around the stem and branches can also lead to the stripping of the vascular tissue during strong winds. During windy conditions, the oscillating pattern by the trees branches differs to that of the climbers enveloping them. This difference can result in either chaffing or 'grabbing' of the vascular tissue and the tearing of it. This provides wounds and the opportunity for infection.
- iv) **Detritus buildup;** Like any plant, the shedding of leaves and flowers from the tree and climber will be caught up in the numerous pockets provided by the association. The decomposition of debris, results in detritus matter which can act like a sponge and hold moisture against the stem, branches and within crotches, softening the protective bark. This can lead to the easy penetration by pests (decay fungi, borers), and the eventual decay of the bark, vascular tissue and supporting wood.
- v) **Increased crown mass and sail area;** The climbers will also add a significant proportion of mass and sail area to a tree. In such circumstances where the tree's vigour has been depleted, the ability to provide sufficient stem, and branch taper (reaction wood) for support is hampered. Inadequate support for the tree and for the

rapid growth of the climber will occur, and results in failure of the limbs, and possibly complete wind throw.

- vi) **Restriction of movement;** An advanced climber also ties the tree up and holds the branch structure in a rigid manner that reduces the movement and ability to deflect wind loadings. This is particularly significant in the crown where the wind loadings are greatest. The inability for the stem and branches to flex and expel the energy during a storm results in a rigid structure that has not adapted to receiving such forces – this leads to wind throw or failure of branches.
- vii) **Habitat for pests and disease;** The dense mass provided by a climber not only holds a large volume of dust and small debris, but a protected haven for many pests, such as rodents, cockroaches and introduced birds amongst others. The area beneath and adjacent to such a tree provides a potential fallout zone, providing an unsanitary environment, in particular for those whom suffer from allergies.
- viii) **Hidden Hazards;** Trees can naturally have structural weak points, and though the accumulation of a climber in a tree can provide and amplify these weak points, they are most often hidden beneath the climber's foliage. Therefore providing not only an existing hazard prone to failure, but one that cannot be mitigated due to the inability for diagnosis.

Different climbers will provide varying degrees of detriment to a tree depending upon the habit and tenacity of the plant and the species of tree it resides in. Species such as *Ficus pumila*, any of the *Hedera*'s, or *Wisteria*'s provide some of the greatest hazards to trees, due to their fast growth, dense foliage, clinging habits, and strong stems. Though climbers are not a true parasitic, they could be considered as 'space parasites'. Irrespective of the climber type, they will reduce the safe useful life expectancy of a tree and increase the opportunity of failure however hidden these hazards may be.