

## Arbutus Tree Decline

The Arbutus, often referred to as the Madrona, is a native species to British Columbia. These evergreen trees can grow to a height of 25m with a trunk 60cm in diameter. They have a signature smooth, red, peeling bark, and shiny leaves.

Recently many Arbutus in BC and down the coast to southern California are showing signs of stress. The problem was first reported in urban areas in California but it appears that Arbutus of all ages and sizes and locations are effected, however the larger, and oldest Arbutus show the highest rates of mortality (Pacific Madrone Decline, 293).



Arbutus tree at Jack's Point

### **Causes of arbutus decline:**

1. Abiotic stresses can increase the probability of an arbutus becoming susceptible to disease or damage:
  - Urbanization
    - Including reduced growing space
    - vehicular and marine traffic
    - pollutants
  - Climate change
  - Possible suppression of wildfires
  - Root disturbance and damage
  - Competition for resources
  - Shading and drought stress



Leaf spots on arbutus caused by *Didymosporium arbuticola*.

### 2. The biotic stresses:

Arbutus trees are host more than 21 fungi species of pathogenic (Elliot 1999). Many of these fungi result in leaf spots. The majority of these leaf spots develop in the fall and winter, and the leaves are shed following development of the new growth, and therefore, the spots are not considered to be a significant problem. However, if the leaves discolour and drop prematurely (i.e., before development of the new leaves), this could suggest a more serious problem, such as root rot or canker disease (Justice 2001).

Elliot identifies four fungi that are most likely to cause tree death these include *Phytophthora cactorum* is a fungal-like protist that causes a root rot, belonging to the same genus as *Phytophthora ramorum*, the pathogen that causes Sudden Oak Death. *Nattrassia mangiferae* is also known as Arbutus canker, and Madrone canker is caused by *Fusicoccum aesculi* (Schlamp).

The arbutus population has been declining at an alarming rate for the past several years, but there is no clear answer to the exact cause of Arbutus death.

### Ways to help:

- Minimize human influence around the arbutus trees
  - Avoid disrupting roots and damaging above-ground portions of the trees.
  - Do not prune,
    - (any wound is an entry point to disease causing pathogens and micro-organisms)
  - Do not irrigate established plants
    - this encourages surface rooting, which is typically short-lived and considerably less resilient than deep rooting.
  - Do not irrigate in the summer
- Plant more arbutus

If Arbutus trees are located away from other diseased trees, in well-drained soil, in full sun, with good air circulation (away from polluted air), and with natural rainfall (even in the summer), they should survive as long as the stresses of their environment are minimised (Justice 2001).

For more information about Arbutus trees please visit:

Diseases and Insect Pests of the Pacific Madrone:

<http://extension.oregonstate.edu/catalog/pdf/ec/ec1619-e.pdf>

Decline of the Pacific Madrone: <http://soiislab.cfr.washington.edu/madrone/book.html>

UBC Botanical Gardens Forum: <http://www.ubcbotanicalgarden.org/forums/showthread.php?t=14578>

Here you find answers to many questions you may have about the Arbutus in your area.

### Works Cited:

Elliott, M., Edmonds, R., and Mayer, S. 2002. Role of Fungal Diseases in Decline of Pacific Madron Northwest Science Vol.76. No. 4. 293

Justice, D. 2001. UBC Botanical Gardens Forum: Arbutus tree.

<http://www.ubcbotanicalgarden.org/forums/showthread.php?t=547> accessed on June 28, 2008.

Elliot, M. 1999. The Decline of the Pacific Madrone (*Arbutus menziesii* Pursh). Save Magnolia's Madrones, Center for Urban Horticulture, Ecosystems Database Development & Research. p 48.

Schlamp, K. The Annihilation of our Arbutus. <http://whatcom.wsu.edu/ag/homehort/pest/arbutus.htm>