Burnaby Rhododendron and Gardens Society
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Cleaning Indoor Air

Have you heard of the Sick Building Syndrome? It is a condition produced by poor indoor air quality. Symptoms may include allergies, asthma, eye and nose irritations, fatigue, headache, nervous-system disorders, and respiratory congestion. The poor indoor air quality is caused by airborne particles emitted by synthetic materials commonly found at home. This so-called 'indoor pollution' can be a greater threat than outdoor pollution due to length of exposure. The most common harmful chemicals found in the average home are formaldehyde, benzene, trichloroethylene, and carbon monoxide.

Formaldehyde is found in:
- furniture made of particle board or pressed wood
- consumer paper products (grocery bags, paper towels, facial tissues)
- adhesive binders in floor covering, carpet backing
- household cleaning agents
- natural gas from gas stoves and kerosene
- tobacco smoke
- permanent-press clothes, water repellent, fire retardants

Benzene is found in commonly used solvents, some detergents, some pharmaceuticals, paints, plastics, rubber, dyes and inks, and synthetic fibres.

Trichloroethylene is commonly used by the metal degreasing and dry cleaning industry. At home, the substance is found in printing inks, paints, varnishes, adhesives, lacquers.

Carbon monoxide is a product of incomplete combustion, such as from cigarette smoke, fuel-fired furnaces, gas water heaters, fireplaces and woodstoves
gas stoves, gas dryers.

Other chemicals that can contribute to the poor indoor air quality are ethyl alcohol, acetone, methyl alcohol, and ethyl acetate. Other factors include mould spores and low relative humility.

NASA researchers discovered that some plants can help purifying the air we breathe at home. Dr. B.C. Wolverton published 50 plants in his book called "Eco Friendly House Plants".

Houseplants have a high photosynthesis rate to allow them to thrive in a dim light in tropical forests – this trait works to our advantage in purifying the indoor air. Houseplant leaves, roots, soil and micro organisms work together in a symbiotic relationship to remove chemical pollutants.

- Air pollutants are absorbed through microscopic openings in the leaves called stomata. Through translocation, the movement of substances through the plant to the root zone, toxins are removed from the air to the soil and broken down by microbes. Some chemicals, however, are destroyed by the plant's own biological processes without involving the action of soil microbes.
- Water vapour is emitted into the air from plant leaves through a process called transpiration. Convection air currents set up by leaf transpiration transport toxins to the root zone. Effective toxin transportation can be increased if the lower leaves of houseplants are removed so that as much soil as possible is in contact with the air.
- Soil microbes biodegrade the toxins into a source of food for the microbes and the plant. A varied population of micro organisms live in the soil. They are responsible for, among other things, making nutrients available to plants and detoxifying the soil. They are highly adaptive, having the ability to mutate to cope with environmental changes. It is important to note that, since research has shown that micro organisms become more adept at detoxification the longer they are exposed to toxins, the longer we are able to keep our houseplants, the more successful they will be as Clean Air Plants.
- While most plants photosynthesize in daylight, some plants, including most succulents, orchids and bromeliads, act in the opposite manner, opening their stomata at night. Therefore, with a well-balanced selection of houseplants, it is possible to purify continuously the indoor environment - day and night!

The following 20 plants were given the highest ratings for removal of chemical vapours in Dr. Wolverton's Book "*Eco Friendly House Plants*". The book gives detailed information on all fifty plants tested.
Areca Palm (*Chrysalidocarpus lutescens*), Lady Palm (*Rhapis excelsa*), Bamboo Palm (*Chamaedorea seifrizii*), Rubber Plant (*Ficus robusta*), Dracaena 'Janet Craig' (*Dracaena deremensis* 'Janet Craig') English Ivy (*Hedera Helix*), Dwarf Date Palm (*Phoenix roebelenii*), Ficus Alii (*Ficus macleilandii* 'Alii'), F. Benjamina, Boston Fern (*Nephrolepis exaltata* 'Bostoniensis'), Peace Lily (*Spathiphyllum* sp.), Corn Plant (*Dracaena fragrans* 'Massangeana'), Kimberley Queen (*Nephrolepis obliterata*) Tolerant fern Florist's Mum (*Chrysanthemum morifolium*), Gerbera Daisy (*Gerbera jamesonii*), Dumb Cane (*Dieffenbachia* 'Exotica Compacta'), Toxic Weeping Fig (*Ficus benjamina*), Schefflera (*Brassaia actinophylla*) Dendrobium Orchid (*Dendrobium* sp.), Tulip (*Tulipa gesneriana*), Spider Plant (*Chlorophytum comosum* 'Vittatum')

Viburnum Leaf Beetle

by Diane Allison

Did your Snowball bush get eaten alive this spring? These little critters can completely skeletonize a shrub before you even know they've hatched so make sure you keep an eye out for their eggs!

Order: Coleoptera
Family: Chrysomelidae
Species: *Pyrrhalta viburni*

Larvae:

(www.hort.cornell.edu/vlb)

- larvae are 1-2 mm long and greenish yellow (when they first emerge they can be quite dark)
- as the larvae mature they become covered in a pattern of dark spots and darken in colour
- mature larvae are 10mm long, slightly depressed and subcylindrical

Beetles:

(www.hort.cornell.edu/vlb)

- adults are 4.5-6.5 mm long (smaller than larvae)
- brown with filamentous antennae
- dorsal surface is wrinkled with thick, golden-gray pubescence with small, dense punctures
- head, thorax and wing covers are brown with the shoulders being darker

Lifecycles

(www.hort.cornell.edu/vlb)

- overwinters as eggs
- eggs are deposited in rows, usually on new growth stems – they appear as neatly arranged nodules – a hole is dug out from the stem and up to 5 eggs are deposited – the hole is capped with cement made from plant fibre, spit and excrement
- eggs hatch in early spring – depending upon when the *Viburnums* start leafing out – they begin feeding on developing leaves
- larvae feed on foliage – eat the foliage along the leaf veins usually on the underside, leaving a skeletonized leaf
- mature larvae are 10 mm long and migrate to the soil to pupate
- pupal stage lasts about 10 days
- beetles emerge from the soil and begin to feed on foliage
- beetles create oblong shot holes in foliage
- adults survive until the first frost
- an adult female can lay up to 500 eggs
- the span from egg hatch to adult can be as quick as 2 months

Control:

- there are no known natural enemies
- some birds. ladybug larvae, green lacewing larvae and predatory bugs are good general predators of beetle larvae
- begin monitoring for eggs after the first frost in fall – prune out infested branches
- look for larvae when the first leaves emerge in the spring
- tanglefoot may help with control as larvae crawl down the stem to pupate
- beetle may drop to the ground or fly away if disturbed – can be collected on a sheet spread under the shrub

The beetles appear to prefer some species and cultivars over others. Just because a species is listed as most resistant doesn't mean it won't be attacked – if there are no preferred source of food, the beetle may attack other species – eg *V.davidii* is now susceptible.

Highly susceptible species are the first to be attacked, and are generally destroyed in the first 2-3 years following infestation. Susceptible species are eventually destroyed, but usually are not heavily fed upon until the most susceptible species are eliminated. Moderately susceptible species show varying degrees of susceptibility, but usually are not destroyed by the beetle. Resistant species show little or no feeding damage, and survive infestations rather well. Most species in all susceptibility groups exhibit more feeding damage when grown in the shade.

Susceptibility Ratings by Paul A. Weston, Department of Entomology, Cornell University

Highly susceptible

V. dentatum,
V. nudum
V. opulus
V. opulus var. *americana* (formerly *V. trilobum*)
V. propinquum
V. rafinesquianum

Susceptible
V. acerifolium
V. lantana
V. rufidulum
V. sargentii
V. wrightii

Moderately susceptible
V. alnifolium (syn. *V. lantanoides*)
V. x burkwoodii
V. cassinoides
V. x carlcephalum
V. dilatatum
V. farreri (except 'Nanum',
which is highly susceptible)
V. lantanoides (syn. *V. alnifolium*)
V. lentago
V. macrocephalum
V. x pragense
V. prunifolium
V. rhytidophylloides
*V. tinus**

Resistant
V. bodnantense
V. carlesii
*V. davidii**
V. x juddii
V. plicatum
V. plicatum f. *tomentosum*
V. rhytidophyllum
V. setigerum
V. sieboldii

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June Meeting

Wednesday, June 4
Speaker: Brenda Faulk from Tanglebank Country Gardens. **"Drought Tolerant Gardening – Xeriscaping"** She will bring drought tolerant plants for sale.

A Different Container

For an unusual container I found this in my favorite gardening magazine. Go to the website www.gardengatemagazine.com click on Web extras, in the current issue June 2008, click on 4 Bonus Container Plans. PLUS: Build a Unique Container.
Faye Kilpatrick

Thank You

To Diane Allison, Cheryl Fiddis, Lois Brown, and Faye Kilpatrick for contributing articles to this edition of the BRAGS Newsletter. Contributions from Members are always welcome. LH

Out and About

Thursday, June 5
Cedar Series Lecture, Vancouver Remembered, with award-winning author and artist, Michael Kluckner. Please join Mr. Kluckner is his "farewel" lecture on Vancouver, summing up the city in the years between World War II and Expo '86. VanDusen Floral Hall at 7:30 p.m. Tickets available in advance from the office and at the door. Members $10 and non-members $15.

Sunday, June 11
Rose Show & Craft Sale by Vancouver Rose Society.
Crafts, workshops, perennial & rose sales, bouquets, books, etc. VanDusen Floral Hall, 37th & Oak, 12pm-430pm, Admission $4.

Nominations! Nominations! Nominations!

by Cheryl Fiddis & Lois Brown, Nominations Committee

In this article, we detail the final 3 of our positions up for nomination at the end of the year.

Publicity

This position is ideal for someone who prefers to be "behind the scenes", as the majority of the duties can be performed by internet, phone or by mail. The primary function is to publicize BRAGS monthly meetings and special events such as the plant sale, garden tour, garden contest and RhodoFest (mostly handled by the City) in local newspapers, garden magazines, community newsletters and by networking with other garden clubs and garden columnists. Solicit feature articles for print as necessary. Maintain and update a list of possible resources. Attend directors meetings. Provide reports at the monthly meetings as necessary. This is a 2 year term.

Fundraising

This position is responsible for brain-storming and working with the various committees and executive to find ways to incorporate fundraising into our events. This role also works closely with the volunteer responsible for monthly draws.
Experience in soliciting funds from Corporate sponsors for major events such as the RhodoFest, could be an asset, but is not necessary.
This position may also explore various options for future "Gifts to the Community", and make recommendations to the executive team, ensuring potential recipients meet the guidelines of the By-Laws. This position is easily shared between two members and is a 2 year term.

RhodoFest Chair

Calls and chairs all meetings of the RhodoFest Committee and combines efforts with the City of Burnaby staff responsible for the festival.
Works with the City staff on development of advertising strategy and materials such as designing the poster and other advertising materials. Works with the Volunteer Co-Ordinator for: set up/take down, silent auction, parking attendants, truss display, and for volunteer t-shirts and other Festival details that may arise. This is a 2 year term.

Happy Father's Day!
Life was a lot simpler when what we honored were father and mother rather than all major credit cards.
Robert Orben