

A WORD OR TWO ABOUT GARDENING

Night time fragrance for your Miami-Dade garden.

In a preceding article the topic of floral fragrance was introduced, along with a selection of some day time fragrant shrubs and trees for use in local landscapes. Now our attention turns to dusk and the succeeding hours of darkness when the air is filled with a variety of floral scents more intense than those released during daylight. This is when some of the most exquisite of all floral fragrances can be experienced, including brunfelsias, brugmansias, cestrums, gardenias and plumerias. The flowers of some of these shrubs and trees may be fragrant during the day but fragrance becomes more intense at dusk and/or during the night.

Flowers that are at their most fragrant during the day are primarily visited by bees and butterflies, though some (especially those with more open flowers) can include a range of other insects including wasps, flies, beetles and thrips. Typically, **night scented flowers** possess pastel often pure white, tubular to salverform corollas (limbs maybe lobed), and for the most part **mainly attract moths, especially hawkmoths (Sphingidae)**. Smaller **noctuid moths** are attracted to flowers having shorter corolla tubes, and larger petal lobes on which the moth can alight while withdrawing nectar. Hawk moths hover like a hummingbird and withdraw nectar by unfurling their elongated proboscis down into the flowers long thin floral tube. Moth pollination is especially frequent in plants in the following families: Rubiaceae (gardenia), Apocynaceae (frangipani), Solanaceae (chalice vine) and some members of the Fabaceae (e.g., some *Caesalpinia* spp.).

Not all plants that are fragrant at night are moth pollinated. Some rely on **beetles** and others on nocturnal animals, especially **bats**. Flowers visited by beetles are usually saucer to urn shaped, green, white or dull and although sometimes malodorous, many emit fruity, spicy or sweet fragrances (e.g., Annonaceae and Magnoliaceae). Bat pollinated flowers are usually large; the colors tend to be desaturated (grayish) and they often have an unpleasant musty to cabbage-like odor. They are found in a number of unrelated plant families, being more common in trees and shrubs in the new world as compared to old world tropics. Bat pollination is not uncommon in tropical trees of the Bignoniaceae such a calabash (*Crescentia* spp.) and sausage tree (*Kigelia africana*).

A flower's shape and color is certainly not an infallible guide to when it's most fragrant or which insect, bird or animal visitors are acting as pollinator(s). There are many exceptions: ***Gustavia augusta* (majestic heaven lotus)** from the rainforests of northern S. America is a slow growing, small tree/shrub (locally) in the Brazil nut family (Lecythidaceae), which is occasionally found in area landscapes. Leaves are attractive, large, oblanceolate, almost sessile, crowded at branch ends, pinkish bronze at first turning dark green. The large waxy flowers are cup shaped and cauliflorous (borne directly on major branches), with 6-8 petals, white becoming flushed toward the tips. As the flower fully opens, a prominent ring of inwardly curved, deep yellow stamens is revealed, those outermost tinged a purplish pink. One would be correct in assuming from their appearance that these are bee

pollinated flowers - but not the familiar honey or bumble bee. These flowers open at night, emitting a heavy, sweet fragrance, and are pollinated in the pre-dawn hours by a night foraging bee (*Megalopta genalis*), one of number found in tropical rainforests

Gustavias are forest understory trees, and are therefore best grown with part shade in moist, organically enriched, somewhat acidic soil. On Miami's calcareous soils this means incorporating plenty of compost and/or peat, and maintaining a 3-4" covering of pine bark mulch. Correct expected trace element deficiencies using soil drenches of chelated iron and foliar applications of trace element supplements. The tree can also be grown in a large planter; if you have one (or more) Miami-Dade County Extension rain barrels, the tree will appreciate being irrigated with lime free water.

A far more familiar fragrance in local yards is that of ***Gardenia jasminoides*** (syn. *Gardenia augusta*), which though unrelated botanically to *Gustavia* does share a preference for light shade and acidic soil (again, expect trace element deficiencies, see above). In south Florida, unless you are going to keep your gardenia indoors in a container, purchase only plants grafted onto a *G. thunbergia* rootstock. This ensures a more vigorous plant with heavier blooms, and of greater local importance confers resistance to root parasitic nematodes, which can rapidly debilitate *G. jasminoides* grown on its' own roots. Other pests include aphids, scale insects and flower thrips, while poorly draining soils predispose gardenia to phytophthora root rot, and damaged or carelessly pruned stems can develop canker.

Many cultivars of *G. jasminoides* are available locally, differing in features such as growth habit, foliage and flower size, period when in bloom, as well as fragrance. South Florida nurseries offer other *Gardenia* spp., some of which are less demanding than *G. jasminoides* (e.g., don't need to be grafted). Most of these species have single rather than double flowers. Of these ***Gardenia taitensis*** **Tahitian gardenia** is most often found locally, being more tolerant of full sun, limestone, salt and drought than *G. jasminoides*. Tahitian gardenia is endemic to South Pacific islands from Fiji to Tonga, where it can even be found on coral rock. It forms a shrub or small tree, locally to about 10', with glossy, bright green, obovate leaves. The attractive 3" flowers are pure white, tubular, with 5-8, narrow, obovate petal lobes and mildly fragrant (at night). There are several species from SE Asia: **golden gardenia**, ***Gardenia carinata*** develops into a small tree/shrub with highly fragrant flowers, the fragrance decreasing as the color deepens from cream to a yellowish orange; ***Gardenia tubifera*** has somewhat smaller leaves and oblong rather than obovate petal lobes and ***Gardenia vietnamensis*** forms a mounding 4-6' shrub with highly fragrant, large white flowers having spatulate to obovate petal lobes.

From southern Africa ***Gardenia volkensii*** (**Transvaal gardenia**) forms a 20' shrub/small tree; leaves are obovate to lanceolate and of thinner texture than *G. jasminoides*. The flowers are terminal, highly fragrant, each having a long thin corolla tube and large, white to cream to yellow obovate to elliptic petal lobes. Closely related to gardenias (both are in the coffee family, Rubiaceae) and also from southern Africa is ***Rothmannia capensis***, **cape gardenia**, a small tree or shrub with narrow (lanceolate), prominently veined, glossy leaves. More tender than *G.*

jasminoides, cape gardenia is fast growing in a year round warm climate, usually attaining a height of about 15' in cultivation, but first flowering around 4'. Solitary, cream to pale yellow, funnel shaped flowers emit a gardenia-like fragrance that lingers even after they dry. Blooms appear spring into early summer, with fragrance most pronounced at dusk; however unlike gardenias, *Rothmannia* spp are pollinated by carpenter bees. Also highly fragrant, **September bells, *Rothmannia globosa*** has smaller, more bell-shaped flowers, and leaves with prominent yellow to maroon colored veins. *Rothmania* spp. also prefer part shade and an acid, evenly moist soil (necessitating trace element supplements, especially iron).

Apart from gardenia and Rothmania, the Rubiaceae contains many other night scented plants, not least of these a rare Jamaican native ***Portlandia grandiflora*** (bellflower). The flowers resemble an Easter lily but are larger and have a satiny sheen; mildly fragrant during the day they emit a sweet vanilla fragrance at night and are believed to be pollinated by bats. Portlandias benefit from some light shade and adapt well to local calcareous soils (found in Jamaica's limestone 'Cockpit Country'). In Miami-Dade they are susceptible to cold damage, initial symptoms purplish red blotched leaves below 45°F progressing to extensive if not terminal die-back as temperatures fall to 32°F. Where freezing temperatures are more likely (far western suburbs) consider growing in a large movable container. Bellflower is slow growing, but should commence flowering within 2 years, developing into a 12-15' small tree/shrub.

If you are looking for a single shrub that can fill the night air in late spring summer with a heady, sweet fragrance look no further than ***Brunfelsia nitida* lady of the night**. This is a 5-7' shrub with small, dark green, somewhat shiny, leathery leaves, and highly fragrant, white fading to cream, salverform flowers. While little if any fragrance can be detected during daytime it becomes intense after dark, overpowering for some so consider planting away from an open window. A larger shrub with similar flowers but with less shiny, more papery leaves, ***Brunfelsia americana*** is also known as lady of the night but flowers more late winter into spring. ***Brunfelsia jamaicensis*** is a tad smaller than *B. nitida*, but has a more delicate (to my nose more appealing) fragrance, as does



Brunfelsia jamaicensis

***Brunfelsia lactea* (jasmin del monte)**, a larger shrub to small tree. All above brunfelsias require an enriched, evenly moist soil and have limited drought tolerance – flowering for all but *B. americana* is during the wetter months of the year; heavy rainfall following a period of dry weather will often stimulate profuse flowering. Both *B. jamaciensis* and *B. lactea* should be provided with some partial shade (too much will prevent flowering) especially from direct hot afternoon sun, which can scorch foliage.

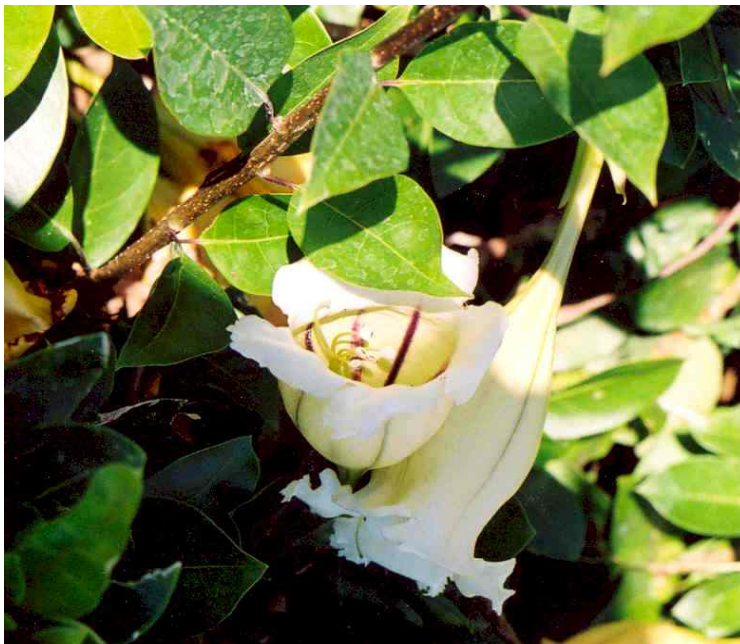
Another intensely fragrant shrub ***Cestrum nocturnum* (night blooming jessamine)**, like brunfelsias a member of the Solanaceae (tomato family), is widely grown throughout the tropics for its heavy, sweet, pervasive scent. Many are entranced by the scent, but others claim it to be the cause of headache, nausea and breathing difficulties. A single shrub, preferably situated at a distance from the residence, should suffice to scent an entire yard. Cestrum prefers full sun and a free draining soil. On newly planted specimens long stems should be tip pruned to develop a more bushy growth habit (otherwise shrubs become straggly). Note that the day blooming jessamine, *Cestrum diurnum*, is banned in Miami-Dade as an invasive plant. Cestrum and brunfelsias like **many ornamental solanaceous plants**, including Angel's trumpet (*Brugmansia* spp.) and chalice vines (*Solandra* spp.) described below, **are poisonous**.

In the case of **brugmansias**, misuse for their hallucinogenic properties has resulted in psychosis, delirium and persistent memory disorders. All parts of the plant are toxic including the spectacular flowers. The five recognized species have large, pendent, trumpet shaped flowers (corolla tubes ribbed with 5 reflexed lobes), and range in color from white to yellow. The red flowering *Brugmansia sanguinea* is the only species lacking a discernable scent. More common in cultivation are the many selections derived from hybrids of the above species. Two of the more fragrant are ***B. x candida*** (*B. aurea* x *B. versicolor*) and ***B. x insignis*** a backcross ((*B. suaveolens* x *B. versicolor*) x *B. suaveolens*), though there are claims the latter is a true species. The former has produced several double flowered sports (e.g., 'Double White' and 'Knightii'), the latter flowers easily and is especially fragrant at night. Brugmansias, although tropical, are native to mid level altitudes of the Andes and under south Florida conditions should be grown with some dappled shade, especially from hot afternoon sun. Soil should be organically enriched, moist but free draining, and once established brugmansias should receive regular applications of a complete slow release fertilizer. Root nematodes can be a problem, more so on sandy soil, as well as snails, caterpillars, various mites, whitefly and mealybugs. Finally in the Solanaceae there are the **chalice vines** – frequently offered as ***Solandra guttata*** by nurseries but more likely to be ***S. maxima***. Identity apart, *S. maxima* is a heavy woody vine with deep green ovate leaves and requires a sturdy trellis (preferably a pergola) for support. Beginning in late fall, large (10") cup shaped flowers appear, butter yellow at first deepening to gold, the throat displaying five prominent purple lines.

At night the flowers emit a sweet coconut like fragrance that attracts hawk moths – some claim bats also visit the flowers. Another species ***S. longiflora* (Gabriel's**

trumpet) has paler colored flowers and is also available in a variegated form with green and white leaves (purple at first). It is reported to adapt more readily to alkaline soils, and can be grown as a free standing if sprawling shrub. Solandras should be grown in full sun; flowering is on old growth so overly vigorous new growth can be cut back by up to one third. Prune annually in spring once flowering ends – heavy pruning of woody growth will severely reduce flowering. Apply fertilizer after annual pruning and water as required to maintain soil moisture spring through summer, then as cool weather approaches allow the soil to dry out more (this encourages flowering).

Like the Solanaceae the Apocynaceae is another family containing many ornamental plants with night scented flowers. The most widely known of these are **frangipanis (*Plumeria* spp hybrids)**, the majority involving ***Plumeria rubra*** (most authorities regard '*Plumeria acuminata*' and '*Plumeria acutifolia*' as synonymous with *P.rubra*). One of the most fragrant is an early cultivar from Hawaii that was commonly known as graveyard yellow, because of its' use in cemetery lots but is now referred to as '**Common Yellow**' or '**Celadine**'. The flowers are a vibrant bright yellow, edged white, and have an intense lemon fragrance. They are long lasting making them popular for use in leis. Some other fragrant plumerias include: '**Aztec Gold**' (white and yellow, fruity fragrance); '**Daisy Wilcox**' (white, yellow throat – spicy fragrance); '**Dean Conklin**' (salmon, orange throat – carnation-like fragrance); '**Duke**' (deep pink/red, yellow center – strong sweet fragrance); '**Lurline**' (orangey red, purplish petal tips – spicy) and '**Singapore**' (small white flowers with intense yellow center – strong lemony fragrance). The last named cultivar is the only



commonly grown plumeria derived from ***Plumeria obtusa*** – species differs from *P. rubra* in having blunt tipped (obtuse) leaves and being evergreen (leaves do not drop during winter). Frangipani rust is quite common and persistent (making control difficult) from late spring into early fall. Leaves become disfigured with conspicuous orangey spores on leaf underside) and drop but the plant appears to suffer no lasting injury.

Solandra longifolia

Although commonly referred to as **Florida gardenia** or **pinwheel jasmine**, ***Tabernaemontana divaricata*** is unrelated to either true gardenias or jasmines being another member of the Apocynaceae (like plumerias cut surfaces exude a milky

sap). This 6-8' shrub is an old time favorite in south Florida, particularly the double flowered cultivar ('**Flore Plena**'), which makes an adequate substitute for a gardenia (often referred to as crepe gardenia or crepe jasmine). Single flowers are white, salverform, with twisted corolla lobes (propeller-like) and have a mild but pleasant fragrance at night – the double flowered cultivar is not as fragrant. Less frequently seen is the cultivar '**Grandifolia**', with larger leaves and double flowers and a version of 'Flore Plena' with variegated leaves. Provide a site with shade from afternoon sun or day-long dappled shade and evenly moist organically enriched soil; scale insects are occasional pests.

Of increasing interest locally as an attractive small flowering tree, **lechoso** *Stemmadenia litoralis* (syn. *S. galeottiana*) is similar in overall appearance to *Tabernaemontana*; the milky white flowers have a much longer corolla tube with overlapping lobes and more intense fragrance. Lechoso can tolerate full sun providing the soil remains moist; like *Tabernaemontana* though evergreen, leaves will drop as temperatures fall into the low 40's and yellow/drop during a drought.

Several vines in the Apocynaceae have night fragrant flowers, ranging from the familiar **bridal bouquet** (*Stephanotis floribunda*), suited to the smallest of yards, to the large woody **Herald's trumpet** (*Beaumontia grandiflora*) and **wax plants** (*Hoya spp.*) many of which are perfect for an enclosed patio. Bridal bouquet is an ideal, non-aggressive, woody-stemmed, twining vine which can be grown on a chain link fence, wall mounted trellis and is just right for a garden arch. Each inflorescence comprises densely packed clusters of several pure white, waxy, 1-2" flowers, the corolla salverform to funnel shaped with distinctly spreading lobes. Flowers are faintly fragrant during the day but as dusk approaches they emit a delicate jasmine-like fragrance; as an added bonus they are long lasting making them popular as bouquets.

Situate *Stephanotis* in full sun, preferably with some high filtered shade, planting in an enriched, moist but free draining soil with a covering of mulch to keep the roots cool. In sites with sandy soil addition of organic matter and mulching will also help reduce problems from parasitic soil nematodes. Where there is a known nematode problem consider using a container or raised planter. Apply a slow release fertilizer in early spring and mid summer. In winter reduce watering and expect some yellowing/leaf drop as night temperatures fall below 50°F. During extended periods of hot dry weather (spring/summer) a lack of water will also cause foliage to yellow and supplemental water should be provided. Prune as necessary; in early spring remove dead (dried up) stems and at other times thin out any tangled new growth as necessary. Flowering occurs on mature new growth late spring into summer. Avoid heavy pruning – this can reduce flowering for 2-3 years and if trying to rejuvenate a declining specimen it is better to replace the vine. Locally cultivated *Stephanotis* occasionally set seed (large fleshy follicle). Seed from an isolated plant is often sterile (self incompatibility common in Apocynaceae); plants are usually propagated using cuttings taken from semi ripe growth.

Herald's trumpet is a large (to 30'), heavy, woody vine that is best grown on a sturdy pergola where the pendent clusters of flowers can be seen and the fragrance enjoyed to best advantage. Flowers, which appear from late February into spring,

are bell to funnel shaped, 3-5" x 1-2½", white, highly fragrant and borne along the stems in axillary clusters. The flowers contrast well with the handsome foliage; large, dark green, shiny, leathery leaves tinged pink when they first emerge. Situate in full sun and maintain soil moisture spring to early fall; there after allow the soil to become drier during winter. This together with cool night temperatures (40-45°F) helps to initiate development of flower buds. Cut back immediately once flowering is finished – herald's trumpet responds well to hard pruning.

Hoyas were described in detail in a [previous article](#) . In brief they require support, a wire trellis or tree limb, and should be grown in bright light (at most no direct sun exposure after 10.00 a.m.) using small porous clay pots containing a highly organic but fast draining soil mix (flower best when root bound). For most species do not remove stalks (peduncle) that attach the umbel like inflorescence to the stem – these generate further flowers in succeeding years. Some of the more fragrant species include: *H. australis* (sweet vanilla fragrance); *H. bella* (dwarf and shrubby for hanging basket, intense sweet fragrance); *H. compacta* (almond fragrance); *H. cummingiana* (fruity fragrance); *H. golancoiana* (cloves) *H. obscura* (citrus-like fragrance).

Before leaving the Apocynaceae, two less familiar vines. The first ***Chonemorpha fragrans* (frangipani vine)**, white flowers resemble a plumeria), is a potentially vigorous, woody vine from SE Asia. First introduced to Florida in the 1950's as *Trachelospermum fragrans* it was offered erroneously under this name for many years, being appreciated for the richly fragrant creamy white flowers. An extremely robust vine, it requires a strong pergola and is best suited to acid soil; expect trace element deficiencies in Miami-Dade unless corrected. Not now widely available – in part because it is difficult to propagate (cuttings are difficult to root, though marcottage has proved successful). The other vine ***Melodinus suaveolens* mountain orange** is a sprawling, scandent climber from S. China/Viet Nam. Leaves are opposite, smooth and leathery. Sweetly fragrant, white flowers (each with a tubular corolla with falcate (sickle shaped) lobes, and prominent yellow corona), form dense terminal/axillary cymes. The common name refers to the ornamental but poisonous fruit.

We have reached the end of this article on night fragrant plants and you may wonder **why no mention of a true jasmine?** For instance *Jasminum sambac* (Arabian jasmine – but native to India) which forms a small shrub in Miami-Dade, but unfortunately like most other true jasmines is regarded as potentially invasive. Both *J. fluminense* (Azores jasmine) and *J. dichotomum* (gold coast jasmine) were originally introduced to south Florida in the early 20th Ct. as ornamental climbers, but proved to be highly weedy, aggressive, twining woody vines, and are now prohibited in Miami-Dade. Fortunately as can be seen from the above review there are plenty of other trees and shrubs for use in local landscapes to scent the night air.