The year 2015 ended with December unusually wet (9.82” of rain), 7.78” above normal and mean temperature (77.2°F), 6.7°F above normal. The total rainfall for the year (63.35”) was only 0.78” off normal and would have been well below if not for December’s total. January as expected, given the extreme El Niño conditions, continued with an enhanced sub-tropical jet stream over Florida acting as a conveyor belt for frequent storms. Rainfall of 7.57” was 6.06” above normal and mean temperatures slightly below what would be expected.

During February mean daytime temperature was notably cooler than normal while rainfall was now only slightly above (2.85” compared to average of 2.25”). The first 2 weeks of March has continued the trend of declining rainfall with only trace amounts measured. Despite this, the long range forecast through May predicts above normal rainfall, with the current El Niño conditions weakening to neutral by summer.

Winter has provided some cool overcast days, perfect weather to be outdoors to set about removing unwanted plants in the landscape, including invasive exotics, all of which have continued to grow courtesy of an unusually wet winter ‘dry season’. If you have been slow to get started at least there is still time before the steamy outdoors of rainy season. In the first article attention is drawn to a particularly troublesome group of plants, unwelcome vines.

A subsequent article reviews some small trees you may want to consider installing as summer approaches, all sure to appeal to those with a nose for a perfumed garden.
An article in an earlier edition of this newsletter drew attention to the ornamental attributes of vines in the landscape, particularly their utility where space is limited. Vines unfortunately also have a dark side; the fact that some are among the most intractable of invasive plants to combat. It is this negative side that will be explored in more detail below. Common to all climbing plants are stems which, to varying degrees, lack sufficient rigidity to grow vertically without some external support. Some are scandent shrubs, such as the Chinese hat plant (*Holmskjoldia sanguinea*) or yellow allamanda (*Allamanda cathartica*) with long slender stems that ramble through and recline on the branches of neighboring trees or shrubs. However for the majority of climbing plants attachment is maintained by spines, adhesive pads, tendrils, or twining stems. This makes their removal where necessary difficult to impossible.

In some instances vines form an intimate physical union with the plant on which they are growing which becomes more than a support but a source of sustenance. The twining vines, *Cuscuta* sp (dodder, part of the Convolvulaceae morning glory family) and *Cassytha* (woe vines, part of the Lauraceae laurel family) attach by means of haustoria, appendages which penetrate the host plant stem to remove water and nutrients from xylem and phloem. Dodder is a holoparasite; it has no chlorophyll, vestigial leaves and lacks roots, relying totally on its host plant for survival; *Cassytha* is regarded as a hemiparasite – although lacking roots and functional leaves it does possesses some chlorophyll so it’s not wholly reliant on its plant host. In both instances the parasitized plant slowly declines and eventually dies.

*Cuscuta* species are annuals mostly found in warm temperate climates with ten species occurring in Florida, all but one (*C. japonica*) being native – only two are found in Miami-Dade (*C. americana* and *C. pentagona* the most widely dispersed species in Florida). *Cassytha* spp. are perennials with a pantropical distribution, but only one species (*Cassytha filiformis*) occurring in Florida, and this almost exclusively in the southern half of the peninsula.

**Dodder is most often found** on non-woody host plants (e.g., bedding plants such as the coleus shown above). It is impossible to detach since attachment involves penetration of plant stems; both parasite and host plant need to be removed. It is important to do this before the dodder flowers (white flowers in above photo) then sets seed; place the plants you remove in a large trash bag to lessen the risk of seeds being dispersed elsewhere in the yard. Do not compost the plants you remove as the temperature within the pile may not be sufficient to kill the seeds (dodder seeds can retain viability for many years; after germinating seedlings that fail to make
contact with a host plant will die). Consider replacing the soil especially where it’s easy to do so as in a planter. There are pre-emergent herbicides that can kill dodder before they germinate from seed. Look for products containing trifluralin (Preen) and follow label instructions; licensed professional applicators can use the pre-emergent herbicide Kerb which is more effective (not for residential use). If a pre-emergent herbicide is used you will not be able to grow ornamentals from seed for several weeks. Dodder cannot penetrate woody stems so it is safe to plant shrubs as long as there are no low growing green parts (it can attach to leaves and green shoots).

*Cassytha filiformis is usually restricted* to woody plants and most often found in coastal plant communities (in South Florida woody shrubs of the coastal strand). Over time it can completely engulf shrubs and trees as shown in the photo above at left. Locally Cassytha is not as commonly encountered as dodder though it has proved more of a problem in SW Florida and Hawaii. If detected at an early stage it is possible to prune out affected branches, though this may disfigure the tree and there is a good chance the vine will reappear.

**Two woody vines that I have been battling** for some time are *gold coast jasmine* (*Jasminum dichotomum*, prohibited in Miami-Dade) and *Virginia creeper* (*Parthenocissus quinquefolia*, a weedy native vine). Gold coast jasmine and the related Brazilian jasmine (*Jasminum fluminense*) can grow as scandent shrubs, but are more often encountered as 20-30’ twining, woody vines; gold coast jasmine has simple 2-4” glossy opposite leaves (shown right top) while Brazilian jasmine has opposite trifoliate leaves with a larger terminal leaflet (shown right bottom). Pinkish flower buds open at night to reveal white, 5-lobed flowers, quickly followed by small, black, two-lobed berries. The seeds, dispersed by birds, have an almost 100% germination rate contributing to the plants invasive nature. Both vines coil tightly around the shrub or tree to which they become attached – new growth is green later becoming lignified but flexible. While with patience some sections of the vine can be uncoiled, it is inevitable that some of the supporting plant will also have to be removed.
**Virginia creeper is one of a few native plants** that cannot be recommended for local landscapes. Fast growing, it will as readily climbs up the side of a building as into a tree, attaching by means of adhesive tendrils. These leave a tacky black residue on stucco walls when the vine is removed. Often mistaken for poison ivy it can be identified by the palmately lobed leaves made up of five (rarely three) leaflets with conspicuously serrated margins. **Poison ivy** has three leaflets (margins entire or irregularly serrated), the center leaflet with a distinctly longer petiole. Virginia creeper can cause an **irritant dermatitis**; it also produces many small dark blue berries that are attractive to birds but poisonous to humans. Related to Virginia creeper and also native to Florida the **possum grape Cissus verticillata** has the added problem of aerial roots (an alternate name is curtain vine) which sprout at the nodes especially after the vine is cut. As a consequence the portion of the vine that remains in a tree can continue to grow unless it is removed (or the aerial roots are removed). In Hawaii where this vine is an invasive exotic **control using herbicides has so far met with little success.** This vine can also cause irritant dermatitis if the stems are shredded during removal.

The sap from climbing species within the arum family (**philodendrons, Epipremnum aureum, pothos vine** and **Syngonium podophyllum arrowhead vine**) can cause severe irritant dermatitis. Exercise caution when pruning trees containing these vines or removing hurricane debris from the yard; stems readily break on attempting to uproot either plant and discarded stem pieces readily take root so clean up thoroughly after removal.

Both the pothos and arrowhead vines can grow horizontally over open ground but climb once contact is made with a suitable support and become aggressive climbers that attach using adhesive aerial rootlets. Once they adopt a climbing habit, they eventually develop larger leaves with longer stouter petioles, compromising tree vigor and ability to withstand windstorms. **Creeping fig Ficus pumila** can also grow as a groundcover but it too will readily climb and also then develops larger leaves. It is sometimes allowed to climb like English ivy up the walls of a house where unless regularly pruned it becomes top heavy potentially pulling away parts of the wall to which it is attached, a particular concern in a wind storm.

**Locally one of the worst and most frequent of invasive vines** are **air potatoes** (principally **Dioscorea bulbifera**), fast growing herbaceous (soft stemmed) vines that can readily overwhelm the surrounding landscape. They are prohibited in Miami-Dade, and can be recognized from the prominently veined, large, cordate leaves (see photo above left) in the axils of which form round grayish aerial tubers (bulbils – the ‘air potatoes’). On dropping to the ground bulbils readily take root to produce numerous new vines. Flowering and therefore seed production are not an important factor in spreading the plant in Florida. Underground tubers may form and can be especially large in **D. alata** (winged yam).

To control air potato **glyphosate has proven effective;** there’s now a biological control available using the air potato leaf beetle (**Lilioceris cheni**) – the latter link provides more information, including availability of the beetle.
**Controlling vines in trees, hedges, and fences**

**Removal from trees** as soon as feasible – often it is possible to simply pull the vine out of the ground, but be sure to pull out all of the roots. Don’t jerk the stem, apply steady force grabbing the stem as close to the ground as possible. This method is more effective if the soil isn’t dry and with surface rooting vines such as bitter melon or Virginia creeper.

For a hedge remove as above; if not possible cut back as close to ground as feasible and if close enough to ground may be possible to apply herbicide to cut stem.

**Spraying the vine with an herbicide** is an option where contact is limited to unwanted plants (attached to a wall or fence, or growing as a groundcover).

For woody vines cutting the stem at the base and brushing the cut surface with an herbicide can be effective. The portion of the vine that remains in the tree will eventually turn brown making it more visible and easier to remove. For vines that re-sprout (e.g., tuberous roots) re-apply to shoots as they appear to deplete food reserves. Use the link for homeowner herbicides (can be used for vines as well as trees).

**Cat’s-claw vine** (*Dolichandra unguis-cati*) is not as widespread locally compared to Central Florida, but like air potatoes once established it is very difficult to eradicate. It can be recognized by the opposite bifoliolate leaves each with a terminal stiff three pronged tendril (replaces terminal leaflet see photo at right). It was originally grown for the showy, yellow, trumpet shaped flowers. These are followed by long thin capsules which split and release numerous wind dispersed seeds. The roots develop large swollen tubers from which new runners sprout to produce a dense groundcover. On encountering a vertical support (e.g., fence or tree), the runners climb to form a woody vine with thick stems. For control cut large stems and apply herbicide as described above. Vines can produce small aerial roots and should be removed from their support as completely as possible. With a heavy infestation you may have to remove some of the tree canopy – this is work for a trained arborist. Digging out the tuberous roots is difficult – the vine can sprout from portions that remain in the ground. You will need to make repeated follow-up applications of herbicide to control not only re-growth but any seedling volunteers.

**Several other exotic invasive vines** pose a threat to both natural plant communities and landscapes in Miami-Dade such as *Mikania micrantha* (mile-a-minute), *Paederia cruddasiana* (sewer vine), and *Heteropterys brachiata* (redwing). The first two are prohibited in Miami-Dade. Two other more familiar vines *Abrus precatorius* (rosary pea), and *Antigonon leptopus* (coral vine) are also prohibited. Rosary pea is a fast growing, twining, woody vine with pink, pea-like flowers; it is not especially eye catching until pods form and split to reveal bright scarlet seeds with a black hilium. These colorful seeds have proved attractive to small children and since the vine is extremely poisonous this is an added reason for the plants removal. Coral vine is locally a perennial, fast growing, clinging vine, quite attractive with racemes of small flowers with rosy pink sepals. It is another vine with underground tuberous roots which make it difficult to control. The same is true of the wood rose *Merremia tuberosa*, also prohibited locally and in the past popular for its ornamental seed capsules used in flower arrangements.

**Just because a plant is prohibited** does not mean it cannot become established in area landscapes. They can still be found in waste land, overgrown yards and less populated sections of the county. Seeds can be transported by wind or birds, or in some instances carelessly removed stem pieces can root. Once a vine is growing into a tree or large shrub it can easily go
This is an opportunity for staff of the Miami-Dade Extension Office to provide a personal view of a plant they love (or hate!), from ornamentals to fruits and vegetables, South Florida natives to exotics. On this occasion, Ms. Cecilia L. de Armasto Program Assistant has a surprise among the orchids she is growing in her shady garden.

**Weedy, herbaceous vines**, such as those in the table below, frequently become attached to chain link fences or entangled in hedges. In the former case they may at least hide the fence, but in the latter are definitely unwelcome. Note that some of the vines are native and attractive to butterflies (e.g., *Passiflora* spp.) or even hummingbirds (scarlet creeper), and some (ivy gourd and creeping cucumber) have edible fruits though in this instance you need to make sure what you are eating and when it is safe.

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Coccinia grandis</em></td>
<td>Ivy gourd</td>
<td>Rapidly growing vine from tuberous rootstock; attractive white flowers and bright red fruits (if ♀ and ♂ plants are present).</td>
</tr>
<tr>
<td><em>Ipomoea hederifolia</em></td>
<td>Scarlet creeper</td>
<td>Native, twining, annual vine with salver-shaped vermilion flowers.</td>
</tr>
<tr>
<td><em>Ipomoea quamoclit</em></td>
<td>Cypress vine</td>
<td>Non-native twining annual vine with feathery foliage and scarlet flowers.</td>
</tr>
<tr>
<td><em>Melothria pendula</em></td>
<td>Creeping cucumber</td>
<td>Native clinging vine with lobed leaves and small yellow flowers; green fruits turning black.</td>
</tr>
<tr>
<td><em>Momordica charantia</em></td>
<td>Balsampear</td>
<td>An exotic, vigorous, potentially perennial, clinging vine that readily re-seeds. Deeply lobed leaves and yellow, sickly sweet flowers are followed by spiny green fruits which turn orangey yellow as they ripen, finally splitting open to reveal small flattened white to brown seeds embedded in a sticky red aril.</td>
</tr>
<tr>
<td><em>Passiflora</em> spp.</td>
<td>Passionflower</td>
<td>Several species: <em>P. biflora</em> (twolobe - exotic); <em>P. suberosa</em> (corky stem - native); <em>P. foetida</em> (fetid – exotic)</td>
</tr>
</tbody>
</table>

**My garden is small** and I regret not having more room for plants. I have various ornamental plants including gingers, as well as trees which provide plenty of shade. This is perfect for orchids which are my favorite group of plants. Some are attached to a wooden fence (see photo at right below, unknown possibly Oncidium ‘White Twinkle’) others are in a pots (these contain soil) and some have lava rocks and mulch. There are several materials available for use as orchid growing media but all have to have good drainage. There’s a wooden fence with a corky stem passion vine, which is there to attract butterflies. The most unusual plant however is one that has evolved to use captured insects as a source of nitrogen.
These are *Nepenthes* one of a group of plants known as pitcher plants that trap insects in a fluid-containing ‘pitcher’. The ‘pitchers’ can be seen in the photo at right; they consist of an expanded petiole (sometimes erroneously referred to as ‘the leaf’), beyond which the leaf axis extends as a long tendril (may coil around support), terminating in a highly modified leaf blade, the pitcher. This comprises a lid that in part prevents rain filling the pitcher and in some instances is involved in luring insects through nectar secreting glands. The rim of the pitcher forms a thickened, waxy collar (peristome) with the inner surface filled with nectar glands; insects, lured by the sweet smelling nectar, are unable to gain a solid footing on the peristome’s slick surface and fall into the pitcher’s fluid filled base. Glandular cells found lining the inner surface of the pitcher base secrete enzymes to digest trapped insects and facilitate assimilation of breakdown products. If you feel up to the task you drop the odd fly or small beetle into one of the pitchers. For more information on pitcher plants use the link provided.

There’s less than 3 months to the start of the summer rainy season, an ideal time to be installing palms and tropical trees. If you’re contemplating which flowering tree to select you will of course be looking for visual appeal. However consider adding an extra dimension with trees that also enhance the landscape with an engaging fragrance. Below is a selection of trees small enough for most Miami-Dade lots, and some amenable to use in containers as patio trees.

First it let’s remember how important fragrances are in the biology of plants. Just as the color and patterning of a flower did not evolve to please the human eye, floral scents were not intended as a source of aromatherapy. Both play vital roles in plant survival, specifically propagation, acting as cues to attract pollinators (usually insects). 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. Bees use floral scents to locate suitable plants for nectar and pollen; with limited ability to distinguish colors in the visible spectrum (restricted to white and pale pink, yellow and blue), bees are however able to discern ultra-violet radiation. This enables them to pinpoint the flowers center using nectar guides invisible to the human eye.
More than 1700 compounds have been identified as components of floral fragrances. One of these skatole (shown above) is also responsible for the pungent odor of animal feces (it is a breakdown product of the amino acid tryptophan). At much lower concentrations skatole has a faintly pleasant odor and is a component of several floral fragrances including orange blossom and jasmine. Floral fragrances can contain as few as 5 to more than 100 chemical compounds.

Whereas day time fragrant flowers are usually open and saucer shaped, the typical 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). These hover and withdraw nectar by unfurling their elongated proboscis down into the flowers long thin floral tube. Smaller noctuid moths are attracted to flowers having shorter corolla tubes, and larger petal lobes on which the moth can alight while withdrawing nectar. 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 widespread in trees and shrubs in the new world as compared to old world tropics. Bat pollination is most common in trees of the neotropics, in particular the Bignoniaceae (e.g., Crescentia spp. calabash and Kigelia africana sausage tree), Fabaceae (e.g., Inga vera, ice cream bean and Hymenaea courbaril West Indian locust) and Malvaceae (e.g., Ceiba pentandra kapok – see photo of flowers at right, and Pseudobombax ellipticum shaving brush tree).

Most fragrant flowers are found in 19 of the more than 700 plant families recognized by the USDA-GRIN. These include the familiar: roses (Rosaceae); gardenias (Rubiaceae); jasmines (Oleaceae); cestrum (Solanaceae) and frangipanis (Apocynaceae), all of which are seen in Miami-Dade landscapes. Of these Gardenia jasminoides is probably most popular locally, with many cultivars 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) and can be grown as small trees. 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 (shown at left) 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*** (below right) develops into a small tree with prominently depressed
venation and highly fragrant flowers, the fragrance decreasing as the color
depens from cream to a yellowish orange. **Gardenia tubifera** is also known as golden gardenia
and has somewhat smaller leaves and oblong rather than obovate petal lobes. Several other
tree-like gardenias have been described from SE Asia and there has been some confusion over
nomenclature.

**From southern Africa ** *Gardenia cornuta* (Natal gardenia) is a densely branched small tree
of about 15’ (shown below at left). **Gardenia volkensii** (*Transvaal gardenia*) forms a 20’
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, **Rothmannia capensis**, *cape gardenia*, is a small tree to 15’ 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’. The flowers are solitary, cream to pale yellow, funnel shaped with
maroon speckled throat and 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 which
are pollinated by hawk moths, *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.
*Rothmannia* spp. are slightly more drought tolerant than
gardenias, but are more attractive with evenly moist soil.
Like gardenias light shade is beneficial and soil should be
slightly acidic; in Miami-Dade’s calcareous soils that means providing trace element supplements, especially iron.

**From Jamaica’s cockpit country** comes one more fragrant representative of the Rubiaceae, *Portlandia grandiflora* bellflower a very slow growing and small tree to 12’ with large, satiny, trumpet shaped flowers much like an Easter lily (shown at left). The sweet, vanilla like fragrance is most notable around dusk and the flowers pollinated by hawk moths. Well adapted to limestone, bellflower should be grown with some dappled shade in evenly moist soil. This is not a cold tolerant plant, and for areas of Miami-Dade well inland it is probably advisable to grow it in a moveable container.

**The Apocynaceae contain some especially fragrant plants** including several small trees of which frangipanis (*Plumeria spp. hybrids*) are probably the most familiar, 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. 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*’ (shown at left, deep pink/red, yellow center – strong sweet fragrance);
- ‘*Lurline*’ (orangey red, purplish petal tips – spicy)
- ‘*San Miguel*’ (shown at left, orangey red and salmon – cloves)
- ‘*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). There are several other Plumeria spp. of interest with *P. alba* (nosegay, shown at right) being one of the most fragrant; it is grown commercially for oils used in perfumery. Note the extremely long narrow leaves with distinctly revolute margins.

**Stemmadenia litoralis** (syn. *S. galeottiana*) Lechoso is a 15-20’ tree which has found increasing appeal locally. A conspicuous feature is the repeated, dichotomous branching; the foliage and flowers are similar in overall appearance to the closely related *Tabernaemontana*. The flowers as shown below are milky white, however the corolla tube is
much longer, the lobes (petals) overlap and the fragrance is more intense. Although evergreen, like *Tabernaemontana*, leaves will drop as temperatures fall into the low 40’s and yellow/drop during a drought. *Lechoso* can tolerate full sun providing the soil remains moist; some light afternoon shade is beneficial.

**Wrightia religiosa** water jasmine is a less familiar, small tree growing to at most 10’ (locally) with the almost horizontal lateral branches creating an attractive layered appearance. In spring it is festooned with masses of pendant, tiny white flowers (shown below at left) with a resemblance to snowdrops familiar to northern gardeners; they attract various insects including bees and moths. The flowers delicate appearance is matched by their soft fragrance, most noticeable at dusk. Amenable to use in a large tub or planter, it makes an ideal trouble free tree for a patio. Provide an evenly moist soil mix, keep mulched and water as needed during hot dry weather reducing water in winter. At that time depending on rainfall and temperature the tree usually loses leaves. If planted in the landscape on local Miami limestone enrich the soil with organic matter and correct trace element deficiencies with appropriate soil drenches and foliar sprays. In SE Asia water jasmine is frequently found in the vicinity of Buddhist temples.

**Leaving the Apocynaceae for the jasmine family** (*Oleaceae*), but not for a true jasmine (many are invasive) but the tree-of-sorrow *Nyctanthes arbor-tristis*, another sacred tree, widely grown in India particularly near Hindu temples. This is a relatively short-lived tree with an open canopy, growing locally to about 15’. Leaves are rough and hairy, in 90° alternate opposite pairs (decussate). Flowers are in small clusters either in leaf axils or terminal at branch tips, each with a vermillion center surrounded by white petals (shown a left); they open at night emitting a pervasive honey scented fragrance and have dropped to carpet the ground by morning. The tree can accept some partial shade (in full sun it will require more frequent irrigation) and adapts to rocky soil. Propagation is usually from cuttings as germination rate of seeds is poor.

The **forest elder Nuxia floribunda**, quite unrelated to yellow elder, is rare in local landscapes, most specimens being grown by tropical flowering tree enthusiasts. *Nuxia spp* are tropical relatives of the
butterfly bush (*Buddleja* spp.), found mostly in southern and east Africa and range from large trees to shrubs. Forest elder is occasionally available from local specialist nurseries; potentially a large tree, in cultivation it forms a small shade tree (9 – 15’) with large rounded panicles of miniature, white, sweetly fragrant flowers (shown above at right). Provide enriched soil and light shade – drought tolerance is poor, though trees survive in the dry climate of Los Angeles (with irrigation). Non-invasive roots make it suited to planting near driveways, and it is a good subject for use in a large planter.

Two uncommon trees in the Thymelaceae are worth considering where there is reliable irrigation. *Phaleria clerodendron* is a small tree from Australia where it is commonly known as **scented Daphne**. The tree requires moist soil and prefers partial shade. Scented Daphne produces clusters of small white tubular flowers, with a sweet coconut like fragrance, borne directly on the trunk or large limbs (cauliflorous as shown at right). The second tree *Dais cotonifolia* (pom-pom tree) from South Africa forms a neat rounded crown of bluish green foliage. In early summer the tree is covered with fragrant, star shaped, pink flowers in terminal fluffy balls. Choose a well-drained site in full sun, applying mulch to the area around the tree after planting and watering until established. As trees mature they become more tolerant of drought.

**Chinese perfume tree** (*Aglai a odorata*) fragrance is the one feature that has made this an increasingly popular landscape/container plant in Europe and N. America (in SE Asia and southern China it is used as a hedge and for medicinal purposes). In the same family (Meliaceae) as mahogany and the neem tree, *A. odorata* grows slowly to at most 15’ as a small tree or much branched shrub. Leaves are unevenly pinnate with 5-9 leaflets, the a large terminal leaflet. Axillary thyrses of tiny yellow flowers are at most of passing visual interest, but compensate with their soft lemony fragrance (most intense during the evening and during periods of high humidity). The plant is dioecious; most of those in cultivation are the more fragrant male flowering trees. Even dried, flowers will retain their fragrance for an extended period. In the tropics the flowers are visited by stingless bees (*Meliponini*). If planted in the landscape provide evenly moist, enriched, but free draining soil, and some light afternoon shade. If grown in a container use an unglazed clay pot to help prevent the soil from becoming excessively wet (especially in summer).

▶ **There are two pest alerts** regarding insect pests found in Florida: a new whitefly identified as *Asiothrixus antidesmae* was found on an ixora hedge in Pinellas County. The white fly produces copious amounts of white flocculent wax, as well as honeydew, which
permits the growth of black sooty mold. Published accounts indicate a potentially wide range of host plants including aroids and gardenia.

► The tea shot hole borer *Euwallacea fornicatus* introduced to Florida in the early 2000’s was not regarded an economic threat until recently when it was found infesting the medium and small size branches of the upper canopy of several avocado trees in Miami-Dade. The bore holes were usually associated with a deposit of white crystalline powder (the sugars contained in dried tree sap). A range of other trees some used locally as ornamentals (e.g., royal Poinciana) have also been identified as hosts for the tea shot hole borer. *Euwallacea* shot hole borers discovered in California, and also found in avocado trees were at first believed to be *E. fornicatus* but are now known to be a different as yet unidentified species.

► Two pests encountered recently on local avocados are the pyriform scale *Protopulvinaria* sp. (top right) and the more familiar rugose spiraling whitefly (pupal stage bottom right). Pyriform scales are recognized pests of avocado as well as mango and jackfruit, and have also been found on ornamentals such as gardenias and dwarf scheffleras (*Schefflera arboricola* cultivars).

For fruit trees use repeat applications of a horticultural oil (ultra-fine). For ornamental shrubs and trees there are systemic insecticidal products available either as foliar sprays or liquid or granular products for soil application.

One other avocado pest that continues to generate concern is the lace bug. Symptoms consist of a brown blotch, usually away from the leaf margin, on which scattered black specs can be seen. Damage rarely warrants a response unless there is heavy leaf drop during fall.

► To spray are not to spray – this is an issue mentioned previously in this newsletter when it comes to lepidopteran chewing damage. In this instance a firebush (*Hamelia patens*) is being consumed by larava of a giant pluto sphinx moth (*Xylophanes pluto*) Moths may not be as attractive as
butterflies (most are active at night) and many are serious economic pests, but they also act as pollinators and in this instance the firebush will survive. The larvae are found as three different color forms, green, brown or purple and they feed at night (during the day they hide at the base of the plant). Two other Florida natives, snowberry (*Chiococca alba*) and yellow root (*Morinda royoc*) are also larval host plants and like firebush are also members of the Rubiaceae.

► **Conditions known as wetwood/slime flux are not common in Florida** but when present they are often a source of concern. Symptoms are seen as wet, blackened areas on the trunk or a large limb often, as in the photo at right, associated with old pruning cuts. Bacteria gain entry via growth cracks, stress fractures or wounds to the bark of the trunk or a large limb of a hardwood tree where sap supports their growth. As end products of bacterial fermentation various gases are produced (carbon dioxide and methane), which build up sufficient pressure to force fluid associated with wetwood out of the trunk. The discharged material can be clear or white (see arrow on photo above) and invariably develops an unpleasant often rancid smell. On exposure to air it eventually darkens leaving a dark brown to black stain – note pavers where slime flux has dripped from an overhanging branch. There is nothing that can be done to stop the fluxing of fluid and in most cases, especially if the tree is otherwise healthy, it will cease over a period of months.

► **Be aware when purchasing citrus trees** that they could well succumb to citrus greening a disease that has devastated Florida’s citrus industry. The top photo at right shows the underside of the leaf of a Meyer lemon infested with the Asian citrus psyllid the insect vector of the bacterium responsible for citrus greening. Below this is a leaf covered with curls of wax produced by immature stages (nymphs) of the psyllid. If you own citrus trees inspect them on a regular basis; spraying as soon as possible will reduce the chance that the tree will become infected – it takes 24 h. for 100% transmission of the bacterium. Familiarize yourself with the **symptoms of citrus greening**. Contact the Miami-Dade Extension Office for homeowner options regarding controlling Asian citrus psyllid – the most effective products are only available to commercial growers. If you are uncertain whether to remove a tree because it might
be infected, there is a simple iodine based test that can be performed which gives a strong indication of citrus greening – it is not a definitive test but would be useful if visual symptoms were confusing in deciding if the tree should be removed.

- **This is the time of year when herbicides** are applied to turf grass to control weeds and this year they have proliferated thanks to the above normal rainfall. Make sure the product you use is suitable for the type of turf in your yard. Read the label carefully; although it may state ‘suitable for St Augustine’ there may be a warning against using the product on Floratam (the most widely used cultivar of St Augustine grass found in Miami-Dade). Even with the an herbicide that is suitable, turf can be damaged if it is used when temperatures are above 85°F, especially if already stressed due to insufficient soil moisture.

- **Turf that enters the summer rainy season** under stress is more likely to suffer from diseases such as take-all-root. If your lawn has exhibited symptoms of take-all-root in the previous summer you can apply a recommended fungicide starting in late April and at monthly intervals until October and the end of rainy season.

- **Early spring is a good time** to set out rhizome sections of plants such as cannas and gingers as well as Caladium tubers, amaryllis, blood lily bulbs, and toward the end of May rain lilies. Shown at left is Zephyranthes rosea – note the up-turned flowers; the other genus of rain lilies Habranthus can be distinguished by their nodding flowers. The end of May is also the time to divide heliconias and split bird-of-paradise (Strelitzia reginiae) clumps. If you want something eye catching and drought tolerant keep an eye out for the reed-stemmed bird of paradise Strelitzia juncea.

- **Hot dry conditions increase** the likelihood of pests such as thrips and spider mites on both ornamentals and fruit trees, and chinch bugs on turfgrass.

- **In Miami-Dade’s wet/humid climate** Italian cypress is at risk of diseases, in particular needle blights and stem cankers. If you are thinking of planting one or more it is essential that they are situated in full sun with unrestricted air circulation. Alternatively chose southern red cedar Juniperus virginiana var. silicicola which is native to Florida and better adapted to local climate.
Dry warm days of late winter/spring are the ideal time to propagate succulents such as crown-of-thorns and desert rose using stem tip cuttings. Allow the cut end to dry out then dip in rooting hormone and pot in a 70:30 mix of coarse sand Canadian peat.

As a postscript to the earlier article on vines what to do about unusual finds such as the one attached to the fence in the photo below. First make an attempt at identification – your county UF-Extension office is a good starting point. The plant below is an anglepod, one of up of 200 species of plants in the genus *Gonolobus* (Apocynaceae, milkweed family). There is one species *Gonolobus suberosus* native to north and north central Florida, the species in the photo resembles more an exotic species possibly *G. lasiostema* is which is consumed in parts of Mexico, first cutting off the end of the fruit when young then waiting until the flow of white latex ceases. The latex and seeds are poisonous. This would appear to be first Gonolobus sp. to be found in Miami-Dade. It’s not known if the vine is invasive, but if you want to be rid of a potentially poisonous plant it should be eliminated.

If you are wondering how else Miami-Dade Extension helps county residents call or use the internet links to our office shown below – there’s assistance with food preparation, nutrition, health and managing family finances, plus an active 4H youth development program. Boaters, anglers and those who care for our marine environment will find information and activities within the local Sea Grant program. Send any general comments concerning Miami Green Bytes to the editor and for a specific article contact the author using the e-mail links provided below.
Look for the summer issue of Miami Green Bytes during June 2016

The Miami-Dade County Extension Office, a division of Miami-Dade County Department of Parks, Recreation and Open Spaces, is located at 18710 SW 288 Street, Homestead, FL 33030, and can be contacted at 305 248-3311 or by e-mail: dade@ifas.ufl.edu. Web site: http://miami-dade.ifas.ufl.edu

Contact persons for the articles in this issue are: Cecilia L. DeArmas (I’d like to tell you all about....) and John McLaughlin Ph.D. (remainder)

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