The fruit matures in October-November but holds poorly on the tree, becoming puffy and losing quality so that it must be picked promptly. The fruit stores well after harvest.

Calamondin

The calamondin (*Citrus madurensis*) can substitute for other acid citrus. It is widely grown as an ornamental in Florida and California. Calamondin is particularly attractive as a container plant and is used extensively throughout the U.S. as a house plant.

Calamondin is mandarin-like in many respects, but also resembles kumquats. The tree is dwarf and bushy, being quite showy when laden with mature fruit. It is nearly thornless, with small broadly oval leaves.

Calamondin can be propagated by seed and by cuttage, although seedlings may not fruit for several years. It does not require a rootstock and is itself a suitable rootstock for kumquats.

Mandarin and Mandarin Hybrids

The mandarins and their hybrids are fairly hardy and usually mature a crop of fruit before the danger of damaging freezes. There are many cultivars within this group, but from a cold-hardiness standpoint, the following cultivars might be selected: 'Dancy' tangerine, 'Orlando' or 'Nova' tangelo, 'Robinson' or 'Sunburst' tangerine hybrid, 'Changsha' or 'Cleopatra' mandarin.

Sweet Oranges

Only those sweet oranges that mature a crop before the probability of a freeze are considered here. This is not to say that these cultivars are better than others which could be grown in central or south Florida. The recommended cultivars of navel, 'Hamlin' and 'Parson Brown' are generally acknowledged to be slightly hardier and mature a crop which could probably be harvested and used before the danger of a freeze.

Other Citrus

The grapefruit, pummelo, lemon, lime and citron should probably not be grown in cold locations. These varieties are all fairly susceptible to cold damage and survive only during mild winters or when well protected by artificial means. This should not preclude their use in warmer locations of the state.

Summary and Conclusions

Citrus is sensitive to cold and the amount of cold the trees can tolerate is often the limiting factor in determining whether or not a given variety should be grown. South Florida is warm enough that most citrus cultivars can be grown without serious danger from cold. Central Florida will also be warm enough for most citrus if discretion is used in selecting a planting site. Cold protection may be necessary on occasion in the central Florida area, especially if some of the less hardy cultivars are planted. North and west Florida is considered marginal for most citrus but kumquats, satsumas, calamondins and some mandarins and sweet oranges might be considered. Hardy varieties must be selected and site selection is critical. Cold protection will probably be necessary in most years.

Literature Cited

1. Jackson, L. K. 1977. Selecting a grove site. Fruit Crops Fact Sheet FC-22. Fla. Coop. Ext. Svc., Univ. of Fla., Gainesville.
2. ———— and F. P. Lawrence. 1974. Dooryard citrus. Fruit Crops Fact Sheet FC-13. Fla. Coop. Ext. Svc., Univ. of Fla., Gainesville.
3. ———— and J. W. Sauls. 1978. Cold protection of young citrus. Fruit Crops Fact Sheet FC-24. Fla. Coop. Ext. Svc., Univ. of Fla., Gainesville.
4. Sauls, J. W. and L. K. Jackson. 1978. Cold-hardy citrus for north Florida. Fruit Crops Fact Sheet FC-36. Fla. Coop. Ext. Svc., Univ. of Fla., Gainesville.
5. ————, ———— and T. E. Crocker. 1977. Dooryard fruit varieties. Fruit Crops Fact Sheet FC-23. Fla. Coop. Ext. Svc., Univ. of Fla. Gainesville.

Proc. Fla. State Hort. Soc. 93:81-85. 1980.

ARTHROPODS ASSOCIATED WITH FOURTEEN URBAN LANDSCAPE PLANTS IN SUBTROPICAL FLORIDA[1]

JAMES A. REINERT
University of Florida, IFAS,
Agricultural Research Center,
3205 S.W. 70 Ave., Ft. Lauderdale, FL 33314

S. L. POE
Virginia Polytechnic Institute
and State University,
Department of Entomology,
216 Price Hall, Blacksburg, VA 24061

Additional index words. Eugenia, Murraya, Carissa, Lagerstroemia, Codiaeum, Juniperus, Pyracantha, Viburnum, Casuarina, Bouganvillea, Ixora, Nerium, Podocarpus, Bucida, pest management.

Abstract. **Fourteen plant species growing in an urban landscape in Fort Lauderdale were sampled biweekly from Sept. 1977-Dec. 1978 for insect and mite associates. The pest or beneficial status of each organism or complex was determined, and their importance to the host for an integrated pest management program was summarized.**

Initiation of a management program to maintain urban landscape plants free from ravages of pests depends upon knowledge of what pests are present and when they attack. Because plant damage is correlated to pest abundance, especially with arthropod pests, estimates of population size relative to damage are essential (3). People generally have a low tolerance for damage by pests on urban landscape plants which are valued for their aesthetic contribution to the environment surrounding private as well as public structures and facilities.

Single species of ornamental plants samples over a wide

[1]Florida Agricultural Experiment Station Journal Series No. 2751. Appreciation is expressed to Ms. Stephanie Burgess and Mrs. Helen McDonald for technical assistance.

range of landscape and climatic conditions show variation in incidence of key pests. In a study in Gainesville, Florida, 90% of the sampled *Ligustrum sinense* Lour. plants growing in residential landscapes were found to be infested with either insects, mites, or both (3). The most frequently encountered pests were the white peach scale and tumid spider mites, occurring on 86% and 56% of plants examined, respectively. However, in well-cared for *Ligustrum*, the number of plants infested with white peach scale dropped to 19%.

Insect and mite populations also have been evaluated on *Ilex* spp. in Jacksonville in northern Florida and less than one third (29%) of *Ilex opaca* Ait. were found infested by Florida wax scale (*Ceroplastes floridensis* Comstock) and aside from honeydew and sooty mold, population levels had little effect on plant appearance (5). However, over half (53%) of the *I. cornuta* Lindl. and Paxt. landscape plants were infested with tea scale (*Fiorinia theae* Green) resulting in deteriorated plant appearance at the higher population levels (6). These studies point out the differences in pest status for one insect vs. another and the difference in susceptibility between 2 closely related plant species.

The present study was undertaken to determine the kind, incidence, and density of arthropod species present on 14 species of plants commonly grown in subtropical Florida landscapes (10). This report is a summary of more detailed reports published elsewhere (1, 2, 4, 9).

Materials and Methods

Fourteen species of landscape plants (listed below) were sampled biweekly from September 1977 through December 1978 at the Agricultural Research Center in Fort Lauderdale for insects and mites. *Lagerstroemia* sp. was only sampled for 5 months through January 1978 since these plants were severely pruned in February 1978 and adequate samples could not be taken thereafter. All plants used in the study had been in the landscape for at least 2-3 years and had not received any pesticidal applications during the 2 years preceding the sample period.

The plants evaluated, their size and number, and the type of landscape planting were as follows:

Eugenia uniflora L., Surinam cherry—a hedge ca. 8.5m (28 ft.) long consisting of 29 plants ca. 1.4m (4.5 ft.) high.

Murraya paniculata (L.) Jack, orange jasmine—a landscape planting ca. 9.9m (32.5 ft.) long with 9 plants ca. 1.2m (4 ft.) tall.

Carissa grandiflora (E. Mey.) A. DC., boxwood carissa—a hedge ca. 70.1m (230 ft.) long consisting of 74 bushes, each ca. 2.4m (8 ft.) high.

Lagerstroemia sp., crepe-myrtle—a cluster planting of 16 plants ca. 2.1m (7 ft.) high.

Codiaeum variegatum (L.) Blume, 'Bravo' croton—a landscape planting ca. 25.6m (84 ft.) long composed of 28 separated plants, each ca. 1.2m (4 ft.) high.

Juniperus silicicola (Small) Bailey, southern red cedar—a border planting ca. 40.8m (134 ft.) long with 8 cedars, each ca. 2.1m (7 ft.) high.

Pyracantha coccinea Roem., firethorn—two widely separated plants each ca. 2.7m (9 ft.) high.

Bougainvillea spectabilis Willd., bougainvillea—a planting ca. 92.4m (303 ft.) long growing on a fence, with 101 plants each ca. 1.2m (4 ft.) high.

Ixora coccinea L., 'Nora Grant' ixora—a landscape planting ca. 46m (151 ft.) long with 32 bushes, each ca. 1.2m (4 ft.) high.

Viburnum suspensum Lindl., viburnum—a hedge planting ca. 9.1m (30 ft.) long comprised of 28 plants, ca. 0.9m (3.5 ft.) high.

Casuarina equisetifolia L., Australian pine—a windbreak planting ca. 112.8m (370 ft.) long with 29 trees ca. 10.7m (35 ft.) tall.

Podocarpus macrophyllus (Thunb.) D. Don, yew podocarpus—a hedge ca. 54.9m (180 ft.) long comprised of 45 plants, each ca. 2.7m (9 ft.) tall.

Nerium oleander L., oleander—a landscape planting ca. 119m (358 ft.) long with 74 plants, ca. 2.7m (9 ft.) tall.

Bucida buceras L., black olive—a parking lot planting consisting of 39 trees ca. 3m (10 ft.) tall.

On each sampling date, 20 samples each ca. 12.7 cm (5 in.) long, were removed randomly from throughout the entire landscape planting for each species of plants. For each species, one half of the samples were taken as terminal shoots while the other half consisted of stems or branch sections, <2.5 cm (1 in.) in diam., taken from within the plants or hedge planting. Samples were collected in plastic bags and transferred to Berlese funnels for 2 weeks. Specimens were collected in 80% ethanol, counted, and identified. Small arthropods (mainly mites) were mounted in Hoyer's medium on glass microscope slides for identification.

Results and Discussion

Arthropods recovered from Berlese samples of plant foliage were grouped by class (Insecta, Arachnida), order (Acarina, Homoptera, Thysanoptera, Hymenoptera) and family. Individuals that occurred in the samples inconsistently or that could not be positively associated with a given host plant were listed as "vagrants." These usually made up a considerable proportion of each sample and appeared in a high percent of samples. Many of these insects are attracted to lights and the Berlese extraction system may have contributed to the vagrant populations.

A total of 76,559 arthropod specimens were catalogued from 406 plant samples (Table 1). The largest number of specimens were taken from *Pyracantha* and *Viburnum*, each with more than 15% of the total number collected for the entire study. Plants with the fewest specimens were *Nerium* (2.3%), *Casuarina* (2.9%), and *Murraya* (3.1%) (Table 1). Although *Lagerstroemia* shows a low percentage in Table 1, only 9 samples were taken from this plant sp.

Table 1. Arthropods associated with urban landscape plants in Ft. Lauderdale, Florida—1978-79.

Plant Species	No. of Samples	No. of Individuals	% of Total
Eugenia uniflora L.	30	8264	10.8
Murraya paniculata (L.) Jack	31	2398	3.1
Carissa grandiflora (E. Mey.) A. DC.	30	4132	5.4
Lagerstroemia sp. L.	9	1784	2.3
Codiaeum variegatum (L.) Blume	31	4070	5.3
Juniperus silicicola (Small) Bailey	31	5868	7.7
Pyracantha coccinea Roem.	30	11760	15.4
Bougainvillea spectabilis Willd.	31	4488	5.9
Ixora coccinea L.	29	6451	8.4
Viburnum suspensum Lindl.	31	11993	15.7
Casuarina equisetifolia L.	31	2225	2.9
Podocarpus macrophyllus (Thunb.) D. Don	31	7389	9.6
Nerium oleander L.	30	1775	2.3
Bucida buceras L.	30	3962	5.2

The major groups of mites and insects recovered in the samples are listed in Table 2, for each respective plant species. Mites, aphids, leafhoppers, and scales occurred in a high proportion of samples from all plants. Mealybugs (Pseudoccidae) varied from 0 to nearly 30%; ants (Formicidae) was equally variable, ranging from 0 to 87% of samples (Table 2). Diversity of groups was limited, however, probably because of the nature of the samples taken and the method used to recover specimens. Many species of arthropods are not readily recovered using the Berlese method.

Table 2. Major arthropod groups associated with 14 species of landscape plants in Ft. Lauderdale, Florida—1978-79.

TAXON	% of plant samples containing arthropod specimens[1]													
	Eugenia	*Murraya*	*Carissa*	*Lagerstroemia*	*Codiaeum*	*Juniperus*	*Pyracantha*	*Bougainvillea*	*Ixora*	*Viburnum*	*Casuarina*	*Podocarpus*	*Nerium*	*Bucida*
Arachnida: Acarina														
Astigmata	10	13	7	22	10	10	7	13	10	10	3	.7	7	10
Cryptostigmata	63	65	43	67	74	90	47	39	17	36	71	74	10	33
Mesostigmata	80	71	30	78	84	1	77	68	41	84	68	74	27	73
Prostigmata	90	87	63	78	100	97	93	52	52	87	61	74	27	83
Insecta: Homoptera														
Aphididae	87	81	83	89	45	94	83	74	97	97	61	97	43	53
Cicadellidae	70	52	60	11	55	65	67	84	65	61	55	54	70	63
Coccidae	67	45	50	22	7	16	33	19	52	45	13	13	37	26
Pseudococcidae	27	3	13	0	7	3	27	10	7	29	19	10	0	7
Hymenoptera														
Formicidae	87	19	7	22	7	7	3	0	17	32	7	13	3	7
Thysanoptera	70	71	23	44	74	74	70	45	62	71	45	32	30	50
Vagrants	97	97	97	78	97	97	97	100	97	97	97	94	94	93

[1]to nearest whole number.

The proportion of each sample that was attributed to different taxa is given in Table 3. Groups whose frequency were high often had a low total number of individuals in a few species or genera. For example, the Astigmata was recovered from all plants, but in low numbers, less than (9.5%) of specimens (Table 3). Larger proportions of samples consisted of Homoptera, notably aphids and leafhoppers. Thysanoptera were common on most plants and phytophagous mites (Prostigmata) made up a portion of each sample. As stated before, vagrants were always abundant and comprise 20-68% of the total arthropod specimens on all plant species.

Specific comments about individual plants and the species found on each are provided below.

Eugenia

Phytophagous mites from *Eugenia* included eriophyids, tenuipalpids, and tetranychids, and representatives of other groups. By far the most common was *Tuckerella,* of which 142 specimens were collected. Bdellids, ascids, cunaxids and 3 species of phytoseiids accounted for over 100 individual predator mites collected in the 30 samples.

The appearance of large numbers of *Tuckerella* on *Eugenia* in 50% of the samples suggests that this plant is a host for this unusual tropical mite. However, its status as a pest is doubtful since little damage resulted from this association. The only possible pests collected in this study were aphids, which occurred in relatively large numbers throughout the year.

Murraya

From 31 samples of *Murraya,* 2,398 specimens were taken. Of these arthropods over 90% were insects. Aphids and thrips were most abundant, appearing in over 80 and 70% of samples, respectively. Total percentage or aphids

Table 3. Major arthropod groups associated with 14 species of landscape plants in Ft. Lauderdale, Florida—1978-79.

TAXON	% of total specimens in samples[1]													
	Eugenia	*Murraya*	*Carissa*	*Lagerstroemia*	*Codiaeum*	*Juniperus*	*Pyracantha*	*Bougainvillea*	*Ixora*	*Viburnum*	*Casuarina*	*Podocarpus*	*Nerium*	*Bucida*
Arachnida: Acarina														
Astigmata	<.1	.2	<.1	.3	.4	.2	<.1	.1	.1	.1	<.1	<.1	.2	.3
Cryptostigmata	.7	2	.8	.9	2	4	.4	1	.1	.2	7	1	.3	.4
Mesostigmata	2	2	.6	5	3	2	2	2	.9	1	4	2	2	16
Prostigmata	3	6	4	1	15	19	12	1	.7	2	3	3	.5	9
Insecta: Homoptera														
Aphididae	14	12	10	32	2	36	43	5	38	37	14	64	8	3
Cicadellidae	17	4	20	.1	4	3	4	21	7	7	10	2	9	10
Coccidae	2	2	1	.2	.2	.1	.7	.3	1	2	.3	.2	2	2
Pseudococcidae	.2	.1	.2	.2	.1	<.1	.1	.1	.2	.3	.4	.1	0	.1
Hymenoptera														
Formicidae	3	.3	.2	.2	3	.2	<.1	0	.2	.5	.2	.5	.1	.7
Thysanoptera	4	9	.4	.7	32	3	18	1	7	13	3	9	11	8
Vagrants	56	63	64	60	38	33	21	68	49	37	59	20	68	50

[1]to nearest whole number if > 1; to nearest tenth (.1) if < 1.

and thrips were 12 and 9%, respectively. Whiteflies (Aleyrodidae) were found on a few plant samples.

Among the phytophagous mite species both tenuipalpids and tetranychids were common but not abundant. Several predaceous mite species were found but only the bdellids and phytoseiids consistently appeared in the samples.

Carissa

A total of 4,132 specimens were taken in the Berlese samples over the 16 month period. Sixty-three percent of the 30 samples collected from *Carissa* contained phytophagous mites, 83% contained aphids, and 60% contained leafhoppers. The largest proportion of individuals collected that was directly associated with the host plant was aphids and leafhoppers.

Four phytophagous mite families were collected with the largest number of individuals (99) in the Tuckerellidae. Predaceous mites of numerical importance included ascids, bdellids, cunaxids, and phytoseiids with most individuals within each group belonging to a single species.

None of the arthropods collected appeared to cause severe damage or would be rated as pests of *Carissa*. The largest numbers of arthropods were collected May through September. The relatively large number of vagrants included specimens not known to be associated with *Carissa* as primary pests. The Orders: Diptera, Hymenoptera, Coleoptera, Lepidoptera, and others were represented.

Lagerstroemia

Samples were taken from *Lagerstroemia* only during the first 5 months of the proposed 16 month study. However, based on these 9 samples, 1,784 individual specimens were collected of which less than 8% were mites (Table 1). By far the most common arthropods present, and considered pests, were aphids (ca. 32%).

Although 3 species of phytophagous mites were collected, none appeared as primary pests and numbers were low. In addition, relatively large numbers of predaceous mites were found. These undoubtedly play a role in curtailing pest mite populations.

Codiaeum

Over 4,000 individuals were collected from *Codiaeum*, of which thrips made up over 32%. Over 20% of the collection was Acarina.

Mites have long been identified as a primary pest of *Codiaeum*, and two phytophagous species (a Tenuipalpidae and a Tetranychidae) were found. One or both species were found in 25% of the 31 samples. Largest numbers were observed during December to March.

Juniperus

Thirty-one samples from *Juniperus* yielded 5,868 specimens of arthropods. About 25% of the specimens were mites and 75% were insects. The more numerous and important species included aphids and thrips which appeared in 9 and 74% of the samples, respectively. Almost 3% were leafhoppers.

Three species of phytophagous mites were found in numbers considered to be important—a tenuipalpid, a tentranychid, and a tuckerellid mite. Predaceous mites included 83 individuals of 3 species of Phytoseiidae, well known natural enemies of several pest spider mites. Most specimens were collected during February-June.

Pyrancantha

A total of 11,760 specimens were catalogued over the sampling period. Aphids and thrips, found in 83 and 70%, respectively, of the samples made up 43 and 18% of the individuals collected from *Pyracantha*, respectively.

The most common Prostigmata was spider mites, followed by tuckerellids and tenuipalpids. Of these mites, spider mites are known as pests of *Pyracantha*, but the association of *Tuckerella* has not previously been established. Forty-one predator phytoseiids were found, representing 2 species. The largest numbers of specimens were collected from August-October.

Bougainvillea

Of the 4,488 individuals collected in 31 samples from *Bougainvillea*, less than 5% were mites, 5% were aphids, and 21% were leafhoppers. None of the arthropods collected were considered to be primary pests of this attractive landscape plant. Known pests include caterpillars (10), but these larvae are not routinely collected by Berlese methods.

No mites were found in sufficient density or frequency to be considered important potential pests. However, the presence of relatively abundant predator mites, suggests that mite pests are probably biologically controlled.

Bougainvillea was considered to be relatively pest-free and would probably only need monitoring for caterpillars in an urban landscape IPM program.

Ixora

Ixora is often infested with scales, however unless crawlers are present, few specimens can be collected using the Berlese method. Of the 29 samples, which yielded 6,451 specimens, aphids and thrips were found in 97 and 62% of the samples, respectively. About 38% of the total specimens were aphids, with an additional 7% being thrips. These appeared to be the important potential pests of *Ixora*. They were found throughout the year but in greatest density during October-January.

Few mites were found associated with *Ixora* in this study. One species of spider mite and 2 species of predator phytoseiids were the most abundant mites; however, mites were not considered as pests.

Viburnum

Relatively large numbers of specimens were recovered from *Viburnum* especially during October-December. A total number of 11,993 individuals were collected in 31 samples. Of these, almost 37% were aphids and 13% were thrips, making these 2 groups the most important in density and frequency. Aphids appeared in 97% and thrips in 71% of the samples, respectively (Tables 2, 3).

Two species of tenuipalpids, a spider mite, and a tuckerellid species appeared consistently in the samples; however, the tenuipalpid mites were most abundant. Three species of phytoseiids, totaling 87 specimens, were found. These natural enemies appeared commonly in low density throughout the year.

Casuarina

Casuarina is an introduced plant that appears to be free of arthropod pests except for an occasional outbreak of spittlebugs. Although aphids and thrips appeared in 61 and 45% of the 31 samples, respectively, only 14 and 3% of the total 2,225 specimens were aphids or thrips. Not only was the proportion of pests relatively low, but the total number of organisms was low, suggesting that this prolific

introduced plant is almost pest-free. Nearly 60% of the individuals collected were classified vagrants, and of no consequence to the plant.

Of the mites, only 1 species of phytophagous mites and 3 species of predatory mites (Phytoseiidae) appeared to be of numerical significance. There was no damage associated with *Casuarina* in the sample area.

Podocarpus

Thirty-one samples yielded 7,389 specimens from *Podocarpus*. Of these, 64% were aphids and 9% were thrips. Although a major mite pest of Podocarpus is an eriophyid mite (7, 8), few were collected in these samples. Only about 6% of the total specimens were mites.

The most frequently encountered phytophagous mite was a tetranchid spider mite. Two species of predator phytoseiids reached a total of 55 individuals. Most specimens were collected during May and June, although numbers were common year round. Earlier data from Gainesville indicated higher densities during July-November (7). In addition, low numbers of tetranychids (3%) and tenuipalpids (1%) were found. A greater range of mite species was found in the Gainesville study.

Nerium

Relatively low total numbers of organisms were collected from *Nerium*: 1,775 specimens in 30 samples. Aphids and thrips appeared in 43 and 30% of the samples, respectively, while comprising only 8 and 11%, respectively, of the total specimens collected. With a possible exception of leafhoppers (9% of the specimens in 70% of samples), no other organism appeared sufficiently frequent or in densities conducive to pest status. Aside from oleander caterpillar, false oleander scale, and oleander pit scale, which were not collected by this method, few pests of this plant are known.

No mites were routinely collected feeding on oleander, but several predaceous mites were collected.

Bucida

Bucida is known to host large and damaging populations of eriophyid mites, but none were collected using the Berlese method. In this survey, 30 samples yielded 3,962 specimens of which 3 and 8% were aphids and thrips, respectively (Table 3). Leafhoppers comprised 10% of individuals appearing in 63% of the samples. Both aphids and thrips were found in at least one half of the samples.

One species of mite, *Tuckerella*, appeared in 13 samples, with 95 specimens collected (Table 2). *Tuckerella* appears to be a fairly common mite on tropical landscape plants. Of the predators, 60 phytoseiids (3 species) were recovered in the Berlese samples. Prey for these mites probably include the eriophyids as well as other phytophagous mites and thrips.

Summary and Conclusions

Relatively large numbers of small arthropods are present throughout the year on urban landscape plants commonly used in south Florida. Most of these species are not considered pests and may be kept under economic control by their natural enemies, also present on the plants. No consistent pattern over time among populations could be discerned, probably because of the limited number of samples. Samples taken in spring and summer yielded greater numbers of organisms than those from fall and winter as might be expected.

It is evident that the Berlese method is adept at recovering numerous species of arthropods but that some species are not recovered. Eriophyid mites in galls or buds and sedentary scale insects usually did not appear in the samples. Consequently, additional means of sampling these plants must be used to obtain representative samples of these groups of arthropods in future studies. Visual examination of living material and beating plant samples over a collection container would likely extend the list of arthropod groups found by the Berlese method.

This study has provided a list of pests or potential pest insects and mites for the 14 urban landscape plants as used in subtropical Florida. The data provides evidence that many of these potential pests are being held at sub-economical levels by a complex of predaceous mites. Based upon these samples and observations, many of our landscape plants in subtropical Florida would need only infrequent or no monitoring at all in an urban management system. Several plants as aforementioned would require monitoring for only a few major pest insects or mites. It has been our experience from extensive monitoring of urban landscape plants throughout Florida that many insects and mites do not reach economic pest status in the landscape unless their natural balance with parasites and predators is disrupted through some poorly timed management practice.

Literature Cited

1. Poe, S. L., and J. A. Reinert. 1980. Arthropods associated with tropical urban landscape plants, IV-VII, X, XI, (six papers) *Proc. South. Nurs. Assoc. Res. Conf.* 25:117-124, 129-132.
2. ————, ————, and S. Burgess. 1980. Arthropods associated with tropical urban landscape plants, I-III (three papers). *Ibid.* 25:110-116.
3. ————, S. Burgess, and D. Lester. 1978. Arthropods associated with *Ligustrum sinense* Lour. *Fla. State Hort. Soc. Proc.* 91:253-255.
4. ————, ————, and J. A. Reinert. 1979. Incidence of Acarina on three species of urban landscape plants in Ft. Lauderdale, Fla. *Ibid.* 92:235 (abstr.).
5. ————, and D. Lester. 1978. Incidence of Florida wax scale on *Ilex opaca* in northeast Florida. *Proc. South. Nurs. Assoc. Res. Conf.* 23:72-73.
6. ————, and ————. 1978. Incidence of tea scale on *Ilex cornuta*. *Ibid.* 23:75-76.
7. ————, Y. Salleh, and H. L. Cromroy. 1977. Incidence of mites on yew *Podocarpus macrophylla* Don. *Ibid.* 22:80-83.
8. Reinert, J. A. 1981. Evaluation of miticides for control of *Paracalacarus podocarpi* (Acarina: Eriophyidae) on *Podocarpus*. *J. Econ. Entomol.* 74: (in press).
9. ————, and S. L. Poe. 1980. Arthropods associated with tropical urban landscape plants, VIII, IX, XII-XIV (five papers). *Proc. South. Nurs. Assoc. Res. Conf.* 25:125-128, 133-138.
10. Watkins, J. V., and T. J. Sheehan. 1974. Florida landscape plants. (revised ed.) *Univ. Fla. Press*, Gainesville: 368 pp.