VILLAGE OF KEY BISCAYNE

Office of the Village Manager

Village Council
Franklin H. Caplan, *Mayor*
Michael E. Kelly, *Vice Mayor*
Michael W. Davey
Enrique Garcia
Robert Gusman
Mayra P. Lindsay
James S. Taintor

Village Manager
John C. Gilbert

MEMORANDUM

DATE: May 8th, 2012

TO: Honorable Mayor and Council Members

FROM: John C. Gilbert, Village Manager

RE: Rugose Spiraling Whitefly

RECOMMENDATION

It is recommended that the Village Council approve funding for the continuance of whitefly control to infested vegetation with the Rugose Spiraling Whitefly not to exceed $42,000 (of which $30,000 was approved by Council on July 5th, 2011). The scope of work is for systemic treatments (drenching for palms and injection for hardwoods) to the highest infested areas, previously identified by Sutton Consulting Arborist, Inc. (Village arborist), in conjunction with a natural bio-control pilot program proposed by the University of Florida, to introduce identified natural enemies of the Rugose Spiraling Whitefly.

BACKGROUND

On June 7th, 2011 the Village hosted a Rugose Spiraling Whitefly workshop conducted by entomologist, Dr. Catharine Mannion, Associate Professor and Extension Specialist of the University of Florida. Dr. Mannion, in conjunction with the Village arborist, recommended systemic treatments as the preferred method in order to obtain the best long term effect possible and to promote the presence of whitefly predators.

On July 5th, 2011 Village Council approved funding in the amount of $30,000 to implement the recommendations provided by Dr. Mannion and Village arborist, attached as Exhibit A. The Village obtained eight different proposals which were reviewed by staff. The pest control company chosen was TruGreen. On September 8th, 2011, the contractor completed treatments to the highest infested areas identified. Treatment was estimated to last 6 to 8 months.

Attached as Exhibit B, is the Village arborist report of the latest inspection performed March 23rd, 2012. Observations are that the Village has attained considerable control and must continue treatments for a period of approximately 2 to 3 years to ensure the previous efforts not to be undermined. Village arborist states continuance will allow biological controls to establish themselves.

Dr. Mannion recommends continuance of the pesticide program but identifies the need to create a long-term, biologically based management strategy to avoid environmental concerns of heavy reliance and whitefly resistance to pesticide use.

Attached as Exhibit B, Dr. Mannion's project proposal is for the introduction of both a beetle predator and a parasitic wasp in selected areas to be released within a month of approval. Scope of services include identifying and marking ideal sites for release of predators, monthly sampling of whitefly infestation levels and presence of natural enemies, collecting pesticide information on treated sites, collection, release and rearing of beetles and wasps.

After six months Dr. Mannion will determine whether it is considered necessary to continue the release of natural enemies, based on the population present and the level of whitefly infestation.

The recommended funding source for this item (including the $30,000 approved by Council on July 5th, 2011) for a total not exceeding $42,000 will come from the General Fund Reservations – Reserved Carry Forward line item.

Exhibit A

VILLAGE OF KEY BISCAYNE

Office of the Village Manager

Village Council
Franklin H. Caplan, *Mayor*
Michael E. Kelly, *Vice Mayor*
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Enrique Garcia
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James S. Taintor

Village Manager
Genaro "Chip" Iglesias

MEMORANDUM

DATE: July 5, 2011

TO: Honorable Mayor and Council Members

FROM: Genaro "Chip" Iglesias, Village Manager

RE: Rugose Spiralying Whitefly Treatment Program

RECOMMENDATION

It is recommended that the Village Council approve funding for an additional Whitefly Treatment Program not to exceed $30,000 and to authorize staff to award the work once we are able to confirm work references on the lowest bidders. As per the Village Arborist report submitted on April 30th, 2011 from Sutton Consulting Arborist, Inc., the Village right-of-ways are the highest infested areas and the recommended scope of work is for a systemic type of treatment for the Village trees located on the right-of-ways infested with the Rugose Spiraling Whitefly.

BACKGROUND

On October 2010, the first case of Rugose Spiraling Whitefly was reported in the Village. On November 2010, the Village began treating the whitefly on all Gumbo Limbos on the Village right-of-ways (where the pest first originated). Since then, three additional foliar sprays and systemic root drenching treatments have continued to be applied in hot spots identified on a variety of trees/palms in the right-of-ways. In addition, numerous outreach programs have been implemented in a continued effort to inform the residents how to best control this pest on private property.

After her presentation at the June 7th Rugose Spiraling Whitefly workshop, Dr. Catharine Mannion, Associate Professor and Extension Specialist, University of Florida, in conjunction with the Village arborist recommend systemic treatments; using a neonicotinoid chemical class insecticide as the preferred method in order to obtain the best long term effect possible. The Village will also continue to obtain more information on the injection treatment method which is a different price point than systemic treatments.

During the June 14th Council Meeting, Council requested further action from staff to explore pricing on the most effective whitefly treatments.

The Village obtained eight different proposals which were reviewed by staff. Due to the range of prices received, the highest proposal was discarded and the remaining seven bids were averaged. The average for a 10-12 inch caliper tree is $9.50 and a 4 inch caliper tree is $6.50. (See attached Whitefly tabulation)

Although there are currently 2,400 trees on the highest priority list, staff recommends funding for 3,000 trees in case additional drenching must be performed over the summer. If additional treatments are necessary (exceeding 3,000 trees) the additional expenditure will be brought to Council on August 30th, 2011 for approval.

The recommended funding source for this item (not to exceed $30,000) will come from the General Fund Reservations- Reserved Carry Forward line item.

Exhibit B

SUTTON

CONSULTING ARBORIST, INC.

Arboriculture Consulting Report

Spiraling Whitefly

To: Village of Key Biscayne
Attn: Mariana
88 West McIntyre Street
Key Biscayne, FL 33149

Date: March 23, 2012
c/o mdominguez@keybiscayne.fl.gov

Arboriculture Consulting work for your property: Village of Key Biscayne

I performed and completed the inspection for the whitefly on 3/23/12, and my findings are as follows:

The population of the whitefly has declined drastically since my May, 2011 inspection, on the trees that were treated in April, 2011. There is however larva feeding on them, treatment may still be effective for a little longer and if so the larva should not mature into adults. Treatments should continue uninterrupted until we find that biological controls are beginning to establish themselves, we won a skirmish in a war with this whitefly we have not won the war.

When a new pest, such as the gumbo limbo spiraling whitefly first arrives, it often reaches very high populations fast and sometimes can be very damaging. In subsequent years after its arrival, further outbreaks frequently show a steady decline in severity as natural controls help reduce the infestation. After several years the impact is usually greatly reduced. Although some insecticide use may be necessary, it is very important to understand the importance of natural enemies and the need to focus on long-term, biologically based management.

Having the large native areas (parks) both north and south of the village will be both a problem and a blessing in that those species of plants that are susceptible will not receive the same level of care as those within the village and are a source of infestation. These same areas will also be the source for whitefly predators to emerge from, this will bring balance and natural controls into play. Biological controls take years.

UF Entomologist Catharine Mannion has not found the beetle predator present in the Village. Dr. Mannion is working on a proposal to collect and gather beetles and release them in the Village.

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http://suttonconsultingarborist.com **Email:** JSutton868@aol.com

The Village has attained considerable control and must continue for a period of approx 2 to 3 years to ensure it. Continuing treatments is required and if interrupted it would undermine previous efforts.

I recommend continuing pest control treatments of all trees and palms previously treated, leaving the untreated areas alone for the release of the predator beetle. These areas are close to the native preserves and the ideal locations for the parasitic beetles to be released, giving them a chance to build populations for biologic control to be effective Island wide.

In Support
John Sutton
John Sutton
ISA Certified Arborist
#So-0326

P.O. Box 541237, Lake Worth, FL., 33454 (561) 493-3310 Fax (561) 969-7994
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Exhibit C

Project Proposal

Catharine Mannion, Ph.D.
Associate Professor and Extension Specialist
University of Florida, IFAS, Tropical Research and Education Center
18905 SW 280th Street, Homestead, FL 33031
cmannion@ufl.edu 305-246-7001 x220

Situation

The Village of Key Biscayne is currently infested with the Rugose spiraling whitefly, *Aleurodicus rugioperculatus*. This pest was first discovered in 2009 in Miami-Dade County and has been spreading throughout this and other Florida counties. It feeds on a broad range of host plants which include palms, woody trees and shrubs and fruits. Damage caused by this pest can include leaf yellowing, defoliation and plant decline depending on the host plant. This pest also excretes excessive amounts of honeydew (a clear, sugary, sticky substance) which covers everything in the vicinity of the infestation which includes other plants, sidewalks, vehicles, statues, patio furniture, etc. The presence of the honeydew provides a substrate for the growth of black sooty mold which then will grow wherever there is honeydew. Additionally, the pest produces a white, waxy substance that also becomes sticky with honeydew and will cover the infested tree and also get on everything in the area.

Currently, there is heavily reliance on the use of pesticides to manage this pest which can be costly, labor intensive and environmentally concerning. A long-term, biologically-based management strategy is needed. Several natural enemies have been identified attacking this pest. Of particular interest are a predatory beetle, *Nephaspis oculata* and a wasp parasitoid, *Encarsia guadaloupae*. Both of these natural enemies have been found attacking this whitefly but are not commercially available currently. The beetle is a type of ladybeetle (Coccinellidae) that mainly feeds on whitefly. It has been established in Florida for more than 25 years and has been used in other places for control of this type of whitefly. The parasitoid is wide spread and has also been used to control similar whiteflies. These parasitoids have been commonly used for pest control and will not affect or harm people or animals.

Objective

1. Enhance the presence of natural enemies to control the Rugose spiraling whitefly through releases of known natural enemies.
2. Determine the impact of these natural enemies on the whitefly infestation.

Methods

1. Identify 4 sites with whitefly infestation. All sites should have whitefly and two of the sites should have no pesticide use and two sites have pesticide use.
    - No pesticide – natural enemy release
    - Pesticide – natural enemy release
    - No Pesticide – no natural enemy release
    - Pesticide – no natural enemy release

2. Sample each site for the presence of any natural enemies and determine the level of whitefly infestation

3. Release beetle predators at each site. A release program will be developed in which beetles will be collected and released from two sources (field-collected and laboratory reared). In order to implement this project rapidly, the initial releases will be from field-collected beetles. Collection trips will be conducted weekly from local sites of whitefly infestations. These beetles will be brought back to the laboratory and held in cages with whitefly to feed on. The total number of beetles collected each week will be evenly divided and released at the two identified sites twice monthly depending on the number collected. In addition to the release of the field-collected beetles, a laboratory colony will be initiated. The laboratory colony will be used to produce beetles for release. This process will take 2-3 months before there will be sufficient beetles to release. This process is fairly labor intensive and there are limitations in the number of beetles that can be produced, however, for this project sufficient numbers of beetles can be produced.
4. A colony of parasitic wasps will be initiated and released at the selected sites. Wasps will be released twice monthly. The total number of wasps produced will be divided between the two sites.
5. Selected trees will be sampled month starting in June (one month after first release). Each tree will be evaluated for level of infestation and field observation of natural enemies. Six small branches will be collected from each tree and placed in bags. In the laboratory, leaves will be examined for live and dead whitefly and presence of natural enemies. Data will be collected and statistically analyzed.

Note: Once area wide mosquito spraying is started, all efforts will be made to not release natural enemies within a week of the spraying. Dates on which mosquito spraying occurs will be recorded.

Time Table (2012-2013)

April	1. Identify two field sites to conduct test 2. Select and mark trees used for sampling at each site 3. Sample trees for level of infestation and presence of natural enemies 4. Collect pesticide information for treated site 5. Begin beetle rearing
May	1. Field collect beetles 2. Release of beetles 3. Continue beetle rearing 4. Begin rearing parasitic wasps
June	1. Sample trees for level of infestation 2. Field collect beetles (twice) 3. Release of beetles (twice) 4. Continue beetle rearing 5. Release parasitic wasps (twice)
July	1. Sample trees for level of infestation 2. Field collect beetles (twice) 3. Release of beetles (twice) 4. Release laboratory reared beetles (twice) 5. Release parasitic wasps (twice)
August	1. Sample trees for level of infestation 2. Field collect beetles (twice)

	3. Release of beetles (twice) 4. Release laboratory reared beetles (twice) 5. Release parasitic wasps (twice)
September	1. Sample trees for level of infestation 2. Field collect beetles (twice) 3. Release of beetles (twice) 4. Release laboratory reared beetles (twice) 5. Release parasitic wasps (twice)
October	1. Sample trees for level of infestation 2. Analysis of date and 6 month report At this time, it will be determined whether it is necessary to continue the release of natural enemies, based on the populations present and level of whitefly infestation.
November	1. Sample trees for level of infestation
December	1. Sample trees for level of infestation Depending on temperatures and level of whitefly infestation, samples may be collected every two months from December – March.
January	1. Sample trees for level of infestation
February	1. Sample trees for level of infestation
March	1. Sample trees for level of infestation
April	1. Sample trees for level of infestation
May	1. Sample trees for level of infestation 2. Analysis of data and annual report

Budget

Labor 6 months 20 hours per week @ $12.00 2.6 % fringe benefits	$6,500
Travel – gas and vehicle maintenance Travel to/from field sites for insect collection Travel to/from release sites	$3,000
General laboratory supplies	$500
Insect collecting and field supplies	$500
Insect rearing supplies (including rearing cages)	$1,500
TOTAL	$12, 000