APPENDIX A

BASIC INFORMATION OF THE FLORIDA FIELD STUDY

Square mile sections of Carol City, in Miami-Dade County are shown above where Site D1 is located. Site D1 location based on the TRS system is 52-24-06 and 52-24-05

> *Unthinking respect for authority is the greatest enemy of truth.*

Albert Einstein, 1901.

> *Knowledge is power. Information is power. The secreting or hoarding of knowledge or information may be an act of tyranny camouflaged as humility.*

Robin Morgan

1. INTRODUCTION

This Appendix attempts to summarize the most basic information on the collection of data for he Florida field study. This information addresses the following questions:

- Where was the study conducted?
- When were the surveys conducted?
- How inspections were conducted?

The methods used to analyze the collected data are reviewed later in appendices. These statistical analyses are:

- Appendix B: Distance Necessary to Circumscribe (DNC) Method
- Appendix B1: Supplemental Information
- Appendix C: Weather Analyses
- Appendix C1: The Gottwald Canker Forecast Model
- Appendix D: Inter-Point Distance Analyses
- Appendix D1: IPD Supplemental Information
- Appendix E: Random Quadrat Procedure and Related Analyses
- Appendix F: Spatial Point Pattern Analyses
- Appendix F1: Additional Comments on the Spatial Pattern Analysis
- Appendix G: Semi-Variance Analyses
- Appendix H: Additional Epidemiology Review/ Comments/Errata

Appendix H may not be posted at the time of the book's publication. Any errors in the analysis will be included in Appendix H. If relevant comments on the analyses contained in these appendices, they will be posted to the website.

APPROACH TO REVIEW

As discussed in Chapter 6, the study is properly classified as a retrospective, observational study. Field observational studies have been invaluable in the study of epidemics. But, there is a possibility of misinterpretation of observations. A study focused on the movement of a bacterial disease within a delineated residential area, may have far less inherent controls than experiment, since experimental studies can be designed with known sources and potential recipients of the disease.

A full description of a completed study should include maps showing the location of each site including areas such as lakes or canals where citrus trees could not exist, the time interval that surveys each of the sites were conducted, a copy of the survey forms, the quality checks and any problems in data collection, the various organizations responsible for surveys and the

training of surveyors. A complete description should also provide a discussion of why each site was chosen.

The Florida field study might well be the largest study of residential trees ever done in the US. Yet the documentation of the study is very incomplete. The lack of a full description of the study meant it was necessary to go beyond the published articles on the study to obtain important details. This reviewed relied exclusively on documents made public by FDACS and the USDA. Extensive efforts were made to clarify the obvious discrepancies in data with FDACS.

This appendix is closely linked to Appendix B, which reviews the most fundamental analysis in the 2002 published article, the distance necessary to circumscribe or DNC procedure. The age of the oldest lesion on the infected tree is observed and the initial date of infection is then calculated. From these dates, a new time series is created, and this set of data, re-sequenced in time is used in all of the other analyses as given in Appendices B to F. Thus, any error in the DNC procedure would be pass through to all other analysis in the published article.

INITIAL PLANNING OF THE STUDY

The Commissioner of Agriculture in his February 26, 1998 Press Release identified the tasks required for the Florida field study to be coincident with a moratorium on all tree cutting in Miami-Dade County as follows:

> The establishment of experimental research zones- subject to the approval of the U.S. Department of Agriculture- to track the spread of the disease from infected tree to exposed one.
>
> Scientists in the program will designate properties in highly-infected areas, moderately infected areas and low infected areas to determine the rate at which exposed trees are being infected. While scientists will review their findings each month, it is envisioned that the experiment will go on for a full year.

Commissioner Crawford's press release is provided at the end of this appendix. At the time, the Department was known as DOACS, for Department of Agriculture and Consumer Services, and later changed to FDACS.

This discussion will refer to the sites as study sites, not experimental research zones. As noted in the Chapter 6, the study is properly classified as an observational study, because the study did not affect a change by altering any condition related to the disease dynamics.

At the time the study was proposed, the research zones were limited to three sites within Miami-Dade County. At some point after February 1998, a fourth site, the Broward site, was added, making the number of sites equal to four. Then, on some later unknown date, the Broward site was divided into two sites, identified as B1 and B2 in the 2002 article (1). The tree cutting moratorium was only imposed all healthy trees within Miami-Dade and Broward County.

2. INFORMATION SOURCES

The 2002 article as published in by Gottwald et al. in Phytopathology provides details on the methods and results of the study. It provides limited information on the study sites locations and time frame of surveys. The full references are provided at the end of this appendix. A brief description of the documents, listed according to reference number are, as follows:

1. Gottwald et al, 2002. Geo-Referenced Spatiotemporal Analysis of the Urban Citrus Canker Epidemic in Florida, Phytopathology, Vol. 92, No. 4. Site information is provided on page 363, left hand column of the 2002 article. The number of citrus trees is provided in table 1- 5 footnotes.

2. Gottwald et al, 2001. Letter to the Editor of Phytopathology. The first published results of the Florida field study were presented in this article.

3. Gottwald et al., 1999. Internal Interim Report. This document was submitted by FDACS in November 2000 to the Broward Court, posted to the supporting documents website,

4. Dr. Gottwald's viewgraphs (2000). Dr. Gottwald made a presentation in the Broward Court in November 2000, and the viewgraphs were submitted into evidence.

5. Citrus Canker Risk Assessment Group 9th Meeting Report (5), May 11, 1999. Dr. Gottwald present final results of the field study.

6. Tasker, Georgia, 1900-ft War, Miami-Herald, June 17, 2002, Georgia Tasker was a feature writer for the Miami-Herald for many years and Pulitzer Prize winner. Maps showing site locations were based provided by FDACS. Only the Miami-Herald was ambitious enough to take a closer look at the field study, after the Broward Court ruled the research to be scientifically unsound.

7. Neri F.M., Cook A.R., Gibson G.J., Gottwald T.R., Gilligan C. A. , 2014. Bayesian Analysis for Inference of an Emerging Epidemic: Citrus Canker in Urban Landscapes. Article provides maps of the infected trees within surveyed areas overlain by satellite maps.

8. Gaskalla, R., FDACS/DPI Personal Correspondence, February 26, 2002, Memorandum includes a sketch of Site 1. Letter is posted on website.

9,10. FDACS Commissioner Crawford press releases. These are official press releases from the office of the Commissioner Crawford at the start of the moratorium on February 26, 1998 and the ending of the in June 17, 1999.

All the above documents are posted on the citruscankerdocs.com website and may be freely distributed. None of the above documents have copyright protection.

3. SITE GENERAL INFORMATION

The number of sites increased from 3 to 5 in approximately 5 years, as shown below. There was no announcement of a change in the study, until the publication of the Letter to the Editor in January 2001.

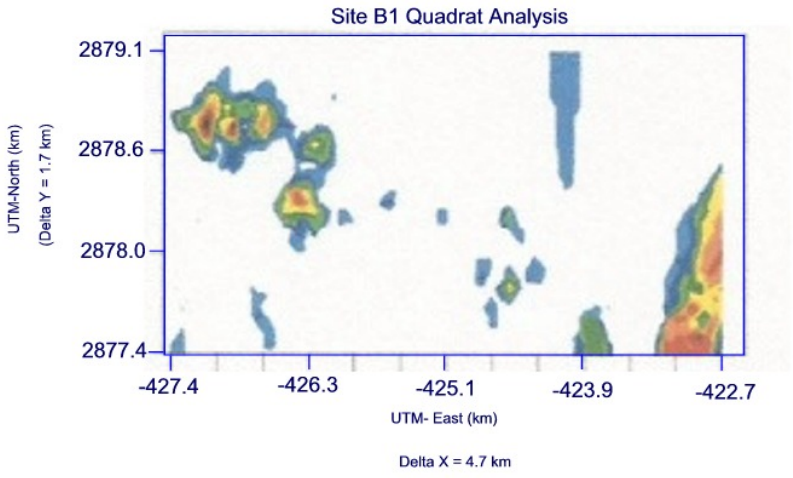
Table 1: Number of Sites

Source	Date	Number of Sites
Commissioner Crawford's Press Release	Feb 98	3 *
October 1999, Interim Report	Oct 99	4
Phytopathology Letter to the Editor	Jan 01	4
Phytopathology Article, Gottwald et al. [1]	Apr 02	5

* This was implied in the press release, the Commissioner stated zones with 3 different infection densities in Miami-Dade County would be studied.

The 2002 article presents the size in terms of square miles of Sites D1 and D2 in Miami-Dade County and Sites B1 and B2 in Broward County. The size of Site D3 in terms of square miles is not provided. A second source of the sites' areas is from Figure 7 of the same article. As shown below for Site B1, the axes of the diagram are in Universal Traverse Mercator coordinates (UTM), with units in kilometers.

Figure 1: Site B1 map from Gottwald, 2002 article [1, Fig, 7]



In reviewing this figure with publicly available US Geological Survey maps, the x-axis coordinates were converted as UTM-East = 1000 + UTM-West. UTM-East coordinates are positive values while UTM-West are negative values.

In the 2002 article, it appears the areas of Site B1 and B2 were inadvertently interchanged only in the text of the article (page 363). In other presentations, Site B1 is several times larger than Site B2. So, the comparisons made the next section, the area of Site B1 to be 6.0 mi^2 and Site B2 to be 1 mi^2 to correct for the apparent typographical error.

Conflicting values of all study sites' areas are evident when the 2002 published article's text is compared with the dimensions of the sites in Figure 7. [1] The total of D1, D2, B1 and B2 equals 13.00 square miles based on the article's text and 6.98 square miles based on Figure 7 of the same article as shown in Table 2 below. The difference is 5.78 square miles. Figure 7 shows 44% less area than stated in the text.

Table 2: Comparison of Site Areas - 2002 Published Article [1], Figure 7 and Text

Site	Fig 7 Delta X (km)	Fig 7 Delta Y (km)	Fig 7 Area (km^2)	Fig 7 Area (mi^2)	Text Area (mi^2)	Difference (mi^2)	% Difference
D1	3.00	1.80	5.40	2.08	4.00	1.92	48
D2	2.00	1.70	3.40	1.31	2.00	0.69	34
D3	1.20	1.20	1.40	0.56	NA	NA	NA
B1	4.70	1.70	8.00	3.08	6.00	2.91	48
B2	1.60	1.20	1.90	0.74	1.00	0.26	26
Total, excluding Site D3			20.20	7.22	13.00	5.78	44

Table 2 Notes:

Text and Figure 7 map dimensions are from Gottwald et al, 2002 (reference 1). For comparison, the total area excludes Site D3, as the area of this site is not explicitly stated in text of article. Sites B1 and B2 areas were likely inadvertently interchanged in the text of Gottwald, 2002. Calculated areas of Sites B1 and B2 from Figure 7 may be underestimated, as these estimates include only areas where infected trees were located. Area converted to km^2 for D1, D2, D3, B1 and B2 are 5.40, 5.00, 1.44, 7.14 and 1.92 km^2. Conversion factor is 0.3861 km^2 = 1 mi^2.

These large differences in each site were strange, given that they appeared within the same published article. The location of each site was investigated to understand better how these differences could have occurred.

INCONSISTENT COORDINATE SYSTEMS (STR AND UTM) TO IDENTIFY SITE LOCATIONS

The sites are defined by the sector-township-range (STR) system (1). This coordinate system (also referred to as the Township-Range-Section (TRS) system) is used throughout United States as part of the Public Land Survey System (PLSS). The TRS notation places the section number last. To avoid any confusion, the section number will be underlined, i.e.:

52-41-<u>05</u>

The section numbers range from 1 to 36. Additional mapping system information will be posted to the website.

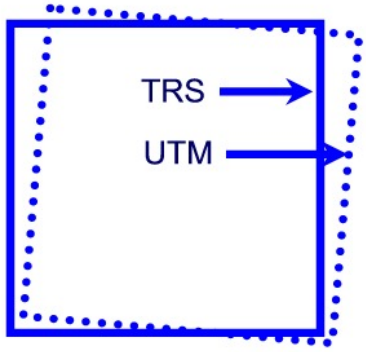
The Department's Property Information form used in all inspections contained a 13 digit parcel number of which the first 6 digits are the TRS designation and the last 7 digits reference the specific land parcel.

The PLSS system is particularly easy for the plant inspectors, because sections are typically delineated by major roads. Thus, they would know when they were surveying lots within the designated sites. The address information could be cross checked against databases to be sure the surveys were all conducted within the designated sites. Any survey conducted outside of the study sites would be immediately obvious from the first 6 digits of the parcel number

However, the published article on the field study also states the location of trees were determined by global positioning system (GPS) meters. According to the published article, these provided location of trees in terms of degrees of longitude and latitude. The study used locations in UTM coordinates, and conversion from the GPS meter reading to UTM coordinates would not result in a loss of accuracy.

Both systems subdivide areas into square blocks, but the UTM and STR grids have different orientations. The total areas would be the same, but the corners of the site area change depending on which system is used. The difference in alignment is shown below:

Figure 2: Site Boundaries using the Two Coordinate Systems



The offset error incurred with one square mile is estimated to be approximately 4.5%. For a vertical one mile boundary using the TRS system, the corner edge would be displaced approximately 250 ft (0.045 x 5280 ft).

The US Geological Survey uses both UTM coordinates expressed in longitude and latitude, and UTM coordinates. UTM coordinates in USGS maps are given in as offsets to the west but this is easily converted to offsets to the by adding 1000 to the numbers.

INFECTED AND HEALTHY TREES

The number of citrus trees in each site is presented in the footnotes of tables 1 - 5 of the 2002 article and summarized below. The number of infected trees is equal to the alpha plus secondary trees as listed in the last period of the tables. There is a wide variation among the sites in terms of the percentage of trees infected. There have been no articles or presentation to date to account for this wide variation.

Table 3: Infected and healthy trees [1]

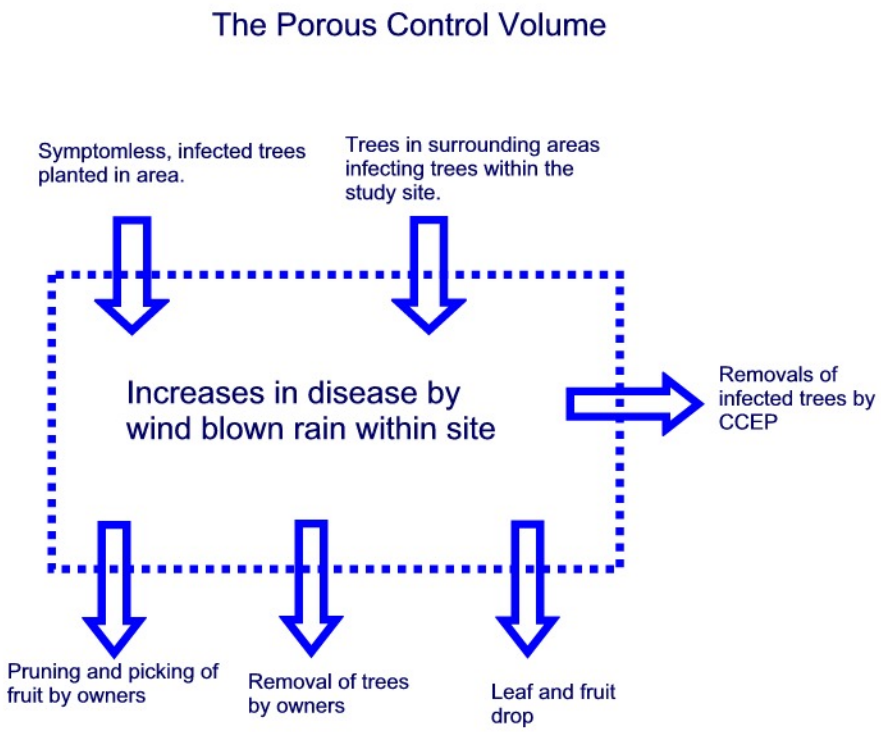
Site	Infected Trees	All Citrus	Percent Infected
D1	1758	6056	29.0
D2	971	6072	16.0
D3	26	798	3.3
B1	450	4730	9.5
B2	229	1113	20.6
Total	3434	18769	18.3

4. IMPORTANCE OF SITE DESCRIPTIONS

The next four sections provide a detailed examination of the study sites. Residential study sites have little in common with commercial farms, orchards, or nurseries, except citrus trees are grown in both. Within the sites, there are schools, parks, shopping centers, lakes and canals. These non-citrus areas are extensive. In Chapter 6, the maximum dissemination from a single source under experimental conditions was 59 ft. (see Table 6.1) The pathogen requires to be in contact with water during release and later deposition. Thus, the bacteria are dispersed in water droplets. There is no experimental evidence that wind can carry rain drops from an infected tree over a typical house to another host tree, resulting in infection.

A concept which should be kept in mind, is the degree of control which exists within a study site. There are multiple pathways in which disease could enter and leave the site as shown in Figure 3. Unlike many groves, no perimeter fence exists around the sites. For years prior to the study, residents could legally buy citrus trees, which may appear healthy but could contain citrus canker at a subclinical level. Other means by which citrus canker can enter and leave the area of study (the control volume) are shown below. A study needs isolation to provide reliable results. The Florida field study, as will be discussed in this appendix, lacks the controls necessary for isolation of the disease and proper epidemiology analysis.

Figure 3: Control Volume Concept



5. SITE D1 (CAROL CITY)

SITE LOCATION/ AREA

Prior discussion of the study sites revealed significant discrepancy of the areas of the study sites. Site D1 is located in the municipality of Carol City, within Miami-Dade County. In general, the sources listed below show a 4 mi^2 square, or a rectangle, with 2 mi^2 . The 2 mi^2 rectangle appears to be the top 2 northern sections of the 4 mi^2 square.

The various publications have reported different areas as below:

Table 4: Site D1 Areas according to various sources

	Sources	Area (mi^2)	Sections
1	2000 Broward Court Viewgraphs, Gottwald	4.00	All 4 sections
2	2001 Published Article- Figure 1, Gottwald et al.	2.00	North Section
3	2001 Memo from FDACS, Richard Gaskalla	4.00	All 4 sections
4	2002 Published Article - discussion in text	4.00	See discussion *
5	2002 Published Article - Figure 7, Gottwald et al	2.00	North Sections
6	2002 Miami-Herald Article, Georgia Tasker	2.00	North Sections
7	2014 Article by Neri et al. as published in PLOS	2.00	North Sections

* Within the text of the 2002 article, it is stated that Sites D1 and D2 conform to section per the TRS designation.

The inconsistency is unbelievable! Four publications state the area as 2.0 square miles, and three times as 4.0 square miles. The 2002 published article by Gottwald et al, states the area is approximately 4 square miles.

In 2001, the most definitive map was based on a memorandum received from Mr. Richard Gaskalla, Director of FDACS/DPI, showing the D1 study site as 4 square miles and identifying the bounding streets. The study site within the memorandum corresponds to

The 4 square miles is also consistent with the 2000 Broward Court viewgraphs as submitted into evidence. In the text of the 2002 primary article on the study, the area is approximately four square miles, but the Figure 7 in the same article has only two square miles. Note that sources 1, 2, 4, 5 and 7 are all from sourced from Dr. Gottwald's article. Dr. Gottwald was the co-author of the article by Neri in 2014.

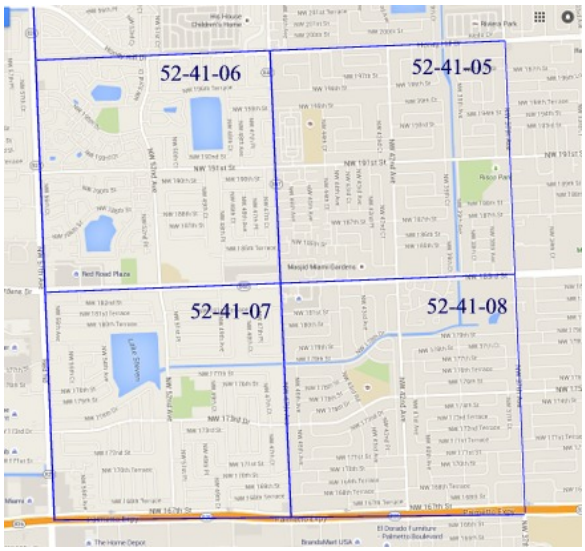
LOCATION MAPS

The location of Site D1 in Carol City, Miami, FL consisting of four sectors, is based on references 4, 6 and 8, and consistent with the approximate 4 square miles, stated in the text of the 2002 article (reference 1).

Reference 1 is a peer reviewed article, used repeatedly by the Department to support the program. In November 2000, Dr. Gottwald made a presentation under oath in Broward Court (Case 00-18394(8)). Included in the presentation was a map showing Site D1 with four sections. The map was tagged into evidence as FDAS 000390.

The sections are listed in a TRS format, so in a clockwise manner from the top, the square mile sections are 6, 5, 8 and 7. Sections are inclined slightly to the left.

Figure 4: Site D1 - Four Mile Description based on Viewgraph.



The above map is bounded to the north and south by Honey Hill Rd and the Palmetto Expressway (836). To the east and west, the site is bounded by NW 37th Avenue (Douglas Ave.) and NW 57th Avenue (Red Road). The map is bisected vertically by NW 47th Avenue, and horizontally by NW 183rd St. The blue areas are lakes and canals, green areas for parks and brown for schools and churches.

OTHER MAPS WITH INFECTED TREES

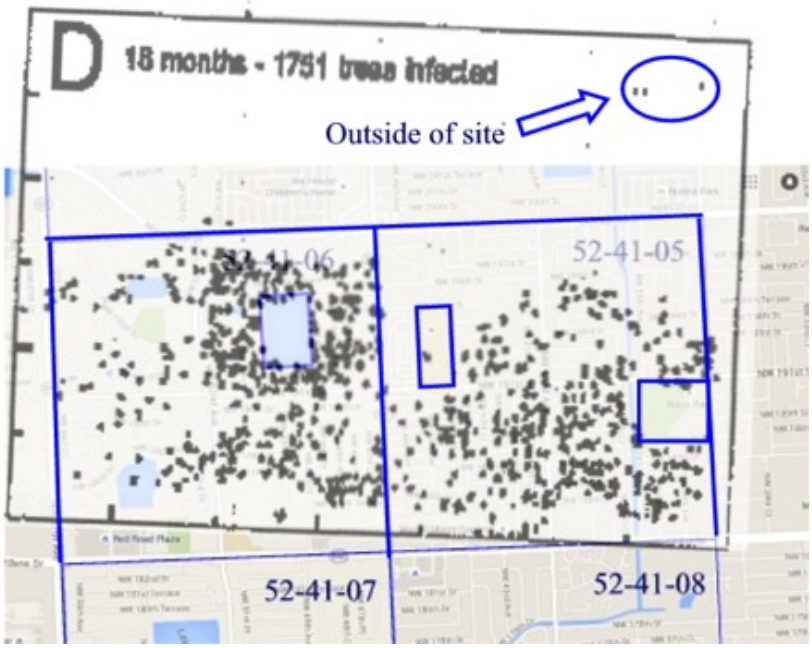
The infected trees in Site D1, as shown below, are from a published article by Neri et al. 2014, reference 7. The red line shows a 2 square mile rectangle with TRS sections 52-41-06 (west section) and 52-41-05 (east section) in the northern sections.

Figure 5: Infected Trees within Site D1 (Infected trees in blue)

The infected trees are located from 200 to 700 ft beyond the major roads which presumably were the site borders. These areas are marked with arrows (1) to (5). Therefore, for the trees discovered to be infected on the periphery of the site, the source trees could be just over the backyard fence, which may be just a few feet away. The branches can easily extend into the next. So, this leaves the distinct possibility of infected trees next to each other are considered as recipients of disease from trees far away, because they are inside the site.

The 2001 published article in Phytopathology (Figure 1D) shows infected trees far outside of the study site as shown in figure below (Figure 1D is overlaid with a street map). Since infected tree locations were plotted in UTM coordinates, it was necessary to rotate and rescale the figure, so the coordinates align with the street map coordinates.

Figure 6: Overlay of street map with published Figure 1D of infected trees, Site D1



Larger copies of these maps are posted in the website. In Figure 6, there were 3 infected trees about half a mile outside of the site. These points lie just west of Vista Verde Park.

These two maps are compelling evidence that the real size of study site D1 is 2.0 mi^2 and only two sections were used in the study.

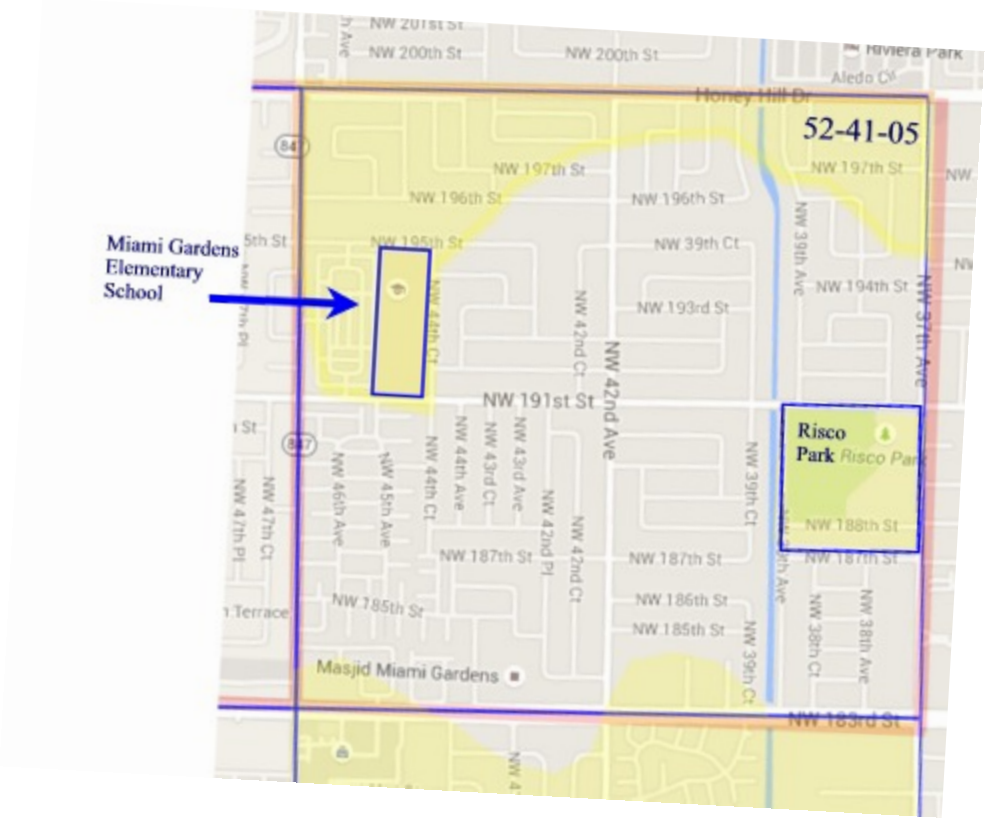
AREAS ABSENT OF INFECTED TREES

This is the third odd aspect of Site D1 presentation. The first was the difference in areal size based on seven presentations. The second was infected trees outside of the boundaries of the site. This odd aspect is the absence of any disease in the northern part of the section TRS: 52-41-05.

It is also noted that along the northern border of the eastern section (TRS: 52-41-05) there are no infected trees in residential areas for distances of 500 to 1,000 ft from the northern boundary. A close look at this area showed the area was exclusively residential- no significant non-citrus areas. The western section (TRS: 52-41-06) has areas without infect trees because of non-citrus areas (lakes and parks).

It is conservatively estimated that the “no infected trees” residential area consists of approximately 150 acres or 600 residential lots of approximately ¼ acres each. Based on approximately 4 citrus trees/acre, the number of uninfected citrus in this area would be 600 citrus trees.

Figure 7: Site D1, Section 5 with areas without infected trees marked in yellow



CAROL CITY - SITE VISIT

Carol City is a middle to low income area. An inspection of the neighborhood quickly revealed the difficulties of inspections with many homes surrounded by chain link fences with dogs used to protect the property. Some people rent mail boxes so they can keep their property locked. It is not an easy job for others, such as electric and water meter readers. But, they know where to find the meters. Citrus trees can vary from 1 foot to 30 feet tall and be located anywhere. Many people were working, so access to back yards likely was problematic.

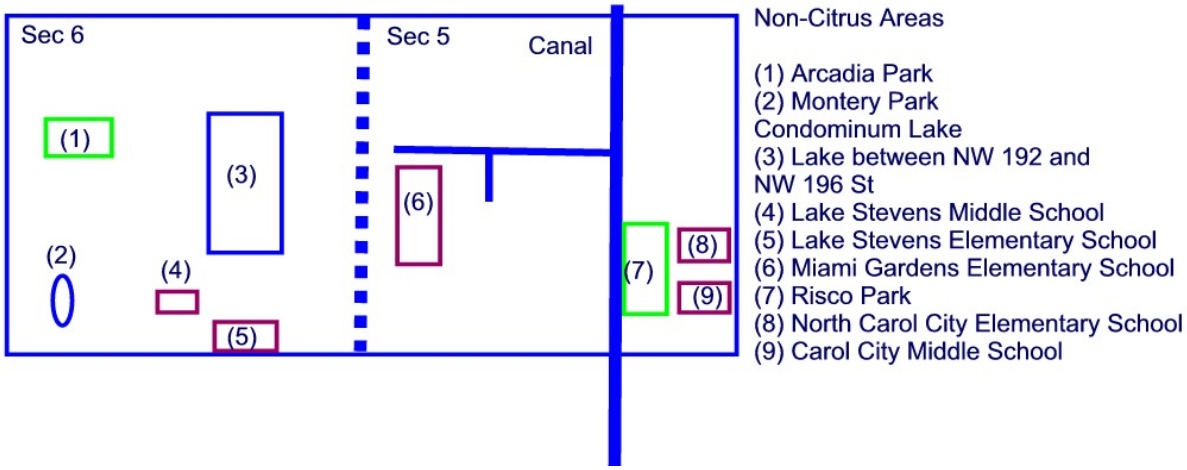
Figure 8: Street view, Carol City

There are likely many better looking streets in Carol City. The picture was taken in January 2001. It was taken on a street close to the lake north of NW 192 St. The image shows the chain link security fences, making access difficult.

NON-CITRUS AREAS

Lakes, canals, parks, schools and shopping centers are prevalent in Site D1. In 52-41-5, there is the lake bounded by NW 192 and NW 196 St. The figure below includes only some of the larger non-citrus areas.

Figure 9: Non-Citrus Areas



Obviously school yards and parks are not strictly non-citrus, but it is very rare to find citrus within a park or school yard. The list of non-citrus areas is incomplete as there are also many commercial areas, particularly along NW 183 St, which forms the southern limit. A Post Office is located just below the Carol City Middle School.

The non-citrus areas are important to the trajectory of the citrus canker bacteria encapsulated within a rain droplet. For a rain droplet to go long distances (for example greater than 2,000 ft), in many cases, the rain droplet would have to go across lakes, canals, parks, school yards, shopping centers and highways. The contaminated rain droplets would also have to go over many houses, and in some cases warehouses, or stores, all acting as natural vertical barriers to the droplets. As discussed in Chapter 2, any calculation of inter-tree disease transmission must be consistent with the physical reality of the limits to the trajectory of rain droplets.

SITE D1 SUMMARY

1. Size and location of Site D1: Of the seven references showing the location or area of Site D1, three showed a 4 mi^2 area and four showed a 2 mi^2 area (see Table 2). All of these sources are based on information from either FDACS/DPI or USDA/ARS. The most likely survey area is 2.0 square miles based on maps derived from infected tree locations. This corresponds to sections TRS 52-41-06 and 52-41-05. This suggests that incorrect information on the study site D1 boundaries came from Mr. Richard Gaskalla, Director of the FDACS/DPI and Dr. Gottwald, USDA/ARS and principal investigator for the Florida field study.

2. Infected citrus outside site: Infected trees outside of the two sections are shown in map from reference 7 (Neri et al, 2014) and in the 2001 published article by Gottwald et al. Since citrus would normally be planted in backyards and these backyards are adjoining, infected citrus could just over the fence from supposedly healthy citrus which are outside of the site.

3. Areas absent of infected trees: About 150 acres of section TRS 52-41-05 (eastern section) had no infected trees (see figure 7). Some of this area was explainable, since a school and park were located in this area. But the remaining area is residential and likely to contain 600 citrus trees, without a single infected tree.

4. Confinement: All areas adjacent to the site are residential. Since the site's infected trees are present beyond the major roads, citrus outside of the site is likely to be "just over the fence" from citrus inside the area.

5. Non-Citrus Areas: Numerous large non-citrus areas are identified within the site, including parks, lakes and canals. These non-citrus areas would likely limit dissemination of canker by wind blown rain.

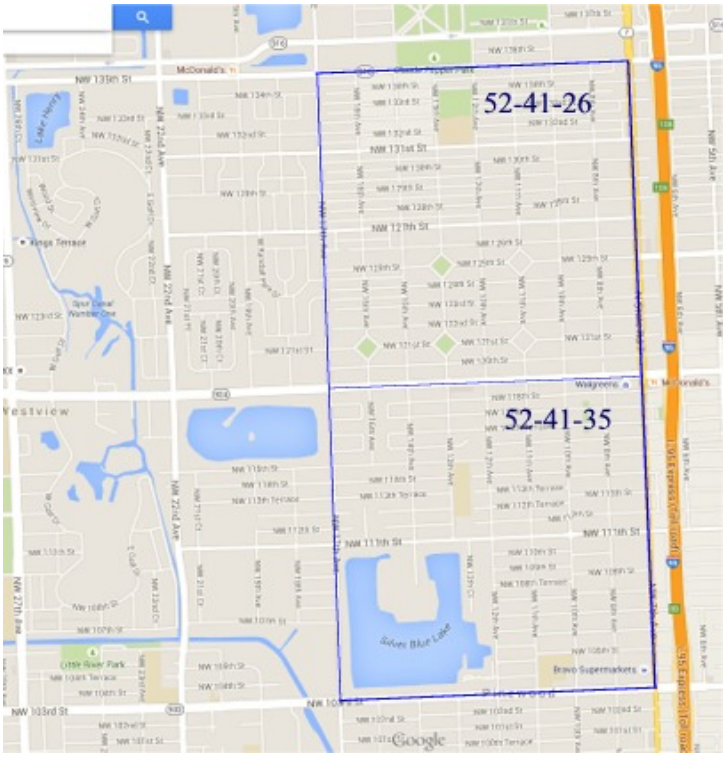
5. Access: A site visit showed difficulties in access of properties due to a high prevalence of chain link fences and guard dogs.

6. SITE D2 (NORTH MIAMI)

SITE LOCATION/ AREA

Based on the text of the 2002 published article, Site D2 is approximately 2 square miles. The location as shown is Figure 10 is based on a viewgraph presented by Dr. Gottwald in Broward Court in November 2000 consistent with the text of the article. Site D2 is located in North Miami. The site is bounded to the east by N. State Rd 7 or NW 7th Avenue and to the west by NW 17th Avenue. The site is bounded to the north by 135th St, and to the south by NW 103rd St.

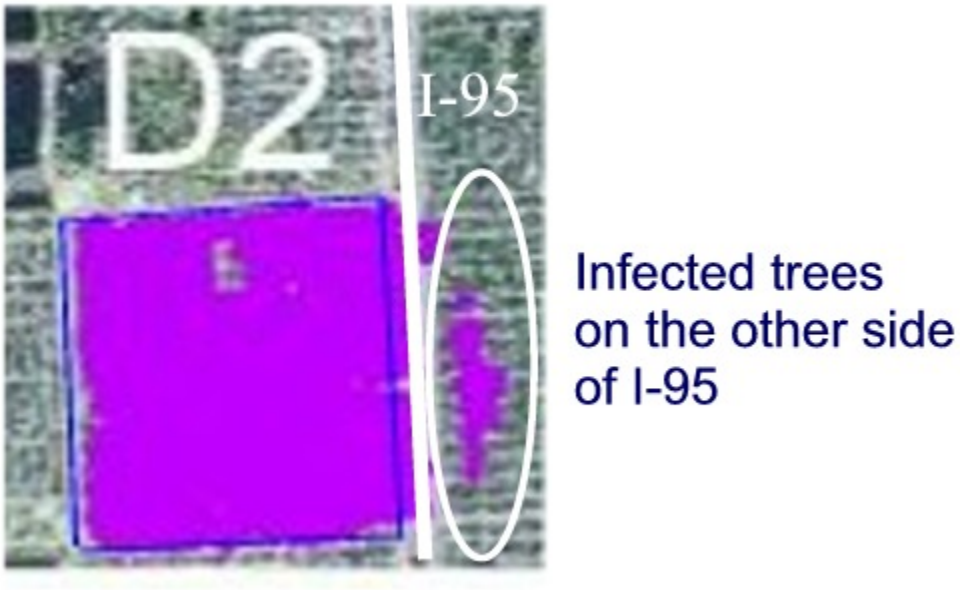
Figure 10: Site D2 in Miami-Dade County based on 2000 Broward Court Viewgraph



OTHER SOURCES

Locations of the infected trees as provided in Neri's article [7] is shown below. The locations of infected trees are only in the northern part of the site. The infected trees include trees on the other side of US 95. This can not be done by accident, as US 95 is a major expressway. The figure shown below is in agreement with Figure 7 of the 2002 published article [1].

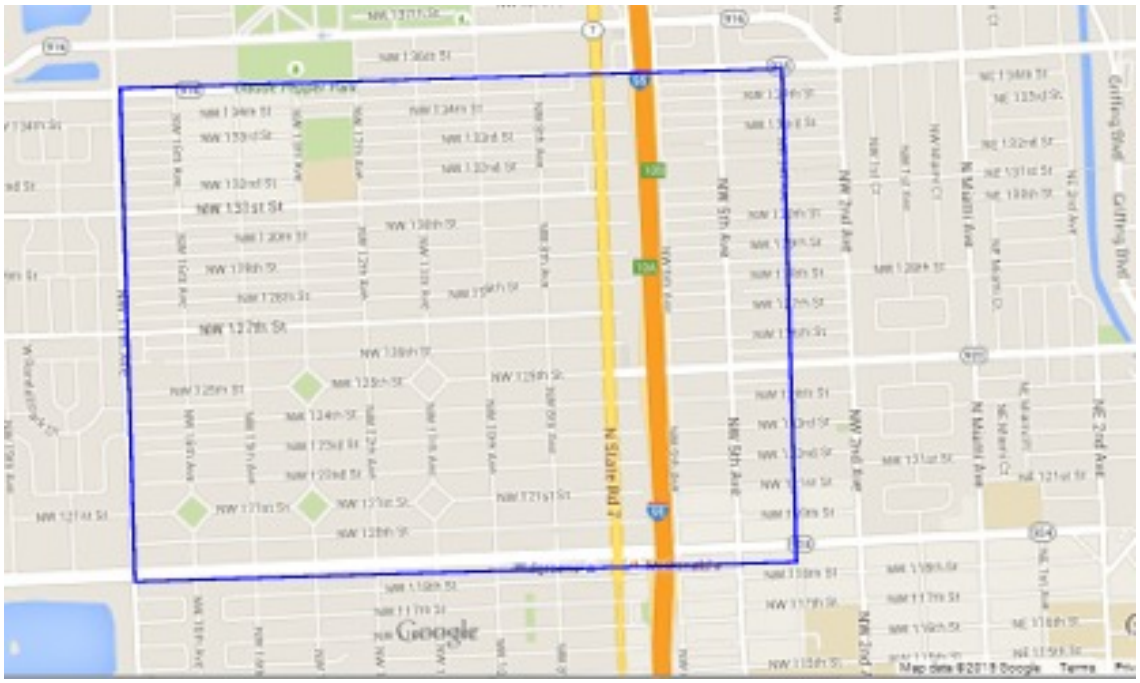
Figure 11: Infected trees within Site D2 based on reference 7 (2014 Neri et al)



The blue line represents the boundaries of the section. Thus, infected trees are located approximately 500 - 700 ft beyond the section's eastern border as shown in Figure 11.

A street map is shown in Figure 12, showing the most likely boundaries of Site D2 based on infected tree locations.

Figure 12: Most Likely Location of Site D2, based on infected tree locations, Ref 7



The total area of the site as shown above would be 1.3 miles x 1 miles = 1.3 mi^2 in close agreement with Table 2. This is the most likely area and location of Site D2 using all sources. The text within reference 1 and viewgraph from Broward Court are incorrect.

Further, the 2002 published article was incorrect, as it stated the survey areas for Sites D1 and D2 were defined by STR boundaries (page 363, first paragraph). The north, west and south boundaries are correct, but the east boundary is considerably to the east of US-95.

NON-CITRUS AREAS

Similar to Site D1, the sites have many non-citrus areas. The north area of Section 26 contains the Ben Franklin Park and the Benjamin Franklin Elementary School. Smaller parks include the Sunkist Grove Community Center, Kiwanis Park and Oleander Park. Many commercial outlets are found along both sides of NW 119 St, which divides the sections.

Based on a visit to the site, access problems seemed much better than Site D1. It would be described as middle to upper income neighborhoods.

SUMMARY OF SITE D2

1. Size and Location of Site D2: The most likely boundaries of Site D2 are are shown on the street map in Figure 12. The location would be TRS 52-41-26 and approximately 30% of the adjacent section to the east, corresponding to an area of approximately 1.3 square miles. This size and location of Site D2 is consistent with actual infected tree locations as shown in the 2002 article by Gottwald et al, in Figure 7 and the 2014 article by Neri et al.

This estimate conflicts with the text of 2002 published article stating the area is approximately 2.0 square miles. Also these boundaries are inconsistent with statements in the 2002 published article that the sites were defined by TRS designation, because the eastern boundary extends beyond the section's boundary.

2. Infected citrus outside site: Infected trees outside of the TRS 52-41-26 are shown in the map in Figure 11 on the eastern boundary. This is on the eastern side of US-95, a major highway in the area.

3. Confinement: All areas adjacent to the site are residential. Since infected trees are present beyond the major roads, citrus outside of the site is likely to be "just over the fence" from citrus inside the area.

4. Non-Citrus Areas: Numerous large non-citrus areas are identified within the site, including parks, lakes and canals. These non-citrus areas would likely limit dissemination of canker by wind blown rain.

5. Access: A site visit showed relatively normal access to properties.

7. SITE D3 (BISCAYNE PARK)

SITE LOCATION/ AREA

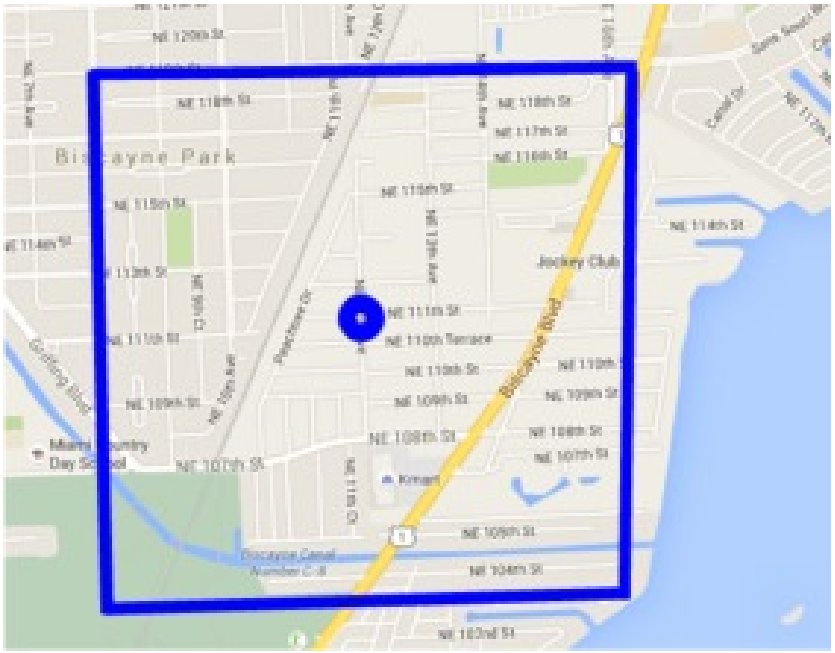
The 2002 published article describes the site as having a center or foci of 2 infected trees all within 15.2 m of each other, extending out for a radius of one mile. The site is located just east of Biscayne Park with a foci located at approximately the intersection of NE 111 St and 12th Avenue, based on presentation viewgraphs by Dr. Gottwald. The foci is located slightly east of the train tracks and west of US-1. Location sector (TRS) is 52-42-32.

The area of Site D3 is not provided in the 2002 article, but states that the survey area extended in an one mile radius from the foci. Thus, an implied area of this circle would be 3.14 square miles. However, this would extend the site over Biscayne Bay.

The Miami-Herald article shows an area of approximately one square mile as shown below. The area of the site, based on Figure 7 of the 2002 Article is 1.2 x 1.2 km or 1.44 km^2 (0.56 mi^2).

The best estimate of Site D3 is from 0.56 to 1.0 square miles. The 2002 article states that 798 citrus trees were found in the site, the fewest of all sites. This would support the lower size estimate.

Figure 13: Site D3 with approximately one square area (Miami-Herald)



The published article states the shape of the site is circular. This imposes additional difficulties in surveying Site D3. As can easily be seen from Figure 13, streets do not necessarily run north to south, or east to west, and there are many dead end streets.

The center of the site is shown in Figure 13, after careful review of maps submitted to the Broward Court in November 2000. In terms of location and size, the information is sparse, as there are no maps showing the locations of infected trees, nor any area provided in the

NON-CITRUS AREAS

Non-citrus areas include the Biscayne Shores and Gardens Park, Burke Recreational Center, Biscayne Canal C-8, and the northern part of the Miami Shores Country Club. Numerous businesses are located along US-1.

SITE VISIT

The site was of particular interest because it had the fewest number of infected trees. The area seems quite affluent, as yards were, in general, relatively large (0.25 - 0.5 acres) and well maintained. Many residents likely used professional landscapers. There were likely there was few problems with access.

SUMMARY OF SITE D3

1. Size and Location of Site D3: The best estimate of the size of Site D3 is from).56 to 1.0 mi^2. There are numerous conflicting and partial descriptions of the D3 site. According to the 2002 article as a circle with a radius of 1 mile, would imply an area of 3.14 square miles. However, based on Dr. Gottwald's viewgraph, this would extend the area over Biscayne Bay. The Miami-Herald article of June 17, 2002 shows an area of approximately 1.0 mi^2 . The 2002 article, Figure 7 shows an area of 0.56 mi^2. Based on these sources, it is believed Site D3 area is in the range of 0.56 to 1.0 mi^2. This lower estimate of area seems consistent with the stated 798 citrus trees (healthy and infected) in the site. The 2014 article by Neri et al, does not include site D3.

2. Non-Citrus Areas: Non-citrus areas includes parks, recreation center, Biscayne Canal C-8, and business located along US-1.

3. Confinement/ Infected citrus outside the site: The boundaries have never been explicitly identified in any publication. However, based on information from all sources, the site is completely open on all sides. All areas adjacent to the site are residential. Since infected trees are present beyond the major roads, citrus outside of the site is likely to be "just over the fence" from citrus inside the area.

4. Access: A site visit identified this area as having normal access problems.

8. BROWARD SITES, PEMBROKE PINES, BROWARD COUNTY

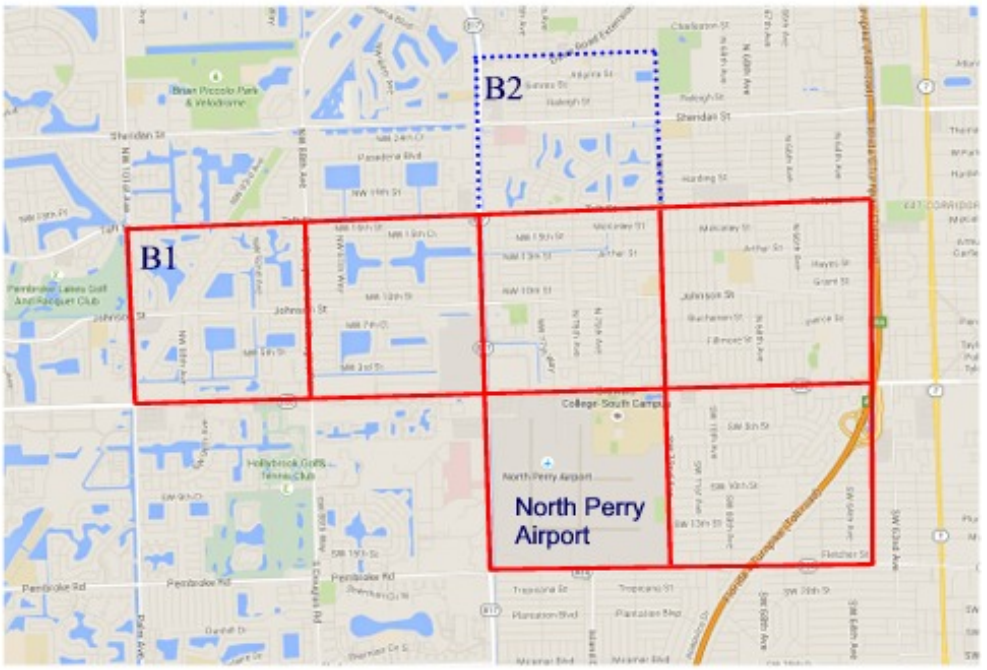
SITE LOCATION/ AREA

The Broward sites, B1 and B2 are located in Pembroke Pines/Davie, Broward County. Initially, there was a single site, but it was subdivided into two sites. The date on which the site was divided into two sites is not stated in the article.

As stated previously, there appears to be a typographical error in the 2002 article as the areas for Sites B1 and B2 should read 6.0 and 1.0 mi^2 respectively instead of visa-versa. In the November 2000 presentation, these areas were also denoted as 1A and 1B.

The Miami Herald news story showed both sites consistent with the areas given in the corrected text (6 mi^2 and 1 mi^2 for B1 and B2, respectively). The map shown below is based on the original map given in the Miami Herald.

Figure 14: Citrus Canker Study Sites- Miami-Herald, June 17, 2002



The original map is much smaller and does not show all the details as above. Both the original map and a full size map showing major streets are posted in the website.

Consistency does not equal correctness. If the Miami Herald had taken closer look at their illustration, they would have seen the B1 site included North Perry Airport, not a location for citrus trees. The rest of this section is not likely to contain citrus, with the Broward College

Aviation Institute, Pelican Flight Training, Broward College- South Campus, and the Trinity Lutheran Church.

As noted previously In Section 3, Table 2, the Figure 7 map from the 2002 published article were considerably smaller than in the text of the same article. For convenience, these results are summarized below.

Table 4: Broward Sites B1 and B2, 2002 Published Article

Site	Area- Text (mi^2)	Area- Fig 7 (km^2)	Area- Fig 7 (mi^2)
B1	6.0	8.00	3.08
B2	1.0	1.90	0.74

A conversion factor of 0.3861 km^2 = 1 mi^2 was used in the calculations..

B1 Location Using Infected Tree Locations

The Neri et al article provides the infected trees of both areas overlain by a street map, as shown below. Dr. Gottwald is one of the co-authors of the Neri article.

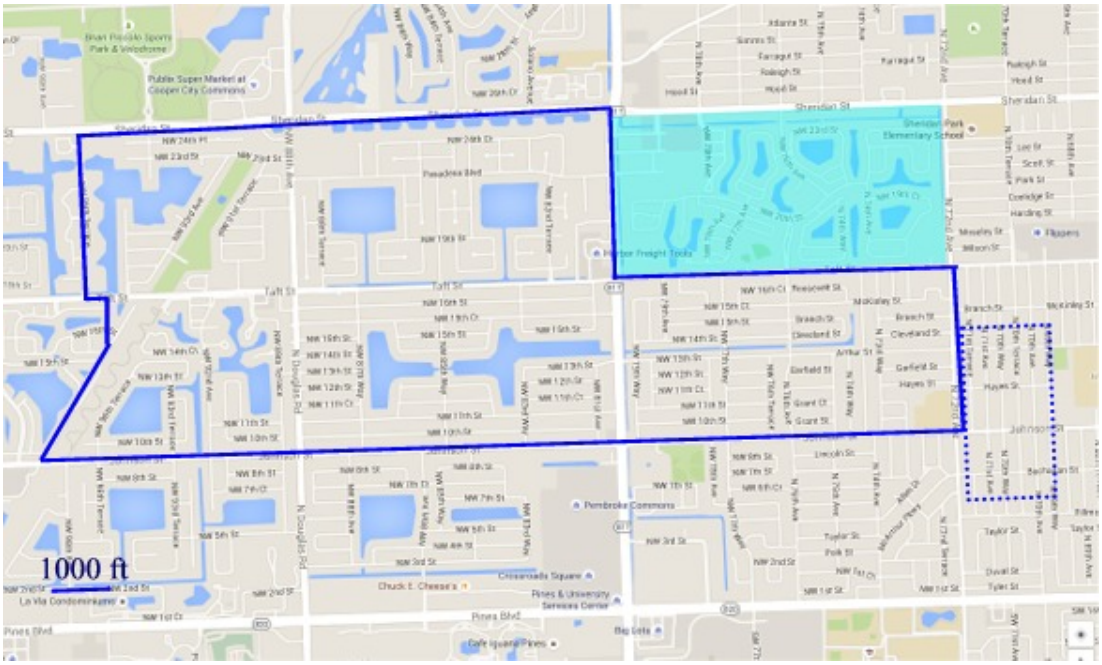
Figure 16: Site B1 and B2 (Reference 7)

For reference, the avenue that goes through the center of site B1 and is to the west of site B2 is US-817. The B1 site is shown below in Figure 15, with an approximate area of 2.4 square miles. The main east boundary is N. 72 Ave, with a small appendage to the east, which

appears to extend to N. 69 Way. The west boundary is formed by NW 96 Terrace and NW 97th Ave. The northern most boundary is Sheraton St, and southern boundary is Johnson St. A larger size maps are posted to the website. There are infected trees to the east of North 72nd Avenue and an irregular border to the west of Site B1.

The area shaded in blue is outside the site. It is placed on the map as reference as it is bounded to the west and south by Site B1 and to the north by Site B2. Consider how strange a study site area this would be, if considered one site as in the presentation of results in the published article in 2001. The blue area is approximately ½ square miles, and while contiguous to both B1 and B2, would be considered outside the study site.

Figure 17: Site B1 based on Reference 7, as published in 2014.



Site B1 is an odd shape for a study area. It does not conform to any designated section by the TRS system.

Figure 18 provides another view of the 2014 Neri article data, overlain with infected and healthy trees as presented by Gottwald in the Broward Court in November 2000.

Figure 18, Site B1 with Neri's Data Overlain by Presentation of Dr. Gottwald, in Broward Court November 2000

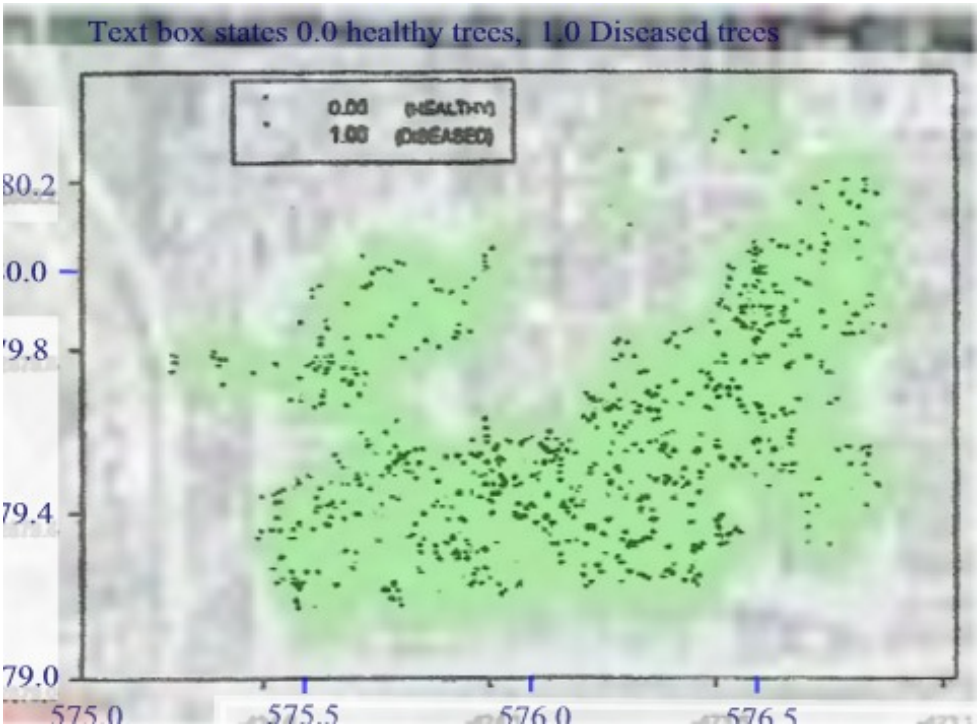
This location/ areal size conflicts with the stated area size of Site B1 as 6.0 square miles in the 2002 published article, and the 2002 Miami Herald article. As the published article and Miami Herald article have the same area, it is not likely a mistake on the part of the Miami Herald.

The area of 2.4 square miles is approximate. The estimate from Figure 7 of the 2002 published article is 3.08 square miles. Since it is a rectangular area, it includes the approximately ½ square mile area as shaded in blue in Figure 17. If this area is included, the two values are reasonably close (3.08 verses 2.90 square miles).

SITE B2 LOCATION USING INFECTED TREE LOCATIONS

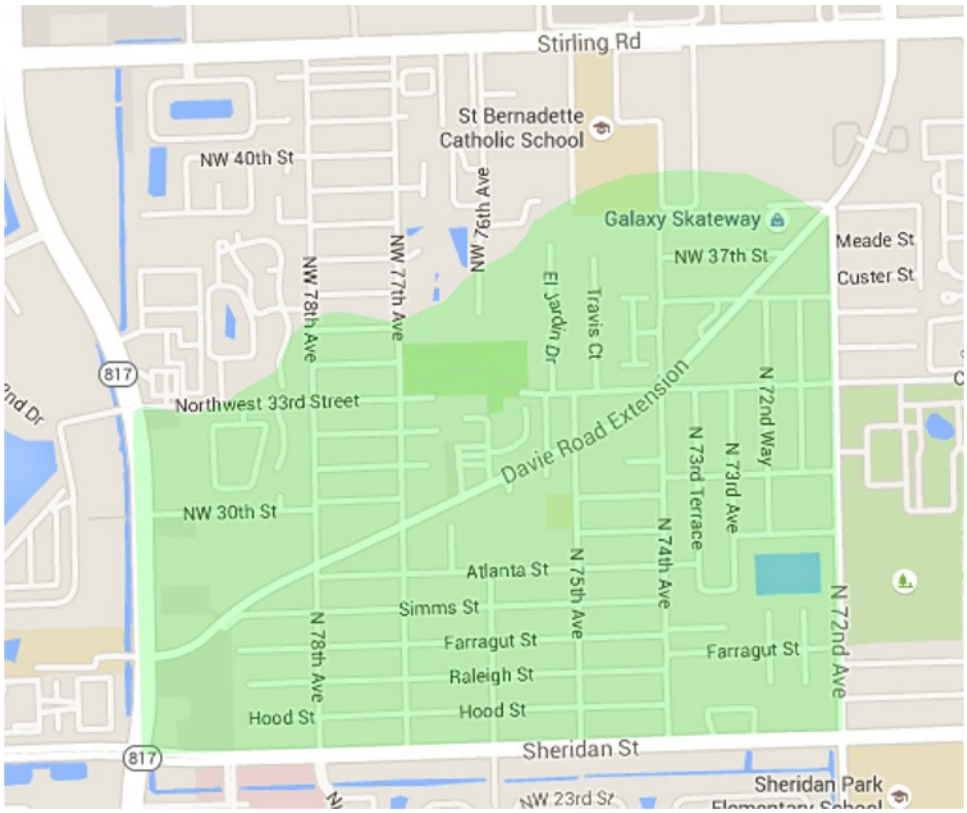
The infected tree locations for Site B2 was shown in Figure 16 from Neri et al's article. Shown below is the infected and healthy tree locations from Dr. Gottwald's November 2000 court presentation overlain on the same map.

Figure 19: Site B2 with Neri's Data Overlain by Presentation of Dr. Gottwald, in Broward Court November 2000



The site is bounded by Sheridan St. to the south and Sterling St to the north. The site is bounded by US 817 to the west and N. 72 Ave with Davie Rd Extension to the east. The approximate area of infected trees as shaded in green is 0.74 square miles.

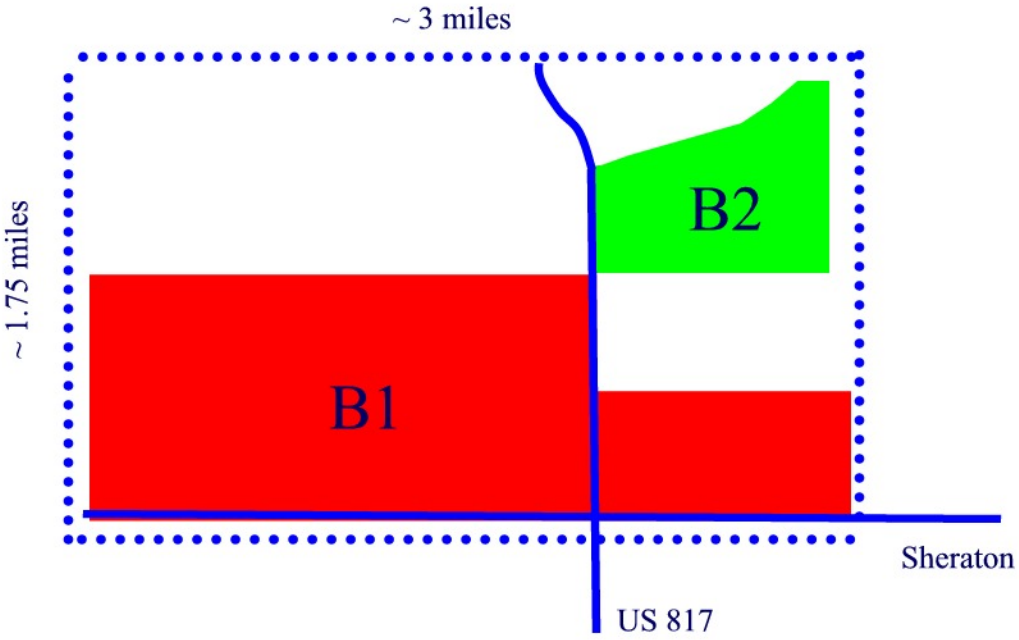
Figure 20: B2 Area based on infected trees shown in the Neri article (7)



This location map conflicts with the location presented in the Miami Herald article of June 17, 2002. The southern boundary of B2 site as shown in the Miami Herald article (see Figure 14) is shifted approximately ½ mile to south. This map is consistent with Figure 7 of the published article which shows 0.74 square miles.

COMBINED SITES B1 AND B2

A sketch of the combined Broward sites is shown in Figure 21. The maximum distance from the SW corner of B1 to the NE corner of B2 is approximately 3.5 miles or 5,279 ft. These distances have relevance in Appendix B1 which reviews "distance necessary to circumscribe" results from Site 4, which is the combined B1 and B2 sites.



SUMMARY OF BROWARD SITES B1 AND B2

In the 2001 article by Gottwald et al, there was a single Broward site. There is no information of the size or location of this site. Results from this single site were published in Phytopathology in a Letter to the Editor in January 2001. At some point during the study, the site was divided into two sites.

1. Size and location of sites: Site B1 is shown in Figure 17 with 2.4 square miles and Site B2 is shown in Figure 20 with 0.75 square miles.

These locations and areal size estimates are based on the 2014 article by Neri et al, 2014 and consistent with two other sources (Gottwald's Nov 2000 Broward Court, and 2002 published article by Gottwald et al, Fig 7). This information conflicts with the text in the 2002 published article and the Miami Herald June 17, 2002 article.

2. Infected citrus outside site: It is not feasible to state what citrus is inside or outside of the Site B1, because of the lack of bounding streets. This is most apparent in the east and west sides of Site B1. Site B2 appears to be partially delineated to the south by Sheridan Street and no infected trees are shown outside of this boundary. However, there are no bounding streets to the north, so it is not possible to state what is inside or outside of Site B2.

3. Confinement: All areas adjacent to the site are residential. Since infected trees are present beyond the major roads, citrus outside of the site is likely to be "just over the fence" from citrus inside the site.

4. Non-Citrus Areas: Numerous large non-citrus areas are identified within the site, including parks, lakes and canals. These non-citrus areas would likely limit dissemination of canker by wind blown rain.

5. Access: A site visit identified this area as having normal access problems.

9. SUMMARY OF SITES

The best estimates of the geometry and area were determined by the 2002 published article, Figure 7, and the November 2000 Broward Court presentation by Dr. Gottwald. These were considered the most accurate and consistent estimates. The sites as described in the June 17, 2001 article and in the text of the 2002 published article were inconsistent with these estimates and considered unreliable. Site visits showed all sites would have the normal access problems, with the exception of Site D1. This site would have more than normal access problems because it is a low income neighborhood, with many chain link fences and guard dogs for protection.

Based on the presentations showing infected tree locations, there is no confinement in any of the sites. All areas are adjacent to residential neighborhoods. Since infected trees are present beyond the major roads, citrus outside of the site is likely to be "just over the fence" from citrus inside the site.

Table 5: Summary of "Best Estimate" of Geometry, Area and Maximum Distance

Site	Geometry	Area (mi^2)	Max Distance (mile)
D1	1 x 2 mi	2.00	2.24
D2	1.3 x 1 mi	1.30	1.64
D3	Circular	0.56 to 1.00	0.70
B1 *	1 x 0.75 mi	0.74	1.25
B2 *	1 x 3 mi	2.40	3.16
Total		7.01 to 7.44	

* Maximum distance of B1 and B2 combined is approximately 3.5 miles.

For Site D3, the maximum distance between infected trees was 2998 ft (0.56 mi). The combined Broward site (B1 + B2), is 3.5 miles which is relevant to the discussion of Site 4 as presented prior to April 2002 and discussed further in Appendix B1.

In comparing the best estimates values, it appears that the text values for B1 and B2 were inadvertently interchanged, so this has been corrected. in Table 6. Also, the area of D3 was never explicitly stated in the text, so it has been excluded from Table 6. A total of 17,971 citrus trees results if Site D3 is excluded.

Table 6: Citrus tree counts using both text and best estimate values (Site D3 excluded)

.

Site	Area per text	Area Best Estimate (mi^2)	Citrus Trees	Citrus/mi2 using "per text" values	Citrus/ mi2 using "best estimate" values
D1	4.00	2.00	6056	1514	3028
D2	2.00	1.30	6072	3036	4670
B1	1.00	0.74	1113	1113	1504
B2	6.00	2.40	4730	788	1973
Total	13.00	6.44	17971	1382	2790

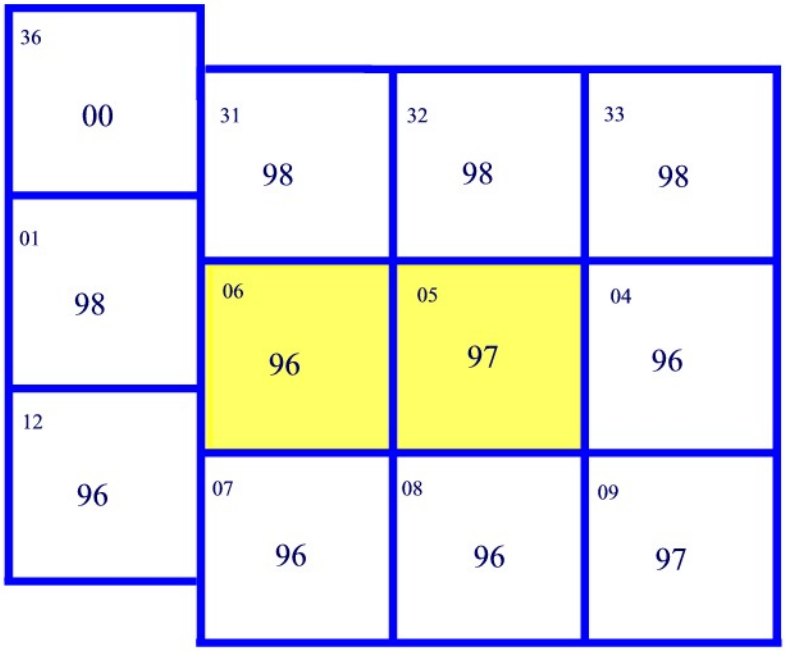
If we consider the statement by Schubert et al (Reference 11) that on the average, there are 2,000 citrus trees per square mile in residential areas, it becomes difficult to conclude which set of citrus per square miles ("per text" or "best estimate" are the correct densities. Site D2 using the best estimate value of 1.3 square miles appears to be unusually high density using the best estimate and Site B2 using the "per text" area appears to be unusually low.

The published article on the study states that study sites were first selected and then all residential lots within these sites were repeatedly surveyed. The uncertainty in the areal estimates, thus gives rise to uncertainty in statistics such as in citrus density within the sites. In fact, if the study sites were not maintain constant in the study, the results of the study, particularly the increase in disease incidences over time are not valid.

10. SURVEYS OF AREAS OUTSIDE OF THE STUDY SITES

The prior section identified study sites' locations based on all public information. The FDACS posted to their website a map showing the year citrus canker was discovered in each sections of Miami-Dade and Broward Counties. Copies of these maps are posted on the supporting documents website. Based on positive section information as provided by FDACS, the following was established:

Figure 21: Site D1 Year positive trees first discovered in sections surrounding the site:



The figure shows that all immediate adjacent sections were positive for citrus canker from 1998- 1999 corresponding to the data collection period of the study. Citrus canker was discovered in one corner section in year 2000, presumably at the end of the data collection.

Figure 22: Site D2: Year positive trees first discovered in sections surrounding the site:

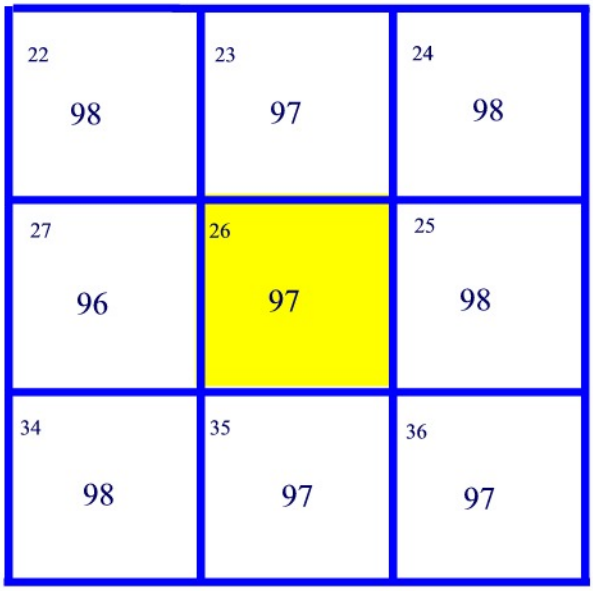
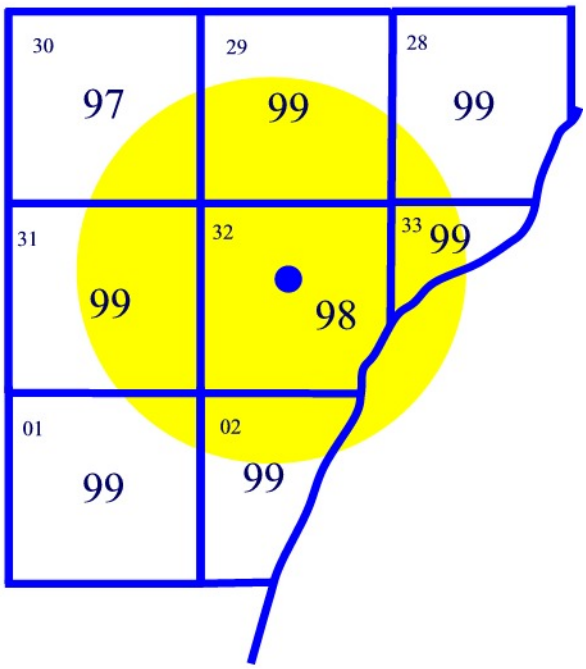


Figure 23: Site D3 Year positive trees first discovered in sections surrounding the site



Sites B1 and B2 were also surrounded by sections which were discovered in year 1999, at the same time as the field study.

The conclusion reached here is, is the source trees for infected trees within the site, could have easily come from trees outside the site.

11. INSPECTIONS OF SITES

The inspection of properties in the designated sites was presumably done for two purposes: (1) Routine inspections related to the citrus canker eradication program and (2) Data collection related to the field study. It would make little sense to imagine two sets of inspectors, one for the CCEP and the second for the Florida field study. Therefore, the protocol used by inspectors assigned to the field study would be the same as those performing routine CCEP inspections.

The two step inspection procedure for the CCEP is described by Schubert in 2001:

> Whenever a surveyor encounters citrus lesions that are the least bit suspicious, they are to mark the suspect tree with white paint and record the location on data sheets that will be electronically scanned to provide a database for each property in the area. This action then initiates a visit from one of CCEP's field plant pathologists.
>
> A smaller group of field personnel are trained more extensively to serve as field CC diagnosticians.

The article then explains how, once a definitive assessment has been made by the diagnosticians, the trees are marked with red paint. White paint means possibly infected, and red means definitely infected. It is unknown, if in 1998, this two step approach and the white/ red painting was employed. The 2002 article by Gottwald makes no mention of specially trained diagnosticians.

Certainly, if a tree is marked with white paint, and the diagnostician determines it is not citrus canker, then the owner has a healthy citrus tree, indelibly marked with the Department's error. Based on the Miami Herald report, the Department misidentified many trees as citrus. The full contents of the FDACS database are unknown. However, there did not seem a simple means, within the computer database, to identify these two types of errors (citrus trees that were not citrus, ACC infected citrus that were not infected). There did not seem a simple means of noting when only there was no access or partial access to properties.

For purposes of identification, the CCEP did used hand drawn maps, to help inspectors locate citrus trees. Certainly, a trained inspector could easily pace off the locations of citrus, from obvious markers (telephone poles, corners of lots, fixed structures on the lot) and show the location within the property far more definitively than the GPS meters.

If the address of the property, the parcel number of the lot providing TRS information, GPS meter readings (long/ lat) of each identified citrus tree, and the status of each tree (infected/ healthy), then this would allow for repeated reliable inspections. The other information such as the species/ cultivar of the tree, height of the tree and estimated age would help collaborate the location and map information.

GPS METERS

The GPS meters, permitted by the US Government in 1998 for civilian use, were limited in terms of accuracy as noted in the 2002 article. The meters were accurate only to 50 ft. For inter-tree distance calculations, this inaccuracy is a relatively minor problem.

The real problem is re-location of a tree for subsequent inspection. On a return visits, the meters readings would be inadequate to re-locate the same citrus trees. If the tree was healthy on a prior visit, then inspectors were to re-evaluate the tree for signs of ACC.

A typical parcel in Miami-Dade County is 5,000 to 12,000 square feet, with about 1/3 of the area is devoted to the back yard. Backyard dimensions in the urban areas of Broward and Miami-Dade County, are likely to be in the order of 20 to 150 ft. Since the meters' accuracy was within +/- 25 ft (50 ft in total), citrus planted along the sides and back of the yard, could be in the adjoining properties. Given longitude/ latitude readings from meters, the inspector would know the citrus tree is located in one of six lots. Even if there were more specifics, such as the tree heights and cultivars, this would likely be confusion. Residents may purchase two or more of the same citrus species/ cultivar at the same time and plant them close to each other. In addition, GPS meters also may fail to pick up a signal, under the canopy of a tree. The obvious solution would be to step away from the drip line, adding to the error in measurement.

In fact, why use meters at all if a hand drawn maps and street addresses provides better data? One argument may be because for distance calculations and plotting, meters provide longitude and latitude coordinates, easily converted to Universal Tranverse Mercator (UTM) coordinates.

Schubert indicates that the CCEP used databases set up by the utility companies (likely FPL) and then use a commercial software, ArcView to calculate the properties subject to eradication of infected and healthy citrus. Thus, knowing the parcel number would be sufficient to obtain longitude and latitude of the center point of the lot.

The 2002 published article on the field study and the 1999 interim report discuss the conversions of the longitude/ latitude data to UTM coordinates. The published article identifies two models of GPS meters. But, the GPS Garmin model 12XL had an option to read out in UTM coordinates. Why bother with conversions? It just doesn't make sense. When these publications are read carefully, is there anywhere in the article that states a GPS meter was used?

INSPECTION DATA

Based on Department's documents, inspectors were to make repeat inspections of both healthy and infected trees. Information of the cultivar/ species, canopy size, tree height and age would be done on both healthy and infected trees.

It would be interesting to know how well the inspectors could estimate tree height and age. For CCEP purposes, inspectors note the number of seedlings, and whether these seedlings are infected.

Repeat inspections of selected sites might have been furnished valuable information to the CCEP. Consider a study sites with 2 square miles, may be composed of approximately 4,000 parcels, which means 4,000 owners. Owners may plant more citrus and remove citrus. In doing so, they may introduce more disease into the site and remove some disease. Symptoms of canker can temporarily disappear with leaf/fruit drop and pruning. Cut down trees at times, can re-sprout, so the citrus counts are likely to change with time. This is why it was surprising to learn that the Department did not retain any of the "field study" survey forms.

12. TIMEFRAME OF STUDY

When did the field study actually begin and end? Of course, there were routine CCEP inspections of residential properties before and after the field study, but these routine inspections were for the expressed purposes of identifying and eradication citrus canker.

One clear distinguishing feature of the field study surveys, was the inspectors were given GPS meters. Presumably, they noted the locations of all citrus trees in longitude and latitude coordinates. This meant inspectors were likely doing two jobs- finding infected trees which would later be eradicated using the standard CCEP forms, and at the same time, filling out special forms with for the field study. The forms for the routine inspections would be stored in the CCEP database.

From the 2001 published article:

> The 18-month epidemiology study involved a repeat and repeated GPS-based census of over 19,000 healthy and diseased citrus trees from four study sites.

It always seems that August 1998 was being implied as the starting month. The 2002 published article states there were queries on the adequacy of the current policy, then states,

> "In response to these queries, a cooperative CCEP, ARS and University of Florida research effort was established in August 1998."

The October 1999 Interim Report states:

> In August 1998, a cooperative CCEP, ARS and UF research effort was established to address these issues. At that time, Florida Commissioner of Agriculture placed a moratorium on further destruction of exposed trees by CCEP until the research was completed.

It will be explained in Appendix B, that the apparent start date of October 1997 as shown in the tables of results from the 2002 article is not the first canker discovery dates or any surveys, but the early initial infection dates. An 18-month data collection period, if started in August 1998, would extend the surveying to January 2000.

One would naturally expect these surveys would begin in March or April 1998, a few weeks after it was authorized by Commissioner Crawford. Field results were presented on May 11, 1999 to the Ninth Citrus Canker Risk Assessment Group. The agenda as presented in the meeting, states these are the "Final Analysis of GPS Epidemiology study." Even in these minutes, there is ambiguity, as the moratorium extended from "early 1998 to early 1999" and during this one year period, Drs. Gottwald and Graham completed a field study, with the cooperation of the CCEP (implying FDACS involvement). But, certainly the attendees at the meeting had the impression that the surveys had been completed.

The Press Release by Commissioner Crawford, on June 17, 1999, stated:

> Tallahassee- A year long scientific experiment conducted in Miami-Dade County shows that cutting trees exposed to citrus canker, but not yet showing signs of the canker, is necessary to eradicate the devastating disease.

During a question and answer session of the Public Hearing on November 14, 2001, the question of when the actual collection of data had been completed. This was in response to a letter I received from Mr. Gaskalla, on August 15, 2001, indicating that the 2001 article by Gottwald et al. was based on incomplete data.

The transcript of the meeting follows:

> Mr. Lord: When did collection complete?
> Mr. Gaskalla: When was collection complete of the data? Is that your question? I don't know.
> Mr. Lord: Was it after Commissioner Crawford's initiation of cutting the tree in June 1999 or did you continue the study after that?
> Dr. Dixon: No, it was finished before then.

So, Mr. Gaskalla doesn't know when surveys were completed. There were supposedly 16 inspectors working for his department on the study.

Additional sources pushes the completion date well past the May- June 1999 dates. In two presentations and the 2002 published article, a series of temporal windows are presented. The last time period is October 16, 1999 to November 14, 1999 date. The time periods related to infection dates, not discovery dates as explained in Appendix B on the DNC method. The 2002

published article implies that Infection dates must be at least two weeks to adjust for latency, so the surveying appears to have ended at the earliest by November 28, 1999.

A comprehensive article by Dr. Schubert and five other researchers including Drs. Gottwald, Dixon and Sun, published in April 2001, states in relation to the epidemiology study conducted beginning in 1998, "Analysis of data collected over the next 12 to 18 months revealed that a much larger exposure radius than 38 m (125 ft) was indicated." Page 346 of reference 11. Dr. Sun was the co-author of the January 2001 article (2), which stated the study was 18 months long.

One would normally think that if the study extended through to November 1999, there should be considerably more infected trees occurring in May to July 1999, and showing up in August to November 1999, about 3 months later. However, Mr. Gaskalla wrote to me, stating, "The majority of data collection was completed in April 1999. The last research observations were made in November 1999. "

13. CONCLUDING REMARKS

This information addresses the following questions:

- Where was the study conducted?
- When were the surveys conducted?
- How inspections were conducted?

The 2001 and 2002 articles by Gottwald et al (Ref 1 and 2) do not provide the location of the study sites. Only by comparing the infected tree locations from different sources, could the area and location of the sites be determined. If we were to compile all the statements by FDACS, into one single paragraph, it would go like this:

> "A study lasting 12 to 18 months was conducted in 4 sites, which later became 5 sites, although exactly when the Broward site was split is unknown. As initially proposed by the Commissioner, there were to be three sites. The data came from areas which total about 7 square miles, but there is another 6 square mile which might be the source of some of the data. The starting and ending data collection are not provided in the articles. While disease trees surround the sites, it wasn't really a problem. Although the sites were bounded by major roads, data outside these road were surveyed and used in the study. At the end of the study, although a great amount of information had been gathered, such as tree ages and cultivars, it was decided to turn all records over to the Dr. Gottwald at the USDA and not retain any maps, worksheets, etc. We don't know if he has the data (see W. Parsons letter). "

As part of this investigation, each site was visited. Each bounding street was a major road. It was unreasonable to assume surveyors would not know which were the confining streets and stay on the proper side. Also, the parcel lot number for each property was easily available from

the CCEP database, providing the Section-Township-Range identifier. Another words, surveyors would know when they were in the wrong section.

The discussion of the sites and boundaries has particular importance in the next two appendices (B and B1), and leads to rather startling conclusions in Chapter 6.

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8. Gaskalla, R., Personal correspondence, February 26, 2001. Memorandum includes a sketch of Site 1. Posted on website. (Richard Gaskalla was the Director of FDACS/DPI).

9. FDACS Press release, 6-17-99, Citrus Canker Eradication Project to Resume Cutting Exposed Trees.

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Press Release: 6-17-99

Fresh Florida.

DOACS
Press Releases

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The Capitol
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Department Press Release
06-17-99

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Citrus Canker Eradication Project to Resume Cutting Exposed Trees

TALLAHASSEE- A year-long scientific experiment conducted in Miami-Dade County shows that cutting trees exposed to citrus canker, but not yet showing signs of the canker, is necessary to eradicate the devastating disease. The Citrus Canker Eradication Project will now resume cutting exposed trees. Meanwhile, the Florida Department of Agriculture and Consumer Services has formed a citizens' committee to discuss the concerns of residents.

The scientific study was done at the request of Miami-Dade County citizens, who questioned whether it was necessary to cut trees with no canker symptoms, but that were located within 125 feet of infected trees. Project officials stopped cutting exposed trees on March 1, 1998 and began a series of experiments to determine whether cutting only infected trees would eliminate the outbreak in an urban setting. Previous studies were limited to commercial groves.

The results of the experiment are not promising and indicate it may be necessary to cut trees beyond 125 feet in order to halt the spread of citrus canker. For now, project managers will cut within the 125 foot radius but will continue to review the data and may have to expand the cutting area in the future, especially in highly infected zones.

A newly formed citizen's committee will hold its first meeting on June 18 to discuss community concerns and to keep the public informed. The committee will also include members of the scientific, regulatory and agribusiness communities. The charge of the committee will be to facilitate communication, understanding and efficiency in the Citrus Canker Eradication Program. The committee will meet Friday, at 9:30 a.m. in Miami Springs City Hall.

Representatives of the Department of Agriculture, USDA and the scientific panel that conducted the experiment will hold a press availability Thursday, June 17 at 1:30 p.m. at Miami Springs City Hall to answer any additional questions about the study and program changes.

Press Release 2-26-98

Fresh Florida.

DOACS
Press Releases

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Department Press Release
02-26-98

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CRAWFORD ANNOUNCES CHANGES TO CANKER PROGRAM

MIAMI — Florida Agriculture Commissioner Bob Crawford today announced a series of changes to the citrus canker eradication program, including the cutting of only infected trees and a one-year experiment to track the spread of the disease from infected trees to exposed ones.

Moreover, Crawford said he is working with the Florida Legislature, as well as with both public and private agencies, to fund a reforestation program designed to replace removed trees with new, healthy ones.

The changes are being made, Crawford said, to accelerate eradication efforts and minimize disruption as much as possible to residents.

"We appreciate all the cooperation we have received from the public and recognize the sacrifices that residents have had to endure," Crawford said. "We want to do all we can to help those residents in the quarantine area."

Citrus canker is a devastating and highly contagious bacterial disease that attacks citrus, including oranges, sour oranges, grapefruit, tangerines, lemons and limes. Infected trees are weakened, causing leaves to drop, fruit to drop prematurely and the trees to deteriorate, eventually yielding a small, substandard fruit crop. It is typically spread by wind-driven rain, birds and animals.

The current outbreak was discovered near Miami International Airport, where it was presumably brought in on infected fruit, in September 1995. The current eradication effort covers roughly 365 square miles in Dade County.

Left untreated, canker would damage or destroy the roughly 2 million citrus trees in Dade County, and ultimately would spread throughout Florida.

Elements of the plan announced by Crawford include:

- The cutting of only infected trees to accelerate their elimination. For the last year, officials have been cutting both infected trees and those exposed citrus trees within 125 feet of infected ones.

- The establishment of experimental research zones -- subject to the approval of the U.S. Department of Agriculture -- to track the spread of the disease from infected trees to exposed ones.

  Scientists in the program will designate properties in highly-infected areas, moderately-infected areas and low-infected areas to determine the rate at which exposed trees are being infected. While scientists will review their findings each month, it is envisioned that the experiment will go on for a full year.

- The program will begin using Brush-Be-Gone, a commonly-used and widely-available product for stump treatment in place of Garlon.

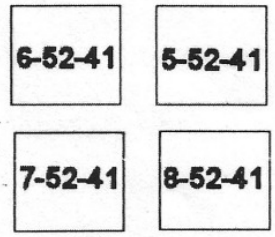
- Increased notification to homeowners before canker eradication officials arrive in their yards. While crews attempt to notify homeowners when they go to inspect properties, Crawford said increased efforts will be made to contact residents in advance of visits. For example, local newspapers will be asked to run maps of areas that will be visited.

- The creation of a reforestation program. Crawford said he is working with the Florida Legislature, and with the U.S. Forest Service, among other organizations, to try to come up with a program that would replace trees that have been destroyed as a means of revitalizing the urban canopy.

- The distribution of a "citizen responsibility package" to homes within the affected area. It would involve dropping off literature with a description and photograph of citrus canker, and asking residents to call the

Excerpt from Letter from Richard Gaskalla, Director of Department of Plant Industry- FDACS to David Lord, dated Feb 26, 2001 (Full letter available on website)

Concerning your electronic mail message of January 9, 2001, requesting the boundaries of Study Site 1 from the GPS-based census study, Study Site 1 was comprised of four sections: (Section, Township, and Range) 6-52-41, 5-52-41, 8-52-41, and 7-52-41. The respective road boundaries would be as follows: North side - Northwest 199th Street (Honeyhill Drive); Eastside - Northwest 37th Avenue (Douglas Drive); South side - Northwest 167th Street (Palmetto Expressway); Westside - Northwest 57th Avenue (Red Road). The roads running north/south and east/west through the sections are Northwest 47th Avenue and Northwest 183rd Street (Miami Garden Drive), respectively.



Letter May 21, 2001 from Richard Gaskalla:

Dear Mr. Lord:

I am in receipt of your letter dated March 15, 2001, regarding your questions and concerns about the "98/99 Epidemiology Study" conducted in Miami-Dade and Broward Counties. It is true that several of the Department's employees did assist in the collection of the data for the study by inspecting the study trees and recording the required data on field data sheets. However, no completed data sheet was retained by a Department employee.

All data sheets are in the possession of Dr. Tim Gottwald, a research scientist for the United States Department of Agriculture, Agricultural Research Service (USDA/ARS). The data analyses that have been done to date have been by staff of Dr. Gottwald and other scientists at other institutions. The information we have in the Department's citrus canker data base is not searchable in regards to the studied trees. We do not have a searchable data base record field that identifies any tree specifically as also being a part of the global positioning system based census study. Our data base contains data pertinent to needs of the Citrus Canker Eradication Program, not the research.

I filed in court against FDACS, seeking records related to the epidemiology study. Attorney Parsons replied that "my clients" referring to FDACS and Commissioner Meyer did not have epidemiology study data and that it did not know if Dr. Gottwald has this information either.

(2)

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April 30, 2001

Mr. David Lord
6451 S.W. 73rd Street
South Miami, FL 33143

Lord v. Department of Agriculture & Consumer Services and Craig Meyer
Case No. 01-08768 CA (06)

Dear Mr. Lord:

I represent the Florida Department of Consumer Services and Craig Meyer. My clients have asked me to respond to your letter to Craig Meyer of April 26, 2001.

The diagnostic reports you seek are indexed by parcel number and property address. My client does not have the parcel numbers and property addresses of the properties on which were situated the trees that were the subject of Dr. Gottwald's study. My clients do not know whether Dr. Gotwald has this information either.

If you can provide the Department with a list of property addresses or parcel numbers, my client will examine its records for diagnostic reports as to these properties, although an advance deposit of funds may be required if the list is large.

In regard to the above information, I am enclosing a memorandum from Richard Gaskalla, the Director of the Division of Plant Industry, to Craig Meyer dated April 16, 2001.

Sincerely,

Wesley R. Parsons

WRP/mld
Enclosure

WRP/L.LTRCOV/359072/012417.0009

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When I sent to FDACS, a comprehensive review of sites D1 and D2, Mr. Richard Gaskalla sent me the following response on March 20, 2003 as follows:

> The citrus canker research was conducted in sections 5-, 6-, 7- and 8-52-41 for Site D1 and in the section 26- and 35-52-41 for Site D2, but the data were mainly collected from sections 5-52-41, 6-52-41 and 26-52-41. The experimental sites were clearly indicated in Dr. Gottwald's article. We do not know why the Miami Herald identified these sites differently.

The locations of the sites are not clearly indicated in Dr. Gottwald's article except that they are within Miami-Dade or Broward County. Why the Director of FDACS/DPI would make a statement so completely contrary to fact, is very strange.

The Miami Herald informed me that their map data had originated from FDACS. A census study as FDACS repeated refer to it, means 100% of the properties are inspected, so it is not possible to take some of the data from one area, and not from another area.