
Prioritization/Selection of Counties for Safety Studies – FY 2014-15

Transportation Safety Center

November 2014

Selection of Counties for future studies

History

The FHWA initiative *Towards Zero Death* and Florida's Strategic *Highway Safety Plan* have placed an emphasis on improving highway safety. In response to these initiatives, FDOT districts have initiated programs to assist cities and counties with development of safety projects including formal workshops and training for local agency personnel, engagement of safety consultants to assist locals, and direct involvement by FDOT personnel in project studies, design, and implementation. Still, many local agencies lack the capacity or expertise to perform the analysis needed to qualify projects for federal safety funding, and FDOT is not staffed at a level sufficient to fully meet the needs of local agencies.

The Transportation Safety Center (TSC), housed at the Florida Transportation Technology Transfer (T2) Center and part of the University of Florida Transportation Institute (UFTI), has been established to provide additional help to local agencies for developing highway safety improvements. The TSC is available to assist all local agencies, but the emphasis is on providing teams to lead the safety studies and to prepare the reports and documentation for small agencies.

Union County was selected for the first study, and this study will serve as a template for future work. In selecting agencies for which the TSC will offer assistance during the next year, priority was given to agencies with a significant need as evidenced by recent crash data and where hazards can be mitigated by cost effective countermeasures. While assistance may be offered to both cities and counties, the emphasis for the near term is at the county level.

To establish tentative priorities for safety studies in the near future, the TSC reviewed crash data in the 26 small Florida counties (less than 50,000 population). These counties are all located in Districts 1, 2 and 3. The TSC also met with managers of the FDOT safety programs in each of these districts to review crash patterns and obtain insights from District staff regarding local programs and problems. Projects already initiated by the districts address some of the urgent safety problems highlighted by the historic data, so the TSC and the Districts have concentrated on identifying areas with an unmet need.

Scope

The purpose of this task was to select a county for the next study and to develop a prioritized list of counties to consider for studies during the next year. This task is defined in the scope of services as follows:

Task 1: Prioritize and Select Candidate Counties plus Top Priority County.

Conduct network screening of county agencies for review with FDOT to establish priorities and select counties. The output of this effort will be a prioritized list of counties (approximately two in each of Districts 1, 2, and 3) that appear to be candidates for study based on crash severity.

- 1. Perform high level network screening using crash data to identify counties that are likely to have crash sites for which high benefit/cost projects can be identified. Use parameters such as total serious crashes on the county road system, ration of crashes to population, and concentrations of crashes, etc.*
- 2. Hold discussions with district safety engineers in Districts 1, 2, and 3 to obtain their assessment and advice about local knowledge that may influence selection of the counties.*
- 3. Based on these discussions, including the review of the crash information, counties will be prioritized for review.*
- 4. The Transportation Safety Center and LTAP will then contact the top priority county to confirm their interest and commitment to conducting the studies. In the event the selected county is unable to participate, the next priority county will be contacted.*

Task 1 Deliverable: Prioritized list of approximately six counties to be considered for study along with county that confirmed their commitment to conducting the studies delivered to Joseph Santos at Joseph.Santos@dot.state.fl.us.

The following recommendations for priorities for the first year were developed in conjunction with the District Safety Offices.

District 1: (5 Counties < 50,000 population)

1. Hendry County

District 2: (11 Counties < 50,000 population)

1. Suwannee County
2. Dixie County
3. Taylor County

District 3: (10 Counties <50,000 population)

1. Gadsden County
2. Gulf County
3. Liberty County

Since safety projects developed by the districts, other new road projects, changes in traffic patterns, or other local conditions are likely to affect the exposure to road hazards, these priorities should be examined periodically.

Methodology

The following criteria were used in developing the recommended priorities:

Crashes

The high level network screening based on crash data was conducted using two data sources. Tabular crash data from FDOT for the period from 2009-2011 were used to compare crash history among all 26 small counties. This provided an indication of the relative severity of the crash problems in each county and information to assist in prioritizing counties.¹

Signal 4 Analytics was used to develop graphic data showing the distribution of serious crashes in each county for the period 2009-2013. This data provides a supplement to the tabular data above and also provided an indication of concentrations of crashes that might be candidates for low cost safety improvements.

Geographic distribution of effort

The focus of these efforts is on assisting small counties (population < 50,000). These counties are located in only three districts:

- District 1 5 counties
- District 2 11 counties
- District 3 10 counties

To maintain an effort in proportion to the number of target counties in each district, more counties were selected in Districts 2 and 3. Union County in District 2 served as the pilot county, and based on discussions with Joe Santos, District 1 was selected for the second safety study. Following a rotational plan, a county in District 3 would be the next logical location for a safety study.

Previous and ongoing FDOT efforts

Each district has ongoing efforts to help local agencies address their highway safety problems. Discussions were held with each district to ensure that the counties and/or sites selected for study were not already being addressed by district efforts.

The safety improvement recently initiated will undoubtedly affect the need and relative priority for future safety studies. The current list of priorities addresses only the counties that could be studied during the next year.

Interest of County in participation

Hendry County was selected for the second study and discussions were held to ensure that the county was committed to participate. Other counties are recommended as candidates for future studies subject to commitments from the counties to participate. In the event a county declines to participate, the TSC would then seek a commitment from the next priority within the district.

¹ A subsequent comparison of the counties was made using data from Signal 4 Analytics for the period 2011-2013. This comparison showed that for the counties with a high number of crashes, the relative severity remained unchanged; however, for counties with only a small number of fatal or serious injury crashes, the priority ranking changed considerably. It appears that a longer period is needed to give a sample size adequate for analysis for the very small counties.

Crash severity

Table 1 summarizes the crashes involving fatalities and serious injuries for 26 small Florida counties (less than 50,000 population). This table includes data showing population and the centerline miles on each county's system. The calculated rates of crashes per centerline mile and crashes per 1,000 persons were used as indicators of the relative severity of the crash problem in each county.

Within each district, the counties are sorted in decreasing order according to an overall indicator of severity. This overall indicator is based on the combination of fatal crashes per 1,000 population, fatal crashes per mile, serious injury crashes per 1,000 population, and serious injury crashes per mile.

Table 1 Summary of Crash information for small counties (2009- 2011)²

County	District	2010 Population	Local roads (centerline miles)	Total Serious Crashes	Fatal Crashes			Serious Injury Crashes		
					Total	per 1,000 pop	per mile	Total	per 1,000 pop	per mile
HENDRY	1	39,140	537.029	69	21	0.537	0.039	48	1.226	0.089
DESOTO	1	34,862	431.978	64	4	0.115	0.009	60	1.721	0.139
GLADES	1	12,884	283.721	19	3	0.233	0.011	16	1.242	0.056
HARDEE	1	27,731	566.872	46	7	0.252	0.012	39	1.406	0.069
OKEECHOBEE	1	39,996	429.41	17	7	0.175	0.016	10	0.250	0.023

² Crash data from Table 1 were obtained from FDOT Office of Safety for the years 2009-2011.

County	District	2010 Population	Local roads (centerline miles)	Total Serious Crashes	Fatal Crashes			Serious Injury Crashes		
					Total	per 1,000 pop	per mile	Total	per 1,000 pop	per mile
SUWANNEE	2	41,551	1403.651	146	21	0.505	0.015	125	3.008	0.089
HAMILTON	2	14,799	574.895	43	9	0.608	0.016	34	2.297	0.059
DIXIE	2	16,422	539.293	36	7	0.426	0.013	29	1.766	0.054
GILCHRIST	2	16,939	517.076	47	4	0.236	0.008	43	2.539	0.083
LEVY	2	40,801	1157.526	96	11	0.270	0.010	85	2.083	0.073
MADISON	2	19,224	735.461	37	6	0.312	0.008	31	1.613	0.042
TAYLOR	2	22,570	805.717	42	4	0.177	0.005	38	1.684	0.047
UNION	2	15,535	269.715	18	5	0.322	0.019	13	0.837	0.048
BAKER	2	27,115	950.963	47	8	0.295	0.008	39	1.438	0.041
BRADFORD	2	28,520	380.779	16	4	0.140	0.011	12	0.421	0.032
LAFAYETTE	2	8,870	430.02	8	0	0.000	0.000	8	0.902	0.019
GADSDEN	3	46,389	843.552	110	12	0.259	0.014	98	2.113	0.116
LIBERTY	3	8,365	725.375	28	4	0.478	0.006	24	2.869	0.033
GULF	3	15,863	340.41	22	4	0.252	0.012	18	1.135	0.053
JEFFERSON	3	14,761	583.178	30	5	0.339	0.009	25	1.694	0.043
FRANKLIN	3	11,549	322.312	14	4	0.346	0.012	10	0.866	0.031
JACKSON	3	49,746	1486.741	63	17	0.342	0.011	46	0.925	0.031
CALHOUN	3	14,625	497.904	26	3	0.205	0.006	23	1.573	0.046
HOLMES	3	19,927	830.382	37	5	0.251	0.006	32	1.606	0.039
WASHINGTON	3	24,896	1158.652	45	3	0.121	0.003	42	1.687	0.036
WAKULLA	3	30,776	958.173	40	4	0.130	0.004	36	1.170	0.038

District 1

Crashes

Data in Table 1 indicate that for the three year period (2009-2011), Hendry and Desoto Counties had the largest number of crashes. In Desoto County, the number of injury crashes was highest, while Hendry County had the most fatalities. Examination of the fatal crashes for a longer period (2006-2013) shows that Hendry County had the greatest number (48) followed by Hardee County (27) and Desoto County (25).³

District staff indicated that Desoto County has frequently requested assistance for safety related problems. With the relatively high incidence of serious injury crashes and the local concerns about safety, it initially appeared that Desoto County would be a high priority. During a review of several crash sites, however, it was not apparent that “hot spots” existed that could be effectively addressed with cost effective countermeasures.

Previous and ongoing FDOT efforts

FDOT has provided significant assistance to counties through their operations offices and technical services through their safety consultant. FDOT has recently assisted with sign upgrades in Hendry County, but the presence of deep canals along three major roads and the associated crash history suggests that additional countermeasures are needed.

County Participation

Hendry County has recently completed or initiated projects to improve the following roads where severe crashes have been recorded. These include improvements to CR 78, CR 832, and construction of sidewalks along Cowboy Way. Two other road segments (portions of CR 833 and CR 835) had a significant number of crashes, including fatalities. Most of CR 835 is shown on FDOT’s High Crash Location list.

Representatives of the TSC and District 1 Safety Office met with Hendry County staff on May 22, 2014, and conducted a preliminary review of potential study sites. Hendry County expressed a strong interest and commitment to work with the TSC to conduct detailed safety studies for these sites.

Based on this commitment and the potential for developing cost effective countermeasures to address identified safety problems, **Hendry County was selected for the next study by the TSC.** This study is now under way.

District 2

Crashes

Within District 2, Suwannee County appears to have the most serious crash experience. In other counties with high crash rates in District 2, projects have been initiated on roads identified as high crash locations. These have been taken into account in developing the priorities.

³ For the extended comparison, data were analyzed using Signal 4 Analytics.

Suwannee County

In Suwannee County, rates of both fatal and serious injury crashes are high. FDOT has scheduled a project to upgrade the signing and marking on certain roads, but several other locations with concentrations of crashes suggest the need for additional countermeasures.

Suwannee County is recommended as the highest priority for further study in District 2.

Dixie and Taylor Counties

FDOT has developed a signing project to address CR-349 north of US 19 in Dixie County. Crash data indicate there are other potential “hot spots”, particularly along roads between US 19 and the Gulf. These roads accommodate significant recreational traffic where alcohol or other driver impairment is a common factor in crashes and appear to be candidates for low cost safety improvements to enhance warnings and guidance for drivers.

Beach Road in Taylor County also connects the recreational areas along the Gulf with US 19. Crashes appear to be concentrated at curves along this road. Discussions with a Taylor County representative confirm that this corridor is a concern for the County.

Dixie and Taylor Counties are recommended as secondary priorities for study by the TSC, with an emphasis on analysis of the corridors connecting to the Gulf.

Hamilton County

Concentrations of crashes have occurred on CR 152 and CR 141. FDOT has addressed these facilities with a project to upgrade signs and pavement markings. Other crashes appear to be more randomized.

Hamilton County should be reevaluated after the upcoming project is completed and should be considered as a future priority.

Levy and Gilchrist Counties

FDOT has engaged a consultant to investigate crash problems in these counties and to identify potential safety projects.

Since Levy and Gilchrist Counties are being addressed by a consultant, these counties are not considered immediate priorities for work by the TSC.

Madison County

FDOT has initiated a project to upgrade signs and markings in Madison County.

Madison County should be reevaluated after the upcoming project is completed and should be considered as a future priority.

Baker County

Crashes in Baker County show a concentration of off-road crashes on CR 125. FDOT has already evaluated and initiated widening projects to address this problem. As this work is completed, a significant crash reduction is expected.

Baker County is not considered an immediate priority for work by the Transportation Safety Center.

Union County

Although Union County was the pilot for the development of templates for safety studies, the initial work concentrated on a small number of sites. Observations during the pilot study indicated that there are opportunities for additional projects that can provide substantial improvement at a relatively low cost.

Union County should be considered for additional work in the near future.

Bradford County

Crash rates in Bradford County are relatively low compared to surrounding counties. No obvious “hot spots” were detected from the preliminary analysis, but a systemic approach appears to be appropriate to address the more random crashes as a future priority.

Lafayette County

Among the small counties of District 2, Lafayette County has the lowest rate of serious crashes.

Lafayette County is not considered an immediate priority for work by the Transportation Safety Center.

District 3

Previous and ongoing FDOT efforts

The safety program in District 3 includes regular communications and training for counties. District 3 has also engaged a consultant to assist with the safety program for local agencies. These efforts by the District have encouraged many of the counties in District 3 to initiate requests for safety projects. Projects developed in the District 3 counties will undoubtedly affect priorities for future work, but some of the counties have not taken advantage of the assistance available from the District 3 Safety Office.

Gadsden County

Both crash data and observations by District 3 staff indicate that Gadsden County is the highest priority for additional assistance in District 3. District staff reported that Gadsden County officials are concerned about road safety problems, but the County has not provided viable applications for safety projects. There appears to be a need for additional help for the County to develop safety projects.

Gadsden County is recommended as the highest priority for District 3.

Gulf and Liberty Counties

Both Gulf and Liberty Counties have roads that connect to the Gulf. Concentrations of crashes on these facilities suggest potential “hot spots” that may be addressed with cost effective countermeasures.

Based on the crash rates and recommendations from District 3 staff, Gulf and Liberty Counties are recommended as secondary priorities for assistance during the next year.

Calhoun, Jefferson, and Jackson Counties

Based on crash data and recommendations from District 3, Calhoun, Jefferson, and Jackson Counties are recommended as priorities 4, 5, and 6, to be addressed at a later date.

Next Steps

On October 21, 2014, the TSC study team met with Mr. Chris Doolin, Executive Director of the Small Counties Coalition, to brief him about the program and to receive suggestions for communicating with county officials about services available from the TSC. Mr. Doolin has agreed to make initial contacts with appropriate county officials when the TSC is ready to conduct a study in the next county. He has also agreed to arrange for a presentation to the membership of his Coalition when the TSC is fully staffed.

Upon completion of the current study in Hendry County, the TSC expects to develop task orders to proceed with studies in additional counties. Based on the crash data and on information from both FDOT and Mr. Doolin, about local interest and concerns for road safety, Gadsden County has been tentatively identified as the next county in which the TSC will offer to conduct a study, followed by Suwannee County. As the TSC develops the capacity for additional studies, contacts will be made with Gulf and Liberty Counties in District 3 and Taylor and Dixie Counties in District 2.

During the initial phases of the program, the TSC initiated contact with counties to offer assistance. As local agencies become aware of the program through the TSC web site and presentations and discussions with groups such as FACERS, FAC, and the Small Counties Coalition, the TSC expects requests for assistance to be initiated by cities and counties.

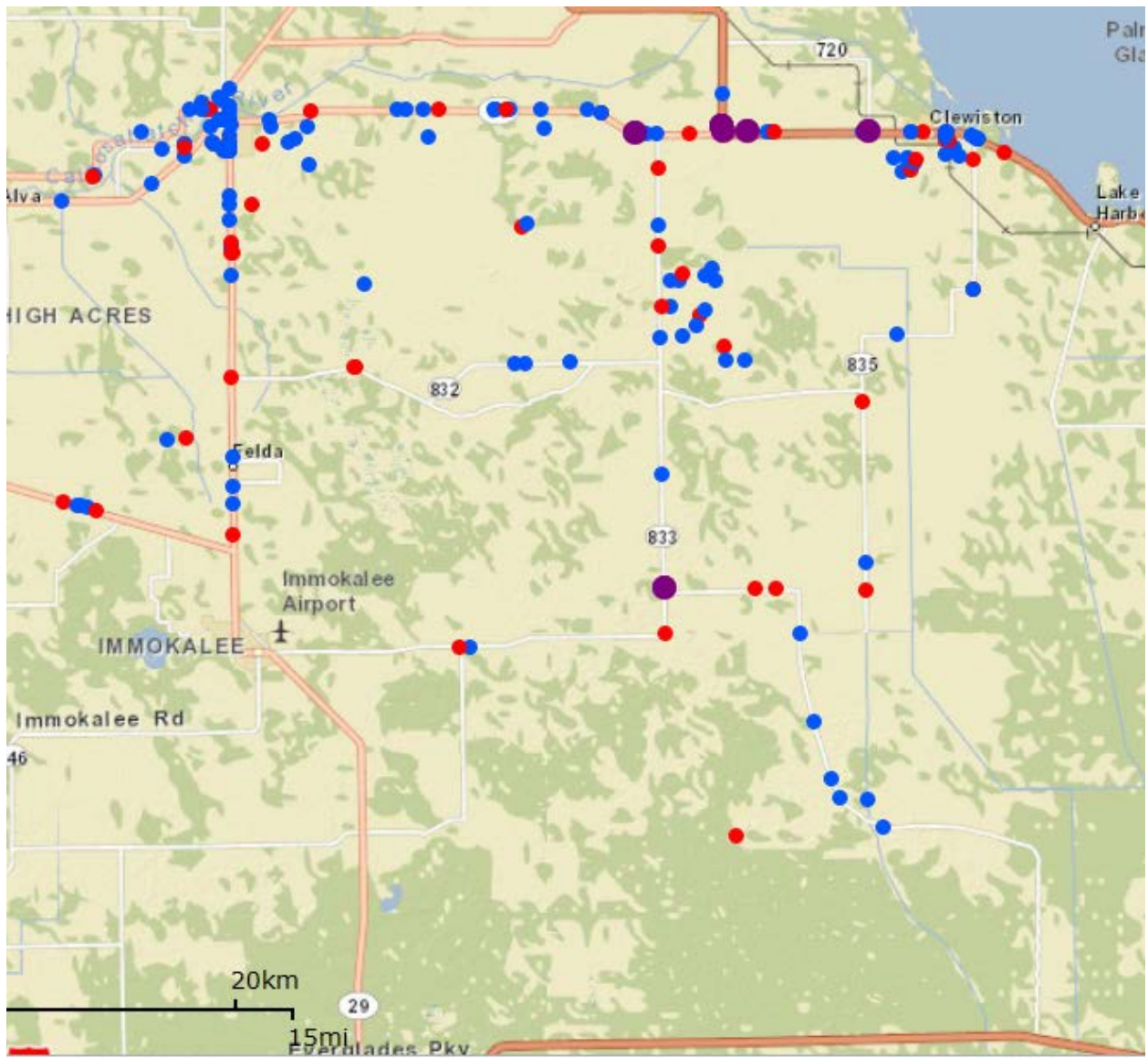
Appendix – Crash Maps for Counties

The following maps are a sample of maps used in network screening. Maps were developed using Signal 4 Analytics.

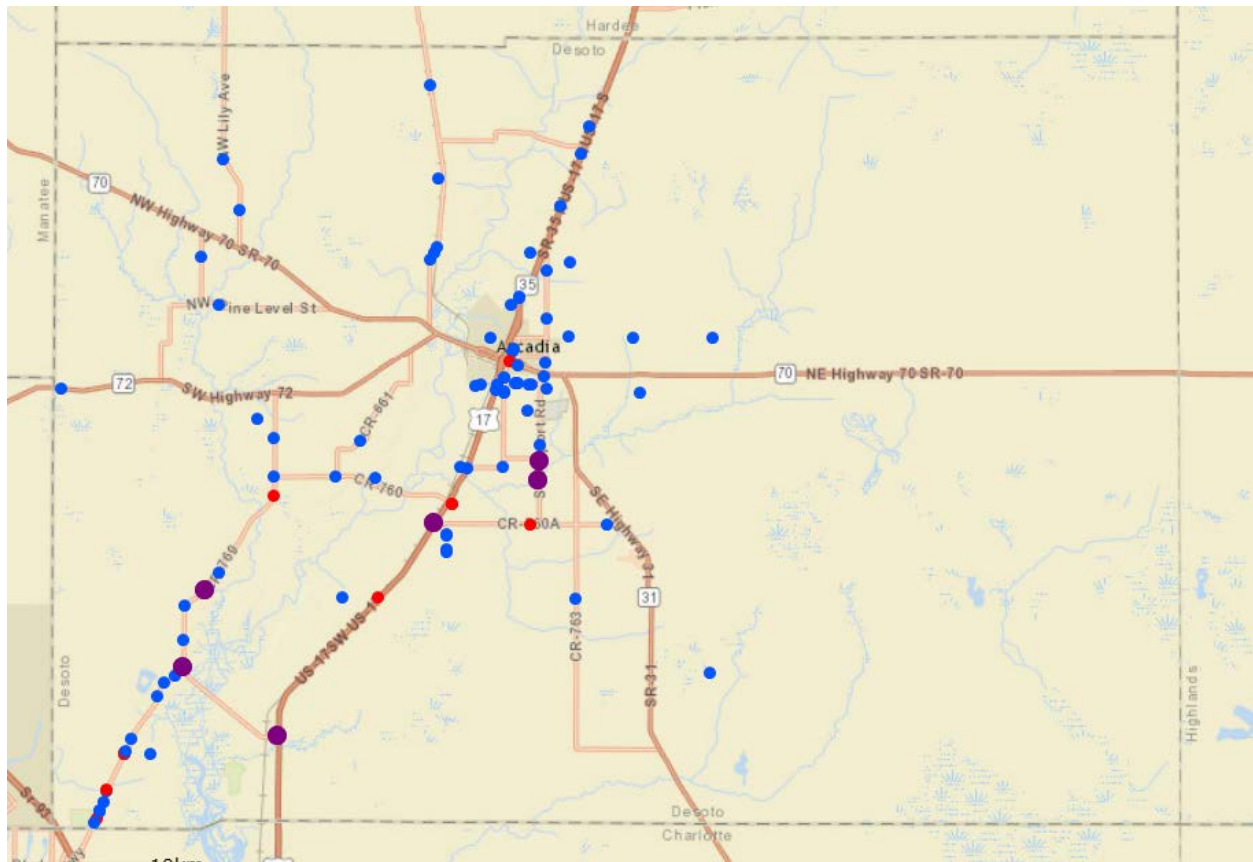
Crash data shown are for the period 1-1-2009 – 12-31-2013. Only the Fatal and Serious Injury crashes are shown here for the local road system.

Fatal crashes are plotted in red. Serious injury crashes are in blue. Purple indicates multiple crashes at the same location.

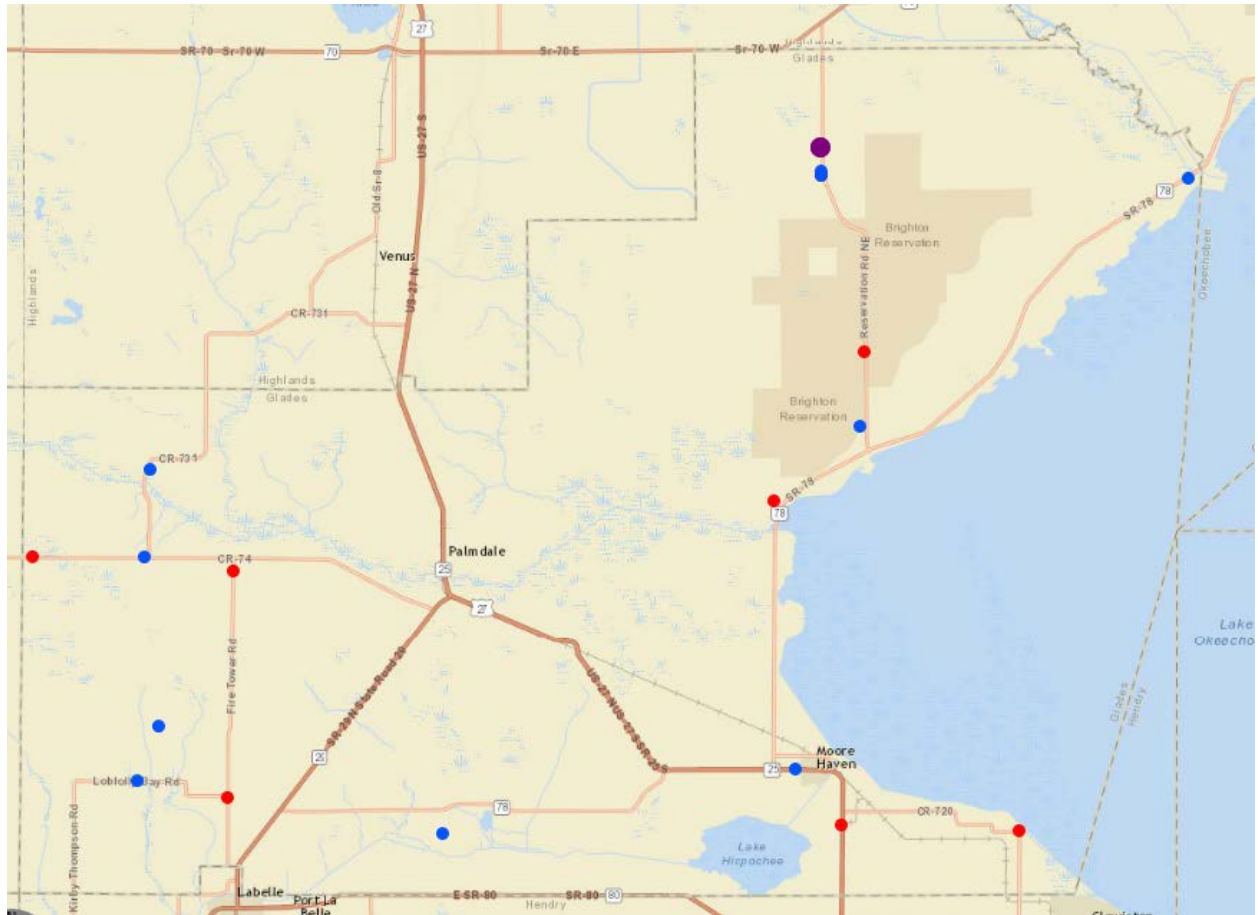
Hendry County



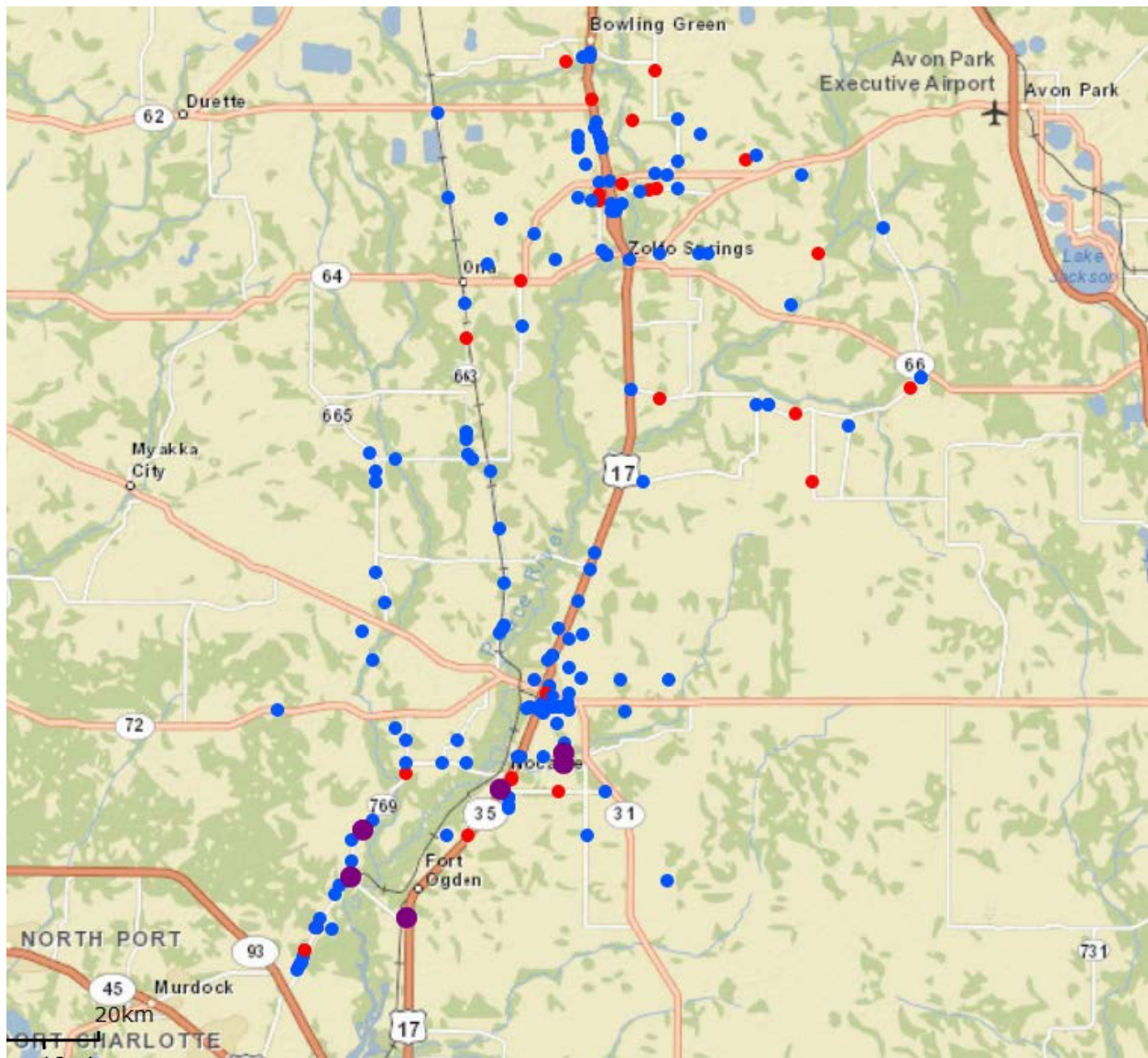
Desoto County



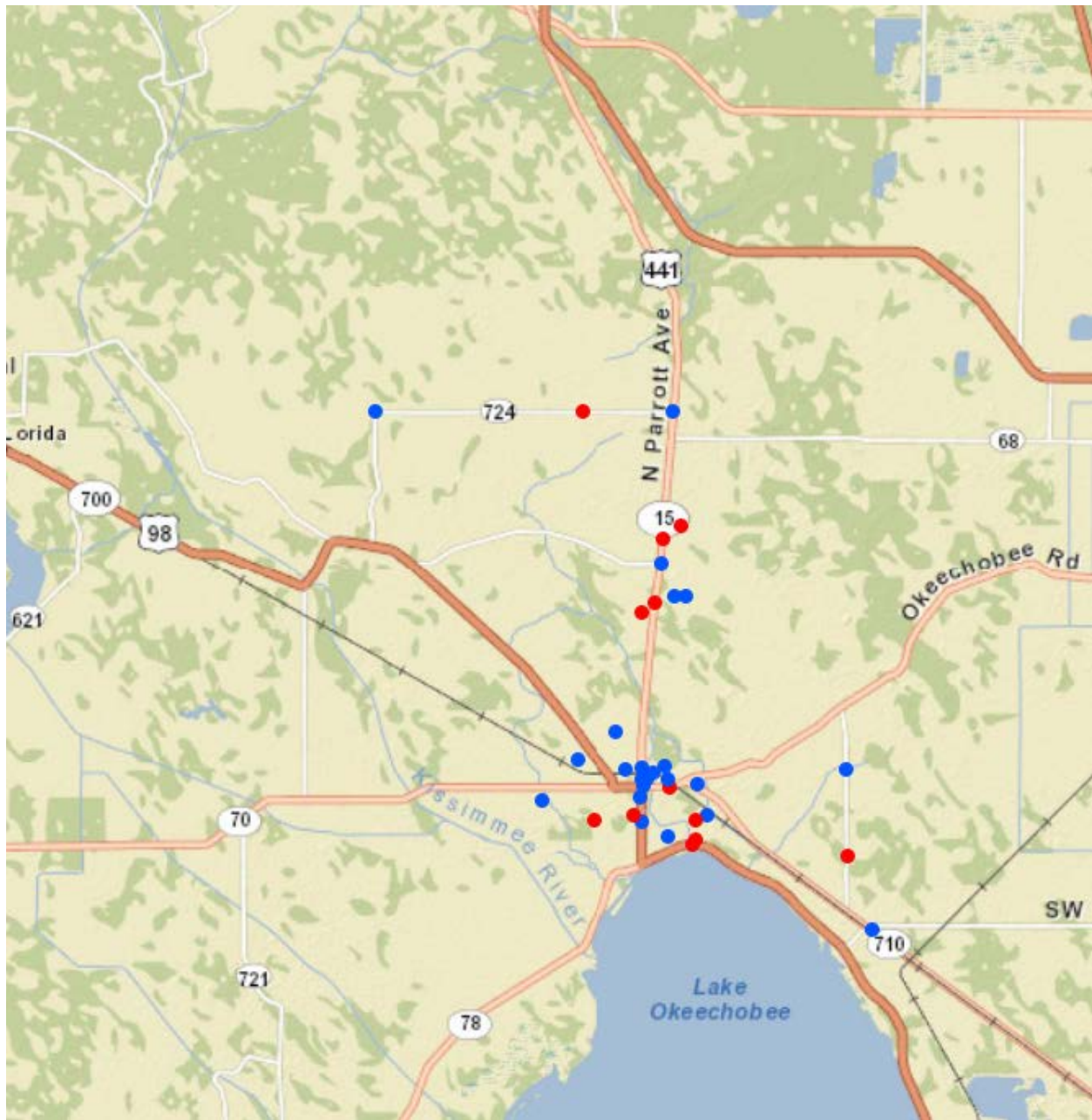
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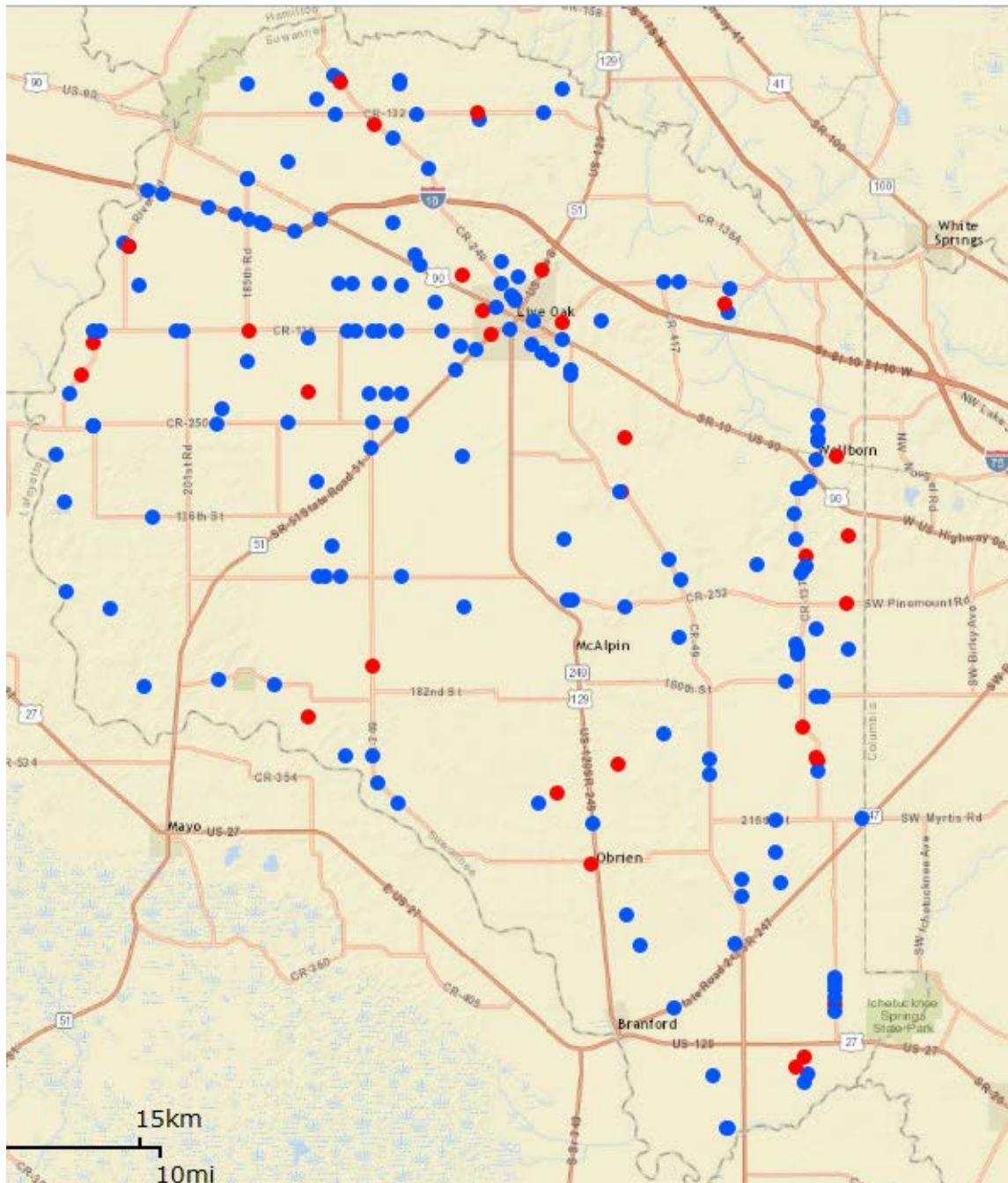
Hardee County



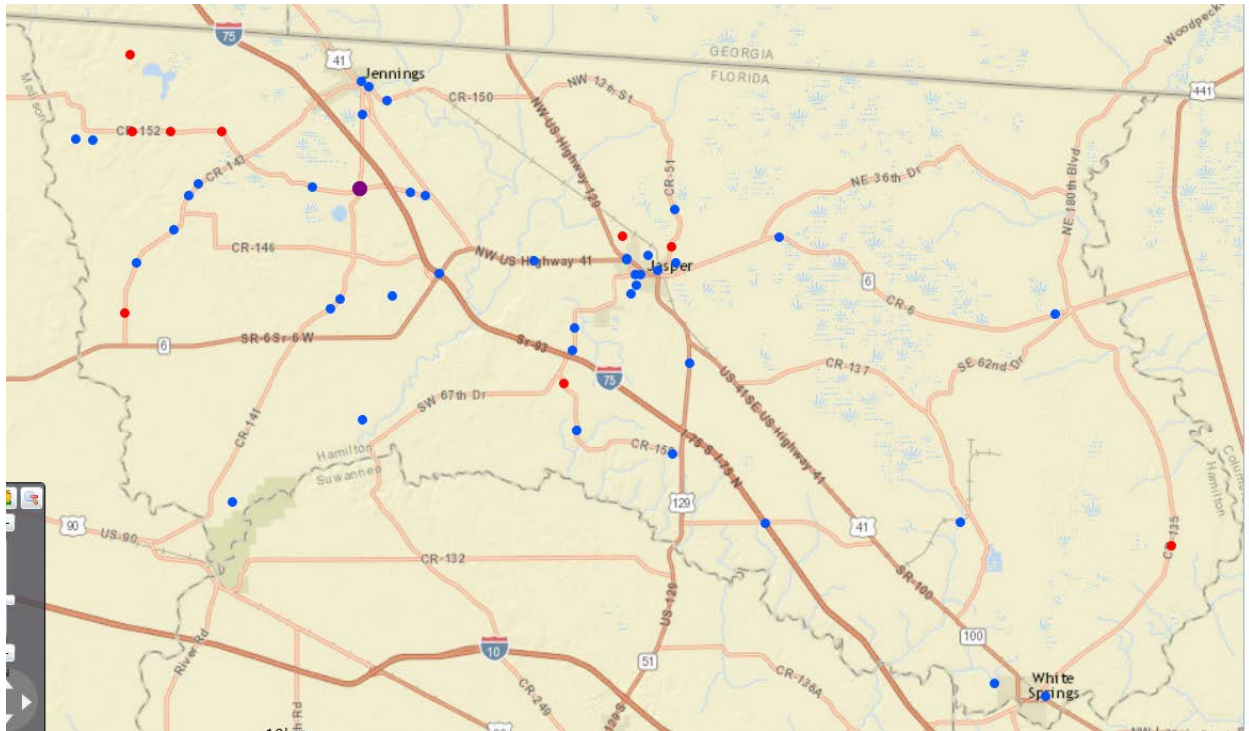
Okeechobee County



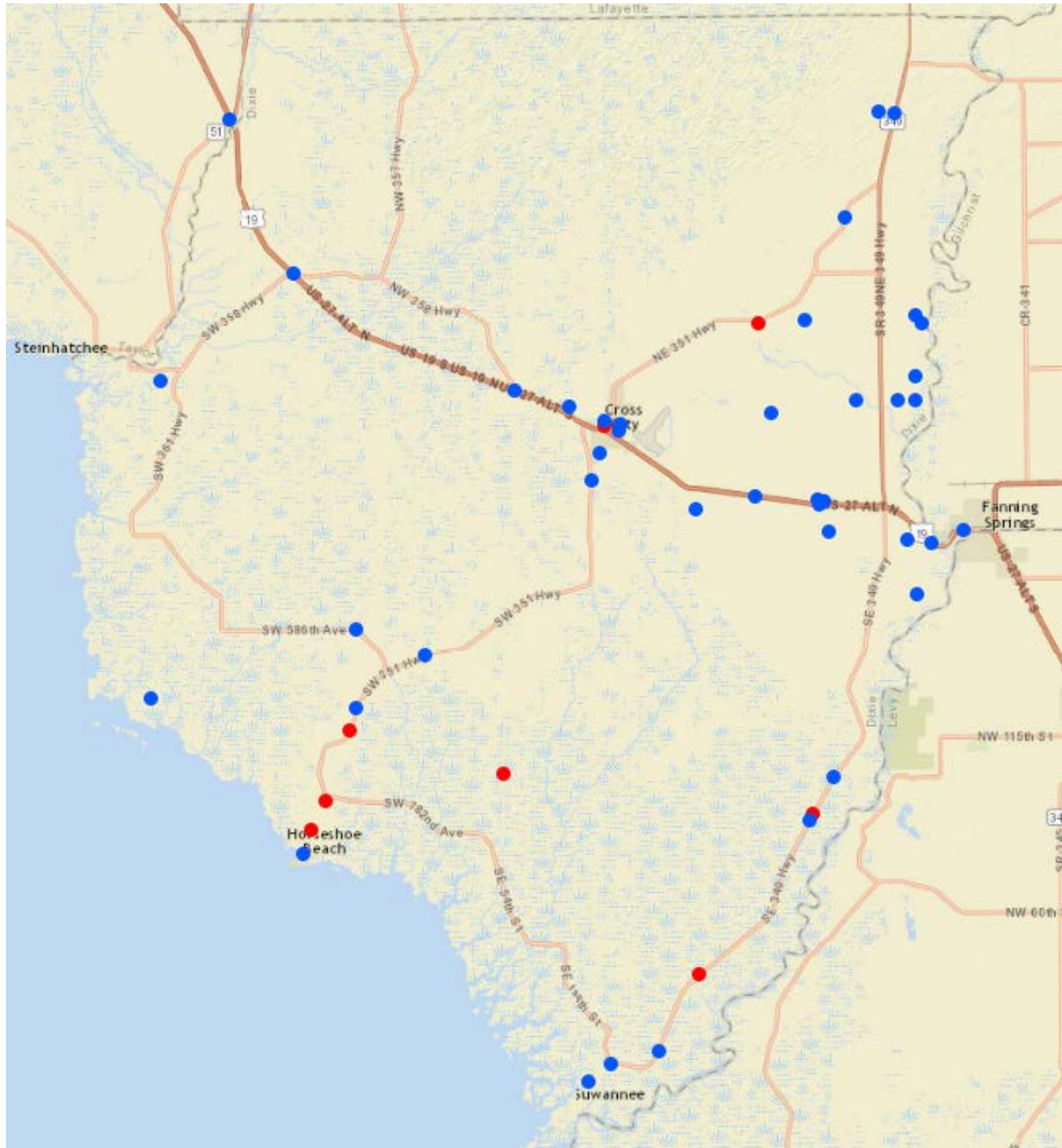
Suwannee County



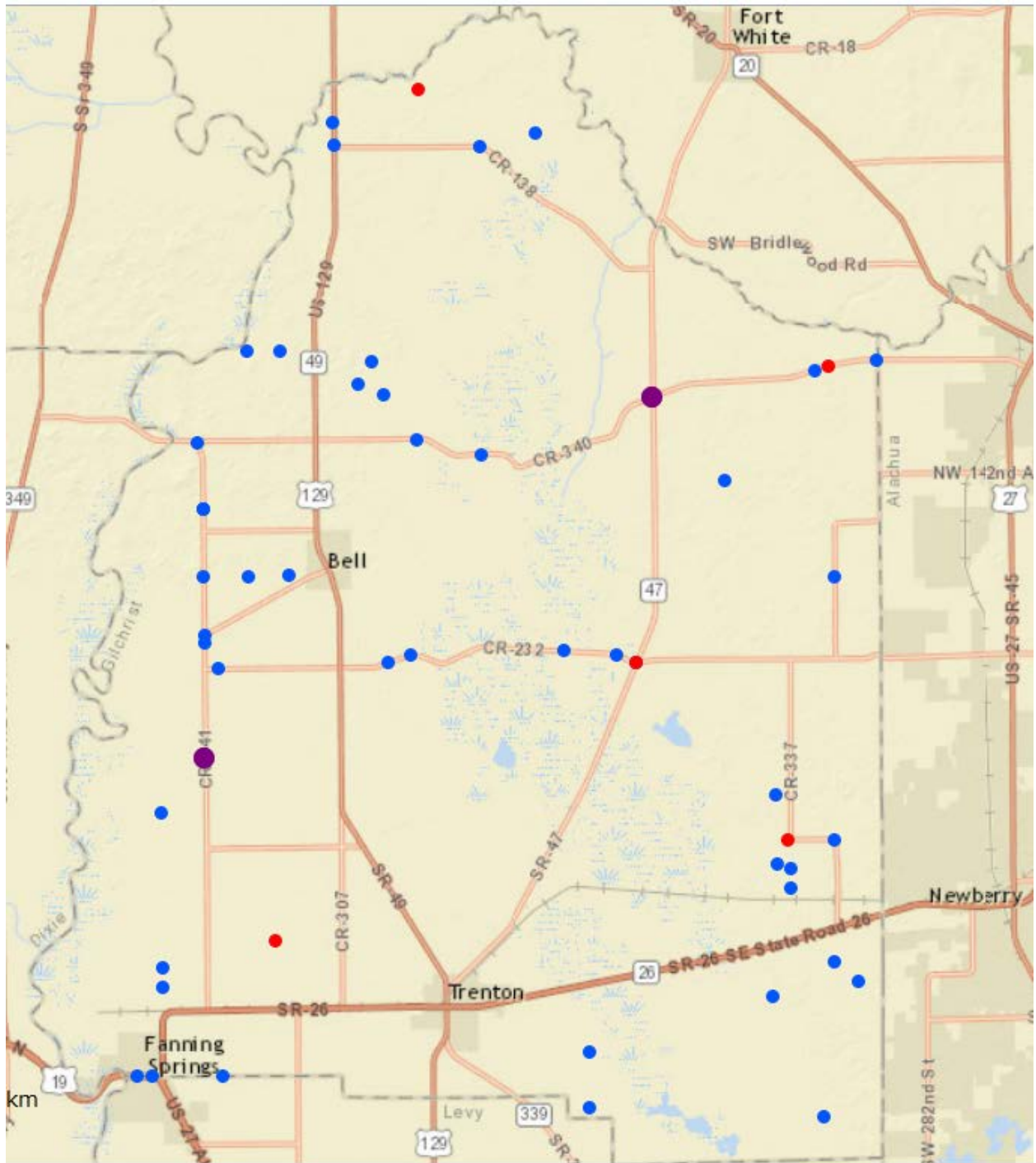
Hamilton County



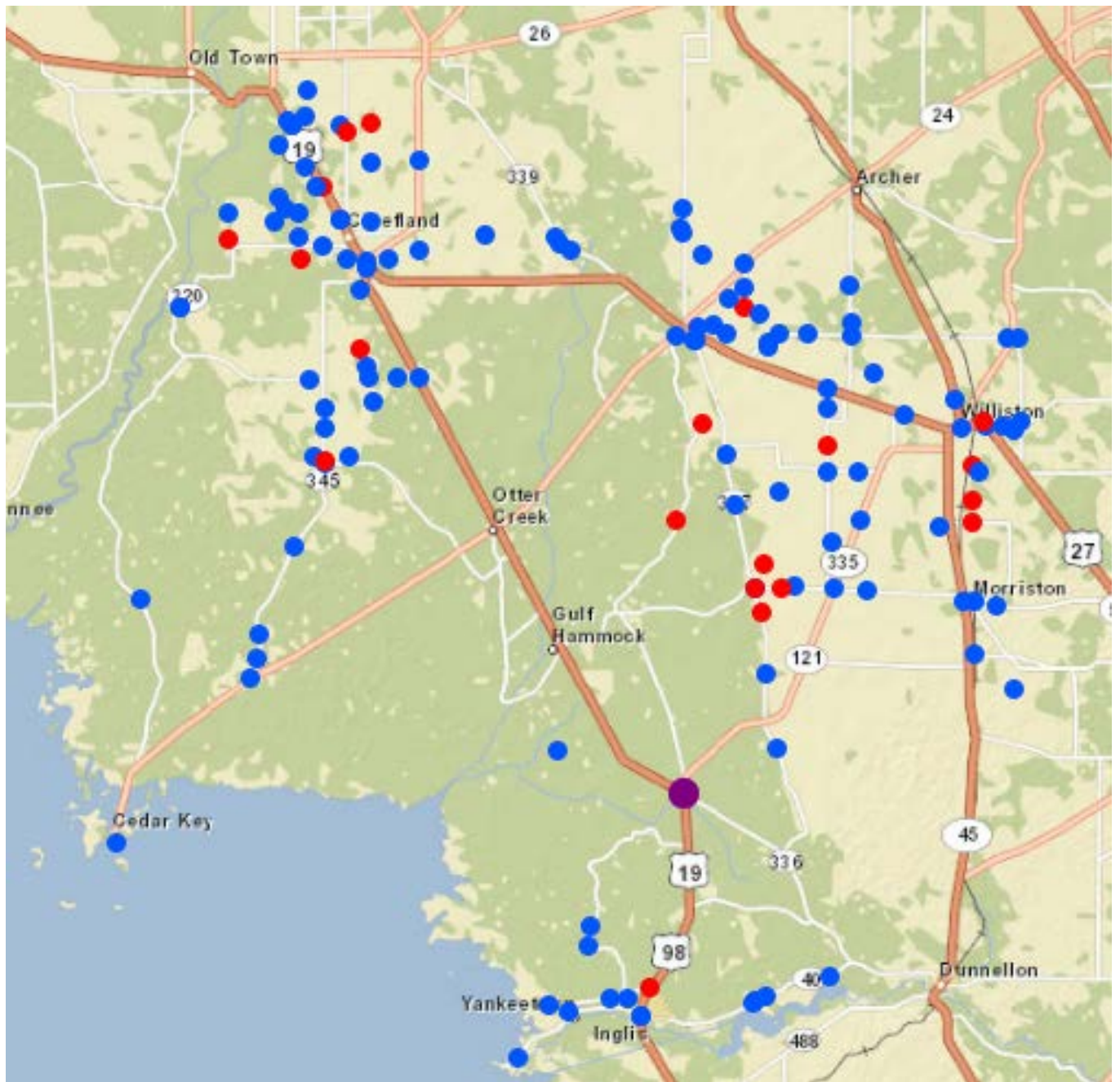
Dixie County



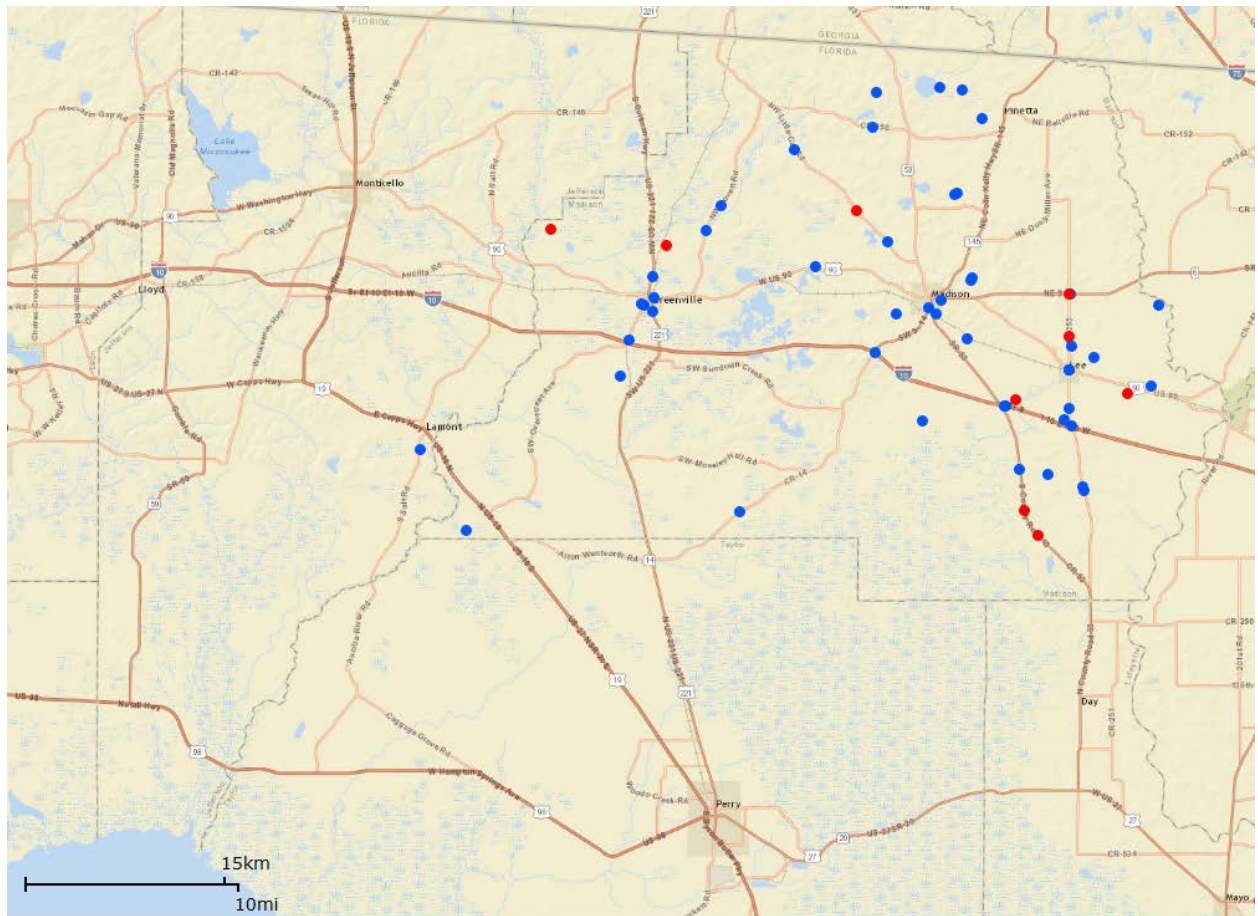
Gilchrist County



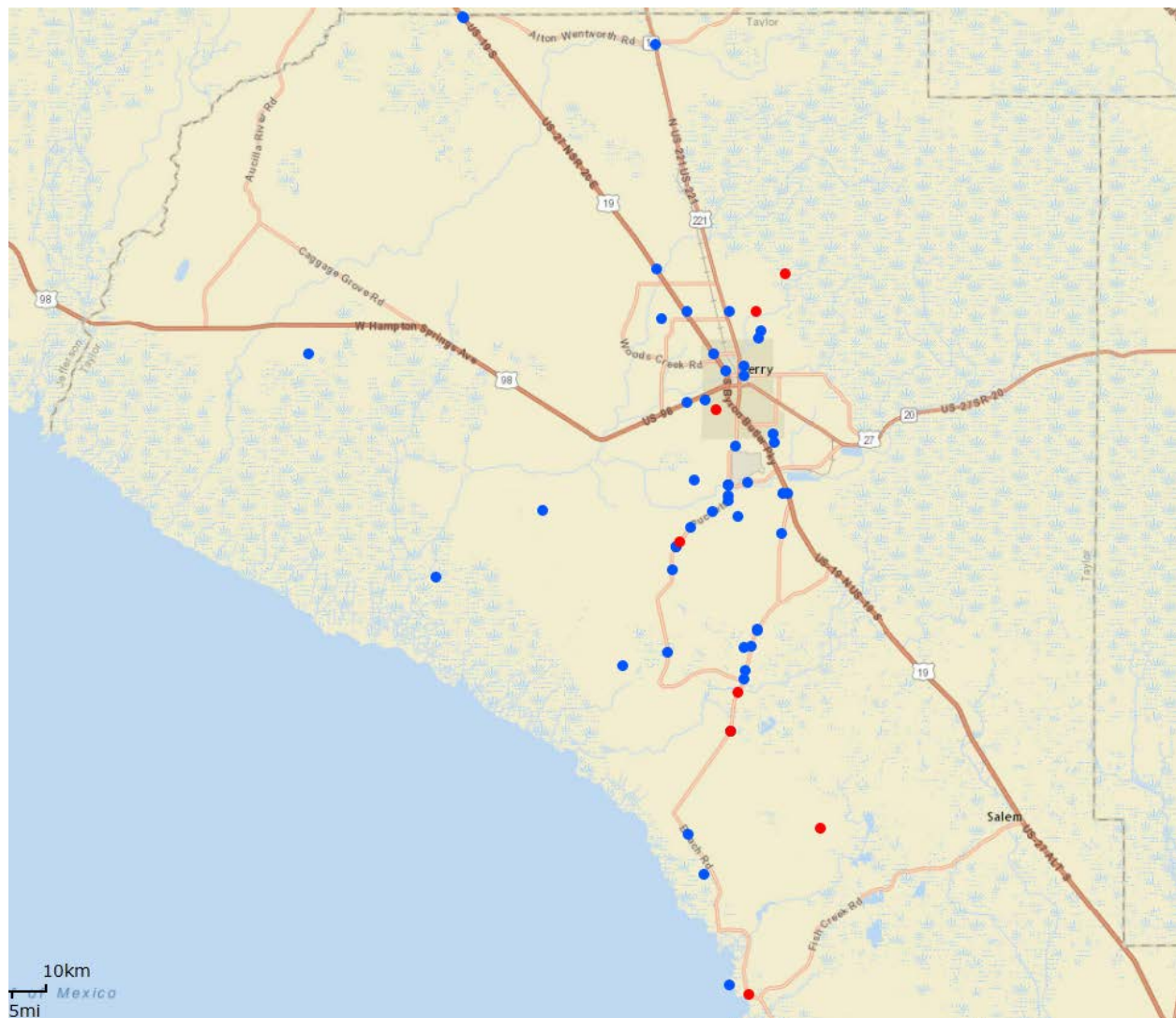
Levy County



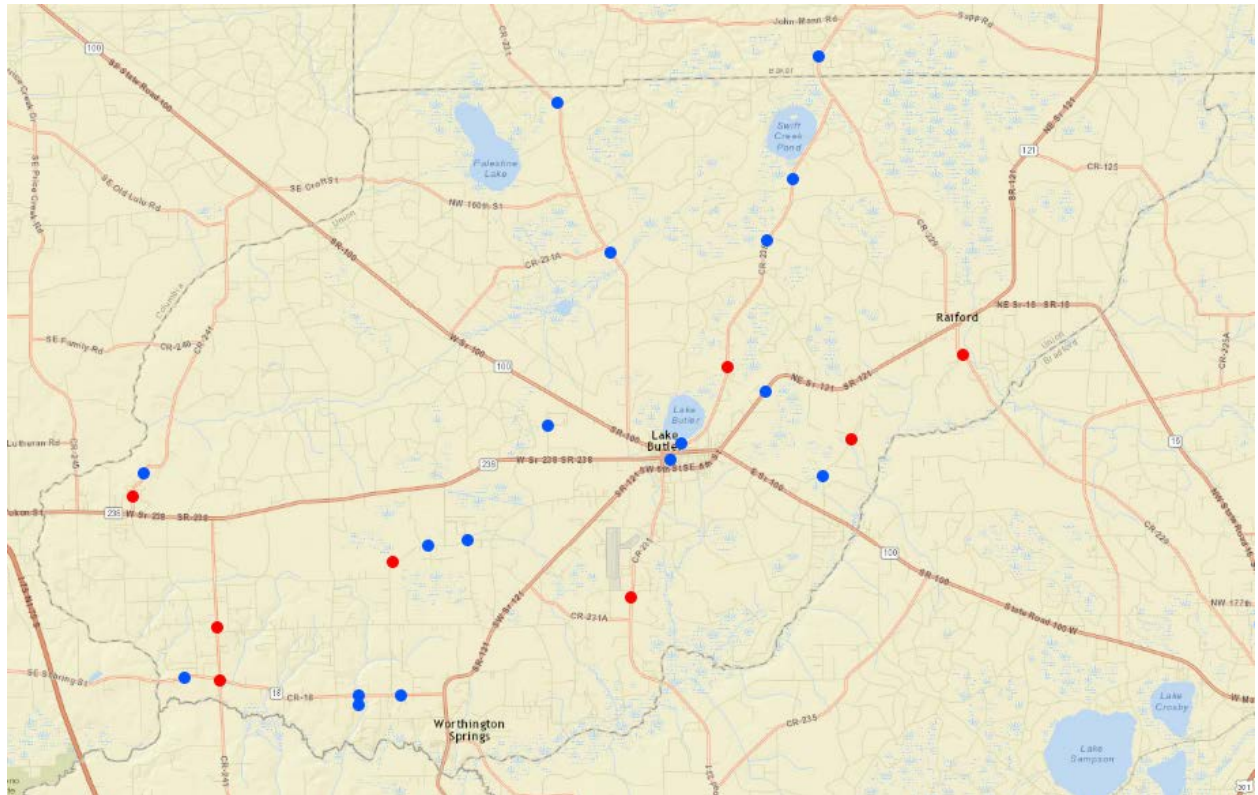
Madison County



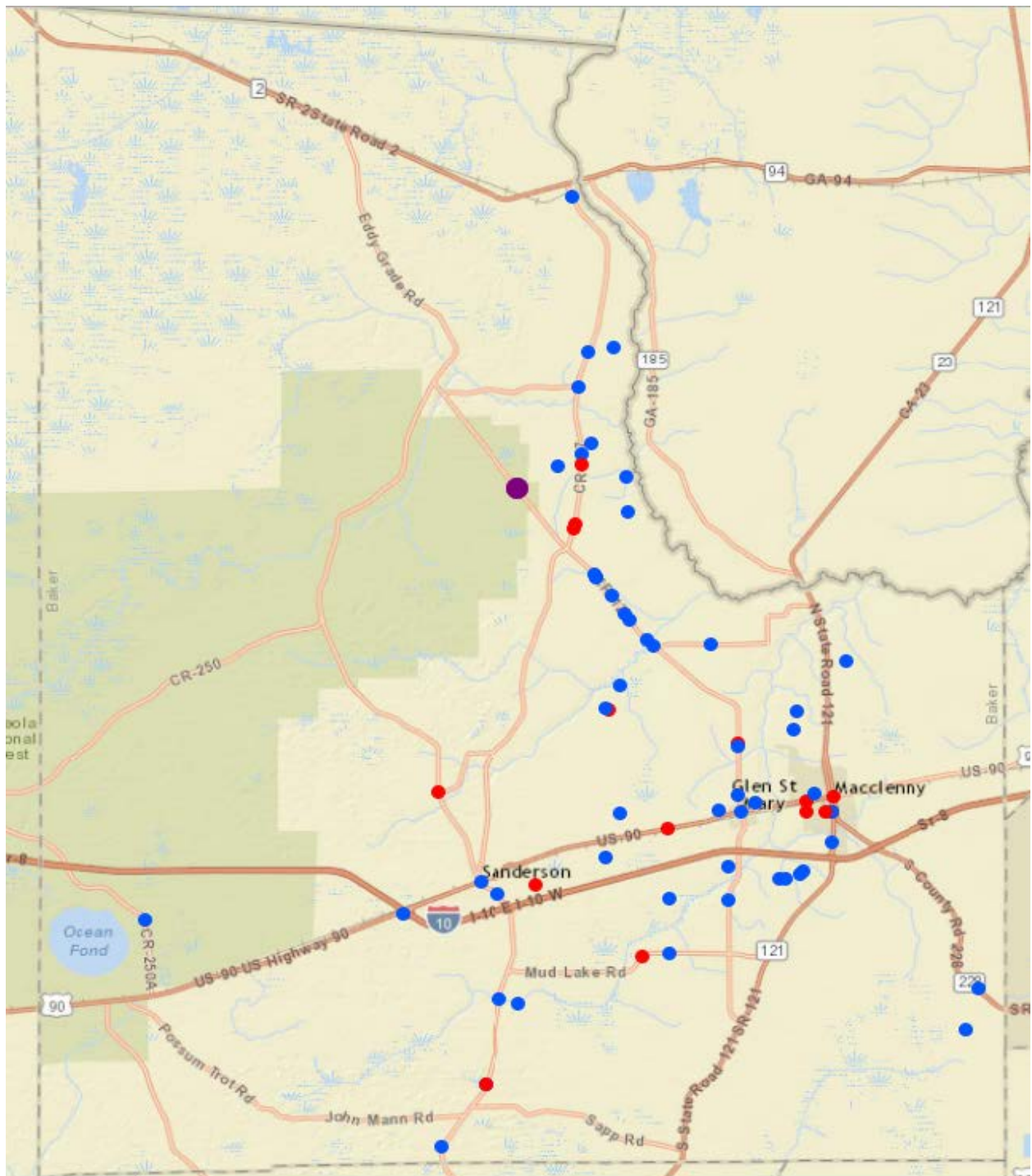
Taylor County



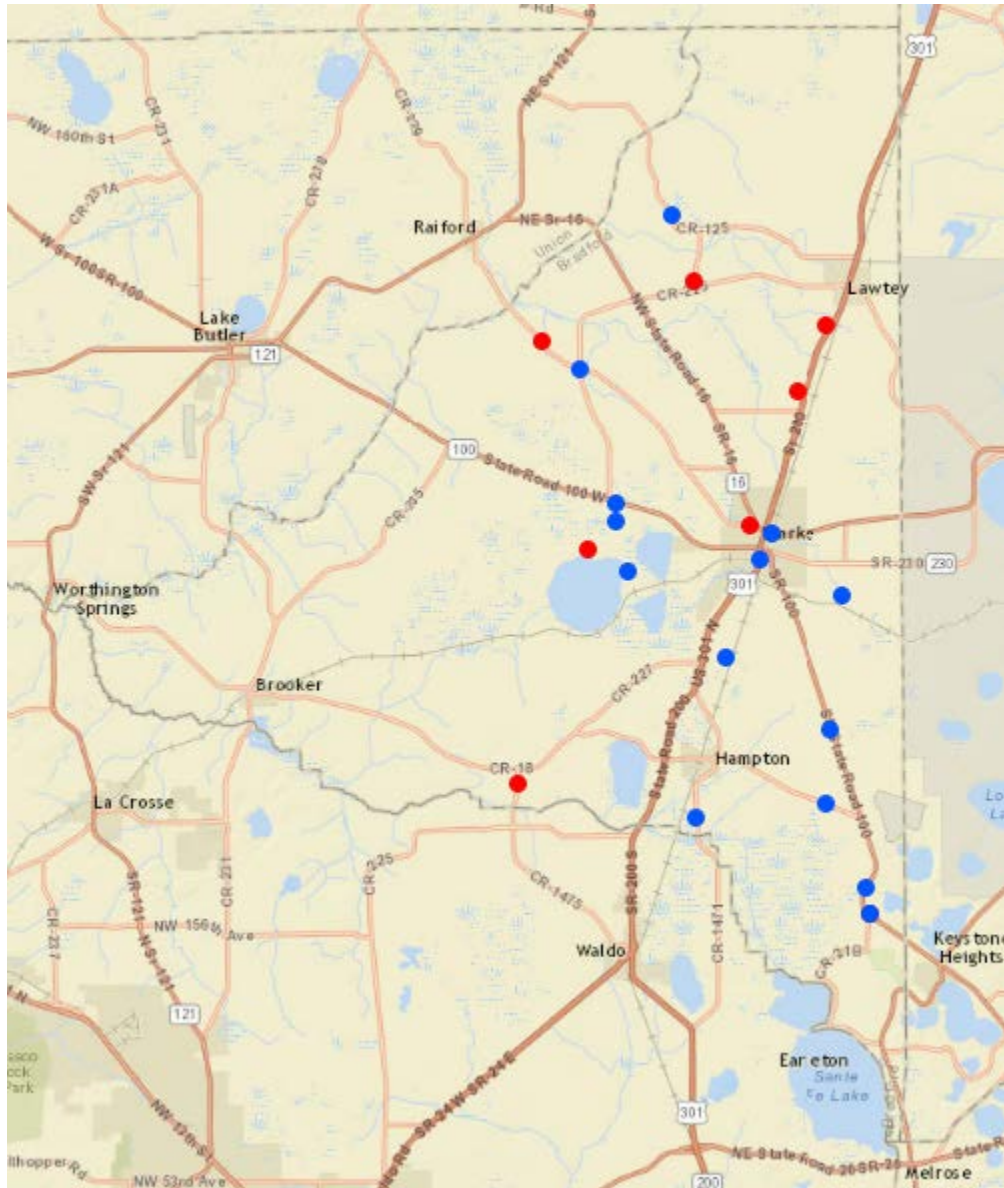
Union County



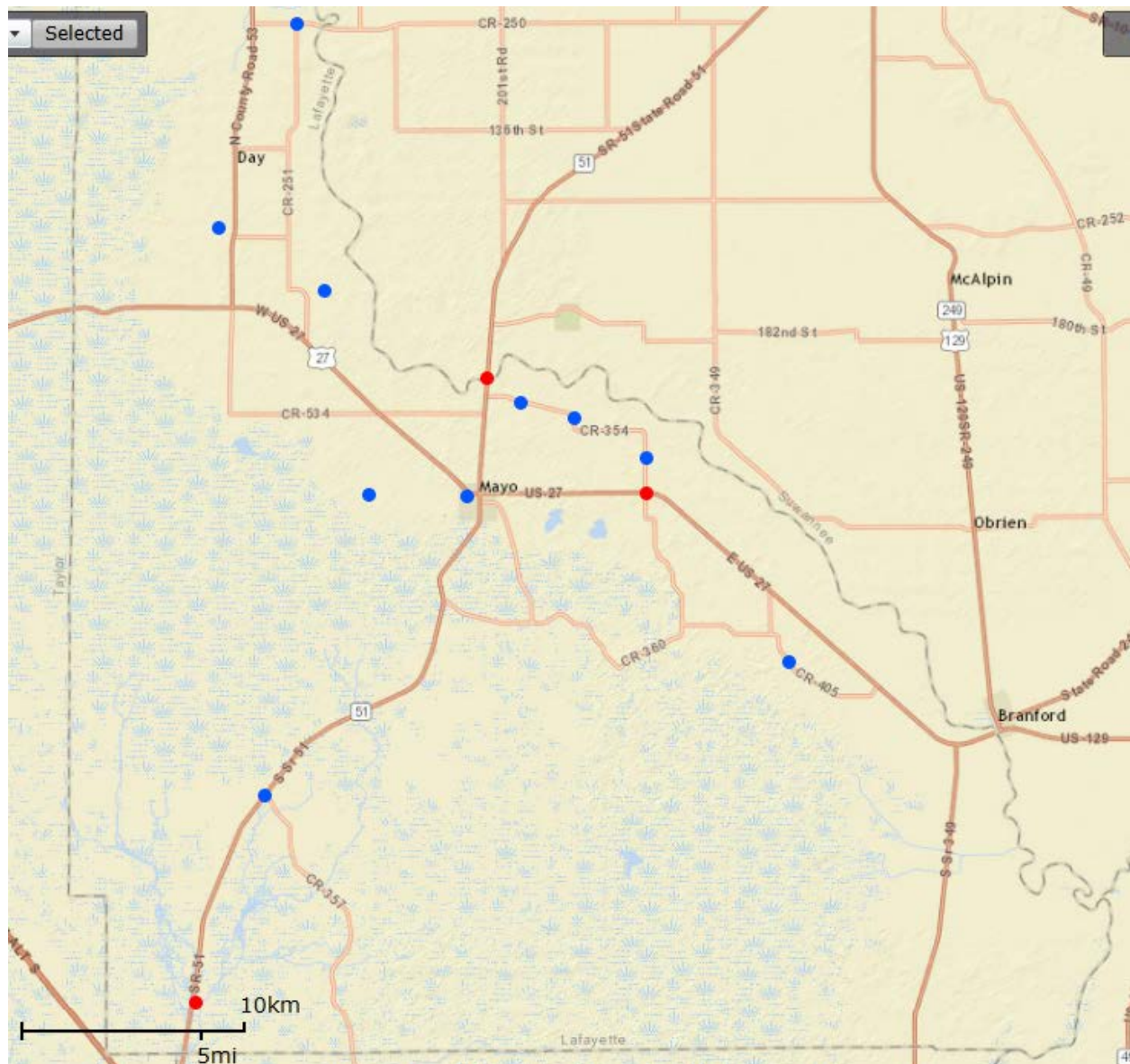
Baker County



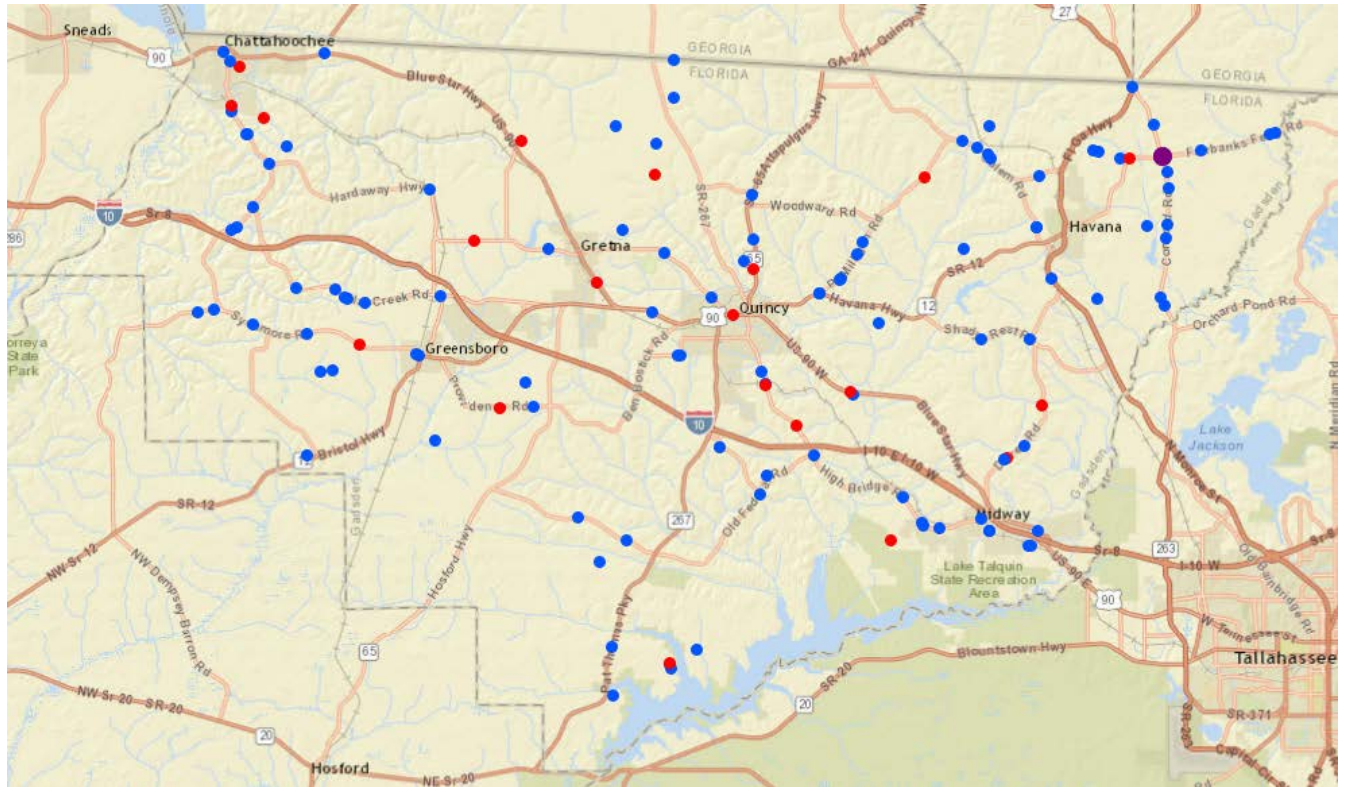
Bradford County



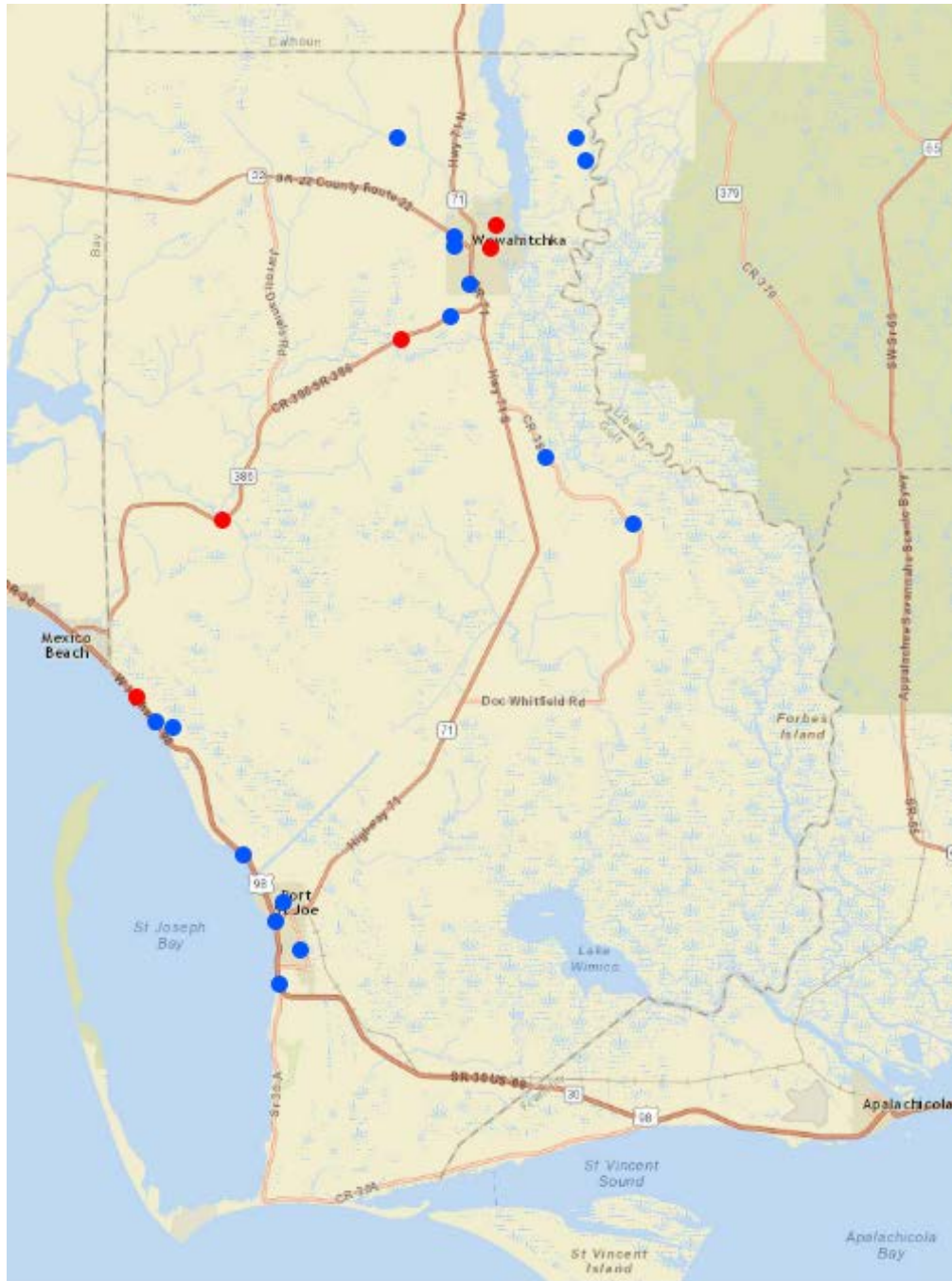
Lafayette County



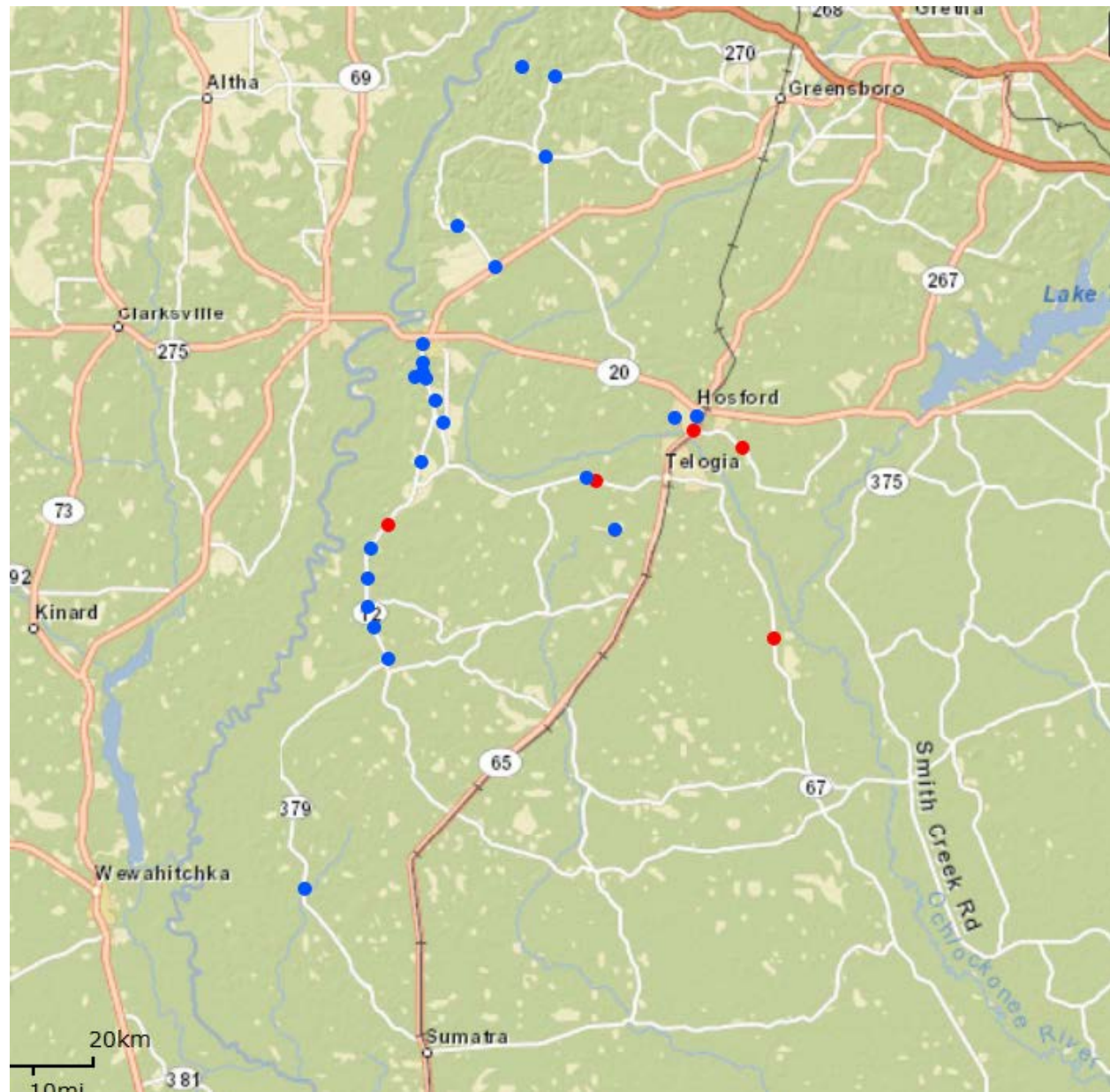
Gadsden County



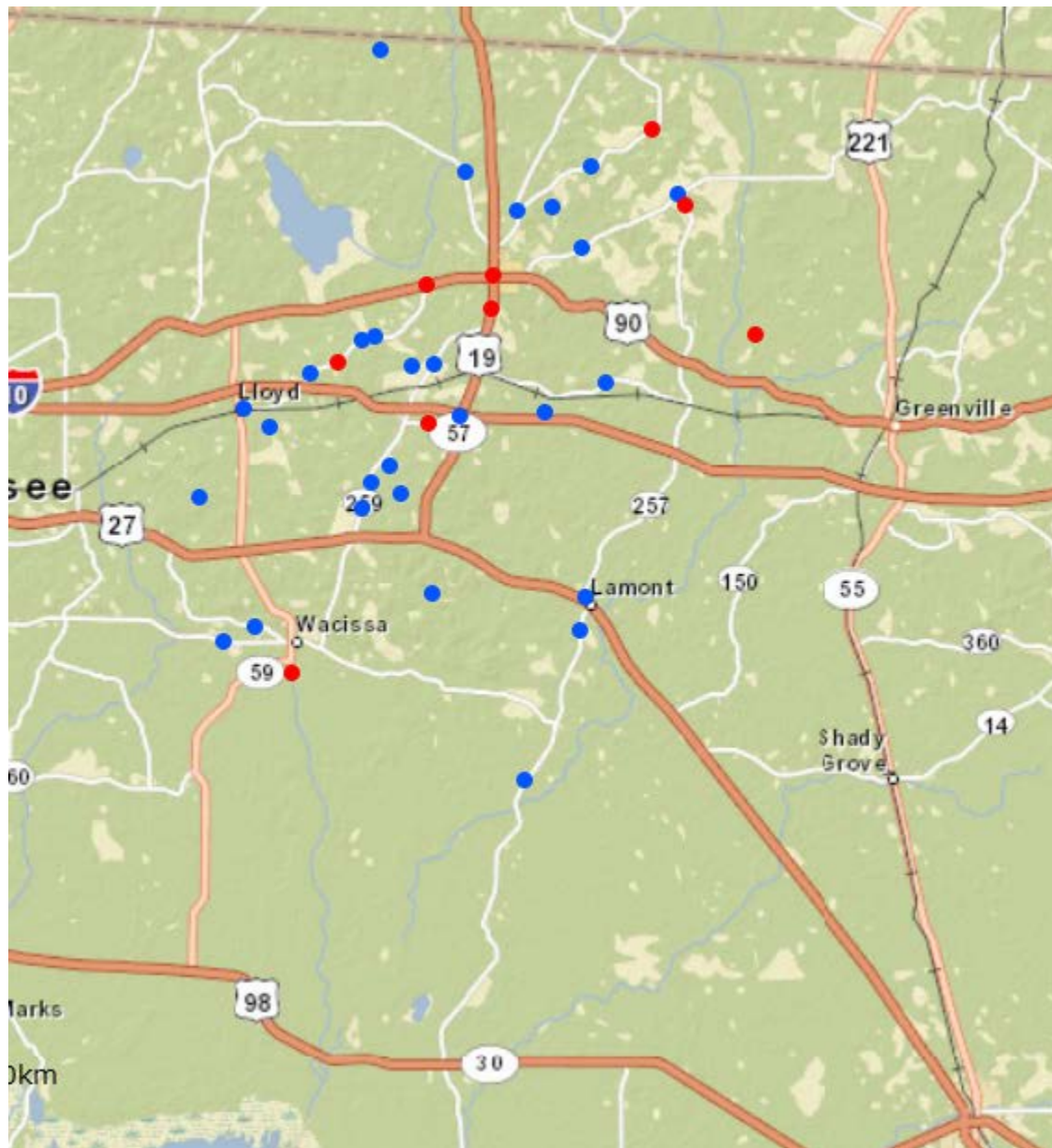
Gulf County



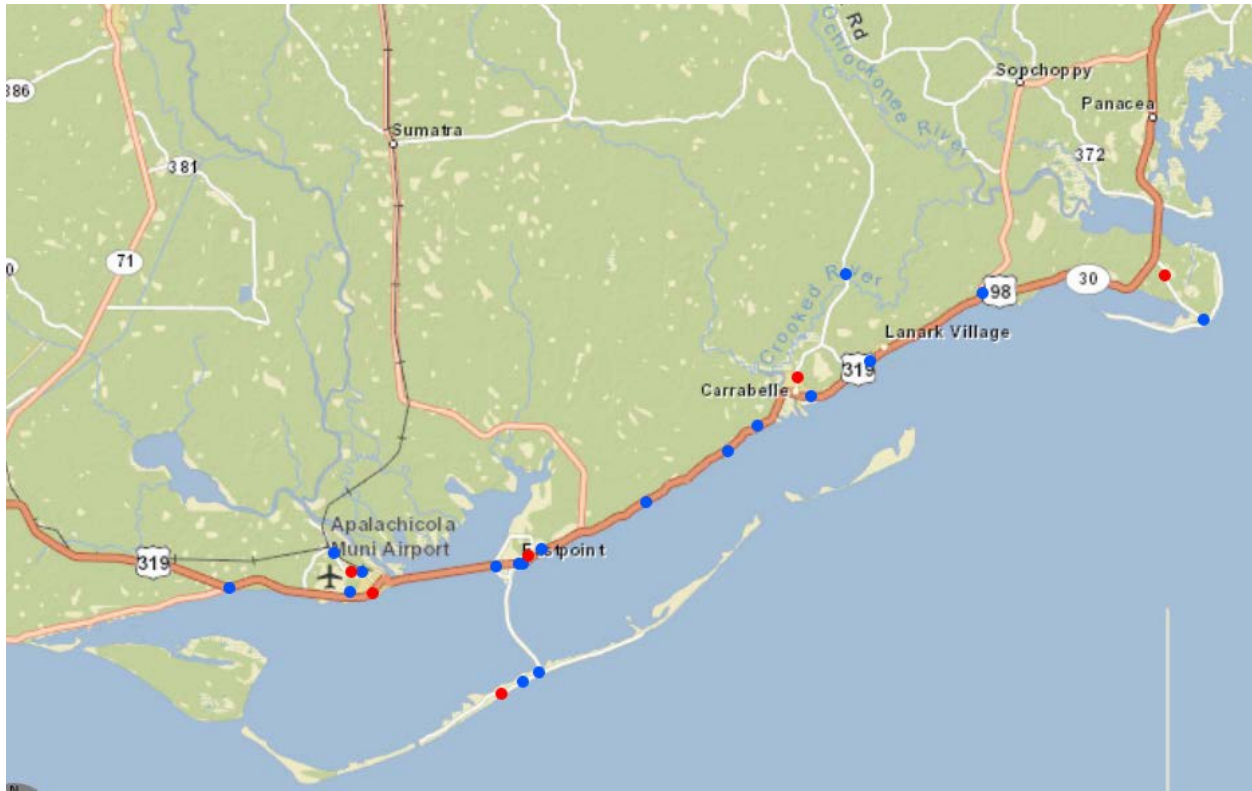
Liberty County



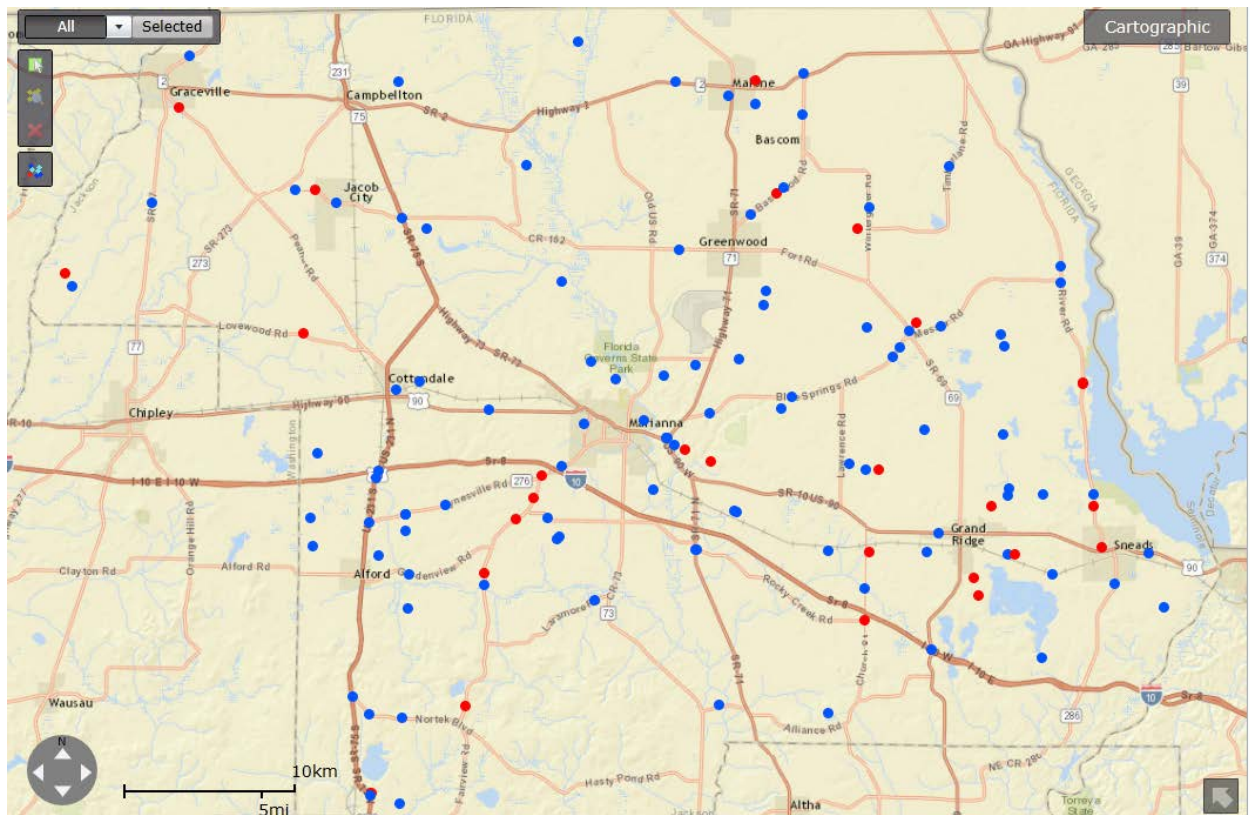
Jefferson County



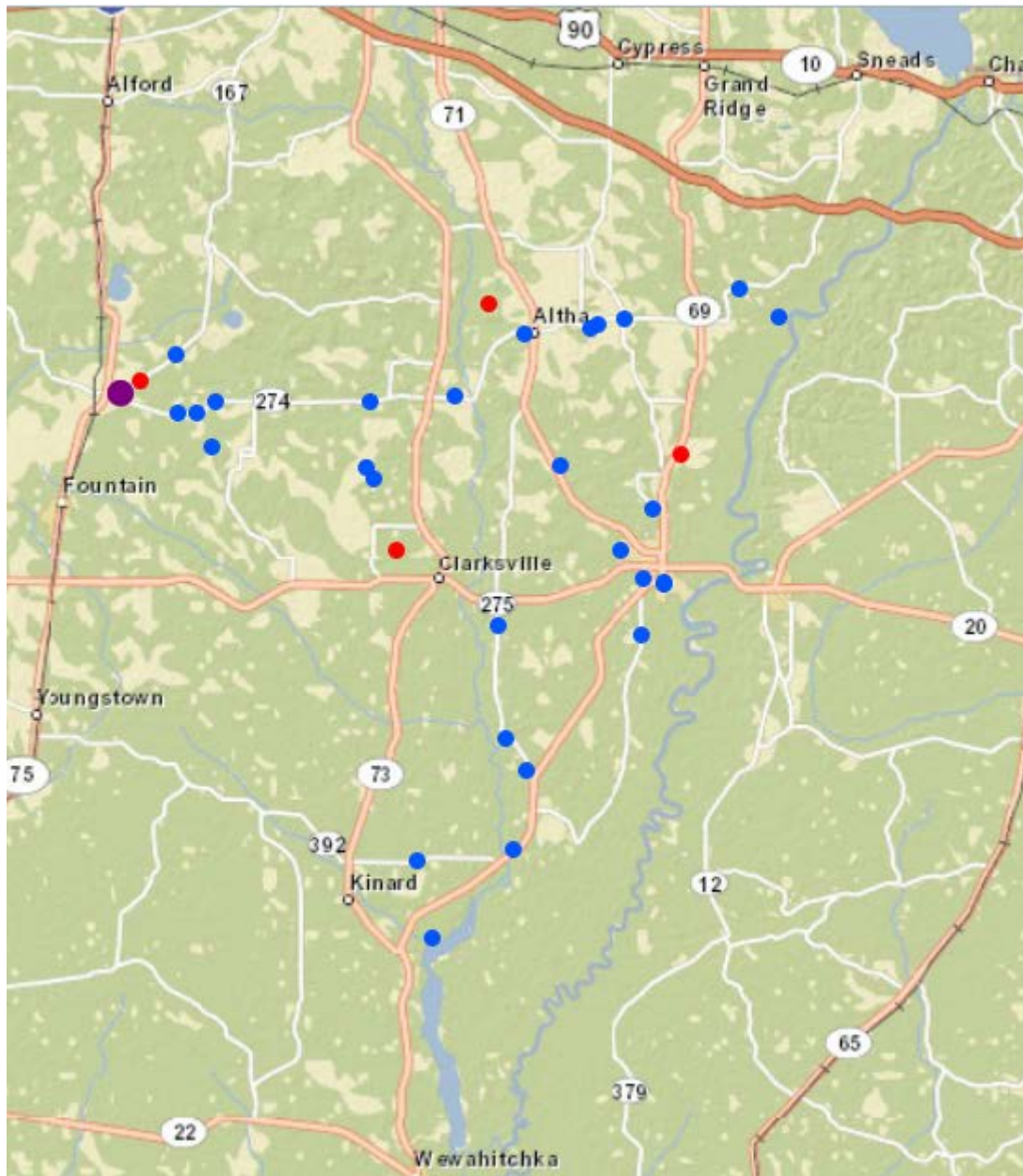
Franklin County



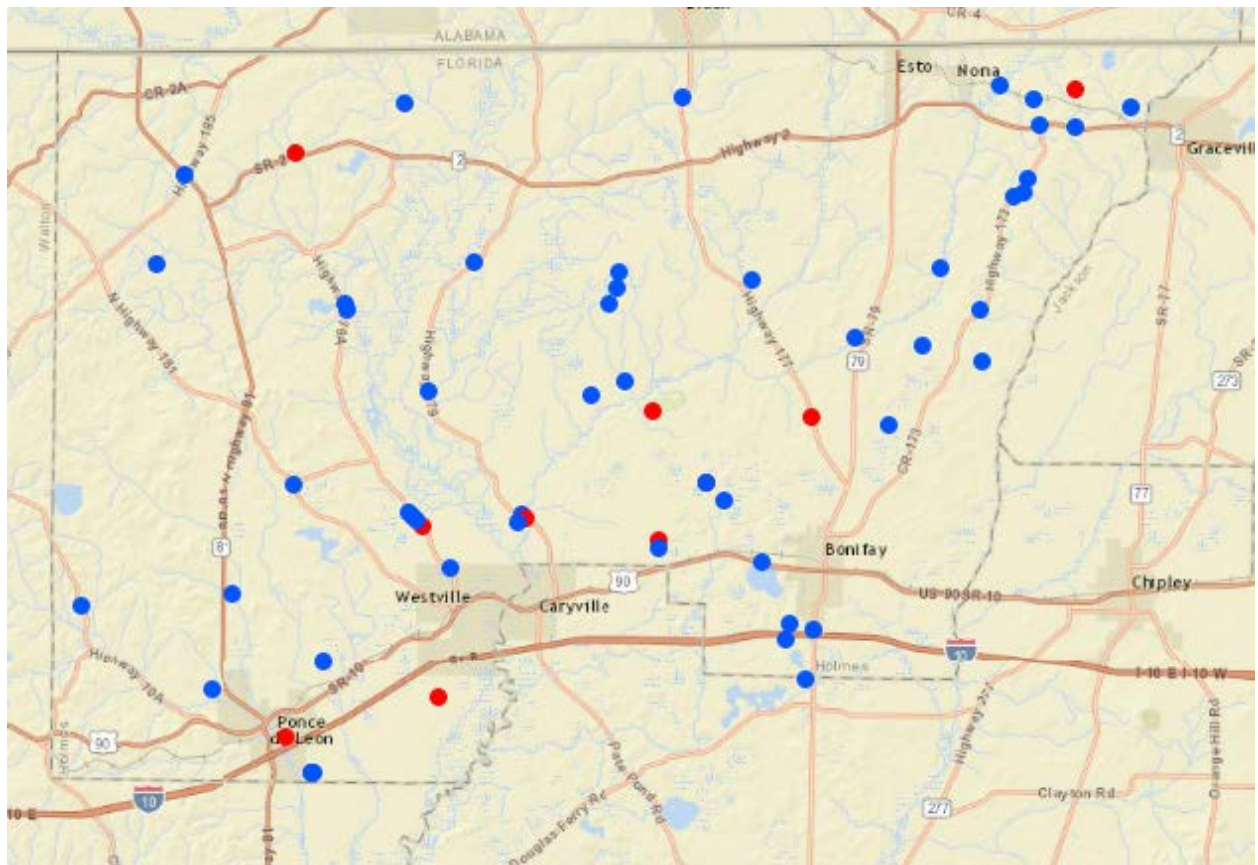
Jackson County



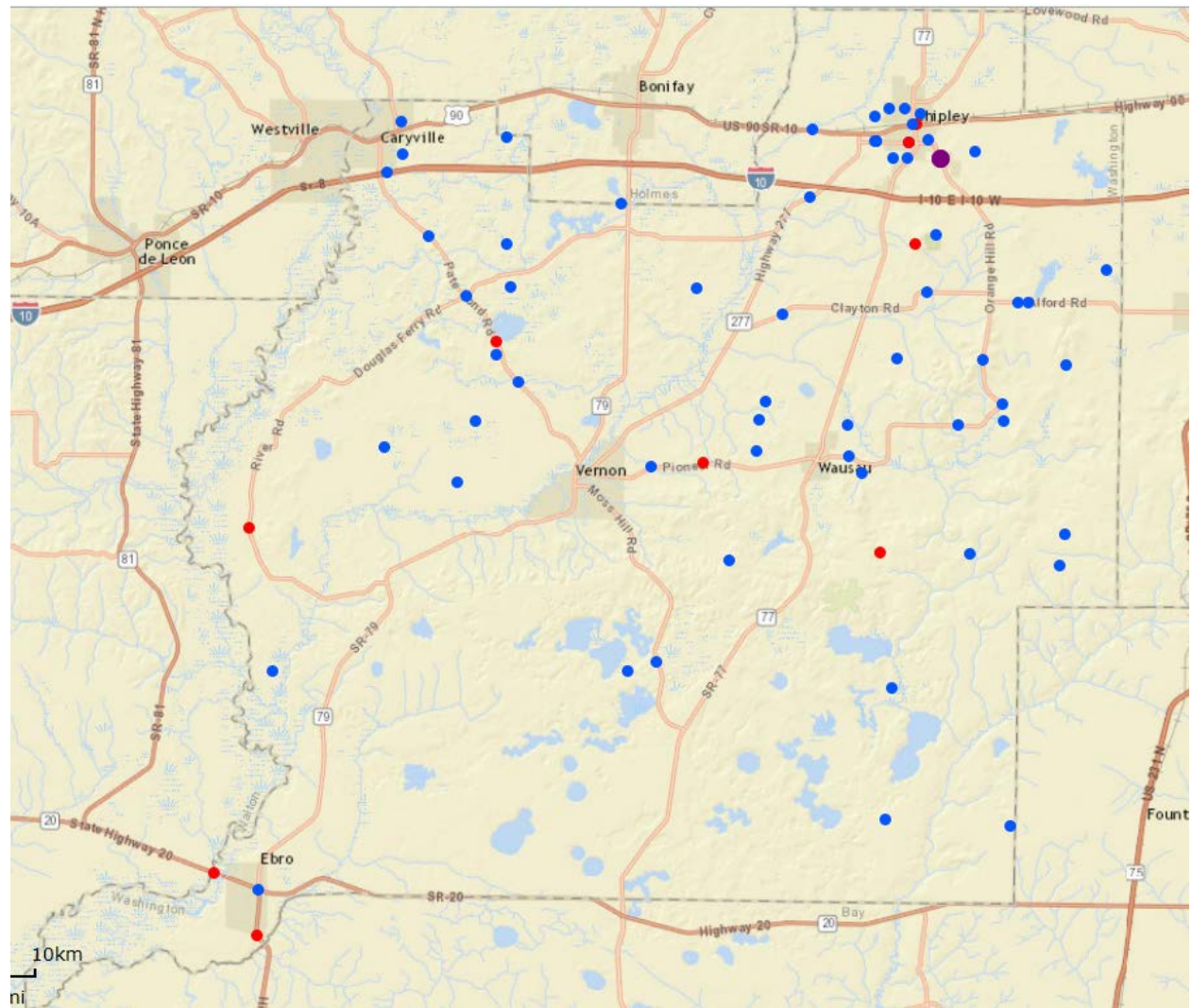
Calhoun County



Holmes County



Washington County



Wakulla County

