



# **Ecological Report Summary Density Reduction Groundwater Resource (DRGR) Area for The Bonita Springs City Council**

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**A Presentation to the Bonita Springs City Council  
Bonita Springs City Hall  
November 19, 2014**

**The City of Bonita Springs retained Kevin Erwin Consulting Ecologist, Inc. to provide an updated evaluation of the historic and existing land use and cover conditions within the City and make recommendations regarding opportunities for water storage, and wetland and hydropatterns restoration within the study area.**



Our goal: Assist the City of Bonita Springs with a decision making tool for evaluating hydrological conditions resulting from proposed land-use changes in the DRGR.



FARM FIELD RESTORED TO HYDRIC PINE  
CORKSCREW, LEE COUNTY, FL

Prior to engagement KE suggested the following approach to providing the City with a decision-making tool for evaluating hydrological conditions resulting from proposed land-use changes (development and conservation actions).

**Task 1:** Synthesize existing information

**Task 2 - Ecological Mapping:** conduct a thorough mapping effort of current and historic (predevelopment) land-uses/habitats.

Task 3. Collaborate with a modeler, to develop a “bridge” or conversion tool to produce reasonably accurate water levels and flows from the habitat mapping and monitoring data. Categories of inundation and hydroperiod are to be coded to generally illustrate where drainage issues currently exist and where water is and/or could be stored, etc.

Task 4. Collaborate with a modeler who will use the KECE mapped historic conditions and “bridge” to produce a Natural Systems Model.

Task 5. Collaborate with a modeler who will use the KECE mapped present conditions and “bridge” to produce an Existing Conditions Model.

Task 6. Sustainable Development and Ecological Restoration Concepts.  
Evaluate the potential for restoring impacted natural systems by identifying restorable land and prioritizing restoration activities that would be most beneficial to (surface and ground water resources).

Task 7. Collaborate with the modeler and the City to apply the desired potential future land-use conditions in one or more Future Conditions Model runs to enable City to understand the potential ramifications, positive and negative, of future land-use decisions.

- Evaluate proposed development
- Evaluate proposed restoration and conservation concepts
- Evaluate the impacts of climate change

## Deliverables for Task 2

Provide the CITY with an ecological report that summarizes the historic and existing conditions of those specified lands within the DRGR. The map exhibits will be created in ArcGIS and provided to the CITY.

This report provides updated existing conditions land use and habitat mapping within the 5,353± acre study area (revised total acreage) based on 2013 aerial photography and limited groundtruthing. It also provides historic land cover/habitat mapping based on 1953 aerial photography. In addition, current (2013) and historic (1953) hydrological conditions maps are also provided using established wetland hydroperiod classes. Based on this ecological information, recommendations are made in this report in order to assist the City in determining the process required to make future land use decisions within the DRGR that will conserve and sustain water and wetland resources.

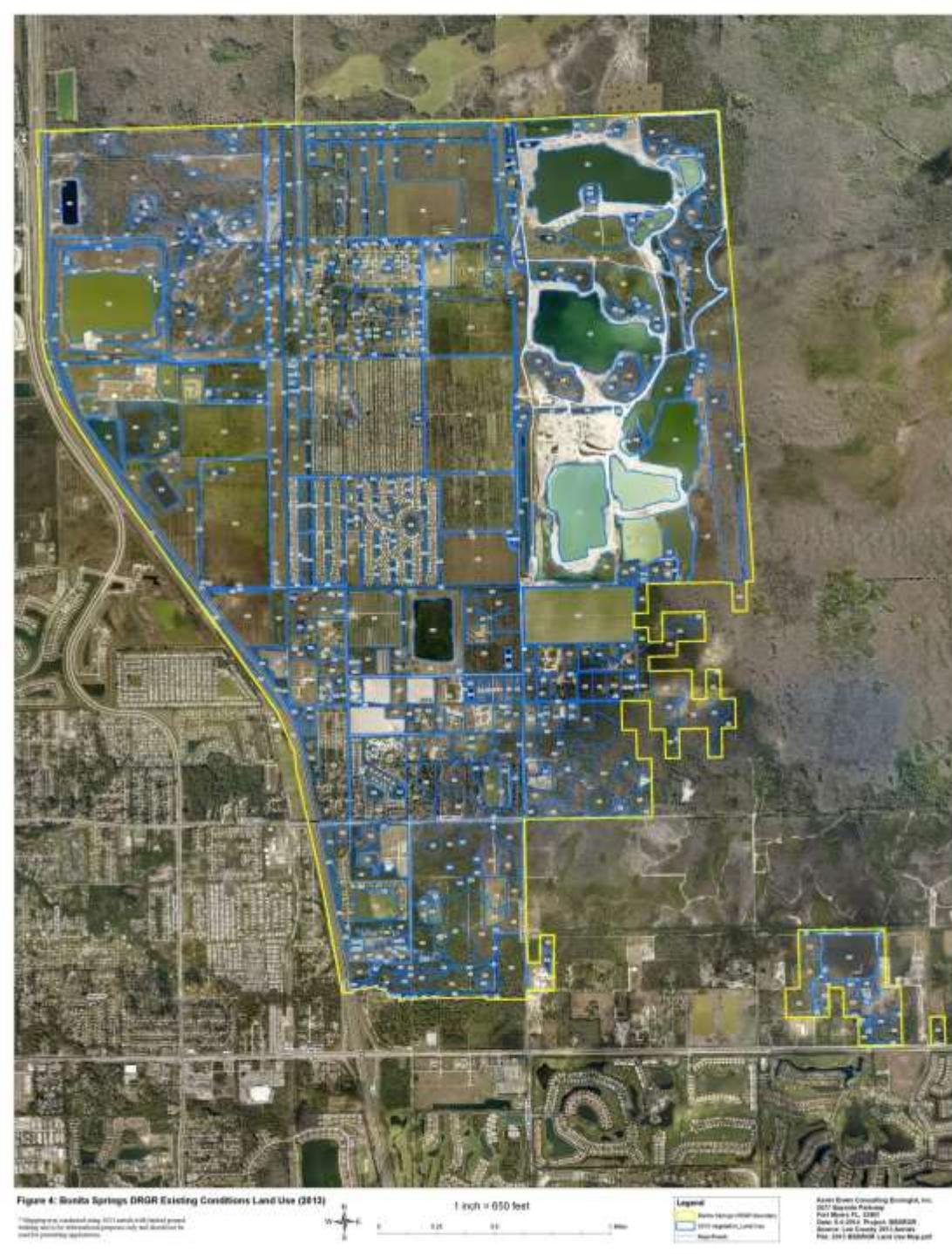
The work now completed and discussed here is an important step towards developing policies and projects that will protect and restore the Bonita Springs DRGR's natural resources and economic values.

These results represent a significant undertaking that was necessary in order to reasonably characterize the historic and existing conditions of the study area's landscape.

Up to this point, the extent of the historic hydroecological conditions and the extent of wetland losses and the changes in hydropatterns were unknown.

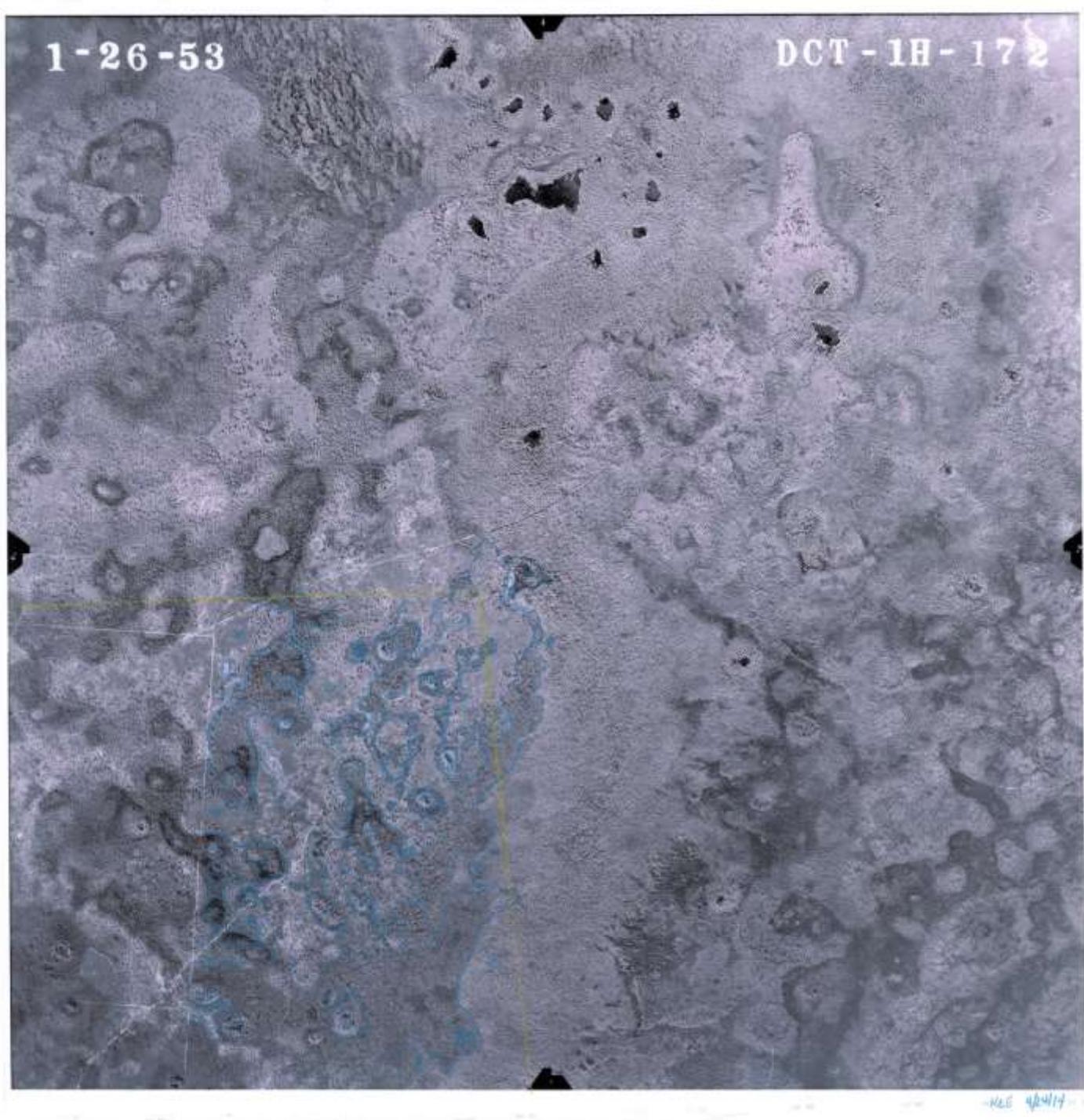
We can now better understand the present day conditions of the study area and discuss future opportunities for managing its resources, including a water management /restoration concept.

**Existing land uses** within the study area were mapped on Lee County **2013** rectified true-color aerial photographs (1":200' scale) and converted to digital geographic files for use with ArcGIS software (ESRI). Level III of the Florida Land Use, Cover and Forms Classification System (FLUCFCS 1999) was used to map vegetative cover classes and land uses.



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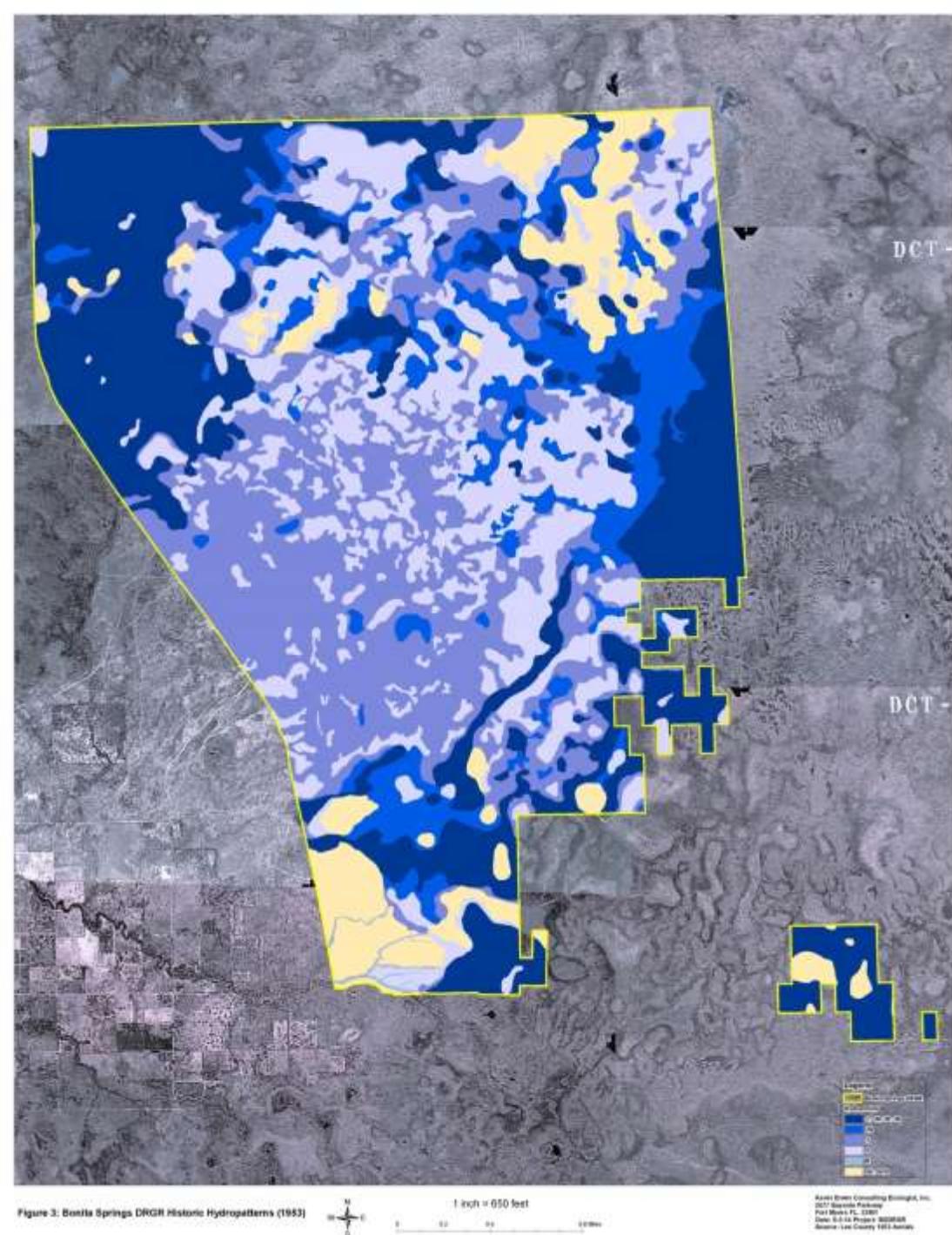
**Historic conditions** within the study area were evaluated using unrectified black-and-white 1953 aerial photography from the Soil Conservation Service (now the Natural Resources Conservation Service), which are the clearest reliable representation of historic conditions.

# Results and Discussion

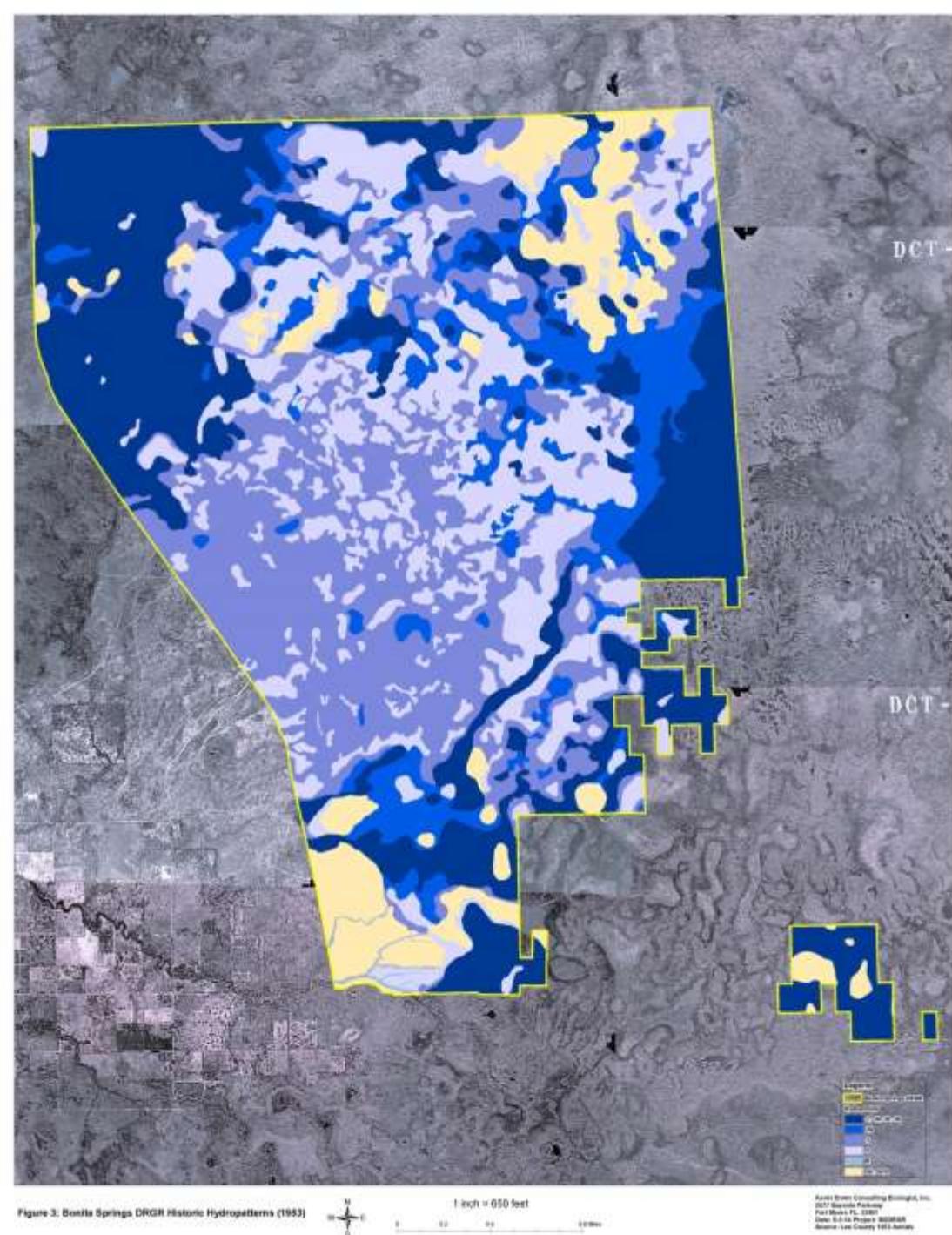
## Historical Conditions

Located entirely within the Estero Bay watershed, the 5,353 acre study area continues to be a functional part of the adjacent 82,880 acre DRGR area within Lee County that consists of the intact watersheds of the Imperial River, Flint Pen, and Corkscrew Swamp (KECE 2008).

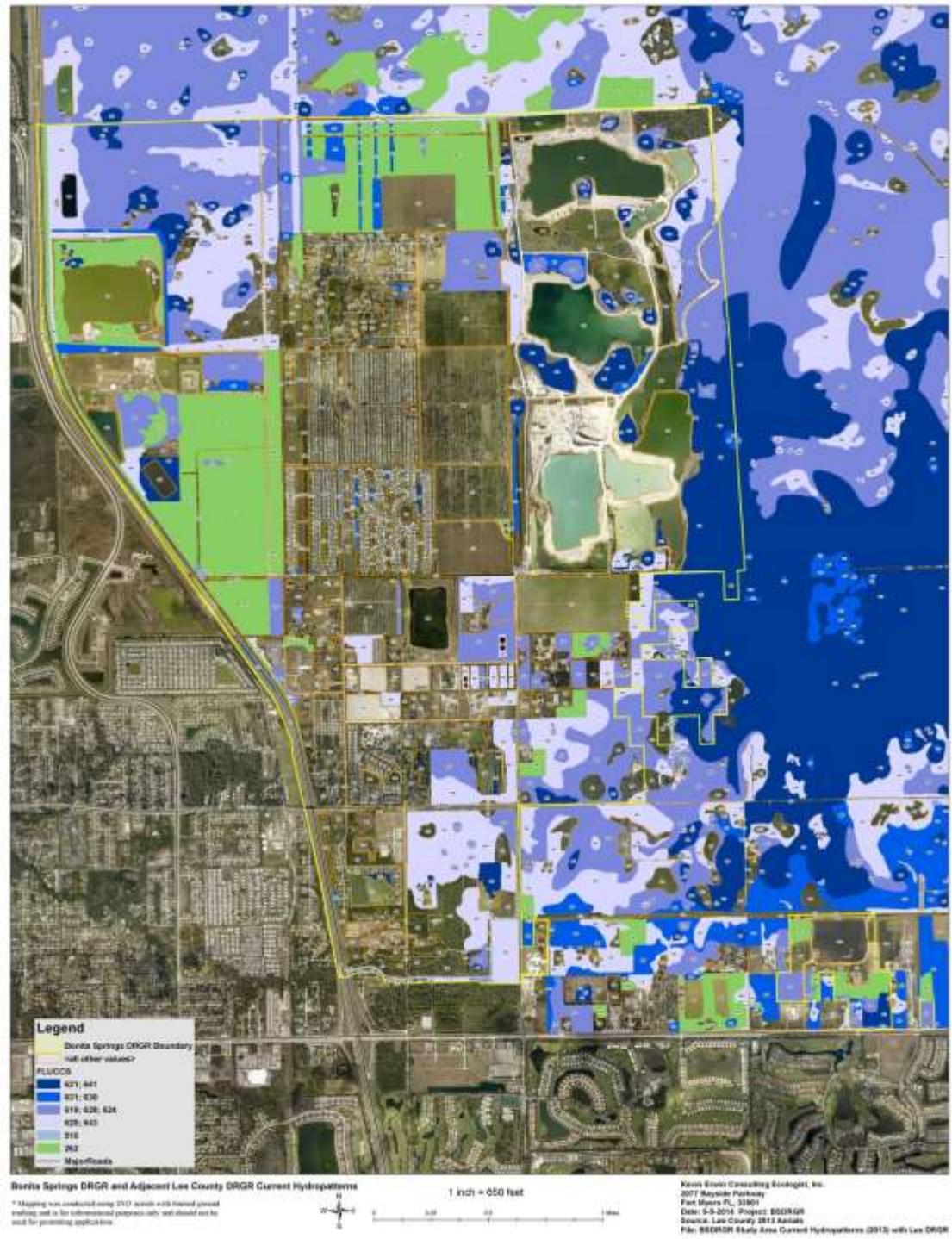
Elevations range from 15 feet at the upper end of the DRGR study area to 8 feet at the lower end along I-75 (not including Imperial River channel).



Prior to development, most years with normal rainfall resulted in much of the study area being **flooded or with groundwater levels close to the surface**. What is apparent is the very wet nature of this landscape containing a myriad of interconnected wetlands. The correlation between this vast wetland area being drained by a few small streams means that **most of the water in the study area stayed on or just under the surface of the landscape**, thus providing evenly metered, deliberate pulses of ground and surface water discharging to Estero Bay.



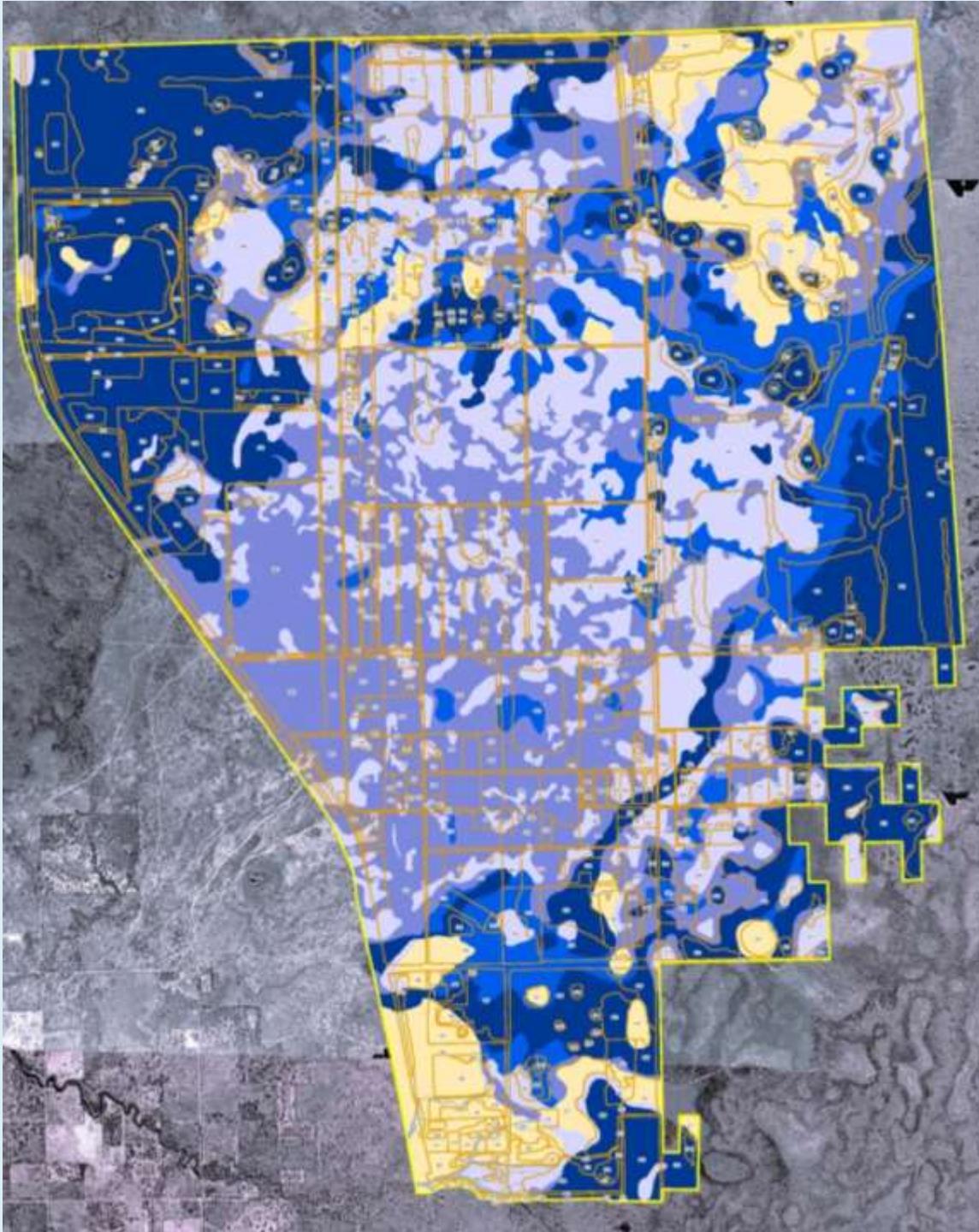
The deeper ponds, cypress swamps, and marshes have been assigned dark blue on Figure 1 with progressively shallower, shorter hydroperiod wetlands being assigned lighter shades of blue. This representation illustrates the location of **historic flow ways, deep pools and sheet flow areas**, provides an opportunity in the future to calculate the **historic capacity for water storage in the study area** during an annual cycle and also allows us to link the area with the Lee County DRGR evaluation (KECE 2008) and 2009 DHI report.



Future attempts to quantify historic and present day hydropatterns, including base flow conditions for the rivers and creeks discharging to Estero Bay, should be done with the appropriate modeling and Light Detection and Ranging (LiDAR) topographic data and be expanded to include all appropriate areas both upstream and downstream of the study area. This could be **a valuable tool for assessing the future conditions within the City, resulting in one or more scenarios for future development, conservation, restoration and climate change**, thus providing some opportunities for mitigating impacts and maximizing benefits

Since 1953, much of the DRGR, approximately **1,289 acres has been converted to agriculture, 675 acres to residential development and 870 acres to mining**. It is also apparent that as a result of some of these activities a substantial percentage of the  $1,745\pm$  acres of land remaining in a natural state has been **over-drained**. Most of these lands were wetlands and are the focus of our proposed restoration opportunities.

The estimated acreages of major wetland habitats in 1953 and 2013 are provided in Table 2. For the 1953 mapping, Level III categories were combined to reflect similar hydrological characteristics (depth of inundation and hydroperiod) for comparison with the wetland classifications applied to the existing conditions mapping. This allows for a reasonable comparison of quantitative changes in acreage and also possible changes in hydropatterns.

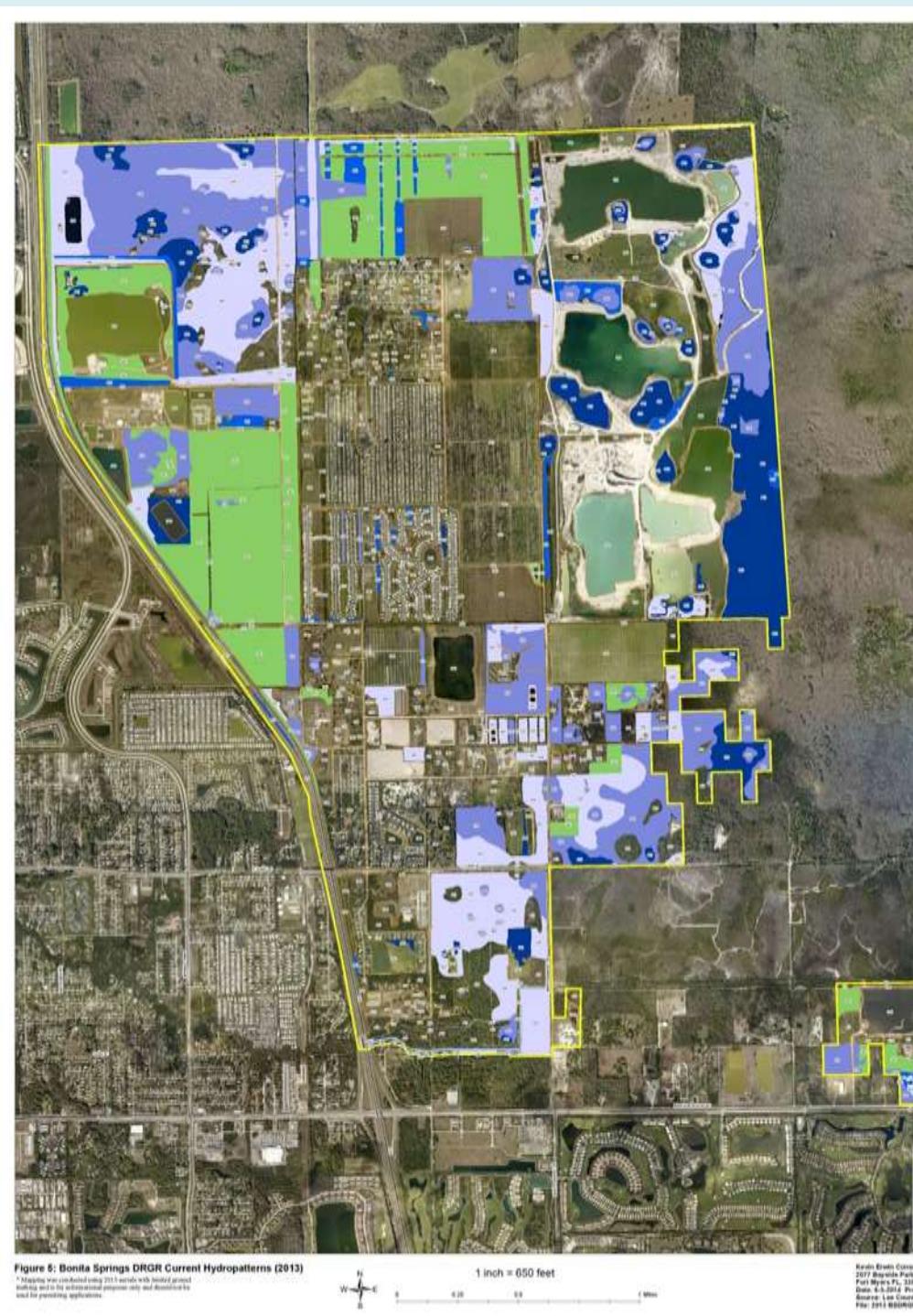


# Bonita Springs DRGR

## Existing Land Use and Historic Hydropatterns 1953



Bonita Springs DRGR  
Existing Land Use  
and  
Current Hydropatterns  
2013



Without appropriate **water level monitoring data**, there is no precise way to estimate the existing hydrological conditions within wetlands remaining in the DRGR. Therefore, one should assume that the hydrological conditions in the existing landscape are **drier** than that reflected in this analysis.

**Physical alterations within the study area, including the conversion of native habitat to agriculture, construction of roads and drainage canals, the development of subdivisions, utilities and mining has redirected flows of surface water from their historical pathways.**

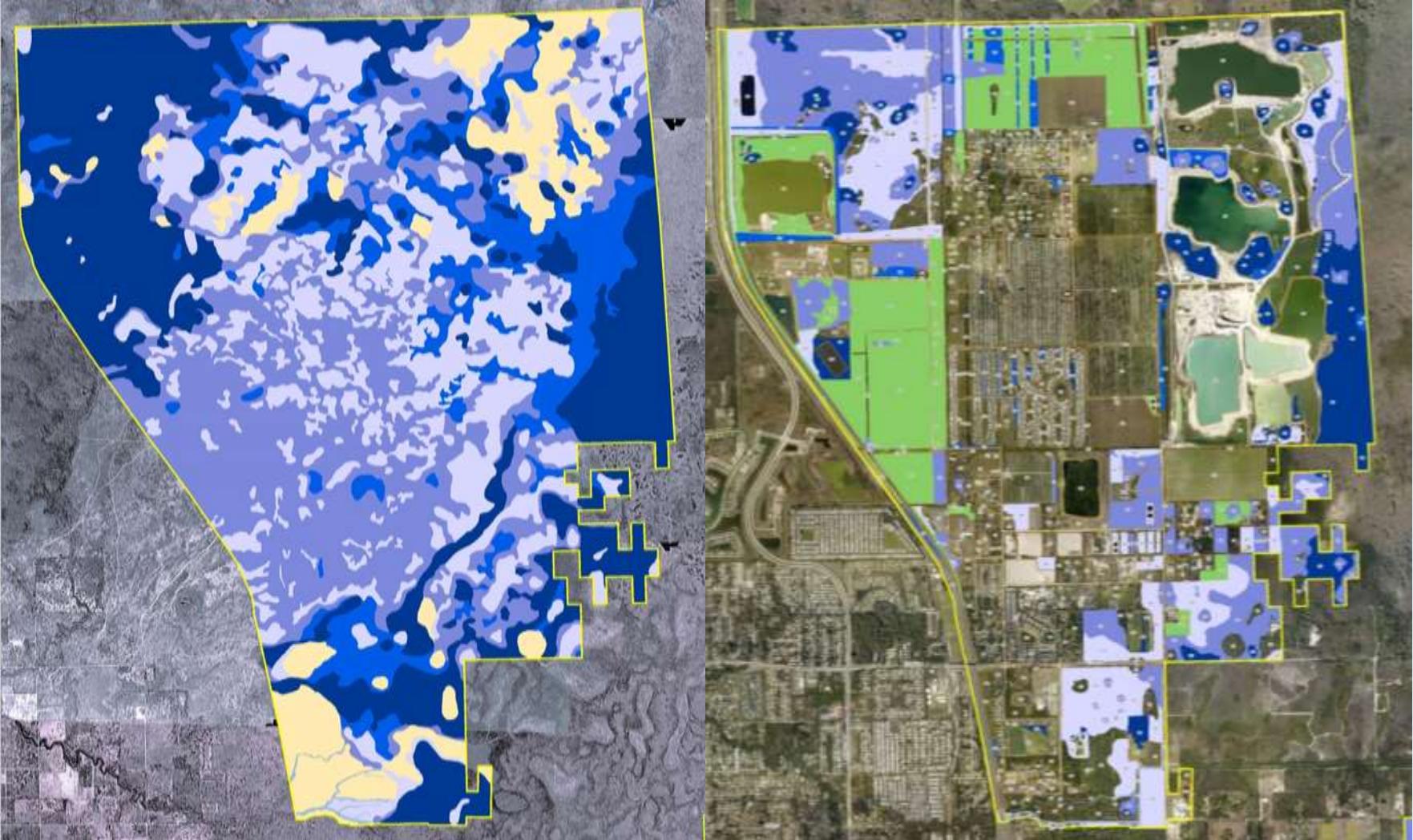
Figure 5: Bonita Springs DRGR Current Hydropatterns (2013)

\*This map is intended for 2013 wetlands with hydrologic patterns resulting from physical alterations to the hydrological system and does not reflect pre-existing conditions or future projections.

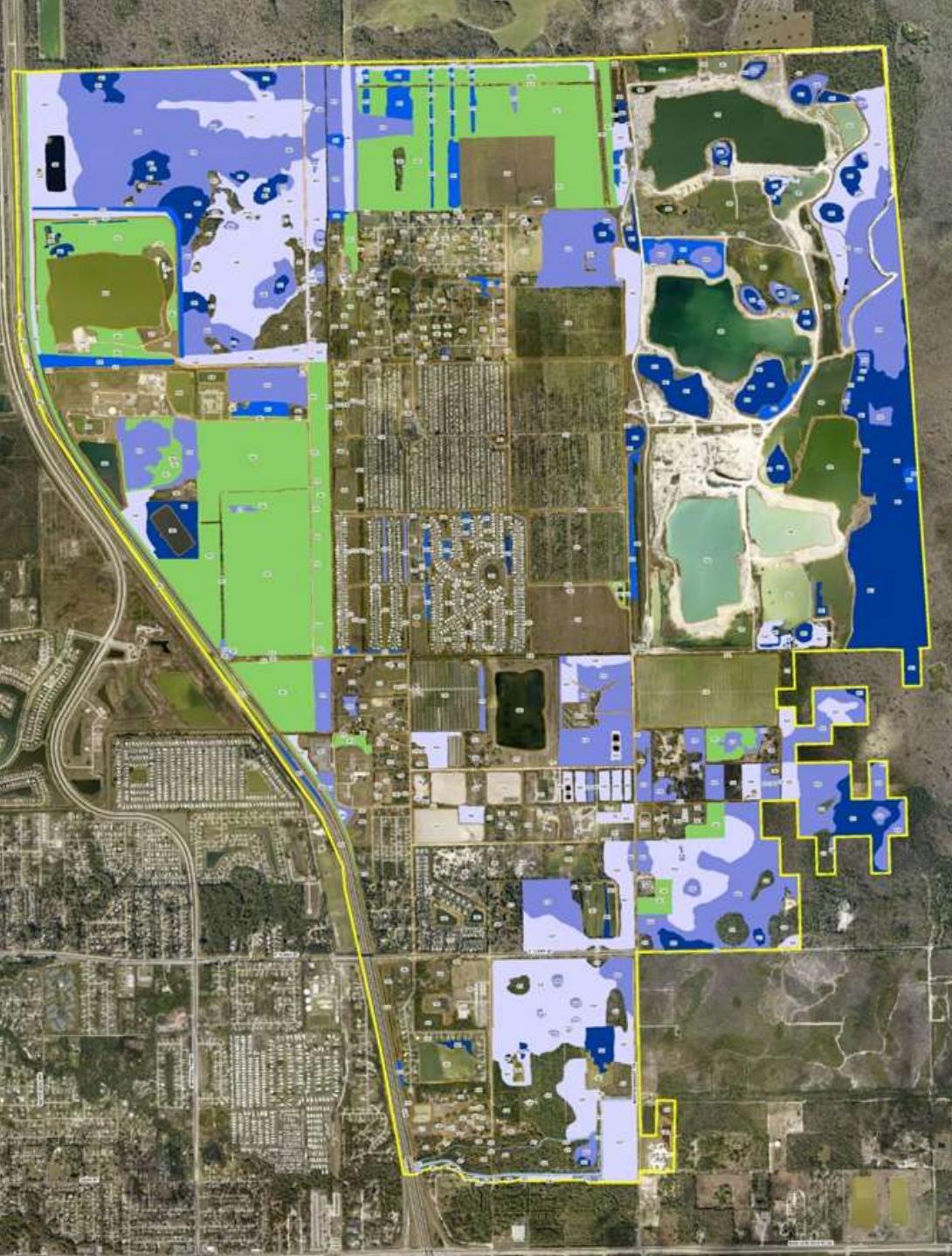
N  
W E S  
1 inch = 650 feet  
1 mile  
Scale  
4.20 6.0  
1 Mile  
Karin Brattin Clegg,  
2017 Bayou Park  
Fort Myers, FL  
Date: 3/10/2017  
Source: Lee County  
File: 2013-BB00000



We estimate that drainage within the study area has resulted in significant lowering of the water table during both wet and dry seasons and a shortening of wetland hydroperiods.



Comparison of the two mapping products shows that **68.5% of the DRGR wetlands have been lost over the past 60 years**. A comparison of hydropatterns shows the significant degree of wetland habitat fragmentation. Approximately **83% of the deepest wetlands** with the most extended hydroperiods (ponds, freshwater marshes, deep and shallow cypress) **are gone**, with the hydrology of the remaining wetlands impacted by drainage.



The DRGR is clearly drier today with fewer wetlands on the landscape and apparently shorter hydroperiods, although there is no data to confirm the latter.

The implementation of a surface and shallow groundwater **monitoring** system would provide data needed to assess the existing hydropattern conditions in the study area. There is **significant potential water storage capacity** that exists within the DRGR if appropriate management and restoration techniques are implemented. This additional water storage capacity also exists within the publicly-owned Lee County DRGR lands adjacent to the study area. An additional benefit to this action is **improved water quality**.



Currently, approximately 3,322 acres or **62%** of the DRGR remains undeveloped or in agricultural use

This proposed Conservation Overlay, shows **all contiguous lands with potential for applying conservation practices**, including restoration, parks and sustainable agriculture.

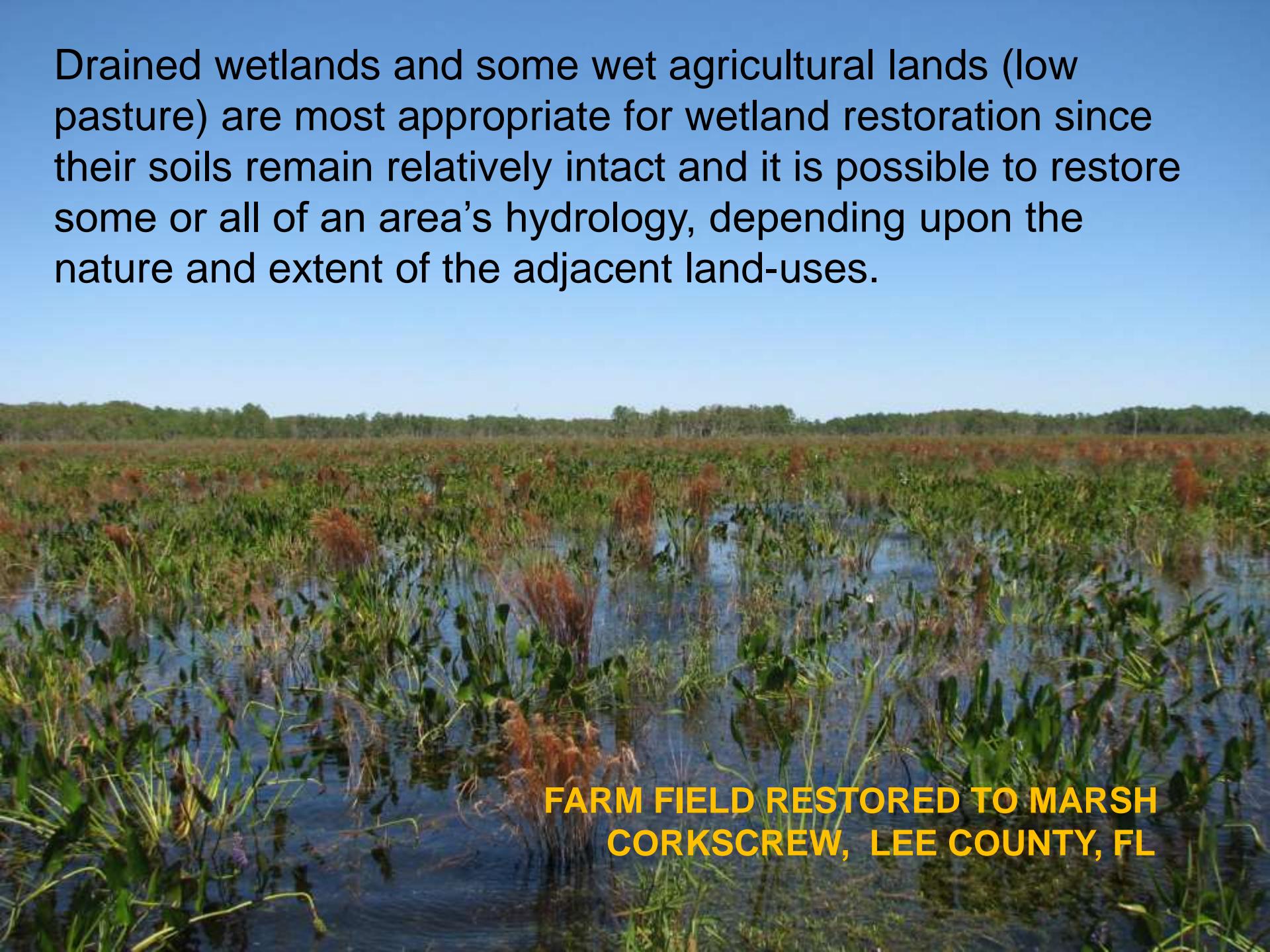


This proposed Restoration Overlay focuses on a combination hydrological restoration, wetland restoration and management, and flow way creation. **Phased wetland restoration** is possible and recommended within two regions of the study area.

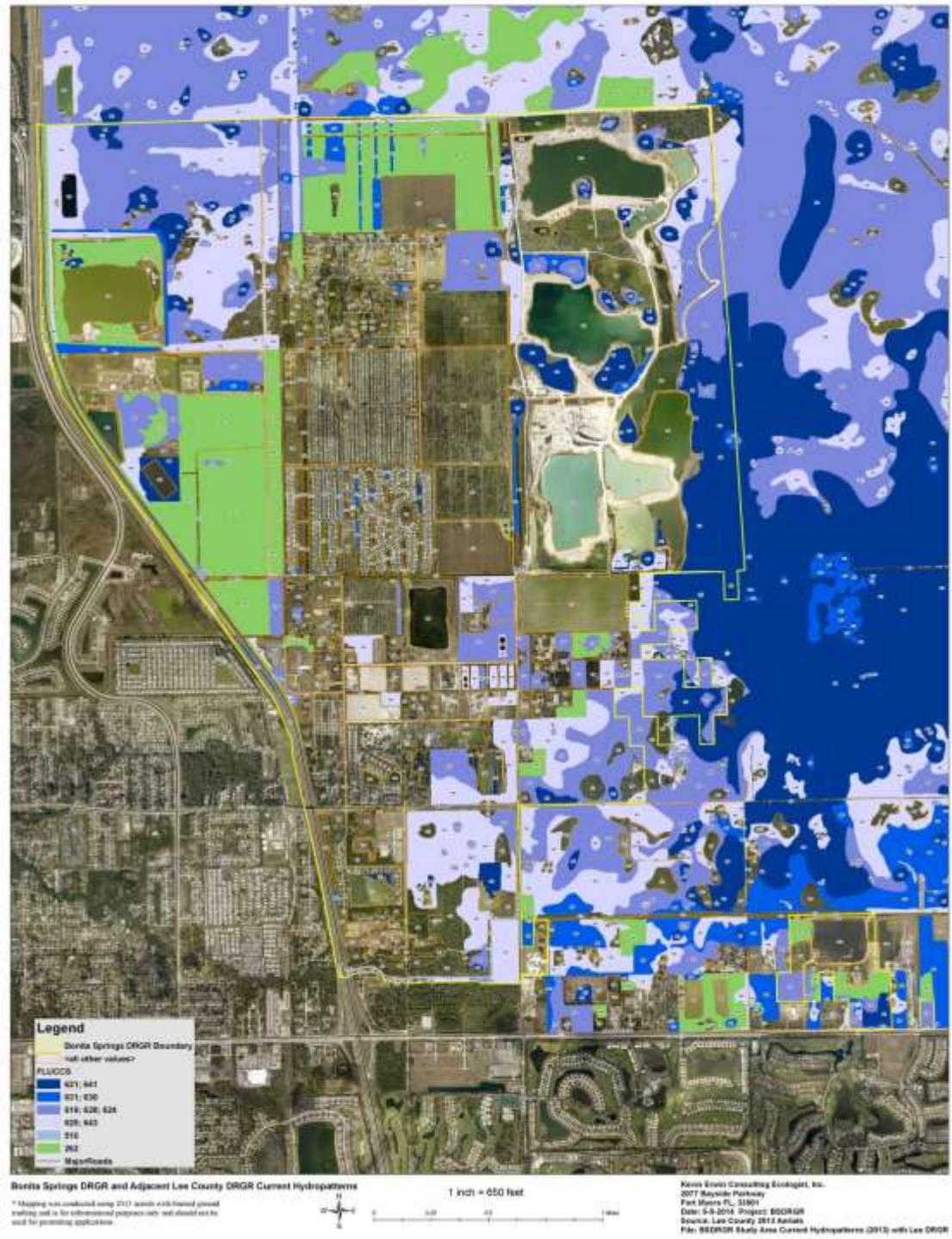


**Each proposed restoration scenario attempts to avoid water management conflicts** with adjacent land uses such as mining, residential development and farming. All detailed proposals for restoration will require further evaluation including: appropriate data collection; detailed planning and engineering; and modeling and permitting as necessary precautions in the project's design and implementation. The basic elements of these restoration plans will include developing a water budget for each restoration area, monitoring ground and surface water levels, designing structures to increase water levels and extend hydroperiods, controlling exotic plant species, and replanting some specific areas with native species.

Drained wetlands and some wet agricultural lands (low pasture) are most appropriate for wetland restoration since their soils remain relatively intact and it is possible to restore some or all of an area's hydrology, depending upon the nature and extent of the adjacent land-uses.



**FARM FIELD RESTORED TO MARSH  
CORKSCREW, LEE COUNTY, FL**



**The restoration and management of adjacent lands within the Lee County DRGR is important.** The current condition of Edison Farms in the north and the CREW-20/20 lands in the south, should be evaluated to reduce drainage and increase water storage. Appropriate management of these lands will assist the restoration of the adjacent City DRGR lands by providing a sustainable supply of ground and surface water. **Restoration of these areas could be as simple as installing water control structures in drainage ditches and canals.**

# Recommendations

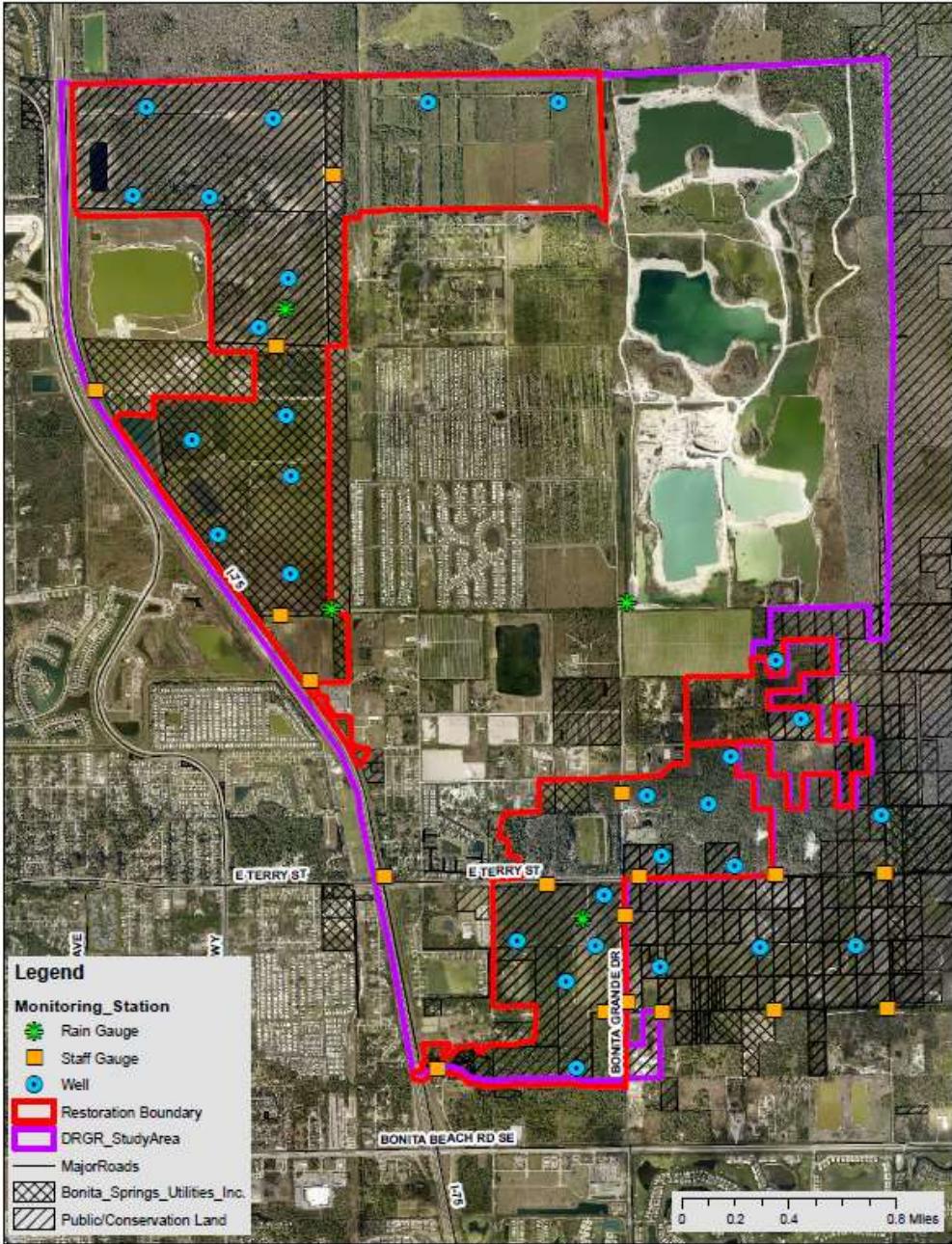
The work products included with this report are designed to be useful ***planning tools for staff***, policy makers, and the public when considering future activities within the DRGR. These recommendations are time-sensitive. While there is considerable habitat fragmentation and over-drainage there still exists significant ***opportunities for hydroecological restoration and properly planned low-impact development*** as long as these activities receive priority action and public support. Delayed implementation of appropriate plans could complicate restoration opportunities resulting from further development and fragmentation.

During our work on Task 1 it became readily apparent that there was ***very limited ecological information on the DRGR***. As a result of the detailed mapping and analysis provided in this report, it is now possible to identify historic and existing conditions within the study area and consider proposals for restoration. However, there is a ***significant need for collecting and evaluating new information, to be used for planning and management purposes***.

The **lack of hydrological data** is the most significant information gap requiring immediate attention in the DRGR and is prominent among our recommended future activities. Understanding the dynamic nature of the ecosystems and the consequences of human interventions is essential for making management decisions aimed to maintain, enhance or restore the ecological integrity of the DRGR and to avoid, minimize or mitigate future ecological threats to the system.

The proper implementation of these recommended restoration scenarios will improve the sustainable integrity of the community by setting proper goals and objectives.

We recommend that the City ***initiate regular programs and discussions with all stakeholders*** in the DRGR as a critical part of the restoration and habitat management objectives. Open communications between all stakeholders is a key component to undertaking successful restoration and management projects.



In August 2014, the Citizens Advisory Task Force requested KECE prepare a water level monitoring plan and proposal.

The City should **implement a comprehensive surface and groundwater monitoring network** that includes; shallow wells, deep wells, staff gauges, flow gauges and rain gauges. In addition, the collection of historic water level data should be pursued by identifying artifacts in the study area and verifying the accuracy of the LiDAR data for the study area. It will be necessary to extend the collection of hydrological data onto adjacent Lee County DRGR lands where some degree of restoration may be appropriate.

In order to commence the preparation of detailed restoration plans and make appropriate decisions on future land-use within the DRGR the City should **model the existing and future hydrological conditions**. The data and information collected in the recommended monitoring network, along with the infrastructure information identified in Task 1 can be used by the ecologist and modeler to **calibrate existing conditions** within the DRGR. It will then be possible to **model the expected conditions for those future development and restoration scenarios chosen by the City**.

The model will also be used to assist the South Florida Water Management District (District), Florida Department of Environmental Protection (Department), US Army Corps of Engineers and Lee County review of plans and permit applications for restoration projects. A high priority will be placed on protecting livelihoods and insuring that any proposed changes in hydropatterns do not adversely impact adjacent property owners, water quality, and freshwater flows to Estero Bay.



The City should investigate project funding opportunities with the District, FDEP, and USEPA as restoration plans become more detailed and the costs and benefits can be reasonably estimated. Successful restoration is dependent upon the proper management of water resources on the adjacent Lee County DRGR lands. These lands are needed to provide a reliable, long-term supply of surface and groundwater to the Bonita Springs DRGR. Therefore it is important that the City develop a close working relationship with Lee County on all DRGR land and water resource management issues.

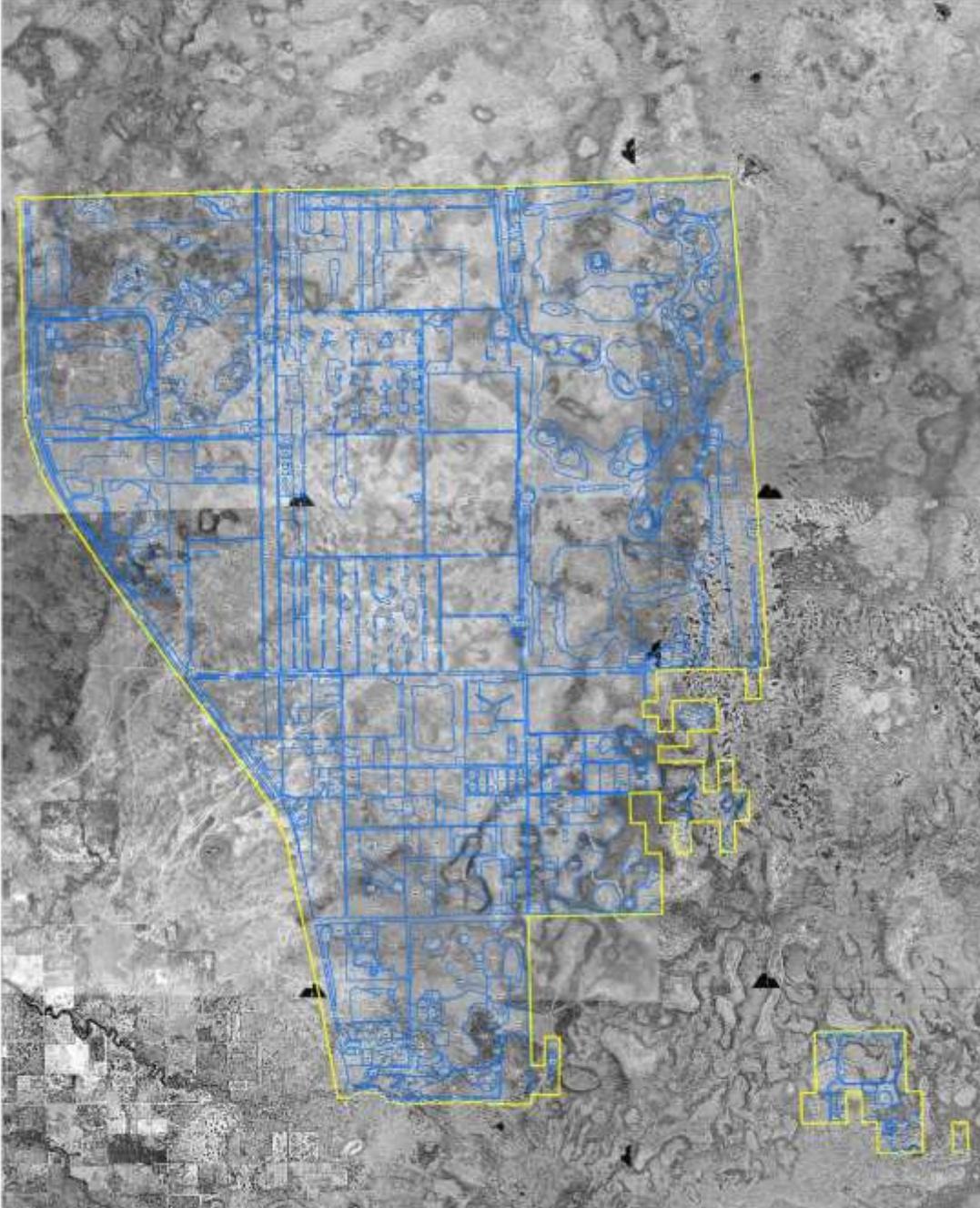


*Thank you !*

Restored improved pasture  
Polk County, Florida







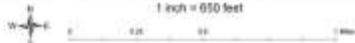
Kevin Rivers Consulting Biogeo, Inc.  
301 N. University Parkway  
1100 Martin St., #300  
Date: 7-10-07 - Project: BONITA  
The City of Bonita Springs over 1953 Aerial  
Source: Lee County 2001 and 1983 Aerial.



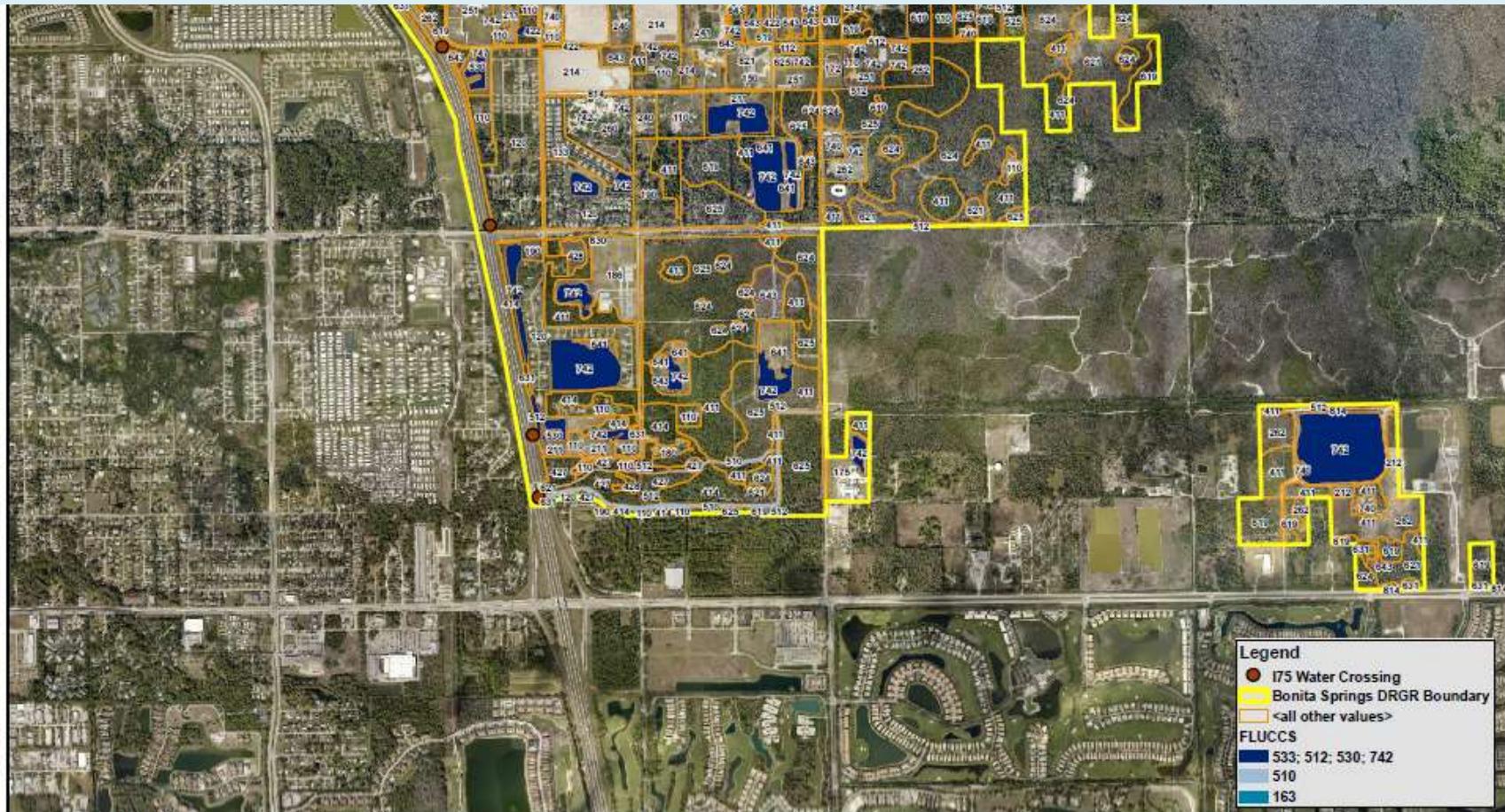
Bonita Springs DRGR - Other Water Bodies

\* Delineations were developed using 2013 aerials with limited visual verification and are subject to change.  
\*\* Includes undeveloped land parcels.

1 inch = 650 feet

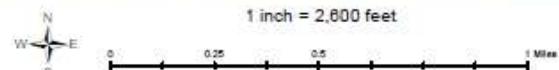


Acorn Environmental Consulting, Inc.  
220 E. University Parkway  
Port Myers FL 33952  
Date 4-4-2014 Project #00000000  
Report #00000000-2014-Acreage  
Page 0141 of 0400 Surface Water Only.pdf



### BSDRGR Study Area Surface Waters

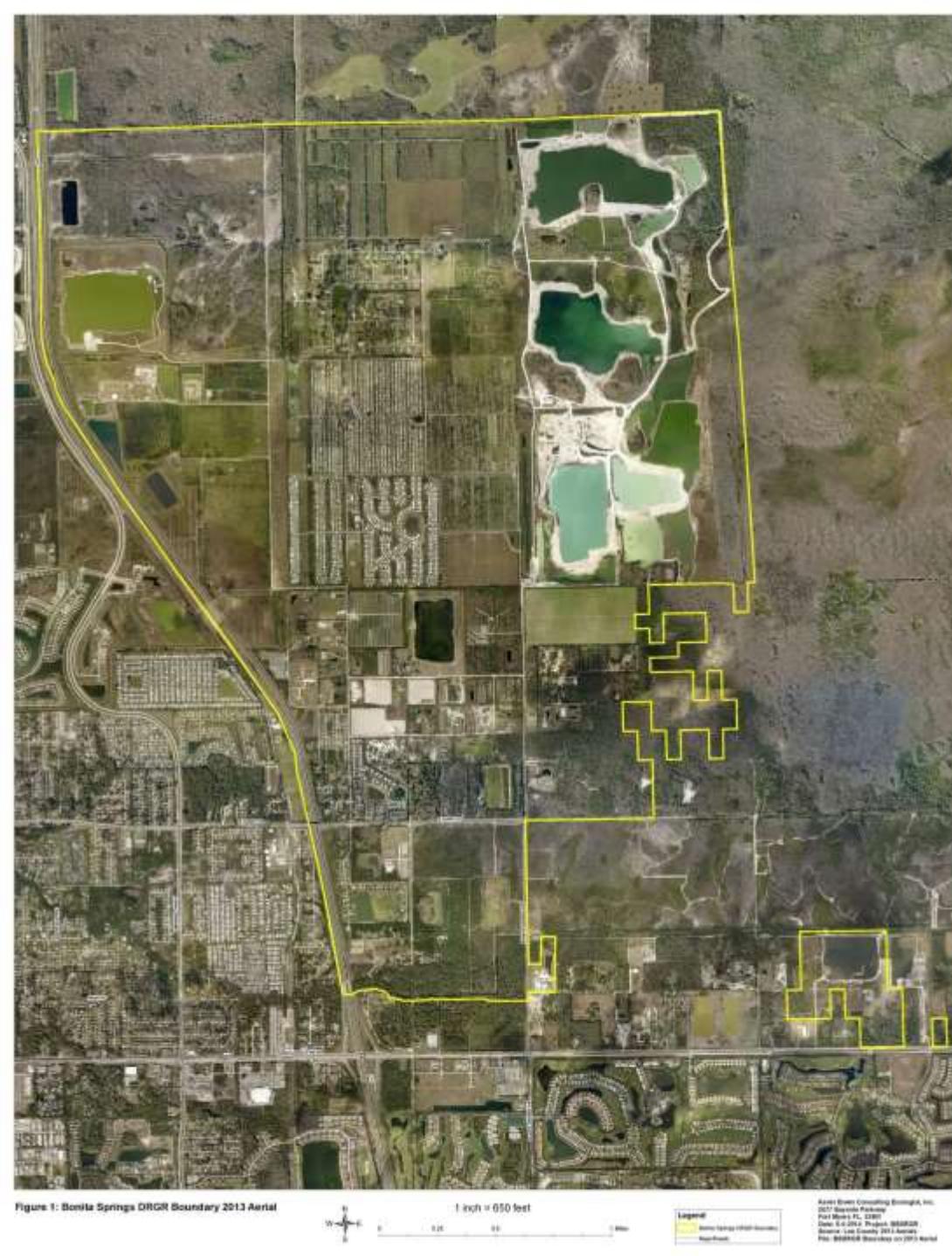
\* Mapping was conducted using 2013 aerials with limited ground truthing and is for informational purposes only and should not be used for permitting applications.



Kevin Erwin Consulting Ecologist, Inc.  
2077 Bayside Parkway  
Fort Myers FL 33901  
Data: 6-5-2014 Project: BSDRGR  
Source: Lee County 2013 Aerials  
File: BSDRGR Study Area Surface Waters

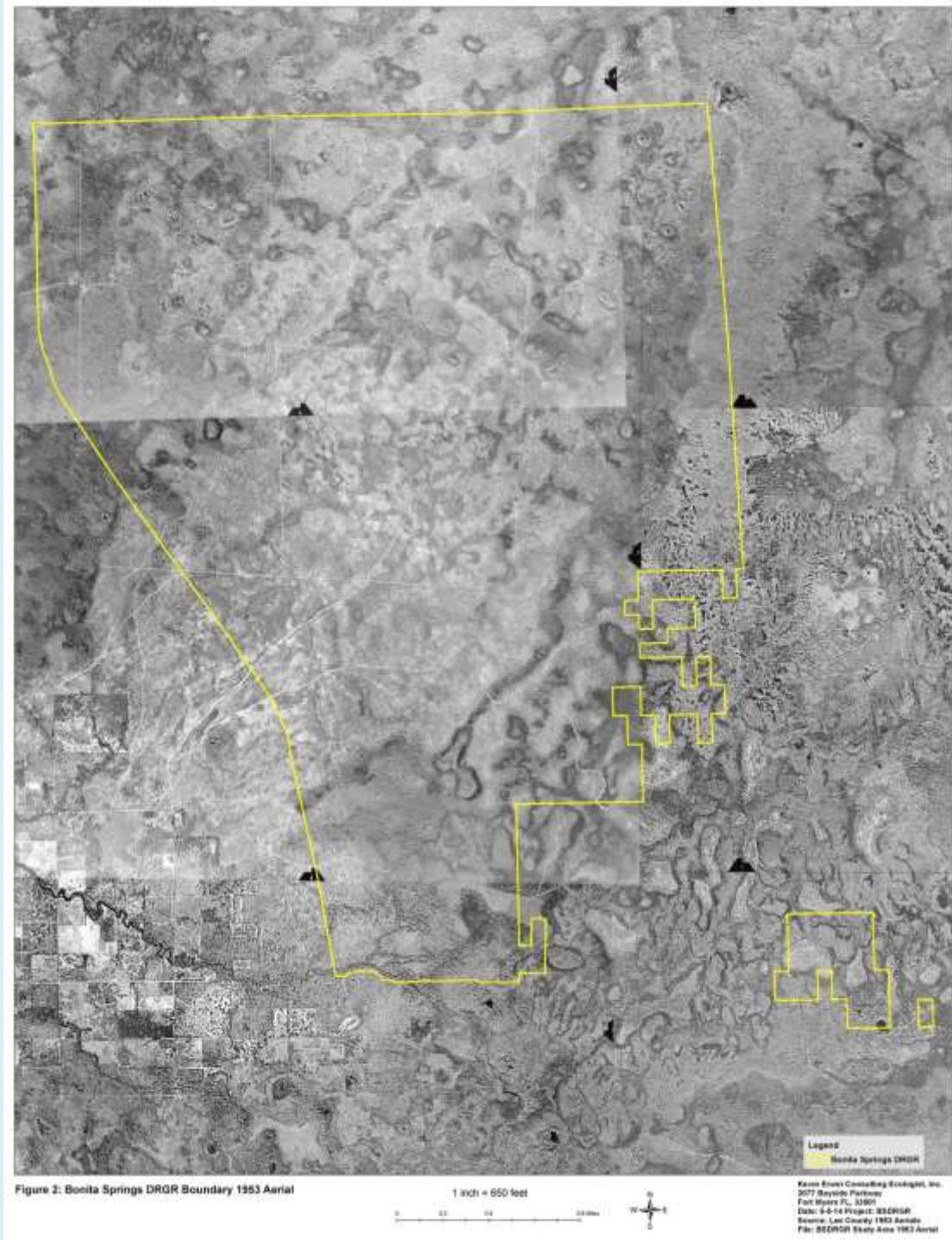
# Methodology

A Bonita Springs DRGR boundary overlay was created on 2013 Lee County aerial photographs



These high resolution 1953 photos of the study area were scanned, georectified, then plotted for mapping by experienced ecologists to determine the approximate historic hydrological conditions for the entire study area.

## Bonita Springs DRGR Boundary 1953



This 1953 mapping was performed by using cover codes that correspond to FLUCFCS codes (Table 1). This habitat mapping of historic conditions is more general than mapping of existing conditions due to the types of aerial photography available in 1953 (unrectified black-and-white contact prints) versus the rectified 1":200' true-color photographs available for 2013. Wetland hydroperiods were assigned to the 2013 FLUCFCS codes and the 1953 cover codes (Table 1). This coding system allowed for the mapping of current (2013) and historic (1953) hydropatterns throughout the study area.

### Hydropatterns in the Bonita Springs DRGR

Hydrological Codes (1953 Aerials)	FLUCFCS Codes (2013 Aerials)	Wet Season Water Depth	Wetland Hydroperiod	Map Index Color
1, 1M, 1P, 2D	621, 641	1.5 - 2.5'	7-9 mos	dark blue
2S	630, 631	0.75 - 1.5'	4-7 mos	medium blue
3	619, 624, 628	0.25 - 0.75'	1-3 mos	medium light blue
4	262, 625, 643	-0.5 - 0.25'	1-2 mos	light blue

The existing and historical hydroecological conditions of the DRGR were evaluated to identify opportunities for restoration and management of wetlands to store, treat and convey surface water.

The major habitat associations identified relate to specific hydroperiod and water depth conditions (hydropatterns), with each being color-coded to illustrate the historical hydropatterns in the study area.

Table 1 provides the correlation between the major habitat associations (FLUCFCS) and hydropatterns (flow patterns, depth of inundation and length of inundation). The estimated depths of inundation and hydroperiods are typical ranges of conditions for unaltered wetland systems in southwest Florida.

The coding system of the 1953 conditions was developed by KECE for the Lee County DRGR project (KECE 2008) to capture the most critical data from the 1953 aerials in a format that can align with later analytical efforts within the study area and future recommendations regarding land use and restoration.

## Existing Conditions

The 2013 Lee County aerial photographs were desktop mapped by locally-experienced ecologists. The result is a comprehensive ecological map of existing conditions within the study area (Figure 4). The acreages for all existing land uses area are contained in Table 3 and Appendix A. The estimated current hydropatterns within the study area are provided in Figure 5 and illustrated using the same color-code system applied to the historic hydropatterns in Figure 3. An accurate confirmation of these estimated conditions is now possible using the GIS files provided in this report along with LiDAR elevation data, groundtruthing, and modeling. This is a project recommendation.

**Table 3. Bonita Springs DRGR Major Land Use Categories Existing Conditions Acreages**

LEVEL I FLUCFCS CATEGORY	Total Acres	Percent
100 - Urban and Built-up	1,617.37	30.21
200 – Agriculture	1,289.17	24.08
400 - Upland Forests	287.16	5.36
500 - Water	203.00	3.79
600 - Wetlands	1,533.60	28.65
700 - Barren Land	185.66	3.47
800 - Transportation, Communication and Utilities	237.23	4.43
<b>GRAND TOTAL</b>	<b>5,353.19</b>	<b>100.00</b>

**Table 2. Estimated Acreages of Major Wetland Habitats within the Bonita Springs DRGR in 1953 and 2013**

1953		2013		Loss (in acres)	% Loss
Habitat Type	Acreage	FLUCFCS Code	Acreage		
1, 1M, 1P, 2D	1,631.0	621, 641	307.6	1,323.4	81.1
2S	612.5	630, 631	77.7	534.8	87.3
3	1,380.5	619,624,628	653.8	726.6	52.6
4	1,249.7	625, 643	494.4	755.2	60.4
<b>Total</b>	<b>4,873.6</b>		<b>1,533.6</b>	<b>3,340.0</b>	<b>68.5</b>

**Table 4. North Restoration Area Major Land Use Category Acreages**

North Restoration Area Level III FLUCFCS Category	Total Acres	Percent
211 - Improved Pasture/Mowed Fields	0.82	.07
215 - Field Crops	50.75	4.35
262 - Wet Pasture/Hydric Mowed Fields	410.80	35.20
411 - Pine Flatwoods	41.59	3.56
414 - Pine/Mesic Oak	3.47	.30
422 - Brazilian Pepper	5.38	.46
512 - Ditches and Canals	18.31	1.6
530 - Reservoirs	8.00	.68
533 - Reservoirs (10-100 ac)	10.49	.90
619 - Exotic Wetland Hardwoods	91.16	7.80
621 - Cypress	36.98	3.17
624 - Cypress/Pine/Cabbage Palm	201.75	17.29
625 - Hydric Pine Flatwoods	111.63	9.56
628 - Hydric Cabbage Palm	1.45	.12
631 - Wetland Shrubs/Shrubby Wetlands (BP, Willow, etc.)	38.27	3.30
641 - Freshwater Marshes	15.04	1.29
643 - Freshwater Prairie/Treeless Hydric Savannah	88.68	7.60
740 - Disturbed Lands	6.25	.53
742 - Borrow Areas (Lake)	11.19	.96
743 - Spoil Areas	0.08	.00
747 - Dikes & Levees	10.89	.93
814 - Roads and Highways	3.55	.30
831 - Electric Power Facilities	0.02	.00
833 - Sewage Treatment Plants	0.41	.03
<b>Grand Total</b>	<b>1,166.95</b>	<b>100.00</b>

**Table 5. South Restoration Area Major Land Use Category Acreages**

South Restoration Area	Total Acres	Percent
Level III FLUCFCS Category		
110 - Residential, Low Density	8.03	1.40
120 - Residential, Medium Density	0.62	.01
190 - Open Land within Urban Areas	0.56	.09
211 - Improved Pasture/Mowed Fields	7.34	1.20
251 - Horse Farms	0.31	.05
262 - Wet Pasture/Hydric Mowed Fields	21.91	3.65
411 - Pine Flatwoods	83.32	13.90
414 - Pine/Mesic Oak	16.42	2.73
427 - Live Oak	22.08	3.75
428 - Cabbage Palm	1.32	.22
510 - Streams and Waterways	6.47	1.08
512 - Ditches and Canals	5.24	.87
619 - Exotic Wetland Hardwoods	36.27	6.0
621 - Cypress	27.60	4.60
624 - Cypress/Pine/Cabbage Palm	119.41	19.9
625 - Hydric Pine Flatwoods	182.81	30.40
631 - Wetland Shrubs/Shrubby Wetlands (BP, Willow, etc.)	0.15	0.02
641 - Freshwater Marshes	10.91	1.80
643 - Freshwater Prairie/Treeless Hydric Savannah	13.41	2.23
740 - Disturbed Lands	11.11	1.80
742 - Borrow Areas (Lake)	25.65	4.30
<b>Grand Total</b>	<b>600.96</b>	<b>100.00</b>

The North and South Restoration Areas have large intact areas of native lands and wet pasture that have strategic importance, due to their location, to store and treat surface water and create a natural unimpeded, but managed, connection across the DRGR to the openings in I-75 . These restoration areas would reconnect fragmented hydropatterns and native habitat corridors and also provide an important benefit to wildlife. Part of a future restoration planning effort could also include designing paths around the perimeter of each restoration area with multiple trailheads and educational opportunities.

The following additional figures regarding the DRGR study area were provided as appendices to this report.

Appendix B - Bonita Springs DRGR Existing Land Use over 1953 Aerial

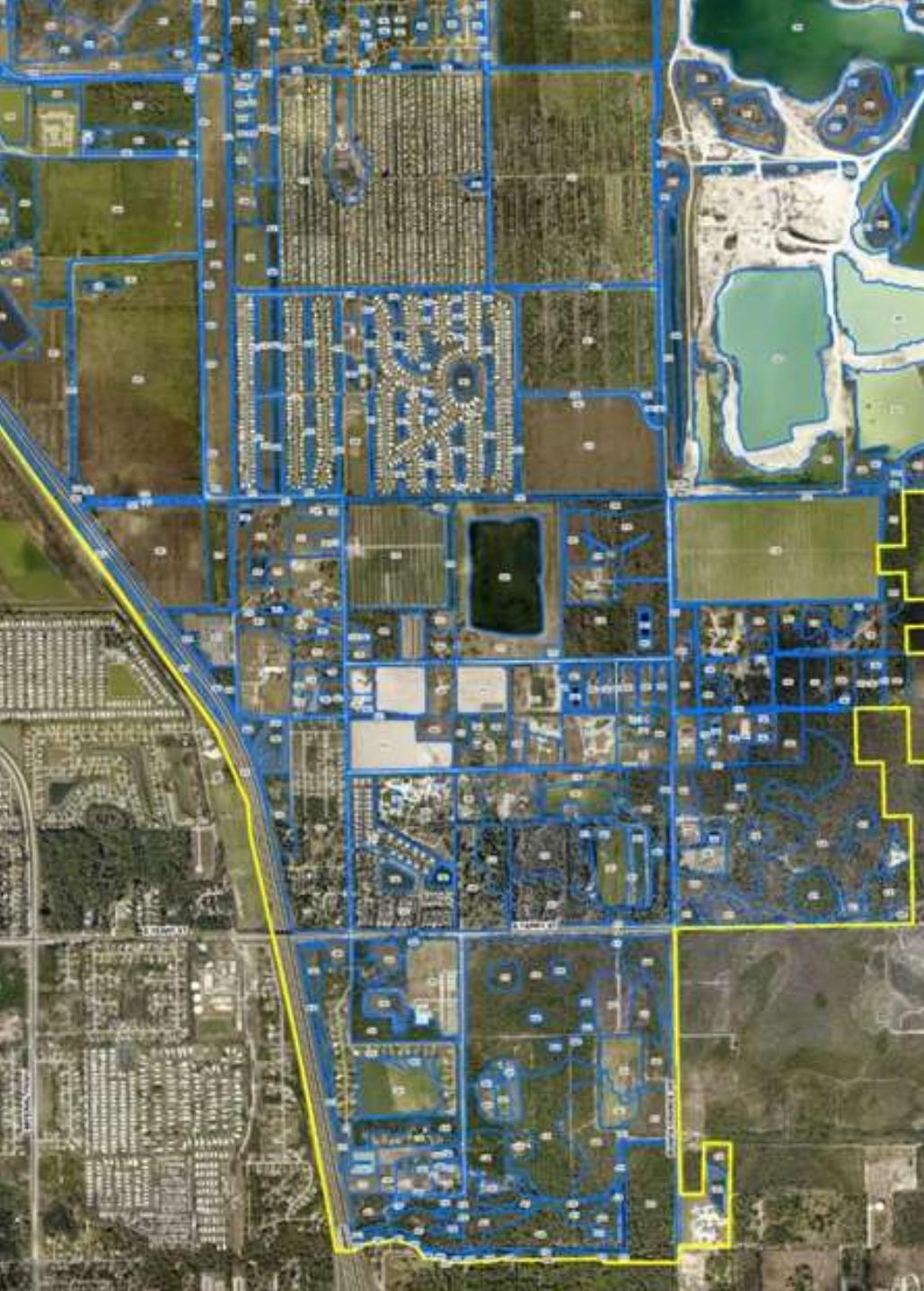
Appendix C - Bonita Springs DRGR Existing Land Use over 1953 Hydropatterns

Appendix D - Bonita Springs DRGR and Adjacent Lee County DRGR Current Hydropatterns

Appendix E - Bonita Springs DRGR - Other Water Bodies



# Conceptual Hydrological Monitoring Network



Limited groundtruthing of the 2013 existing conditions mapping was conducted due to the majority of lands being privately owned.

# Bonita Springs DRGRLevel III FLUCFCS Code

	<b>Area (acres)</b>	<b>Description</b>				
110	231.26	Residential, Low Density	260	19.47	Other Open Lands, Agricultural	
112	2.26	Mobile Home Units, Low Density	262	578.12	Wet Pasture/ Hydric Mowed Fields	
120	94.19	Residential, Medium Density	411	184.68	Pine Flatwoods	
132	289.74	Mobile Home Units, High Density	414	37.00	Pine/Mesic Oak	
133	11.70	Multiple Dwelling Units, Low Rise	422	36.13	Brazilian Pepper	
140	6.71	Commercial	424	1.84	Melaleuca	
150	9.74	Industrial	427	23.19	Live Oak	
160	389.64	Extractive (Non-Lake), Mineral	428	4.32	Cabbage Palm	
Processing			510	6.47	Streams and Waterways	
			512	68.45	Ditches and Canals	
			530	27.59	Reservoirs	
			533	100.48	Reservoirs (10-100ac)	
			619	242.07	Exotic Wetland Hardwoods	
163	478.50	Rock Quarries (Lake)	621	193.68	Cypress	
165	2.24	Reclaimed Land	624	410.32	Cypress/Pine/Cabbage Palm	
170	5.93	Institutional	625	338.93	Hydric Pine Flatwoods	
172	4.31	Religious	628	1.45	Hydric Cabbage Palm	
175	9.80	Governmental	630	1.98	Wetland Forested Mixed	
179	5.56	Institutional Under Construction	631	75.72	Wetland Shrubs/ Shrubby Wetlands (BP, Willow	
180	6.33	Recreational	641	113.96	Freshwater Marshes	
182	7.98	Golf Courses	643	155.50	Freshwater Prairie/ Treeless Hydric Savannah	
186	46.07	Community Recreational Facilities	740	24.23	Disturbed Lands	
190	15.40	Open Land within Urban Areas	742	140.38	Borrow Areas (Lake)	
211	160.74	Improved Pasture/ Mowed Fields	743	0.08	Spoil Areas	
212	35.72	Unimproved Pasture	747	20.93	Dikes & Levees	
214	149.94	Row Crops	814	170.12	Roads and Highways	
215	50.76	Field Crops	820	7.99	Communications	
221	173.70	Citrus Groves	821	0.15	Transmission Towers	
224	63.85	Abandoned Groves	830	0.39	Utilities	
240	13.51	Nurseries and Vineyards	831	8.14	Electric Power Facilities	
241	12.62	Tree Nurseries	833	43.47	Water Supply Plants	
247	1.47	Agriculture Buildings	834	5.28	Sewage Treatment Plants	
251	29.28	Horse Farms	835	1.69	Solid Waste Disposal	
			Total	5,353.15		