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June 13, 2019

Marc Ady
Environmental Supervisor
Orlando Regulatory Division
South Florida Water Management District
1707 Orlando Central Parkway, Suite 200
Orlando, Florida 32809

Re: Harmony Site – Harmony, Osceola County, Florida
SFWMD Permit No. 49-01058-P
SFWMD Applic. No. 991227-13
Second Annual Mitigation Monitoring Report (Spring 2019)

Mr. Ady:

This letter presents the results of the second annual monitoring event that took place in May 2019 for the on-site wetland and upland preservation areas within the Harmony Community in east Osceola County. The following presents the results of this second annual monitoring event.

PROPERTY LOCATION

The property is located north of US-192 approximately 10 miles east of St. Cloud. The property is bound on the south and west by US-192, by Buck Lake to the north, and by Cat Lake and the Big Bend Swamp to the east. A location map and aerial photograph have been provided as Figures 1 and 2, respectively.

BACKGROUND

The monitoring activities are associated with compliance with the special conditions of SFWMD Environmental Resource Permit 49-01058-P, which authorized 21.79 acres of wetland impacts for the development of the 1,381-acre mixed-use development. As mitigation to offset these impacts, 464.80 acres of onsite wetlands were preserved as well as 2.5 acres of xeric oak uplands. These areas were placed under a conservation easement, and an associated monitoring/maintenance program was stipulated by permit.

MONITORING METHODOLOGY

The first annual monitoring event was conducted by Bio-Tech Consulting Inc. in April and August 2017. During this monitoring event, five (5) permanent monitoring transects

were established within the wetland preservation areas, and an additional three (3) monitoring transects were established within the xeric oak preservation areas. Photographs were taken in all cardinal directions at the beginning and end of each monitoring transect, and the locations of these endpoints (photostations) were marked with PVC stakes and flagging. The locations of the photostations and monitoring transects are depicted on Figure 3.

Qualitative monitoring of the condition of wetland and upland habitats along these transects included species lists, and estimations of the percent cover of native species as well as any observations of exotic/nuisance plant species. Where noted, the percent coverage of exotic/nuisance species was estimated to document compliance or non-compliance with the goals of the SFWMD approved mitigation plan. All wildlife observations were also noted.

RESULTS

Nathan Chambers and Christopher Newton of AEC completed the second annual monitoring event on May 21, 2019. A summary of the observations along each monitoring transect is provided below. Monitoring photographs from the fixed photostations have been provided as Appendix 1.

Upland (Xeric Oak) Preservation Areas

Transect 1

The xeric oak habitat along transect 1 is in excellent condition, with no observed exotic/nuisance plant species present. The plant community species composition is consistent with that described in the first annual monitoring report (see Appendix 2). Only a few scattered fallen sand pines (*Pinus clausa*) were observed, however, natural recruitment of desirable native species is evident.

Transect 2

Exotic cogon grass (*Imperata cylindrica*) was noted in a dense patch at the beginning of transect 2, which is located along an existing dirt trail. This species was observed along much of this trail (particularly outside of the preservation area) while gaining access to the site. The species has dominated the areas that are regularly disturbed along this trail, however it does not appear to encroach far beyond the open canopy and edges of the dirt trail.

As with transect 1, which is located within the same area of xeric oak, the species present and percent coverage appeared consistent with that described in the first annual monitoring report, with the exception that cogon grass represents a very minor groundcover component in the vicinity of photostation X03.

Transect 3

The xeric oak within transect 3 resembles a low oak hammock, with a very dense overstory and understory of sand live oak (*Quercus geminata*). Due to the long-term suppression of fire, the overstory has grown quite dense, and resulted in a thick layer of

leaf litter, and sparse groundcover/shrub species. Species composition was consistent with the first monitoring report, and no exotic/nuisance plant species were observed.

Wetland Preservation Areas

Transect 1

This portion of the wetland preservation area appears to be in good condition, with only two exotic species identified. Consistent with the first monitoring report, Caesar weed (*Urena lobata*), was observed within the landward portions of this transect. This species did not represent a dominant groundcover/shrub species, and is unlikely to spread into the waterward portions of the wetland. It's presence at the beginning of the monitoring transect is largely a result of edge effect, where greater sunlight reaches the understory.

Old world climbing fern (*Lygodium microphyllum*) was observed in a small patch at the beginning of this monitoring transect. This species represented a very minor component of the overall plant cover, however, due to its highly invasive nature, maintenance to prevent the spread of this species may be warranted. Management recommendations are outlined in a later section of this report.

Transect 2

Water levels within the wetland along transect 2 appeared high, despite only moderate recent rain. Standing water was observed along the majority of this transect. This portion of the wetland contains a mature canopy dominated largely by sweet bay (*Magnolia virginiana*) and pond cypress (*Taxodium ascendens*), with a very dense understory of immature sweet bay.

Like transect 1, old world climbing fern was observed at the beginning of transect 2. This exotic species has become established along the wetland perimeter, and has managed to spread approximately 100' into the wetland. Although it does not represent a dominant component of the overall vegetative coverage, and it has not reached the canopy, preventative treatment of these species is recommended to avoid it becoming problematic because it represents a threat to the survival and persistence of a native forest canopy. Despite the inclusion of old world climbing fern to the plant species observed during the first monitoring event, observed conditions along this transect appeared consistent with those described in the first monitoring report.

Transect 3

Transect 3 is located within a portion of the wetland that does not display signs of regular inundation. Vegetative composition within the canopy, subcanopy, and shrub/groundcover layers appears to be consistent with what was described in the first annual monitoring report. No exotic/nuisance species were encountered within this portion of the wetland.

Transect 4

Transect 4 occurs within a lakeshore portion of the preserved wetlands, that, along with the areas surrounding transect 3, do not appear to support regular standing water. Although the observed species were consistent with the prior monitoring report, the

referenced old world climbing fern appears to have spread within this area, blanketing portions of the saw palmetto (*Serenoa repens*) shrub layer and groundcover. The threat of the proliferation and spread of this species along this narrow lakeshore fringe is high due to edge effect provided by the lakeshore and residential development boundary. Treatment of this species within this portion of the wetland appears warranted to minimize the potential threat of becoming a dominant species within these areas.

Transect 5

Transect 5 also occurs within a drier portion of the preserved wetlands. Although the observed tree and understory species appeared consistent with the first annual monitoring report, both fox grape (*Vitis rotundifolia*) and greenbriar (*Smilax spp.*) have become a dominant component of the substratum, creating a thick, impenetrable layer of vines that blanket the saw palmetto.

WILDLIFE OBSERVATIONS

The following table summarizes all wildlife observations made during the spring 2019 monitoring event. Observations included direct observations, the presence of tracks, scat, or burrows, or audible observations of wildlife present.

Common Name	Scientific Name	Notes	Listed Status
BIRDS			
Coopers hawk	*Accipiter cooperii*	Direct Observation (nesting female)	N/a
Purple martin	*Progne subis*	Direct observation	N/a
Northern parula	*Setophaga Americana*	Direct observation	N/a
Downy woodpecker	*Dryobates pubescens*	Call	N/a
Black vulture	*Coragyps atratus*	Direct observation	N/a
Blue jay	*Cyanocitta cristata*	Call	N/a
Fish crow	*Corvus ossifragus*	Direct observation	N/a
Tufted titmouse	*Baeolophus bicolor*	Call	N/a
Northern cardinal	*Cardinalis cardinalis*	Direct observation	N/a
Northern mockingbird	*Mimus polyglottos*	Direct observation	N/a
Red-bellied woodpecker	*Melanerpes carolinus*	Call	N/a
Eastern towhee	*Pipilo erythrophthalmus*	Direct observation	N/a
Swallow-tailed kite	*Elanoides forficatus*	Direct observation	N/a
REPTILES			
Black racer	*Coluber constrictor*	Direct observation	N/a
Brown anole	*Anolis sagrei*	Direct observation	N/a
Carolina anole	*Anolis carolinensis*	Direct observation	N/a
AMPHIBIANS			
Leopard frog	*Rana sphenocephala*	Direct observation	N/a
Cricket frog	*Acris sp.*	Call	N/a
MAMMALS			
Feral hog	*Sus scrofa*	Tracks	N/a
White-tailed deer	*Odocoileus virginianus*	Direct observation	N/a
Gray squirrel	*Sciurus carolinensis*	Direct observation	N/a
Virginia opossum	*Didelphis virginiana*	Skeletal remains	N/a

CONCLUSIONS AND RECOMMENDATIONS

The wetland and upland preservation areas appear to be in excellent condition. Signs of appropriate hydrology were evident, and with the exception of the spread of some exotic

species within portions of the preservation areas, these areas appeared to be consistent with the conditions documented within the first monitoring report.

Vegetative maintenance to control cogon grass within the southernmost upland preservation area is recommended, although the threat of this species becoming dominant appears low, and restricted only to the manmade dirt trails that surround and traverse this area. Maintenance of Caesar weed and old world climbing fern is recommended, particularly along monitoring transect 4, and where it has become recently established along the perimeter of the wetland in the vicinity of transects 1 and 2.

Maintenance of Caesar weed would consist of herbicide spot spraying. The eradication and maintenance of old world climbing fern is best accomplished through a combination of chopping and spot spraying. As this fern reproduces (potentially very long distances) by airborne spores, hand removal is not recommended. This activity results in the agitation of the spores and their release. Effective maintenance involves herbicide spot spraying of this vining fern where it occurs at the ground or in the shrub layer; and where it has encroached into the canopy, chopping the vine approximately 3 feet above the ground and spot spraying below.

Maintenance of grape vines that blanket areas along Transect 5 is also recommended to reduce this nuisance species and allow for other native species to proliferate.

If you have any questions, or require additional information, please do not hesitate to contact me.

Sincerely,

Nathan E. Chambers
Vice President

FIGURES

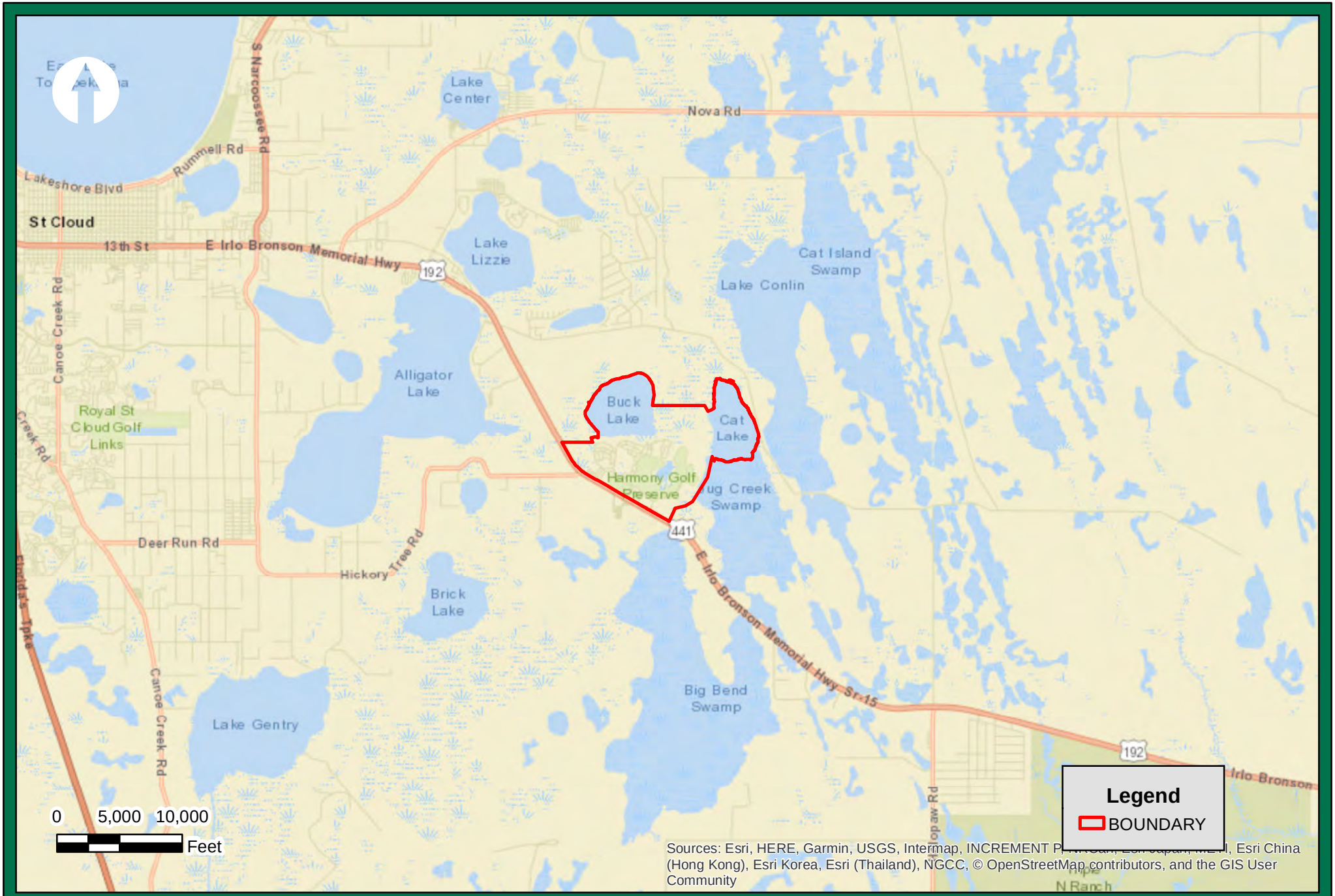

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FIGURE 1

LOCATION MAP

Harmony Community Conservation Monitoring
Osceola County, Florida

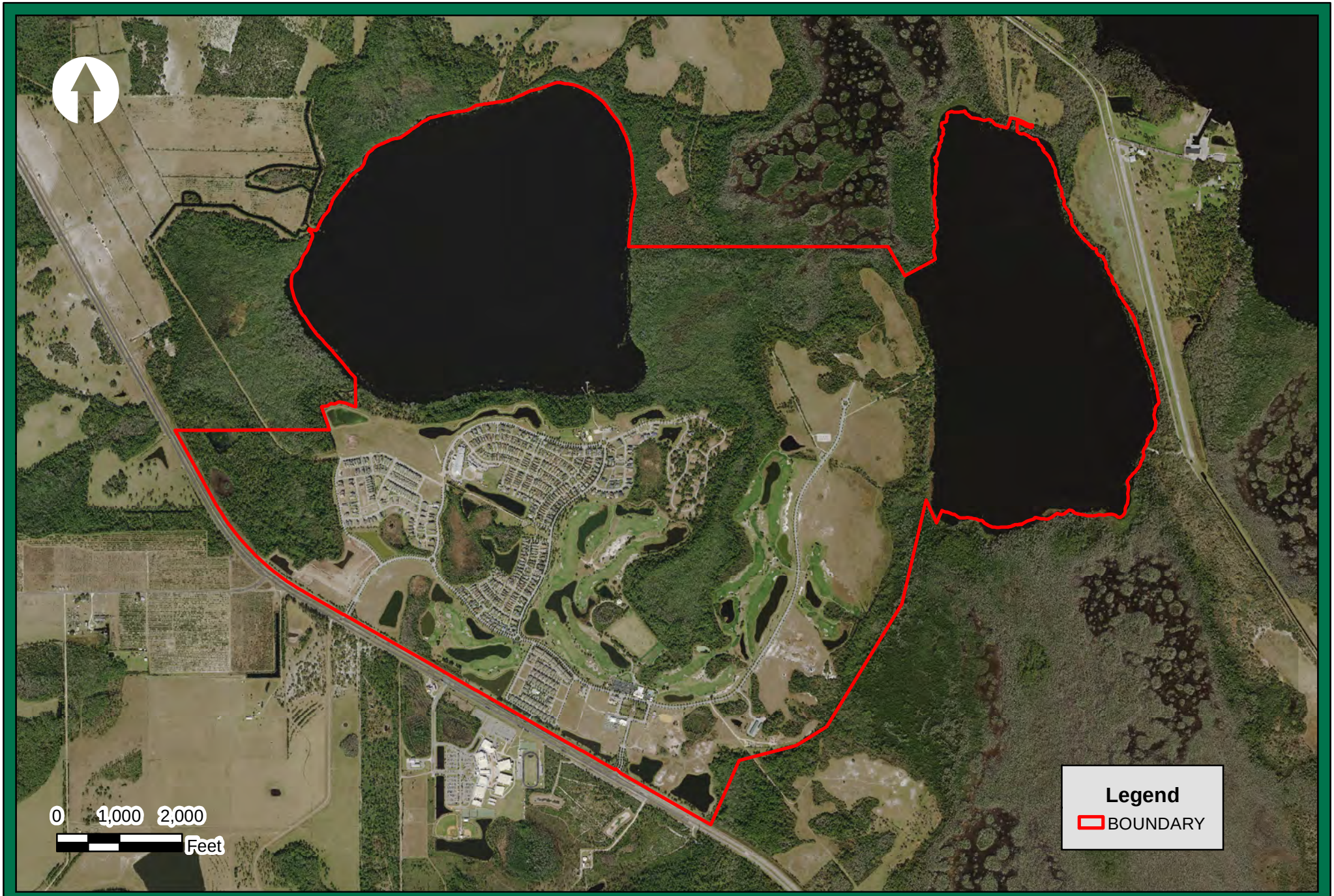

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FIGURE 2

AERIAL PHOTOGRAPH

Harmony Community Conservation Monitoring
Osceola County, Florida

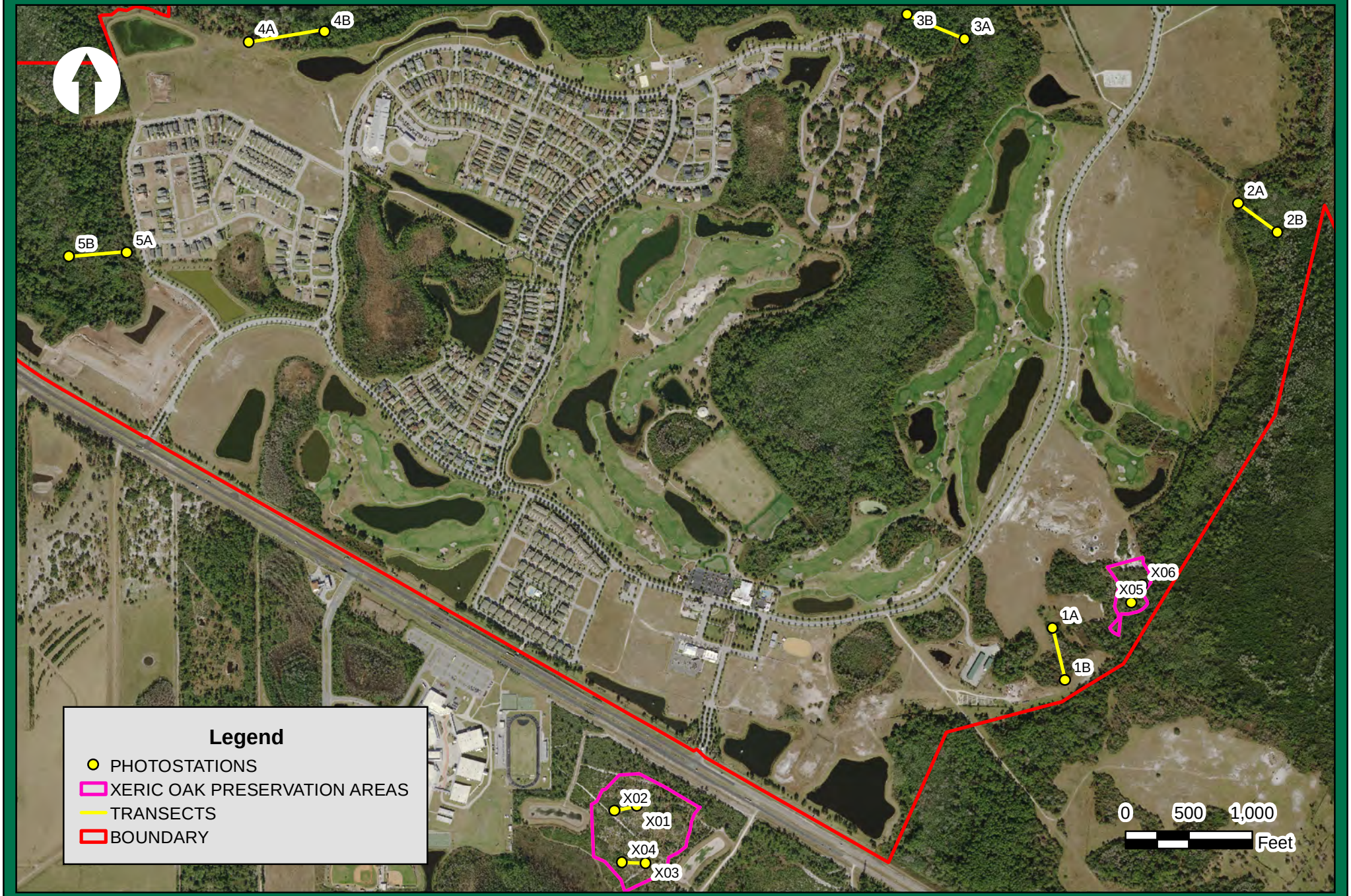

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FIGURE 3

MONITORING TRANSECTS

Harmony Community Conservation Monitoring
Osceola County, Florida

APPENDIX 1

Photostation X01 Facing East

Photostation X01 Facing North

Photostation X01 Facing South

Photostation X01 Facing West

Photostation X02 Facing East

Photostation X02 Facing North

Photostation X02 Facing South

Photostation X02 Facing West

Photostation X03 Facing East

Photostation X03 Facing North

Photostation X03 Facing South

Photostation X03 Facing West

Photostation X04 Facing East

Photostation X04 Facing North

Photostation X04 Facing South

Photostation X04 Facing West

Photostation X05 Facing East

Photostation X05 Facing North

Photostation X05 Facing South

Photostation X05 Facing West

Photostation X06 Facing East

Photostation X06 Facing North

Photostation X06 Facing South

Photostation X06 Facing West

Photostation 1A Facing East

Photostation 1A Facing North

Photostation 1A Facing South

Photostation 1A Facing West

Photostation 1B Facing East

Photostation 1B Facing North

Photostation 1B Facing South

Photostation 1B Facing West

Photostation 2A Facing East

Photostation 2A Facing North

Photostation 2A Facing South

Photostation 2A Facing West

Photostation 2B Facing East

Photostation 2B Facing North

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Photostation 4B Facing West

Photostation 5A Facing East

Photostation 5A Facing North

Photostation 5A Facing South

Photostation 5A Facing West

Photostation 5B Facing East

Photostation 5B Facing North

Photostation 5B Facing South

Photostation 5B Facing West

APPENDIX 2

Bio-Tech Consulting Inc.
Environmental and Permitting Services

info@bio-techconsulting.com
www.bio-techconsulting.com

October 30, 2017

Marc Ady
South Florida Water Management District
1707 Orlando Central Parkway – Suite 200
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Proj: Harmony Site – Osceola County, Florida
SFWMD Permit No. 49-01058-P
SFWMD Application No. 991227-13
(BTC File #581-41)
Re: 1st Annual Mitigation Monitoring Report (October 2017)

Dear Mr. Ady:

Bio-Tech Consulting, Inc. (BTC) is corresponding in order to provide the South Florida Water Management District (SFWMD) with the 1st annual monitoring report for the on-site wetland and upland preservation areas associated with the Harmony Site located along U.S. 192, north of the intersection of U.S. 192 and Harmony Square Drive within Sections 18, 19 20, 24, 25, 26 29, and 30, Township 26 South, Ranges 31 and 32 East; Osceola County, Florida (Figures 1 & 2). This report describes the results of the 1st annual monitoring events conducted on April 12 and August 29, 2017. This 1st annual monitoring report will include the following information:

- monitoring and maintenance methodology;
- monitoring results of the preservation areas;
- maintenance activities
- incidental wildlife observation; and,
- panoramic photographs of the preservation areas

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INTRODUCTION

On August 10, 2010, the SFWMD issued Environmental Resource Permit (ERP) No. 49-01058-P, authorizing the development of a 1,381.00 acre Community Development District and ancillary surface water management system associated with overall 10,108.00 acre Harmony Site. As a result of the aforementioned activities, a total of 21.79 acres of wetlands were impacted, with 19.45 acres requiring mitigation. The approved mitigation plan for the project site is comprised of 464.80 acres of on-site wetland preservation and 2.50 acres of xeric oak (upland) preservation. These wetland/upland preservation areas were placed under a recorded Conservation Easement in accordance with SFWMD Permit 49-01058-P. The following report describes the techniques used to ensure the monitoring and maintenance for the preservation areas.

MONITORING METHODOLOGY

The monitoring methodology for this project is to verify if the on-site preservation areas have maintained their ecological value since permit issuance. The preservation areas will qualitatively for a period of five (5) consecutive years. This report will provide a description of the vegetative monitoring and success of the preserved wetland and xeric oak communities associated with the Harmony Site.

In order to monitor the preservation areas, five (5) permanent belt transects were established within the wetland preservation areas. Similarly, three (3) permanent belt transects were established within the xeric oak preservation areas. Furthermore, permanent monitoring stations were established at the beginning and end of each transect (Figure 3). The species composition and percent cover at the monitoring stations were monitored within a 50-foot radius for the canopy, sub-canopy, and herbaceous groundcover. Photographs were taken at the beginning and end of each monitoring transect, in each cardinal direction. Monitoring was conducted along the transect line between the beginning and end stations while noting any invasive and/or exotic species (with an estimation of percent coverage), wildlife species and the general health of the system.

The data collected includes the following:

1) The date, exact place and time of sampling measurements.
2) The person responsible for performing the sampling, measurements and analysis.
3) The analytical techniques or methods utilized.
4) The result of such analyses including:
    a) photographs of the mitigation site.

b) vegetative species listing.
c) percent coverage within each stratum.
d) a description of any problems encountered during evaluation and proposed solutions.

Reporting

Reports will be compiled in October of every other year (i.e. 2017, 2019, 2020, etc.) and will be comprised of prior event's monitoring data and photographs as well as any management events conducted within the past year. This 1st Annual monitoring report is comprised of Bio-Tech Consulting's initial monitoring events conducted in April and August of 2017. Subsequent monitoring events are scheduled biannually in April and August of 2018 followed by the next report due in October of 2018.

RESULTS

1st Annual Monitoring Results

Morgan Clark and Spencer Clark of BTC performed the 1st Annual monitoring event for the wetland and xeric oak preservation areas associated with the Harmony Site on April 12 and August 29, 2017. Photographs of the preservation areas are attached (Appendix A). See Tables 1 and 2 for percent species coverage within each transect (1-5) and (1-3).

Wetland Preservation Areas
Transect 1

Vegetative species identified within Transect 1 include red maple (*Acer rubrum*), bald cypress (*Taxodium distichum*), dahoon (*Ilex cassine*), slash pine (*Pinus elliottii*), wax myrtle (*Myrica cerifera*), laurel oak (*Quercus laurifolia*), loblolly bay (*Gordonia lasianthus*), Virginia chain fern (*Woodwardia virginica*), cinnamon fern (*Osmunda cinnamomea*), swamp fern (*Blechnum serrulatum*), muscadine grapevine (*Vitis rotundifolia*), caesarweed (*Urena lobata*), poison ivy (*Toxicodendron radicans*), Carolina redroot (*Lachnanthes carolina*), and blackroot (*Pterocaulon pycnostachyum*).

The average percent cover for the canopy stratum is 60%. The average percent cover for the sub-canopy stratum is 57.5%. The average percent coverage for groundcover is 67.5%. Exotic species coverage was approximately 3% and consists of caesarweed sparsely scattered along the transect 1.

Transect 2

Vegetative species observed within Transect 2 include sweet bay (*Magnolia virginiana*), red maple (*Acer rubrum*), swamp bay (*Persea palustris*), bald cypress (*Taxodium distichum*), slash pine (*Pinus elliottii*), pond pine (*Pinus serotina*), wax myrtle (*Myrica cerifera*), fetterbush (*Lyonia lucida*), chalky bluestem (*Andropogon virginicus*), blackberry (*Rubus pensilvanicus*), beaksedge (*Rhynchospora* spp.), goldenrod (*Solidago* spp.), meadowbeauty (*Rhexia* spp.), cinnamon fern (*Osmunda cinnamomea*), Virginia chain fern (*Woodwardia virginica*), swamp fern (*Blechnum serrulatum*), and muscadine grapevine (*Vitis rotundifolia*),

The average percent cover for the canopy stratum is 50%. The average percent coverage for the sub-canopy stratum is 12.5%. The average percent cover for the groundcover is 95%. No exotic species were observed along Transect 2.

Transect 3

Vegetative species observed within Transect 3 include sweet bay (*Magnolia virginiana*), slash pine (*Pinus elliottii*), water oak (*Quercus nigra*), blueberry (*Vaccinium* spp.), fetterbush (*Lyonia lucida*), saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), pawpaw (*Asimina* spp.), Virginia chain fern (*Woodwardia virginica*), bracken fern (*Pteridium aquilinum*), muscadine grapevine (*Vitis rotundifolia*), Carolina redroot (*Lachnanthes carolina*), and peat moss (*Sphagnum* spp.).

The average percent cover for the canopy stratum is 72.5%. The average percent cover for the sub-canopy stratum is 25%. The average percent cover for the ground cover is 52.5%. No exotic species were observed along Transect 3.

Transect 4

Vegetative species observed within Transect 4 includes loblolly bay (*Gordonia lasianthus*), slash pine (*Pinus elliottii*), pond pine (*Pinus serotina*), sweet bay (*Magnolia virginiana*), saw palmetto (*Serenoa repens*), chalky bluestem (*Andropogon virginicus*), mignonette orchid (*Habenaria floribunda*), muscadine grapevine (*Vitis rotundifolia*), cinnamon fern (*Osmunda cinnamomea*), bracken fern (*Pteridium aquilinum*), swamp fern (*Blechnum serrulatum*), Virginia chain fern (*Woodwardia virginica*), old world climbing fern (*Lygodium microphyllum*), sawtooth blackberry (*Rubus pensilvanicus*), caesarweed (*Urena lobata*), and johnsongrass (*Sorghum halepense*).

The average percent cover for the canopy stratum is 82.5%. The average percent cover for the sub-canopy stratum is 20%. The average percent cover for the ground cover is 60%. Exotic

species coverage was approximately 5% and consists of caesarweed and sparsely scattered patches of old world climbing fern.

Transect 5

Vegetative species observed within Transect 5 include laurel oak (*Quercus laurifolia*), loblolly bay (*Gordonia lasianthus*), sweet bay (*Magnolia virginiana*), water oak (*Quercus nigra*), gallberry (*Ilex glabra*), wax myrtle (*Myrica cerifera*), saw palmetto (*Serenoa repens*), blueberry (*Vaccinium* spp.), muscadine grapevine (*Vitis rotundifolia*), greenbrier (*smilax* spp.), Virginia chain fern (*Woodwardia virginica*), bracken fern (*Pteridium aquilinum*), and peat moss (*Sphagnum* spp.).

The average percent cover for the canopy stratum is 40%. The average percent cover for the sub-canopy stratum is 85%. The average percent cover for the ground cover is 87.5%. No exotic species were observed along Transect 5.

Table 1. Percent species coverage along Transects 1-5 within Wetland Preservation Area

Species	**Transect**				
	1	**2**	**3**	**4**	**5**
Canopy					
slash pine (*Pinus elliottii*)	1	5	36	25	
pond pine (*Pinus serotina*)		5		8	
laurel oak *(Quercus laurifolia)*					5
water oak (*Quercus nigra*)					5
loblolly bay (*Gordonia lasianthus*)				25	5
sweet bay (*Magnolia virginiana*)		10	36	25	20
swamp bay (*Persea palustris*)		10			
red maple (*Acer rubrum*)	2	10			
bald cypress (*Taxodium distichum*)	1	10			
dahoon (*Ilex cassine*)	1				
wax myrtle (*Myrica cerifera*)					5
Midstory					
pond pine (*Pinus serotina*)				2	
slash pine (*Pinus elliottii*)			5		
red maple (*Acer rubrum*)	7	3			
saw palmetto *(Serenoa repens)*				5	1
laurel oak *(Quercus laurifolia)*	7				1
water oak (*Quercus nigra*)			5		
loblolly bay (*Gordonia lasianthus*)	7			3	1
fetterbush (*Lyonia lucida*)		3	2		
swamp bay (*Persea palustris*)		3			

sweet bay (*Magnolia virginiana*)			10	10	1
dahoon (*Ilex cassine*)	1				
wax myrtle (*Myrica cerifera*)	1	4			1
gallberry (*llex glabra*)					1
blueberry (*Vaccinium* spp.)			3		5
grapevine (*Vitis* spp.)					5
greenbriar (*Smilax* spp.)					5
bald cypress (*Taxodium distichum*)	7				
Understory					
bracken fern *(Pteridium aquilinum)*			5	10	2
Virginia chain fern (*Woodwardia virginica*)	1	15	5	5	2
cinnamon fern (*Osmunda cinnamomea*)		10		10	
swamp fern (*Blechnum serrulatum*)	1	15		5	
grapevine (*Vitis* spp.)	1	1	6	5	1
greenbriar (*Smilax* spp.)					1
blackberry (*Rubus pensilvanicus*)		10			
Carolina redroot (*Lachnanthes carolina*)	6		10		
blackberry *(Rubus cuneifolius)*				3	
peat moss (*Sphaqnum* spp.).			4		5
old world climbing fern (*Lygodium microphyllum*)**				3	
johnsongrass (*Sorghum halepense*)				2	
pawpaw (*Asimina* spp.)			10		
gallberry (*Ilex glabra*)					
chalky bluestem (*Andropogon virginicus*)		10		5	
goldenrod (*Solidago* spp.)		10			
saw palmetto *(Serenoa repens)*			10	10	1
meadowbeauty (*Rhexia* spp.)		10			
blackroot (*Pterocaulon pycnostachyum*)	6		3		
poison ivy (*Toxicodendron radicans*)	9				
blueberry (*Vaccinium* spp.)					5
caesarweed (*Urena lobata*)**	3			2	
beaksedge (*Rhynchospora* spp.)		5			
Open ground	3	5	47	40	1
Category I & II exotic species	3	0	0	5	0

Xeric Oak Preservation Areas

Transect 1

Vegetative species identified within Transect 1 include sand pine (*Pinus Clausa*), turkey oak (*Quercus laevis*), sand live oak (*Quercus geminata*), myrtle oak (*Quercus myrtifolia*), Chapman's oak (*Quercus chapmanii*), saw palmetto (*Serenoa repens*), gopher apple (*Geobalanus oblongifolius*), blueberry (*Vaccinium* spp.), wiregrass (*Aristida stricta*), and pricklypear cactus *(Opuntia humifusa).*

The average percent cover for the canopy stratum is 2%. The average percent cover for the sub-canopy stratum is 58%. The average percent coverage for groundcover is 80%. Exotic species coverage was approximately 2% and consists of a small patch of cogongrass along transect 2.

Transect 2

Vegetative species identified within Transect 1 include longleaf pine (*Pinus palustris*), sand pine (*Pinus Clausa*), turkey oak (*Quercus laevis*), sand live oak (*Quercus geminata*), bluejack oak (*Quercus incana*), tarflower (*Bejaria racemosa*), myrtle oak (*Quercus myrtifolia*), Chapman's oak (*Quercus chapmanii*), saw palmetto (*Serenoa repens*), cogongrass (*Imperata cylindrica*), wiregrass (*Aristida stricta*), pricklypear cactus *(Opuntia humifusa),* and John Charles (*Condea verticillata*).

The average percent cover for the canopy stratum is 0%. The average percent cover for the sub-canopy stratum is 53%. The average percent coverage for groundcover is 95%. Exotic species coverage was approximately 3% and consists of a small patch of cogongrass along transect 2.

Transect 3

Vegetative species identified within Transect 1 include sand live oak (*Quercus geminata*), saw palmetto (*Serenoa repens*), runner oak (*Quercus pumila*), bracken fern (*Pteridium aquilinum*), American beautyberry (*Callicarpa americana*), and greenbrier (*Smilax* spp.).

The average percent cover for the canopy stratum is 85%. The average percent cover for the sub-canopy stratum is 15%. The average percent coverage for groundcover is 80%. No exotic species coverage were observed.

Species	Transect		
	1	**2**	**3**
Canopy			
sand pine (*Pinus Clausa*)	2		
longleaf pine (*Pinus palustris*)			
sand live oak (*Quercus geminata*)			85
turkey oak (*Quercus laevis*)	1		
Midstory	58	53	
sand live oak (*Quercus geminata*)	15	15	15
sand pine (*Pinus Clausa*)	10	13	
turkey oak (*Quercus laevis*)	10	10	
myrtle oak (*Quercus myrtifolia*)	15	5	
longleaf pine (*Pinus palustris*)		5	
tarflower (*Bejaria racemosa*)		2	
bluejack oak (*Quercus incana*)		3	
Chapman's oak (*Quercus chapmanii*)	8		
Understory			
saw palmetto (*Serenoa repens*)	20	25	30
bracken fern (*Pteridium aquilinum*)			20
American beautyberry (*Callicarpa americana*)			10
greenbrier (*Smilax* spp.)			
cogongrass (*Imperata cylindrica*)**	2	3	
wiregrass (*Aristida stricta*)	20	30	
pricklypear cactus *(Opuntia humifusa)*	13	10	
John Charles (*Condea verticillata*)		2	
gopher apple (*Geobalanus oblongifolius*)	5		
blueberry (*Vaccinium* spp.)			
runner oak (*Quercus pumila*)			20
sand live oak (*Quercus geminata*)		10	
Chapman's oak (*Quercus chapmanii*)	10	5	
myrtle oak (*Quercus myrtifolia*)		10	
turkey oak (*Quercus laevis*)	5		
sand pine (*Pinus Clausa*)	5		
Open ground	32	5	20
Category I & II exotic species	2	3	

WILDLIFE UTILIZATION

The Harmony wetland and xeric oak preservation areas were evaluated to determine which wildlife species are currently utilizing the areas. The following is a list of those species present during the evaluations. This includes any direct observations made and evidence of any particular species found (i.e. tracks, burrows, vocalizations, etc.).

Reptiles and Amphibians
black racer (*Coluber constrictor*)
brown anole (*Anolis sagrei*)
gopher tortoise (*Gopherus polyphemus*)
green anole (*Anolis caroliniana*)
leopard frog (*Lithobates sphenocephalus*)
green treefrog (*Hyla cinerea*)

Birds
Black Vulture (*Coragyps atratus*)
Blue Jay (*Cyanocitta cristata*)
Mourning Dove (*Zenaida macroura*)
Northern Cardinal (*Cardinalis cardinalis*)
Northern Mockingbird (*Mimus polyglottos*)
Red-shouldered Hawk (*Buteo lineatus*)
Red-headed Woodpecker (*Melanerpes erythrocephalus*)

Mammals
nine-banded armadillo (*Dasypus novemcinctus*)
raccoon (*Procyon lotor*)

Virginia opossum (*Didelphis virginiana*)
eastern gray squirrel *(Sciurus carolinensis*)

SUMMARY

BTC completed the 1st annual monitoring events for the Harmony Site wetland and xeric oak preservation areas on April 12th and August 29th, 2017. From observations made during the 1st annual monitoring events, it appears that the wetland preservation areas are a mixture of forested wetlands populated by desirable, native species with little exotic and nuisance species present. The wetland preservation areas are well established with the appropriate vegetative species and show signs of normal health and growth, and good hydrologic levels for the time of year and recent rainfall amounts. Within the five (5) transects, the overall coverage for the canopy was

61% and consisted of native desirable OBL and FACW species. The overall coverage for the sub-canopy was 40%, and was dominated by native desirable OBL and FACW species. The overall coverage for the groundcover stratum was 73%, and consisted of a mix of native desirable OBL, FACW, FAC, and FACU species and vines. Some exotic plant species were observed within Transects 1 and 4. The exotic plant species observed were limited to patches of caesarweed (*Urena lobata*) and old world climbing fern (*Lygodium microphyllum*) along the forested edge.

As for the xeric oak preservation areas, from observations made during the 1st annual monitoring events, it appears that the preservation areas are well established with the appropriate vegetative species and show signs of normal health and growth with little exotic and nuisance species present. Within the three (3) transects the overall coverage for the canopy was 29% and consisted of native desirable xeric oak species. The overall coverage for the sub-canopy was 42% and was dominated by native desirable xeric oak species. The overall coverage for the groundcover stratum was 85% and consisted of a mix of native desirable xeric oak species. Some exotic and nuisance plant species were observed within Transects 1 and 2. The exotic plant species observed were limited to patches of cogongrass (*Imperata cylindrica*).

A selective herbicide maintenance program has begun in order to control the spread of nuisance and exotic vegetation within the wetland and xeric oak preservation areas. Overall, the wetland and xeric oak preservation areas appear to be in good health and continue to provide the ecological value that was present at the time of permit issuance.

If you have any questions, concerns, or require any additional information, please contact our office at (407) 894-5969. Thank you.

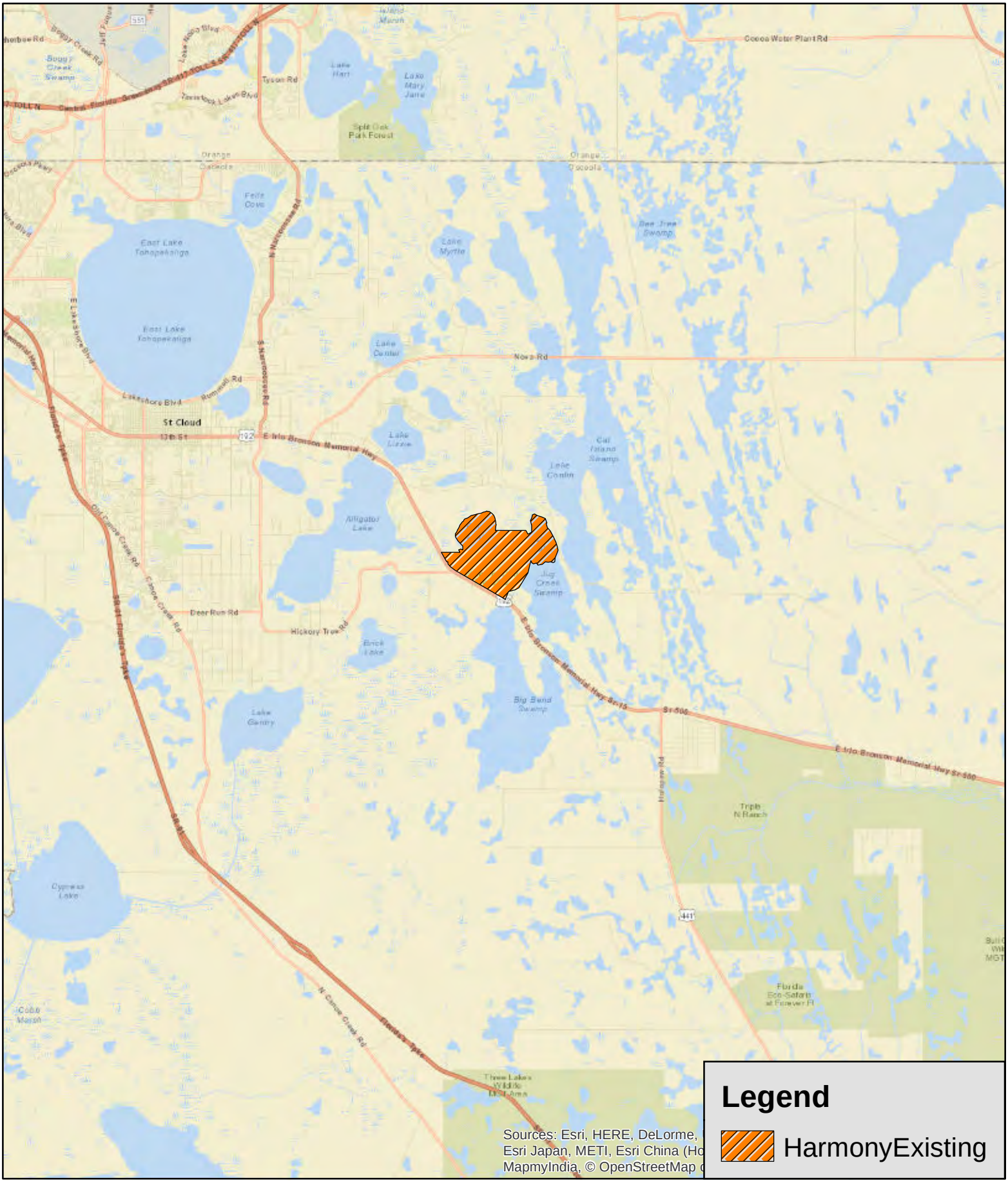
Sincerely,

Morgan Clark
Field Biologist

President

Attachments

Bio-Tech Consulting Inc.
Environmental and Permitting Services



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Harmony Community
Osceola County, FL
Figure 1
Locaiton Map

4
Miles

Project #: 581-41
Produced By: STC
Date: 4/21/2017

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Harmony Community
Osceola County, FL
Figure 2A
2014 Aerial Photograph

2,800
Feet

Project #: 581-41
Produced By: STC
Date: 4/21/2017

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Harmony Community
Osceola County, FL
Figure 2B
2014 Arial Photograph

890
Feet

Project #: 581-41
Produced By: STC
Date: 4/21/2017

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Harmony Community
Osceola County, FL
Figure 3A
Wetland Monitoring Transects Map

1,700
Feet

Project #: 581-41
Produced By: STC
Date: 4/21/2017

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Harmony Community
Osceola County, FL
Figure 3B
Xeric Oak Trasect Map

890
Feet

Project #: 581-41
Produced By: STC
Date: 4/21/2017

APPENDIX A

1st Annual Monitoring Photographs

April and August 2017

Harmony – Wetland Preservation Area - Transect 1 (T-1A) – April 2017

Harmony – Wetland Preservation Area - Transect 1 (T-1B) – April 2017

Harmony – Wetland Preservation Area - Transect 2 (T-2A) – April 2017

Harmony – Wetland Preservation Area - Transect 2 (T-2B) – April 2017

Harmony – Wetland Preservation Area - Transect 3 (T-3A) – April 2017

Harmony – Wetland Preservation Area - Transect 3 (T-3B) – April 2017

Harmony – Wetland Preservation Area - Transect 4 (T-4A) – April 2017

Harmony – Wetland Preservation Area - Transect 4 (T-4B) – April 2017

Harmony – Wetland Preservation Area - Transect 5 (T-5A) – April 2017

Harmony – Wetland Preservation Area - Transect 5 (T-5B) – April 2017

Harmony – Wetland Preservation Area - Transect 1 (T-1A) – August 2017

Harmony – Wetland Preservation Area - Transect 1 (T-1B) – August 2017

Harmony – Wetland Preservation Area - Transect 1 (T-2A) – August 2017

Harmony – Wetland Preservation Area - Transect 2 (T-2B) – August 2017

Harmony – Wetland Preservation Area - Transect 3 (T-3A) – August 2017

Harmony – Wetland Preservation Area - Transect 3 (T-3B) – August 2017

Harmony – Wetland Preservation Area - Transect 4 (T-4A) – August 2017

Harmony – Wetland Preservation Area - Transect 4 (T-4B) – August 2017

Harmony – Wetland Preservation Area - Transect 5 (T-5A) – August 2017

Harmony – Wetland Preservation Area - Transect 5 (T-5B) – August 2017

Harmony – Xeric Oak Preservation Area - Transect 1 (T-1A) – April 2017

Harmony – Xeric Oak Preservation Area - Transect 1 (T-1B) – August 2017

Harmony – Xeric Oak Preservation Area - Transect 2 (T-2A) – April 2017

Harmony – Xeric Oak Preservation Area - Transect 2 (T-2B) – August 2017

Harmony – Xeric Oak Preservation Area - Transect 3 (T-3A) – April 2017

Harmony – Xeric Oak Preservation Area - Transect 3 (T-3B) – August 2017

Harmony – Xeric Oak Preservation Area - Transect 1 (T-1A) – August 2017

Harmony – Xeric Oak Preservation Area - Transect 1 (T-1B) – August 2017

Harmony – Xeric Oak Preservation Area - Transect 2 (T-2A) – August 2017

Harmony – Xeric Oak Preservation Area - Transect 2 (T-2B) – August 2017

Harmony – Xeric Oak Preservation Area - Transect 3 (T-3A) – August 2017

Harmony – Xeric Oak Preservation Area - Transect 3 (T-3B) – August 2017