PART III. Environmental Resources Impacts

QUESTION 12 – VEGETATION AND WILDLIFE

NOTE: The information contained in the responses to Question 12 is for the entire Area 6 Property; however, development order approval is only being requested for the Charlotte County portion of the property at this time. The Lee County property within Area 6 will be developed at a later time. At this time, no changes to the existing land uses in Lee County are proposed.

A. Identify the dominant species and other unusual or unique features of the plant communities on Map F. Identify and describe the amount of all plant communities that will be preserved in a natural state following development as shown on Map H.

Babcock Ranch contains large expanses of good quality mesic pine flatwoods, open pastures, freshwater marshes, palmetto prairies and cypress swamps, including the Telegraph Cypress Swamp. These lands represent one of the most ecologically diverse and important areas in the region and connect the western portion of South Florida to Lake Okeechobee. In addition, these lands serve as the headwaters to important creeks that drain to the Caloosahatchee River. Approximately 74,000 acres (80%) of the Babcock Ranch lands have been purchased by the State of Florida and Lee County and placed into preservation. The purchase area included Telegraph Cypress Swamp which is comprised of 8,000 – 10,000 acres of contiguous swamp and marsh habitats. Another vital habitat found within the State purchase area is mesic pine flatwoods. The onsite mesic pine flatwoods have historically been heavily subjected to clearing for agricultural conversion.

In general, the Babcock Ranch Community is comprised of a variety of habitat types, primarily agricultural and mining land uses. Natural communities onsite consist of pine flatwoods, palmetto prairies, mixed wetland hardwoods, cypress, freshwater marshes and wet prairies. Some hardwood hammocks can also be found on the property. In addition, the Babcock Ranch Community contains manmade ditches which serve to convey water between isolated wetlands and/or downstream into natural waterways which ultimately discharge into the Caloosahatchee River.

Table 12.A-1 lists the vegetation associations found within the Babcock Ranch Community limits.

Table 12.A-1 Babcock Ranch Community (Area 6) Onsite Habitats

FLUCCS Code	Description	W = Wetland U = Upland OSW=Other Surface Water	Acreage by County		Total Acreage
			Charlotte County	Lee County	
151	Agricultural Processing plant	U	3.50	0	3.50
162	Mine	U	970.21	0	970.21
211	Improved Pasture	U	3699.52	1303.65	5003.17
211H	Improved Pasture, hydric	W	20.40	0	20.40
212	Unimproved Pasture	U	1.98	0	1.98
215	Field Crops	U	1406.98	0	1406.98
2551	Pole Barn	U	0	4.17	4.17
310	Herbaceous (dry prairie)	U	8.91	0	8.91
320	Shrub and Brushland	U	56.98	4.75	61.73
3209	Shrub and Brushland, disturbed	U	0.04	0	.04
321	Palmetto Prairie	U	313.22	306.56	619.78
329	Other Shrubs and Brush	U	316.67	0	316.67
330	Mixed Rangeland	U	247.19	126.81	374.00
411	Pine Flatwoods	U	4079.93	1339.50	5419.43
4119E1	Pine Flatwoods (1-24% exotics)	U	51.79	24.10	75.89
4119E2	Pine Flatwoods (25-49% exotics)	U	38.55	0	38.55
4119E3	Pine Flatwoods (50-74% exotics)	U	0	28.48	28.48
414	Pine. Oak, Cabbage Palm	U	76.54	0	76.54
416	Pine Flatwoods, graminoid understory	U	15.11	28.51	43.62
423	Oak-Pine	U	0	129.70	129.70
427	Live Oak	U	0.28	42.30	42.58
428	Cabbage Palm	U	2.49	0	2.49
434	Hardwood, Conifer Mix	U	20.47	0	20.47
436	Upland Scrub	U	0	47.74	47.74
4421	Eucalyptus Plantation	U	2.87	0	2.87
500	Open Water	OSW	0	2.58	2.58
510	Streams and Waterways	OSW	26.37	51.43	77.80
525	Cow Pond	OSW	7.98	1.18	9.16
616	Inland Slough	W	0	41.17	41.17
618	Willow	W	0	6.14	6.14
621	Cypress	W	321.89	5.34	327.23
6219	Cypress, disturbed	W	5.39	0	5.39
624	Cypress, Pine, Cabbage Palm	W	205.16	0	205.16
625	Hydric Pine	W	130.35	84.53	214.88
6259	Hydric Pine, disturbed	W	1.41	0	1.41
630	Wetland Forested Mix	W	6.70	0	6.70
6309	Wetland Forested Mix, isturbed	W	15.10	0	15.10
631	Wetland Shrubs	W	100.63	322.09	422.72
6319	Wetland Shrubs, disturbed	W	132.66		132.66
640	Vegetated, Non-forested Wetland	W	0	39.40	39.40
641	Freshwater Marsh	W	644.11	179.53	823.64
6419	Freshwater Marsh, disturbed	W	71.32	0	71.32
643	Wet Prairie	W	355.95	0	355.95
6439	Wet Prairie, disturbed	W	75.22	0	75.22
740	Disturbed Land	U	23.38	14.13	37.51
742	Borrow Area	OSW	0	2.37	2.37
743	Spoil Area	U	0.22	0	.22
814	Roads	U	45.73	0	45.73
8146	Primitive Trail	U	0	21.07	21.07
	State Road 31 reserved 300' r-o-w		127.40	0	127.40
TOTAL			**13,630.60**	**4,157.23**	**17,787.83**

Notes:

1. Wetland Limits have not been verified by agency staff
2. Nomenclature and delineations based on FDOT's 1999 Florida Land Use, Forms and Cover Classification System (FLUCFCS)

This section lists and describes the FLUCCS categories mapped within and adjacent to, the assessment areas. Each FLUCCS code is identified followed by the name of the category and plants present in each significant stratum. A general description of the FLUCCS category is then provided.

Charlotte County Habitats

FLUCCS 151 – Agricultural Processing Plant – This area is located at the corner of State Road 31 and Hercules Grade Road. It consists of mowed fields with infrastructure in place for loading and transporting crops.

FLUCCS 162 – Mine – Mining operations are located adjacent to the western side of the BRC extending into the community. Infrastructure is in place, or will be provided as necessary to mine fill dirt, gravel and rock.

FLUCCS 211 –Improved Pasture, FLUCCS 211H – Improved Pasture, Hydric, FLUCCS 212 – Unimproved Pasture – Vegetation in the upper and mid-canopy is mostly absent. The herbaceous stratum is characterized by a variety of pasture grasses and pioneering species, including dog fennel (*Eupatorium capillifolium*) and Caesar weed (*Urena lobata*). The hydric pasture is similar to the improved pasture, except it has signs of hydrology and contains more hydrophytic vegetation, including pennywort (*Hydrocotyle umbellata*), coinwort (*Centella asiatica*), and ludwigia (*Ludwigia spp*.). Other herbaceous ground cover includes a number of pasture grasses and forbs, including Bahia grass (*Paspalum notatum*), Bermuda grass (*Cynodon dactylon*), broomsedge (*Andropogon virginicus*), ragweed (*Ambrosia artemisiifolia*), smutgrass (*Sporobolus indicus*), and chocolate weed (*Melochia corchorifolia*). Unimproved pasture differs from improved pastures in that it has not been maintained by mowing and/or tilling.

FLUCCS 215 – Field Crops – Field crops, including sod farms and watermelon fields, are scattered throughout the property. These areas are intensely managed with planting, irrigation, fertilization and harvesting occurring at appropriate times throughout the year.

FLUCCS 310 – Herbaceous, Dry Prairie – This habitat lacks a canopy or mid-canopy. Dominant vegetation includes: Caesar weed, ragweed, southern sandspur (*Cenchrus echinatus*), dog fennel, rattle box (*Crotalaria sp*.), St. Augustine grass (*Stenotaphrum secundatum*), and cogon grass (*Imperata cylindrical*).

FLUCCS 321 – Palmetto Prairie – The upper canopy of the palmetto prairie areas is largely open with the exception of a few slash pines (*Pinus elliotti*) and occasional live and laurel oaks (*Quercus virginiana; Quercus laurifolia*). Mid-canopy vegetation is dominated by saw palmetto (*Serenoa repens*) with scattered beautyberry (*Callicarpa americana*), tar flower (*Befaria racemosa*), wax myrtle (*Myrica cerifera*), rusty lyonia (*Lyonia fruticosa*), and gallberry (*Ilex glabra*). Representative herbaceous vegetation includes dwarf live oak (*Quercus minima*), gopher apple (*Licania michauxii*), pennyroyal (*Piloblephis rigida*), shiny blueberry (*Vaccinium myrsinites*), Elliott's milkpea (*Galactia elliottii*), Caesarweed, blackroot (*Pterocaulon pycnostachyum*), winged sumac (*Rhus copallinum*), panic grass (*Dichanthelium spp.),* and greenbrier (*Smilax spp.)*

FLUCCS 320 – Shrub and Brushland; FLUCCS 329 – Other Shrubs and Brush – These areas contain no true upper canopy, but individual slash pine may be scattered throughout the habitat. The vegetation is representative of a habitat in succession

following a disturbance. Mid-canopy vegetation includes wax myrtle, myrsine (*Myrsine guianensis*), and cabbage palm (*Sabal palmetto*). Ground cover includes Caesar weed, swamp fern (*Blechnum serrulatum*), grapevine (*Vitis rotundifolia*), poison ivy (*Toxicodendron radicans*), and greenbrier.

FLUCCS 330 – Mixed Rangeland – This habitat is a mix of dry prairie (FLUCCS 310) and shrub and brushland (FLUCCS 320) and includes species from both habitat types.

FLUCCS 411 – Pine Flatwoods; FLUCCS 411 E1 – Pine Flatwoods, 1% to 24% Exotics; FLUCCS 411 E2 – Pine Flatwoods, 25% to 49% Exotics – The upper canopy is dominated by slash pine with scattered cabbage palms, oaks, and strangler figs (*Ficus aurea*). Saw palmetto, wax myrtle, cabbage palm, myrsine, gallberry, and dahoon holly (*Ilex cassine*) are present in the mid-canopy. The herbaceous stratum is diverse, comprised of dwarf live oak, shore rush (*Juncus marginatus*), netted pawpaw (*Asimina reticulata*), mikania (*Mikania scadens*), dog fennel, Caesar weed, thistle (*Cirsium nuttallii*), chocolate weed, beggarweed (*Desmodium sp*.), chalky bluestem (*Andropogon virginicus var. glaucus*), bog buttons (*Lachnocaulon sp*.), blueberry, blackroot, greenbrier, grapevine, wire grass (*Aristida stricta*), marsh fleabane (*Pluchea rosea*), and panic grass.

FLUCCS 416 – Pine Flatwoods, Graminoid Understory – The canopy and mid-canopy of this habitat is very similar to the pine flatwoods, except there is a lack of saw palmetto understory. Canopy vegetation is dominated by slash pine with scattered cabbage palm and oaks. Mid-canopy vegetation is characterized by myrsine, wax myrtle, and scattered dahoon holly. Ground cover includes wiregrass, broomsedge, smooth buttonweed (*Spermacoce assurgens*), Caesar weed, dog fennel, greenbrier, poison ivy, and grapevine.

FLUCCS 414 – Pine, Oak, Cabbage Palm – A mix of slash pine, oaks, and cabbage palms dominates the canopy of this habitat type. Mid-canopy and ground cover can be sparse but species present may include gallberry, wax myrtle, myrsine, saw palmetto, and swamp fern.

FLUCCS 427 – Live Oak – The upper canopy is dominated by live oak. The mid-canopy is mostly open, and ground cover consists of saw palmetto, greenbrier, wild coffee (*Psychotria sulzneri*), grapevine, and poison ivy.

FLUCCS 428 – Cabbage Palm – This FLUCCS is similar to the live oak (FLUCCS 427) except cabbage palms are the dominant species in the canopy.

FLUCCS 434 – Hardwood, Conifer Mix – The canopy is dominated by slash pine and laurel oak, followed by a mid-story of myrsine with scattered cabbage palms and buckthorn (*Bumelia reclinata*). Wild coffee, swamp fern, Virginia creeper (*Parthenocissus quinquefolia*), greenbrier, and grapevine can be found in the herbaceous stratum.

FLUCCS 4421 – Eucalyptus Plantation – This small area may have once been an attempt to propagate eucalyptus trees which are the dominant species. The mid-canopy and herbaceous layers are generally absent.

FLUCCS 510 – Streams and Waterways – The majority of streams and waterways are altered natural drainages or were created to assist with draining and irrigation of fields and pastures. Vegetation along these areas is representative of adjacent habitat types. During the height of the dry season, standing water is limited or absent. These areas provide significant conveyance during the wet season.

FLUCCS 525 – Cow Ponds – These small ponds, located throughout the site, were dug to provide a drinking water source for cattle and are typically void of vegetation.

FLUCCS 621 – Cypress; FLUCCS 6219 – Cypress, Disturbed – This forested wetland habitat is dominated by cypress in the upper stratum. Additional species in the upper canopy include swamp bay (*Persea palustris*), loblolly bay (*Gordonia lasianthus*), laurel pak, slash pine, and red maple (*Acer rubrum*). Mid-canopy species include dahoon holly, cabbage palm, wax myrtle, and groundsel tree (*Baccharis glomeruliflora*). Scattered Brazilian pepper may be found on the edges of this habitat in a disturbed system. Species observed in the herbaceous stratum include water horehound (*Lycopus rubellus*), swamp fern, royal fern (*Osmunda regalis*), false nettle (*Boehmeria cylindrica*), prairie iris (*Iris hexagona*), greenbrier, swamp lily (*Crinum americanum*), red ludwigia (*Ludwigia repens*), bushy beardgrass (*Andropogon glomeratus*), saw grass (*Cladium jamaicense*), lemon bacopa *(Bacopa caroliniana*), and redtop panicum (*Panicum rigidulum*). Dense concentrations of Old World Climbing Fern were also found in scattered, small pockets of this habitat. Disturbed cypress areas have a greater concentration of exotic or nuisance species or obvious hydrologic alterations evidenced by an abnormal concentration of transitional species.

FLUCCS 624 – Cypress, Pine, Cabbage Palm – This habitat contains a mixture of cypress, cabbage palm, and laurel oak in the upper canopy. The sparse mid-canopy is comprised of Brazilian pepper, cabbage palm, and myrsine. Ground cover is comprised mostly of swamp fern, with scattered grapevine and greenbrier.

FLUCCS 625 – Hydric Pine; FLUCCS 6259 – Hydric Pine, Disturbed – Often found adjacent to other wetlands, this habitat typre is very similar to the pine flatwoods with a graminoid understory (FLUCCS 416) but has more prominent signs of hydrology and hydrophytic vegetation in the understory.

FLUCCS 630 – Wetland Forested Mix; FLUCCS 6309 Wetland Forested Mix, Disturbed – The upper canopy of this habitat is a mix of laurel oak, cypress, pine and cabbage palm with no one species establishing dominance. Mid-canopy vegetation includes wax myrtle, groundsel tree, and myrsine. Ground cover consists of swamp fern, ludwigia sp., cape weed (*Phyla nodiflora*), St. John's-wort (*Hypericum spp*.) and coinwort.

FLUCCS 631 – Wetland Shrubs; FLUCCS 6319 – Wetland Shrubs, Disturbed - Scattered cabbage palms may be present in the canopy of this habitat type, but more typically the canopy is absent. Mid-canopy vegetation is dominated by wax myrtle and groundsel tree. Groundcover includes torpedo grass (*Panicum repens*), beakrushes (*Rhynchospora spp*.), buttonweed (*Diodia virginiana*), mermaid-weed (*Proserpinaca sp.),* maidencane (*Panicum hemitomon*), hedge hyssop (*Gratiloa ramosa*), marsh fleabane, cape weed, St. John's-wort, umbrella grass (*Fuirena sp*.), coinwort, and mock Bishop's weed (*Ptolimnium capillaceum*).

FLUCCS 641 – Freshwater Marsh; FLUCCS 6419 – Freshwater Marsh, Disturbed – This wetland system is scattered throughout the site. The canopy and mid-canopy are typically absent but may include red maple, wax myrtle, and groundsel tree. Typical species present in the herbaceous layer include alligator flag (Thalia geniculata), bull arrowhead (*Sagittaria lancifolia*), shore rush, mock Bishop's weed, blue hyssop (*Bacopa monnieri*), buttonweed, whorled pennywort (*Hydrocotyle verticillata*), smartweed (*Polygonum densiflorum*), cape weed, coinwort, flatsedge (*Cyperus haspans*),

pickerelweed (*Pontedaria cordata*), Bermuda grass, and West Indian marsh grass (Hymenachne amplexicaulis). Areas mapped as disturbed typically have a significant coverage of torpedo grass.

FLUCCS 643 – Wet Praire; FLUCCS 6439 – Wet Prairie, Disturbed – Similar to freshwater marshes, this habitat type usually has less water present and occurs more landward of the deeper freshwater marsh habitats. Typical species included: beakrush, flatsedge, centella, spikerush (*Eleocharis sp*.), love grass (*Eragrostis elliottii*), cape weed, mock Bishop's weed, and buttonweed.

Lee County Habitats

FLUCCS 211 – Improved Pasture - This category in most cases is comprised of land which has been cleared, tilled, reseeded with specific grass types and periodically improved with brush control (mowing or roller chopping) and fertilizer application. Water ponds, troughs, feed bunkers and, in some cases, cow trails are evident.

FLUCCS 2551 – Pole Barns – This category describes the few pole barns or other structures present on the active agricultural land where equipment is stored or maintained.

FLUCCS 320 – Shrub and Brush Land –This habitat type is found in areas that have not been previously cleared for pasture or other purposes. These systems are naturally lacking a dominant canopy due to fire or other natural occurrences such as high cap rock or poor soils that prevent trees from becoming established.

FLUCCS 321 - Saw Palmetto Prairie - These open areas lack a significant tree canopy and are dominated by saw palmetto (*Serenoa repens*). Scattered slash pine (*Pinus elliottii*) may be present but, overall, do not form a canopy exceeding 10 percent coverage. Scattered subcanopy (shrub) species are commonly wax myrtle (*Myrica cerifera*), gallberry (*Ilex glabra*), saltbush (*Baccharis halimifolia*) and rusty lyonia (*Lyonia ferruginea*). There is a higher ridge in the southern portion of the ranch that is also dominated by saw palmetto, but this area contains several scrub oak species, and rosemary (*Ceratiola ericoides*). Various upland grasses and forbs are found between saw palmetto. In lower elevations, transitional zones may be found where the saw palmetto clusters form a more reticulated pattern, leaving openings for ground cover species. Within these micro-depressions, both upland and wetland herbaceous species occur.

Several of the saw palmetto prairies may have once been dominated by slash pine (*Pinus elliottii*) but fires and/or clearing activities have removed or destroyed the canopy trees. Exotic invaders such as melaleuca and Brazilian pepper often occur in varying amounts throughout this type of habitat.

Most of these palmetto-dominated habitats are also used as woodland pasture habitat for the cattle. Management includes periodic controlled burns and roller chopping to reduce the shrubs and increase the grasses in these habitats.

FLUCCS 330 – Mixed Range Land – This habitat type is common in areas where the historic forested community has been removed and the land once used for pasture or other purposes, but the habitat has not been maintained as pasture and is being revegetated by saw palmetto, wax myrtle, saltbush, dog fennel, broom sedge (*Andropogon virginicus*)and various other opportunistic species. These areas are predominantly upland, but several transitional to wetland species are occasionally present in scattered low areas.

FLUCCS 411 - Pine Flatwoods, Saw Palmetto Understory - The pine flatwoods on site are predominately slash pine with a ground cover of saw palmetto. Scattered cabbage palm (*Sabal palmetto*), myrsine (*Rapanea punctata*), wax myrtle, saltbush, tar flower (*Befaria racemosa)*, rusty lyonia, and tough buckthorn (*Bumelia tenax*) are present in the subcanopy. Pennyroyal (*Satureja rigida*), spiny-leaved sow thistle (*Sonchus asper*), bracken fern (*Pteridium aquilinum*), common tickseed (*Coreopsis leavenworthii*), dog fennel (*Eupatorium capillifolium*), Caesar weed (*Urena lobata*), wiregrass (*Aristida stricta*), shiny blueberry (*Vaccinium myrsinites*), horrible thistle (*Cirsium horridulum*), camphor weed (*Pluchea* spp.), and lantana (*Lantana camara*) are common in the groundcover stratum. Chocolate weed (*Melochia corchorifolia*), fox tail (*Setaria* spp.), chalky bluestem (*Andropogon capillipes*) occur occasionally in the groundcover stratum. Vines include lovevine (*Cassytha filiformis*), Virginia creeper (*Parthenocissus quinquefolia*), muscadine grape (*Vitis rotundifolia*), ear-leaf brier (*Smilax auriculata*), catbrier (*Smilax bona-nox*) and poison ivy (*Toxicodendron radicans*). In lower elevations, transitional zones may be found where the saw palmetto clusters form a more reticulated pattern, leaving openings for herbaceous ground cover species. Within these micro-depressions, both upland and wetland herbaceous species occur. Exotics melaleuca, Brazilian pepper, and scattered downy rose myrtle (*Rhodomyrtus tomentosa*) often occur in varying densities throughout this type of habitat.

FLUCCS 411 E1 – Pine Flatwoods, 1% to 24% Exotics This habitat type is similar to the pine flatwoods in vegetative makeup except that there is up to 24% dominance by exotic vegetation, mostly melaleuca or Brazilian pepper.

FLUCCS 411 E3 – Pine Flatwoods, 50% to 74% Exotics – This habitat type is similar to the pine flatwoods in vegetative makeup except the exotic levels have become dominant and make up between 50% and 74% of the dominant vegetation. Melaleuca and Brazilian pepper are the two most common exotics encountered on the property.

FLUCCS 416 – Pine Flatwoods, Graminoid Understory – This community type includes a canopy of slash pine with various upland grasses and herbaceous species in the understory. Saw palmetto is noticeably absent in these areas. Pineland three-awn grass (*Aristida spp*), chalky bluestem (*Andropogon capillipes*), ragweed (*Ambrosia artemisiifolia*), horrible thistle, muscadine grape, cat briar and poison ivy were all present throughout these areas.

FLUCCS 423 – Oak / Pine – This community type dominates the area around the creek(s) within the ½ section west of the entrance road in the southeast corner of the Ranch where it fronts on SR78. Live oak and slash pine dominate the canopy, but cabbage palms and various other species are present as lone individuals or scattered throughout the general area. Groundcover is sparse, but includes smartweed, cordgrass, swamp fern and numerous grasses and forbes. Butterfly orchids (*Encyclia tampensis*) and various Tillandsia species of bromeliads were scattered on the large oaks branches throughout this general area. Several alligators had excavated holes into the banks of the creek in deeper areas, for access to water for the remainder of the dry season.

FLUCCS 427 - Oak Hammock - This forested community is one in which live oak (*Quercus virginiana*) is either pure or predominant. The principle associates of this cover type include laurel oak (*Quercus laurifolia*), dahoon holly (*Ilex cassin*e), red bay (*Persea borbonia*), and cabbage palm. Understory is predominantly saw palmetto, with scattered myrsine, beauty berry (*Callicarpa americana*), bracken fern (*Pteridium aquilinum*) and Boston fern (*Nephrolepis exaltata*). This community is common near the

eastern slough and adjacent to many of the creeks or ditched flow ways present on the ranch.

FLUCCS 436 – Upland Scrub – This category describes the habitat located in the northeast corner of the intersection at SR 78 and CR 31 in the southwestern corner of the ranch property in Lee County. Slash pine, live oaks, saw palmetto, several species of scrub oaks and various other incidental scrub species are present in this area. The soil consists of a white, coarse-grained sand that drains very quickly.

FLUCCS 500 – Water – This category describes the two moderate sized borrow pits located near the southeastern gate onto the ranch and adjacent to the offsite residential home along SR78 on the southern property boundary.

FLUCCS 510 – Streams and waterways - This category includes several creeks, ditches and other linear water bodies that are present throughout the property inspected. The named creeks that are present have been channelized and straightened to some extent, but remain relatively natural in function.

FLUCCS 525 – Cow Wells - This category includes the excavated ponds that are found throughout the ranch to provide a water source for the cattle. These ponds are small, but variable in size and are dominant features in the landscape.

FLUCCS 616 – Inland Ponds and Sloughs – This area describes the small, narrow slough that enters the eastern end of the property and runs southwest across that portion of the property. Cypress is the dominant wetland tree species present and numerous live and laurel oaks are also present adjacent to the flow way. Slash pine are abundant in the adjacent uplands. Groundcover is sparse within the flow way, but Blue flag iris (*Iris virginica*) , arrowhead, pickerelweed and various sedges and forbes are scattered along the wide, flat sections of this flow way.

FLUCCS 618 – Willow – This category describes the small depressions that are dominated by dense monocultures of willow (Salix caroliniana). There are usually no other trees or shrubs present in these areas and the herbaceous vegetation is also very sparse. Arrowhead, blue flag iris and pickerelweed are present along the perimeter of these systems with several other incidental sedges and forbes also present.

FLUCCS 621 – Cypress Wetlands – Dominant canopy vegetation in this wetland type is mature cypress. Other tree species present in this system include laurel oak, red maple and cabbage palms which are scattered around the perimeter of the cypress. Typically the groundcover vegetation is fireflag, pickerelweed, arrowhead and maidencane in the deeper portions of the wetlands with sand cordgrass *(Spartina bakeri*), wax myrtle, saltbush and other transitional species found around the perimeter.

FLUCCS 625 – Hydric Pine Flatwoods, Graminoid Understory – This category describes the pine flatwoods habitats that appear to receive periodic inundation, but don't stand in water. However, the hydroperiod is long enough to prevent upland vegetative species from growing in these areas. Gulf muhly grass (*Muhlenbergia filipes*), southern carpetgrass (*Axonopus affinis*), small fruited beakrush (*Rhynchospora microcarpa*), are the dominant herbaceous species in these areas with many other incidental species common as well. Wax myrtle and saltbush are scattered throughout these areas, but not prevalent enough to add a midstory layer in the vegetative communities.

FLUCCS 631 - Wetland Scrub – This community is associated with topographic depressions and poorly drained soil containing low scrub with no dominant species.

Shrubs found in this area include coastal plain willow (*Salix caroliniana*), wax myrtle, and saltbush. Brazilian pepper has invaded the perimeter of many of these disturbed areas.

FLUCCS 640 – Herbaceous Non-Forested Wetlands – This category includes those wetlands dominated by a herbaceous wetland groundcover including carpetgrass, pickerelweed, broomsedge (*Andropogon glomeratus*), goldenrod (*Euthamia minor*), hempweed (*Mikania scandens*) and coinwort (*Centella asiatica*), but with scattered saw palmetto also present. Numerous other incidental transitional to wet species are present in this habitat type, but the wetland species outnumber the upland species. This area is primarily concentrated in the southwestern corner of the property. It appears this habitat type is maintained as pasture for cattle grazing during the winter months.

FLUCCS 641 - Freshwater Marsh - This category describes the isolated wetlands remaining in the groves and several of the pasture habitats on site. Pickerelweed, arrowhead and maidencane were historically the dominant native species in many of these wetlands. However, due to disturbances resulting from the operation and management of the water levels within the groves, sod fields and pastures, these areas are becoming dominated by primrose willow, torpedo grass, willow and other nuisance and exotic species.

FLUCCS 740 - Disturbed Land – This category contains land that has been previously cleared or is highly disturbed by human activities. Previously cleared or highly disturbed areas exist in several areas throughout the property inspected. Vegetation, when present, includes a mixture of dog fennel, broomsedge (*Andropogon virginicus*), torpedo grass (*Panicum repens*), ragweed (*Ambrosia artenisifolia*) and various other nuisance species commonly found in highly disturbed soils.

FLUCCS 742H - Borrow Areas – These areas include several small pits and shallow depressions that have been created by the removal of the sand / shell for use elsewhere as fill. Several of these areas are located along the southern boundary of the property, adjacent to SR 78.

FLUCCS 8146 – Roads and Trails – This category includes improved roads and trails within the property.

The proposed development footprint has been located to minimize impacts to wetlands and high quality upland habitats. The resulting plan provides for north-south flowways and significant greenways and preservation areas. The development footprint has been designed to locate the majority of the development tracts within existing agricultural farm fields and cleared uplands. To minimize secondary effects to the proposed preserve areas, to the extent possible, the development tracts will be developed to provide a 100' undisturbed area along the Area 6 property boundary and an average 50' buffer around most of the wetland preserve areas. The result is a development plan which consolidates preservation areas, and incorporates existing flowways, isolated wetlands and expansive native uplands. As can be seen in the table below, the development footprint in Charlotte County has been confined to approximately 6800 acres, approximately 38% of the total Babcock Ranch Community acreage. Of this total impact footprint, approximately 4200 acres (62%) of the development will be located within non-native, exotic infested and/or disturbed habitats. Development order approval is only being requested for the Charlotte County portion of the property at this time. The Lee County property within Area 6 will be developed at a later time. The acreage figures listed in Table 12.A-2 for Lee County are for informational purposes only.

Table 12.A-2 provides a breakdown of proposed impacts to each habitat.

Table 12.A-2 Babcock Ranch Community (Area 6) Habitat Impacts

FLUCCS	Description	Acreage		Charlotte County Only		
		Charlotte	Lee	Impact Acres	Preserve [1] Acres	Total Acres
151	Agricultural Processing plant	3.50	0	1.35	2.15	3.50
162	Mine	970.21	0	927.44	42.77	970.21
211	Improved Pasture	3699.52	1303.65	2373.30	1326.22	3699.52
211H	Improved Pasture, hydric	20.40	0	0	20.40	20.40
212	Unimproved Pasture	1.98	0	0	1.98	1.98
215	Field Crops	1406.98	0	740.48	666.50	1406.98
2551	Pole Barn	0	4.17	0	0	0
310	Herbaceous (dry prairie)	8.91	0	6.34	2.57	8.91
320	Shrub and Brushland	56.98	4.75	36.15	20.83	56.98
3209	Shrub and Brushland, disturbed	0.04	0	0	0.04	0.04
321	Palmetto Prairie	313.22	306.56	147.37	165.85	313.22
329	Other Shrubs and Brush	316.67	0	152.05	164.62	316.67
330	Mixed Rangeland	247.19	126.81	199.31	47.88	247.19
411	Pine Flatwoods	4079.93	1339.50	1808.82	2271.11	4079.93
4119E1	Pine Flatwoods (1-24% exotics)	51.79	24.10	28.83	22.96	51.79
4119E2	Pine Flatwoods (25-49% exotics)	38.55	0	1.33	37.22	38.55
4119E3	Pine Flatwoods (50-74% exotics)	0	28.48	0	0	0
414	Pine. Oak, Cabbage Palm	76.54	0	6.05	70.49	76.54
416	Pine Flatwoods, graminoid understory	15.11	28.51	12.17	2.94	15.11
423	Oak-Pine	0	129.70	0	0	0
427	Live Oak	0.28	42.30	0	.28	0.28
428	Cabbage Palm	2.49	0	0	2.49	2.49
434	Hardwood, Conifer Mix	20.47	0	9.05	11.42	20.47
436	Upland Scrub	0	47.74	0	0	0
4421	Eucalyptus Plantation	2.87	0	1.60	1.27	2.87
500	Open Water	0	2.58	0	0	0
510	Streams and Waterways	26.37	51.43	1.88	24.49	26.37
525	Cow Pond	7.98	1.18	4.15	3.83	7.98
616	Inland Slough	0	41.17	0	0	0
618	Willow	0	6.14	0	0	0
621	Cypress	321.89	5.34	30.32	291.57	321.89
6219	Cypress, disturbed	5.39	0	2.97	2.42	5.39
624	Cypress, Pine, Cabbage Palm	205.16	0	0.79	204.37	205.16
625	Hydric Pine	130.35	84.53	5.06	125.29	130.35
6259	Hydric Pine, disturbed	1.41	0	0	1.41	1.41
630	Wetland Forested Mix	6.70	0	0	6.70	6.70
6309	Wetland Forested Mix, disturbed	15.10	0	0	15.10	15.10
631	Wetland Shrubs	100.63	322.09	17.44	83.19	100.63
6319	Wetland Shrubs, disturbed	132.66	0	35.50	97.16	132.66
640	Vegetated, Non-forested Wetland	0	39.40	0	0	0
641	Freshwater Marsh	644.11	179.53	114.83	529.28	644.11
6419	Freshwater Marsh, disturbed	71.32	0	4.17	67.15	71.32
643	Wet Prairie	355.95	0	59.92	296.03	355.95
6439	Wet Prairie, disturbed	75.22	0	40.29	34.93	75.22
740	Disturbed Land	23.38	14.13	19.91	3.47	23.38
742H	Borrow Area	0	2.37	0	0	0
743	Spoil Area	0.22	0	0	.22	0.22
814	Roads	45.73	0	27.96	17.77	45.73
8146	Primitive Trail	0	21.07	0	0	0
N/a	SR 31 300' r-o-w	127.40	0	0	0	127.40
	TOTALS	**13630.60**	**4,157.23**	**6,816.83**	**6,686.37**	**13,630.60**

1 Portions, but not all of this acreage will be required to be placed in a conservation easement per the applicable permits.

With the exception of Map F-1, which is contained in the Environmental Supplement, the Map F series identifies the FLUCCS mapping for the Babcock Ranch Community limits and provides acreage breakdowns for each individual habitat type. The information shown on these maps is for the Charlotte County portion of the property as development order approval is only being requested for the Charlotte County portion of the property at this time. This mapping is based on groundtruthing and onsite identification of habitat types. Consistent with the Environmental Methodology, the applicant has provided land use mapping for the properties located within the surrounding 2-mile wide study area. Maps for the Lee County property and lands extending south of the Babcock Ranch Community property limits to the Caloosahatchee River are included in the Environmental Supplement. FLUCCS mapping within the remainder of the Babcock Ranch boundaries has been field verified via ground inspections. This information is included on Map F-1 contained within the Environmental Supplement. FLUCCS mapping of lands south of the BRC to the river is based on the FLUCCS mapping developed by the South Florida Water Management District (SFWMD) in 2000 and is included in the Environmental Supplement as Map F-2. The SFWMD mapping has not been field verified.

B. Discuss what survey methods were used to determine the absence or presence of state or federally listed wildlife and plants. (Sampling methodology should be agreed to by the regional planning council and other reviewing agencies at preapplication conference stage.) State actual sampling times and dates, and discuss any factors that may have influenced the results of the sampling effort. Show on Map G the location of all transects, trap grids, or other sampling stations used to determine the on-site status of state or federally listed wildlife and plant resources.

Prior to field surveys being conducted for listed species, a literature review was completed. The literature review included Florida's official list of endangered species, threatened species and species of special concern (FWC, 2004), Endangered and Threatened Species of the Southeastern United States (USFWS), and Notes on Florida's Endangered and Threatened Plants (Coile and Garland, 2003). Other resources used include the USFWS's South Florida Multi-Species Recovery Plan (1999), the FWC online bald eagle nest database, the publication "Babcock Ranch Closes the Gap", and Florida's Waterbird Colony Locator (FWC, 2003). Additionally, the most recent telemetry data for the Florida Panther and Florida black bear was obtained from FWC.

Field surveys for listed species were conducted using the Standardized State-Listed Animal Survey Procedures for Use in the Review of the Babcock Ranch Development of Regional Impact provided by James W. Beever, III in July 2006. Listed species surveys included both a.m. surveys (beginning one hour prior to sunrise) and p.m. surveys (ending one hour after dark). Surveys in the Charlotte County portion of the Babcock Ranch Community were conducted in accordance with FWC guidelines, which require 15% of each suitable habitat to be surveyed. An overall coverage of 15% was achieved with a higher level of coverage within native habitat areas. Surveys in Lee County consisted of performing meandering pedestrian transects to cover 80% of the subject property in accordance with Lee County's Land Development Code. Linear belt pedestrian transects and vehicular transects in suitable areas were utilized to survey the limits of the Babcock Ranch Community. Additional survey work was performed to augment the overall 15% coverage in Charlotte County. These surveys included a migratory bird survey, frog call surveys, and qualitative fish and macroinvertebrate sampling. Copies of the listed species survey reports area

included in Attachment 12-1. These reports outline the survey methodologies followed onsite, the dates, times and personnel performing the survey work, and tables outlining the species anticipated to utilize onsite habitats and the species identified onsite during the survey work. Copies of these reports were previously submitted to the RPC, Charlotte County, FWC and Lee County staff for review and comment.

In addition to the general species surveys, several species- specific surveys have been or will be completed. Species requiring specific surveys have been discussed with the Regional Planning Council (SWFRPC) and County staffs. Species specific surveys will include red-cockaded woodpeckers, Southeastern American kestrels, scrub jays, Audubon's crested caracara, snail kite, wading bird rookeries and sandhill crane nesting. Each species requires either a specific survey protocol or time of year in order to be effective. The red-cockaded woodpecker (RCW) nesting season survey and Southeastern American kestrel surveys have already been completed. The methodologies for the completed and future species surveys are outlined within the Environmental Methodology.

The RCW survey was conducted for 14 consecutive days in May/June 2006. The methodology employed was consistent with that outlined in the USFWS Standard Local Operating Procedures for Endangered Species (SLOPES). Meandered pedestrian transects were performed in the pine dominated areas of the Babcock Ranch Community identified by Lee County and varied in width from 50 to 200' depending on visibility limits. All surveys were started at sunrise and continued to 11:30 a.m. The RCW vocalization tape was played at approximately 10 minute intervals along the transects while biologists listened for responses by RCWs. Potential cavity trees were examined for the presence of start holes and/or cavities. A copy of the RCW survey results is included as Attachment 12-2.

Southeastern American kestrel surveys were conducted from mid-July through August 2006. Vehicle transects on an ATV were conducted in habitats open enough to allow sighting of individual birds. In areas with limited access pedestrian surveys were conducted. Using binoculars, observers looked for kestrels perched on fences, telephone poles and lines, trees; and for kestrels flying or hovering. The results of this survey have been incorporated into the Protected Species Survey by Johnson Engineering dated September 2006. Please see Attachment 12-3.

Previously identified scrub jays are located within the southwest corner of the Babcock Ranch Community. A survey was conducted in October 2006 to map the extent of their territory. The results of this survey were inconclusive and additional survey work has been scheduled to be completed during March 2007, the spring nesting season. Because crested caracaras have been observed on the property, surveys will be conducted in late fall/early winter of 2006 and in February/March of 2007 to determine if caracaras are nesting within the proposed development area. Surveys will be conducted at crepuscular times and will include any incidental observations of Florida mastiff bat. Wetland areas within the Babcock Ranch Community will be surveyed in the spring of 2007 to determine the presence of wading bird colonies, sandhill crane and snail kite nests. A spring 2007 gopher frog survey will also be conducted. This is typically breeding season for gopher frogs and call surveys will be conducted in areas known to have gopher tortoise burrows. Granture will be assumed for Sherman's short- tailed shrew due to invasiveness of trapping.

Although the FWC guidelines only require 15 percent of each suitable habitat to be surveyed, species specific surveys will be conducted in a manner to provide no less than 80% coverage of specific habitats related to those species. Related to these surveys, Type I and II habitat types will be mapped and discussed for specific species. Management of these lands will be described within the Draft Habitat Management Plans for the species.

Table 12.B-1 specific sampling dates, times and pertinent data for Charlotte County. Table 12.B-2 lists this data for Lee County. This information is also included within the Listed Species Survey Reports included as Attachment 12-1.

Table 12.B-1 Survey Dates, Times, Weather Conditions, and Performing Ecologists - Charlotte County

Date	Time of Day	Weather	Ecologists	Survey Purpose
General Listed Species Surveys				
04/05/06	0700 - 1600	Sunny, Winds 5-10 mph, 70 - 75 °F	ALS, BWS	Protected Species Survey
04/10/06	0700 - 1600	Mostly cloudy, Winds 10-15 mph,75-80° F	ALS, BWS	Protected Species Survey
04/21/06	0800 –1600	Sunny, Winds 5-10 mph, 80 - 85 °F	WBB	Wetland flagging
04/25/06	1100 – 1515	Mostly sunny, Winds 5-10 mph, 85 – 90° F	JOC, CWS	Wetland flagging/surveying
04/26/06	0830 – 1630	Partly cloudy, Winds 0-5 mph, 75-85° F	JOC	Wetland flagging
04/27/06	0830 – 1630	Partly cloudy, Winds 0-5 mph, 75-85° F	CWS	Wetland flagging
04/27/06	0700 – 1630	Partly cloudy, Winds 0-5 mph, 75-85° F	CLR, KDW, JD	Protected Species Survey
04/28/06	0800 –1245	Mostly sunny, Winds 5-10 mph, 75 – 80° F	JOC	Wetland flagging
04/29/06	0800 – 1600	Mostly sunny, Winds 5-10 mph, 85 – 90° F	CWS	Wetland surveying
04/30/06	0800 – 1600	Sunny, Winds 5-10 mph, 75 – 80° F	WBB	Wetland flagging
05/01/06	0730 – 1630	Sunny, Winds 0–5 mph, 85 – 90° F	JOC, PAG, CWS	Protected Species Survey
05/02/06	0800 – 1630	Mostly sunny, Winds 5-10 mph, 70 – 75° F	WBB	Wetland flagging
05/03/06	0800 – 1300	Sunny, Winds 5-10 mph, 75 – 80° F	WBB	Wetland flagging
05/03/06	0715 – 1645	Mostly sunny, Winds 0–5 mph, 80 – 85° F	JOC, PAG, CWS	Protected Species Survey
05/04/06	0800 – 1600	Sunny, Winds 5-10 mph, 75 – 80° F	WBB	Wetland flagging
05/05/06	0715 – 1700	Mostly sunny, Winds 0–5 mph, 65 – 80° F	CLR, KDW, JD	Protected Species Survey
05/08/06	0830 – 1545	Mostly sunny, Winds 0–5 mph, 85 – 90° F	JOC	Wetland flagging
05/08/06	0900 – 1600	Mostly sunny, Winds 0–5 mph, 90 – 95° F	WBB, LBH, KAB	Protected Species Survey
05/10/06	0830 – 1630	Mostly sunny, Winds 5-10 mph, 85 – 90° F	WBB, LBH, KAB	Protected Species Survey
05/11/06	0750 – 1630	Mostly cloudy, Winds 5-10 mph,85-90° F	JOC, PAG, CWS	Protected Species Survey
05/12/06	0900 – 1630	Mostly sunny, Winds 5-10 mph, 85 – 90° F	WBB, LBH, KAB	Protected Species Survey
05/12/06	0700 – 1730	Mostly sunny, Winds 5-10 mph, 85 – 90° F	CLR, KDW, JD	Protected Species Survey
05/17/06	0900 – 1600	Partly cloudy, Winds 0-5 mph, 80-85° F	JOC, CLR, KDW	Wetland flagging
05/18/06	0715 – 1630	Mostly sunny, Winds 0-5 mph, 85 – 90° F	JOC, PAG, JD	Protected Species Survey
05/18/06	0900 – 1630	Mostly sunny, Winds 5-10 mph, 85 – 90° F	WBB, LBH, KAB	Protected Species Survey
05/19/06	0830 – 1645	Partly cloudy, Winds 5-10 mph, 85-90° F	JOC, AGN	Wetland flagging
05/23/06	0815 – 1645	Partly cloudy, Winds 5-10 mph, 85-90° F	JOC, KDW	Wetland flagging
05/24/06	0830 – 1630	Mostly cloudy, Winds 0-5 mph,80-85° F	WBB, LBH, KAB	Protected Species Survey
05/24/06	1030 – 1600	Mostly cloudy, Winds 5-10 mph,85-90° F	JOC	Wetland flagging
05/25/06	0710 – 1630	Partly cloudy, Winds 0-5 mph, 85-90° F	CLR, KDW	Protected Species Survey
05/25/06	0730 – 1400	Partly cloudy, Winds 0-5 mph, 85-90° F	JOC, PAG, CWS	Protected Species Survey
05/31/06	1130 – 1600	Partly cloudy, Winds 5-10 mph, 85-90° F	JOC	Wetland flagging
05/31/06	1300 – 1630	Partly cloudy, Winds 5-10 mph, 85-90° F	CWS, KDW	Wetland surveying
06/01/06	0800 – 1600	Mostly cloudy, Winds 5-10 mph,80-85° F	CWS, KDW	Wetland surveying
06/02/06	0845 – 1600	Partly cloudy, Winds 5-10 mph, 85-90° F	JOC, KDW	Wetland flagging
06/06/06	0900 – 1600	Partly cloudy, Winds 5-10 mph, 85-90° F	JOC	Wetland flagging
06/06/06	1200 – 1700	Mostly sunny, Winds 5-10 mph, 80 – 85° F	WBB. KDW, SW[1]	Protected Species Survey
06/07/06	0800 – 1600	Mostly cloudy, Winds 5-10 mph,80-85° F	CWS, KDW	Wetland surveying
06/08/06	0800 – 1530	Mostly sunny, Winds 5-10 mph, 85 – 90° F	JOC, SW[1]	Protected Species Survey

06/09/06	0800 – 1600	Mostly cloudy, Winds 5-10 mph,85-90° F	CWS, KDW	Wetland surveying
06/14/06	0830 – 1530	Mostly cloudy, Winds 5-10 mph,85-90° F	JOC	Wetland flagging
06/21/06	0800 – 1600	Mostly sunny, Winds 5-10 mph, 85 – 90° F	WBB	Wetland flagging
06/22/06	0830 – 1600	Partly cloudy, Winds 5-10 mph, 85-90° F	JOC, CWS, KDW, WBB	Wetland flagging/surveying
06/23/06	0830 – 1600	Mostly sunny, Winds 5-10 mph, 85 – 90° F	CWS, KDW	Wetland surveying
06/24/06	0830 – 1200	Mostly cloudy, Winds 5-10 mph,85-90° F	CWS	Wetland surveying
06/26/06	0815 – 1615	Partly cloudy, Winds 5-10 mph, 85-90° F	JOC, WBB	Wetland flagging
06/28/06	0800 – 1600	Mostly cloudy, Winds 5-10 mph,80-85° F	KDW, KAB	Wetland surveying
06/29/06	0800 – 1200	Mostly sunny, Winds 0-5 mph, 85 – 90° F	CWS, KDW	Wetland surveying
07/09/06	1000 – 1200	Partly cloudy, Winds 5-10 mph, 85-90° F	WBB	Aerial fly-over
07/10/06	0730 – 1400	Mostly cloudy, Winds 5-10 mph,80-85° F	KDW, CWS	Wildlife monitoring
07/11/06	0730 – 1400	Mostly cloudy, Winds 5-10 mph,80-85° F	KDW, KAB	Wildlife monitoring
07/12/06	0730 – 1400	Mostly cloudy, Winds 5-10 mph,85-90° F	KDW, JOC	Wildlife monitoring
07/13/06	0730 – 1400	Mostly cloudy, Winds 5-10 mph,80-85° F	KDW, JD	Wildlife monitoring
07/14/06	0730 – 1400	Mostly cloudy, Winds 5-10 mph,80-85° F	KDW, LBH	Wildlife monitoring
07/15/06	0730 – 1400	Mostly sunny, Winds 5-10 mph, 85 – 90° F	KDW, CWS	Wildlife monitoring
07/18/06	0800 – 1600	Mostly sunny, Winds 0-5 mph, 85 – 90° F	WBB	Wetland surveying
07/29/06	0700 – 1100	Sunny, Winds 0-5 mph, 80 - 85 °F	KAB, BWS	Kestrel survey
08/01/06	0700 – 1100	Partly cloudy, Winds 0-5 mph, 80-85° F	ALS, CLR	Kestrel survey
08/05/06	0700 – 1100	Sunny, Winds 0-5 mph, 80 - 85 °F	CWS, BWS	Kestrel survey
08/09/06	0700 – 1100	Partly cloudy, Winds 0-5 mph, 80-85° F	ALS, LBH	Kestrel survey
08/12/06	0700 – 1100	Partly cloudy, Winds 0-5 mph, 80-85° F	BWS	Kestrel survey
08/15/06	0700 – 1100	Partly cloudy, Winds 0-5 mph, 80-85° F	ALS, KDW	Kestrel survey
08/19/06	0700 – 1100	Partly cloudy, Winds 0-5 mph, 80-85° F	CWS, BWS	Kestrel survey

[1] Steve Woodmansee, Botanist from the Institute of Regional Conservation

ALS = Anik Smith (Johnson Engineering, Inc.)

BWS = Brad Smith (Johnson Engineering, Inc.)

CWS = Chris Stephens (Johnson Engineering, Inc.)

CLR = Church Roberts (Johnson Engineering, Inc.)

JOC = John Curtis (Johnson Engineering, Inc.)

JD = Justin Dennington (Johnson Engineering, Inc.)

KDW = Kendra Willet (Johnson Engineering, Inc.)

KAB = Kim Buckley (Johnson Engineering, Inc.)

LBH = Laura Herrero (Johnson Engineering, Inc.)

PAG = Peggy Grant (Johnson Engineering, Inc.)

WBB = Bill Brammell (Johnson Engineering, Inc.)

Table 12.B-2 Survey Dates, Times, Weather Conditions, and Performing Ecologists - Lee County

Date	Time of Day	Weather	Ecologists	Labor Hours
General Listed Species Surveys				
3/21/06	9:30 a.m. – 4:30 p.m.	Sunny, Winds 10 - 15 mph, 75 - 80 °F	CDS, JJH, AK	**21.00**
3/22/06	7:00 a.m. – 4:15 p.m.	Sunny, Winds 0 - 5 mph, 65 - 80 F	CDS, JJH, AK	**27.75**
3/23/06	9:00 a.m. – 4:00 p.m.	Partly cloudy, Winds 0 - 5 mph, 70 - 80 F	CDS, JJH, AK	**21.00**
3/28/06	8:45 a.m. – 5:00 p.m.	Sunny, Winds 0 - 5 mph, 65 - 75 F	JJH, AK	**16.50**
3/29/06	8:30 a.m. – 4:00 p.m.	Sunny, Winds 0 - 5 mph, 70 – 80 F	CDS, JJH, AK, CSS	**22.50**
3/30/06	9:15 a.m. – 4:15 p.m.	Sunny, Winds 5 - 10 mph, 70 – 80 F	JJH, CSS	**14.00**
4/04/06	6:30 a.m. – 4:00 p.m.	Sunny, Winds 0 – 5 mph, 65 – 80 F	JJH, CSS	**19.00**
4/05/06	9:00 a.m. – 3:30 p.m.	Sunny, Winds 0 – 5 mph, 70 – 80 F	CDS, JJH, CSS	**19.50**
4/06/06	9:00 a.m. – 4:00 p.m.	Sunny, Winds 5 – 10 mph, 65 – 75 F	JJH, CSS	**14.00**
4/07/06	7:00 a.m. – 4:30 p.m.	Sunny, Winds 0 – 5 mph, 66 – 76 F	CDS	**9.50**
4/11/06	9:15 a.m. – 4:45 p.m.	Sunny, Winds 10 – 15 mph, 60 – 70 F	CDS, JJH	**15.00**
4/12/06	9:30 a.m. – 5:00 p.m.	Sunny, Winds 5 – 10 mph, 75 – 80 F	CDS, JJH	**15.00**
6/6/06	12:30 a.m. – 5:00 p.m.	Sunny, Winds 3 – 5 mph, 85 – 91 F	CDS	**4.5**
6/7/06	8:30 a.m. – 4:30 p.m.	Sunny, Winds 5 – 7 mph, 75 – 94 F	CDS, TTT	**16.00**
6/9/06	7:00 a.m. – 2:30 p.m.	Sunny, Winds 2 – 4 mph, 73 – 90 F	CDS	**7.5**
Red-Cockaded Woodpecker Surveys				
5/15/06	6:00 a.m. – 11:30 a.m.	Sunny, Winds 0 – 5 mph, 65 – 70 F	CDS, JJH	**11.00**
5/16/06	5:55 a.m. – 11:40 a.m.	Mostly cloudy, Winds 0 – 5 mph, 65 F	CDS, JJH	**11.50**
5/17/06	6:00 a.m. – 11:30 a.m.	Partly cloudy, Winds 5 – 15 mph, 60 – 75 F	JJH, CSS	**11.00**
5/18/06	5:50 a.m. – 11:30 a.m.	Sunny, Winds 5 – 10 mph, 70 – 85 F	CDS, JJH	**11.66**
5/19/06	6:05 a.m. – 11:40 a.m.	Partly cloudy, Winds 0 – 5 mph, 70 – 85 F	CDS, JJH	**11.20**
5/20/06	5:50 a.m. – 12:05 p.m.	Partly cloudy, Winds 0 – 5 mph, 75 – 90 F	CDS, JJH	**12.50**
5/21/06	6:05 a.m. – 11:55 a.m.	Sunny, Winds 10 – 15 mph, 75 – 90 F	CDS, JJH	**11.67**
5/22/06	5:45 a.m. – 12:00 p.m.	Sunny, Winds 0 – 5 mph, 75 – 90 F	CDS, JJH	**12.50**
5/23/06	5:50 a.m. – 11:50 a.m.	Partly cloudy, Winds 5 – 10 mph, 75 – 85 F	CDS, JJH	**12.00**
5/24/06	5:55 a.m. – 11:55 a.m.	Sunny, Winds 5 – 10 mph, 75 – 90 F	CDS, JJH	**12.00**
5/25/06	6:00 a.m. – 12:10 p.m.	Sunny, Winds 0 – 5 mph, 75 – 85 F	CDS, JJH	**12.33**
5/26/06	5:45 a.m. – 11:55 a.m.	Partly cloudy, Winds 0 – 5 mph, 75 – 85 F	CDS, JJH	**12.33**
5/27/06	6:00 a.m. – 12:00 p.m.	Partly cloudy, Winds 0 – 5 mph, 75 – 85 F	CDS, JJH	**12.00**
5/28/06	5:50 a.m. – 11:50 a.m.	Sunny, Winds 5 – 10 mph, 75 – 90 F	CDS, JJH	**12.00**
6/5/06	5:55 a.m. – 12:05 a.m.	Sunny, Winds 0 – 3 mph, 74.- 92 F	CDS	**6.10**
6/6/06	6:00 a.m. – 12:30 a.m.	Sunny, Winds 3 – 5 mph, 73 – 93 F	CDS	**6.50**
			Subtotal General Listed Species Hours	**242.75**
			Subtotal Red-Cockaded Woodpecker Hours	**178.29**
			Total Hours	**421.04**

Ecologists conducting Listed Species and RCW inspections:

CDS Craig D. Schmittler, MS, PWS
TTT Tom T. Trettis, CE, PWS
ASK Andrew S. Kelly
JJH Josh J. Houser
CSS Curt S. Schaeffer

C. List all state or federally listed wildlife and plant resources that were observed on the site and show location on Map G. Given the plant communities on-site, list any additional state or federally listed wildlife and plant resources expected to occur on the site and show the location of suitable habitat on Map G. Additionally, address any unique wildlife and plant resources, such as colonial bird nesting sites and migrating bird concentration areas. For species that are either observed or expected to utilize the site, discuss the known or expected location and population size on-site, existence (and extent, if known) of adjacent, contiguous habitat off-site, and any special habitat requirements of the species.

Locations for all state and federally listed species observed during the course of surveying are provided for the Babcock Ranch Community. This information is presented on separate geo-referenced maps for each listed species located. In addition, the locations of transects and sampling sites, and any other ancillary data collection areas is identified. Locations of known state and federally listed species observations for the remainder of the Ranch and south to the river is provided in the form of publicly available data. This includes Florida Natural Areas Inventory (FNAI) Element of Occurrence (EO) GIS shapefile coverage, Florida panther telemetry data, and FWC bald eagle nest locations. These maps will be updated as additional species are observed during ongoing site work.

Tables 12.C-1 provides a list of all identified wildlife species observed within the Babcock Ranch Overlay District (Area 6) limits.

Table 12.C-1 - Listed Plant and Wildlife Species Observed or Confirmed within the Babcock Ranch Community (Area 6)

Common Name	Scientific Name	Charlotte County	Lee County	State Status	Federal Status	FDA Status
		PLANTS				
Butterfly orchid	*Encyclia tampensis*		X	N/A	NL	C
Cardinal Airplant	*Tillandsia fasciculate*		*X*			T
Edison's ascyrum	*Hypericum edisonianum*		*X*	E	N/A	
Giant Air plant	*Tillandsia utriculata*		*X*			E
Potbelly Airplant	*Tillandsia paucifolia*		*X*			T
Reflexed Wild Pine	*Tillandsia balbisiana*		*X*			T
Threadroot Orchid	*Harrisella filiformis*		*X*			T
		AMPHIBIANS & REPTILES				
American alligator	*Alligator mississippiensis*	X	X	SSC	T(S/A)	
Eastern Indigo Snake	*Drymarchon corais couperi*		*X*	T	T	
Gopher tortoise	*Gopherus polyphemus*	X	X	SSC	NL	
		BIRDS				
Audubon's crested caracara	*Polyborus plancus audubonii*	*X*	*X*	T	T	
Bald Eagle	*Haliaetus leucocephalus*	*X*	*X*	T	T	
Florida burrowing owl	*Athene cunicularia floridana*	*X*		SSC	NL	
Florida sandhill crane	*Grus canadensis pratensis*	X	X	T	NL	
Florida Scrub Jay	*Aphelocoma coerulescens coerrulescens*		X	T	T	
Little blue heron	*Egretta caerulea*	X	X	SSC	NL	
Snowy egret	*Egretta thula*	*X*	*X*	N	S	
Tricolor heron	*Egretta tricolor*	*X*		SSC	NL	
White ibis	*Eudocimus albus*	X	X	SSC	NL	
Wood stork	*Mycteria americana*	*X*	*X*	E	E	
		MAMMALS				
Florida Black bear	*Ursus americanus floridanus*	*X*		T	NL	
Florida panther	*Puma Concolor coryi*	*X*		E	E	

FDA = Florida Department of Agriculture and Consumer Services
FWC = Florida Fish and Wildlife Conservation Commission
FWS = United States Fish & Wildlife Service
E = Endangered
T = Threatened
T(S/A) = Threatened by Similarity of Appearance
C = Commercially exploited
NL = Not listed
N/A = Not Applicable

Table 12.C-2 - Listed Plant and Wildlife Species Potentially Present but not Observed within the Babcock Ranch Community (Area 6).

Common Name	Scientific Name	State	Federal	FLUCCS
PLANTS				
Beautiful Pawpaw	*Deeringothamnus pulchellus*	E	E	320, 321, 329, 330, 411, 4119E1, 4119E2, 4119E3, 414, 416
Carter's mustard	*Warea carteri*	E	E	436
Catesby's Lily	*Lilium catesbaei*	T	NL	320, 321, 329, 330, 411, 4119E1, 4119E2, 4119E3, 414, 416 423
Edison's ascyrum	*Hypericum edisonianum*	E	NL	416, 616, 625, 630, 631, 6319, 640, 641, 6419, 643, 6439
Florida bonamia	*Bonamia grandiflora*	E	T	436
Florida Reindeer Lichen	*Cladonia perforata*	E	E	436
Florida ziziphus	*Ziziphus celata*	E	E	436
Florida Coontie	*Zamia floridana*	C	NL	320, 321, 411, 4119E1, 4119E2, 4119E3, 414, 423, 427, 436
Ladies Tresses	*Spiranthes sp.*	E	E	414, 416, 616, 624, 625, 630, 631, 6319, 640 641, 6419, 643, 6439
Lewton's polygala	*Polygala lewtoni*	E	E	436
Papery whitlow-wort	*Paronychia chartacea (=Nyachia pulvinata)*	E	T	436
Pigeon wings	*Clitoria fragrans*	E	T	436
Pygmy fringe-tree	*Chionanthus pygmaeus*	E	T	436
Sandlace	*Polygonella myriophylla*	NL	E	436
Scrub blazing star	*Liatris ohlingerae*	E	E	436
Scrub buckwheat	*Eriogonum longifolium var. gnaphalifolium*	E	T	436
Scrub mint	*Dicerandra frutescens*	E	E	436
Scrub plum	*Prunus geniculata*	E	E	436
Short-leaved rosemary	*Conradina brevifolia*	E	E	436
Snakeroot	*Eryngium cuneifolium*	E	E	436
Wild Coco	*Eulophia alta*	T	NL	310, 320, 321, 411, 4119E1, 4119E2, 4119E3, 414, 416
Wireweed	*Polygonella basiramia (=ciliata var. b.)*	E	E	436
AMPHIBIANS & REPTILES				
American alligator	*Alligator mississippiensis*	SSC	T(S/A)	500, 510, 525, 616, 618, 621, 6219, 640, 641, 6419, 643, 6439, 742
Bluetail (=blue-tailed) mole skink	*Eumeces egregius lividus*	T	T	436
Florida Pine Snake	*Pituophis melanoleucus mugitus*	SSC	NL	321, 411, 4119E1, 4119E2, 4119E3, 414, 416, 423
Gopher frog	*Rana capito*	SSC	NL	212, 320, 330, 321, 411, 4119E1, 4119E2, 4119E3, 414, 427, 436, 743
Sand skink	*Neoseps reynoldsi*	T	T	436
Short-tailed snake	*Stilosoma extenuatum*	T	NL	320, 321, 329. 411, 4119E1, 4119E2, 4119E3, 414, 423, 427, 436

BIRDS				
Burrowing Owl	*Speotyto cunicularia*	SSC	N/L	211, 310, 321
Florida grasshopper sparrow	*Ammodramus savannarum floridanus*	E	E	211, 211-H, 215, 310, 320, 3209, 330, 640, 641, 6419, 643, 6439
Limpkin	*Aramus guarauna*	SSC	NL	500, 510, 525, 616, 618, 621, 6219, 630, 631, 6319, 640, 641, 6419, 643, 6439, 742
Red-Cockaded Woodpecker	*Picoides borealis*	T	E	411, 4119E1, 4119E2, 4119E3, 416
Roseate spoonbill	*Platalea ajaja*	SSC	NL	500, 510, 525, 616, 621, 6219, 624, 630, 631, 6319, 640, 641, 6419, 643, 6439, 742
Southeastern American kestrel	*Falco sparverius paulus*	T	NL	211, 211-H, 212, 215, 310, 320, 321, 411, 4119E1, 4119E2, 4119E3, 416
Tricolored heron	*Egretta tricolor*	N	S	500, 510, 525, 616, 621, 6219, 624, 630, 631, 6319, 640, 641, 6419, 643, 6439, 742
MAMMALS				
Florida Black Bear	*Ursus americanus floridanus*	T	NL	all
Florida Mastiff Bat	*Eumops glaucinus floridanus*	E	NL	411, 4119E1, 4119E2, 4119E3, 414, 416, 423, 427, 428, 434
Florida Mouse	*Podomys floridanus*	SSC	NL	211, 211-H, 212, 215, 310, 320, 3209, 330, 411, 4119E1, 4119E2, 4119E3, 414, 416, 423, 427, 428, 434, 436, 4421, 624, 625 630, 643, 6439, 740, 743
Florida Panther	*Felis Concolor coryi*	E	E	all
Sherman's Fox Squirrel	Sciurus niger shermani	SSC	NL	411,4119E1, 4119E2, 4119E3, 414, 416, 423, 427, 428, 436, 621, 6219, 624, 625, 630
Sherman's short-tailed shrew	Blarina carolinensis (=brevicauda) shermani	SSC	NL	310, 320, 3209, 330, 411, 4119E1, 4119E2, 4119E3, 414, 416, 423, 427, 428, 434, 436, 4421
Snail Kite	Rosthrhamus sociabilis plumbeus	E	E	500, 510, 525, 616, 621, 6219, 640, 641, 6419, 643, 6439, 742

D. Indicate what impact development of the site will pose to affected state or federally listed wildlife and plant resources.

General species surveys have been performed within the Babcock Ranch Community limits for the purpose of confirming the presence of listed species. In combination with these surveys, onsite land uses and habitats were mapped. This mapping provides information relative to which areas may have the potential for use by listed species although those species may not currently be present onsite. Typically, native and/or undisturbed habitats provide the highest potential for use by listed species, although in their absence other areas may be utilized. The Babcock Ranch Community lands have been subjected to intensive row crop farming, cattle grazing, sod farming and silviculture for many years. In conjunction

with these activities, miles of roadways, ditches and canals were constructed. Presentaly permitted mining lakes within the property encompass approximately 970 acres. Non-native habitats within the Babcock Ranch Community boundary total approximately 7500 acres. Another 28.5 ± acres of habitats are infested with exotics greater than 50%, and approximately 450 ± acres consist of disturbed habitats.

The proposed development footprint has been designed to take full advantage of the non-native and disturbed habitats within the Babcock Ranch Community boundary. As can be seen from Table 12.A-2, impacts to non-native, exotic infested and disturbed habitats in Charlotte County total 4200 ±acres. These 4200± acres constitute approximately 24% of all habitats within the 17,787.83 acre property. The unimpacted non-native, exotic infested and disturbed areas (approximately 2800 acres) will be restored and incorporated into the final preservation areas thus creating additional habitat available for use by listed species. Under the proposed development plan, consolidated north-south flowways and east-west greenways will be preserved. These preserves maintain and expand a large mammal corridor between the Fred C. Babcock - Cecil M. Webb Wildlife Management Area and areas to the east.

A comparison of the listed species transect maps and the proposed development plan verifies that the majority of observed listed species nesting, denning and foraging areas have been protected through the incorporation into preservation areas. Appropriate approvals will be obtained from Florida Fish and Wildlife Conservation Commission (FWC) for the relocation of gopher tortoises and/or listed plants which might be located within the proposed development limits.

In addition to the preservation of preferred habitats, the development will utilize recommendations provided at the public Visioning Planning Charettes and have designed a development which attempts to minimize the impact of the “built” system on the natural system. As currently designed, the development pods have been consolidated and separated by large greenways. Development areas have been created which concentrate high density areas within central portions of the development tracts, with the lowest densities bordering the adjacent greenways. These greenways consist of both upland and wetland habitats. The conceptual design takes into account an average 100’ setback from the Area 6 boundary and an average 50’ setback adjacent to wetland habitats, and to the extent possible, the development tracts will be developed to provide an undisturbed setback and minimize the potential for secondary impacts as a result of development activities (traffic, lighting, noise, etc.). Roadway crossings of greenways were selected to minimize impacts to native habitats. Internal roadways will be used to interconnect separate development pods and will be constructed with box culverts in areas that provide wildlife corridors. The sizes and locations of these crossings will be coordinated with staff from the FWCC and US Fish and Wildlife Service (USFWS). Road crossings may be constructed across and through primary flowways, as long as the hydrological integrity of the flowways is maintained through the crossings. These roadways have been designed to maximize internal traffic dispersal while minimizing roadway interconnects. Roadway layouts have been designed to reduce traffic speeds and minimize the risk of vehicle/wildlife collisions. Traffic calming devices will be employed where appropriate. Roadway footprints are designed to account for project buildout and utilize design cross-sections which accommodate multi-uses including pedestrian and non-motorized vehicle traffic.

Littoral shelves and filter marshes are proposed for construction within and adjacent to lake systems and will provide additional foraging area for wading birds. Ponds will be designed to mimic the functions of natural systems: by establishing shorelines that are sinuous in configuration in order to provide increased length and diversity of the littoral zone. Where appropriate, littoral shelf planting areas will be established to provide feeding areas for water dependent avian species.

To minimize secondary impacts to wildlife related to noise and lighting, specific design criteria will be incorporated into the development. Specifically, native vegetation will be utilized within common areas and throughout the specific development tracts. Native plants will be used primarily except for special purpose areas such as golf greens, fairways, and building sites. Within these excepted areas, landscaping plans will include trees and shrubs that are freeze-tolerant native Floridian species and also drought tolerant species.

Onsite lighting standards have been modeled after the International Dark Sky Association standards. Street lighting is proposed to use mechanisms to reduce light pollution such as full shield cut-offs to prohibit light from shining upward, low intensity lighting and other acceptable techniques. Greenways, conservation areas and developed and/or undeveloped areas bordering these areas are proposed to be unlit.

The proposed golf courses will be designed to employ management strategies to address the potential for pesticide/chemical pollution of the groundwater and surface water receiving areas. To that end, the golf courses will be designed to comply with the goals of the Audubon International Signature Program – Silver Level certification program, with best management practices developed by the Florida Department of Environmental Protection under Section 403.067, F.S. (2005), with other equivalent certification programs or equivalent best management practices.

E. Discuss what measures are proposed to be taken to mitigate impacts to state and federally listed wildlife and plant resources. If protection is proposed to occur on-site, describe what legal instrument will be used to protect the site, and what management actions will be taken to maintain habitat value. If protection is proposed to occur off-site, identify the proposed amount and type of lands to be mitigated as well as whether mitigation would be through a regional mitigation land bank, by acquisition of lands that adjoin existing public holdings, or by other means.

Potential impacts to listed species are anticipated to be minimal as a result of the design of consolidated development parcels and the preservation of large expansive greenway preserves. Despite the attempts to create a compact development, the proposed development tracts represent displacement of native habitats which may effect Florida panther and Florida black bear movements in this region. Although it is anticipated that this impact will be minimal, the applicant has designated the Babcock Ranch Mitigation Park (BRMP) to offset any potential impacts. The BRMP was established to offset potential impacts to Florida panther habitat, other listed species, and potential wetland impacts created within the Babcock Ranch Community. The BRMP consists of two phases; the restoration and enhancement activities phase and the management phase. The first phase includes the restoration and enhancement of 75.38 acres of existing farm fields in order to increase habitat values for wildlife utilization. Also included in this phase is the establishment of Panther Habitat Units (PHUs) available within the BRMP boundaries. These PHUs will be utilized to offset potential impacts to panther habitat related to development within the Babcock Ranch Community.

Relative to the establishment of the PHUs, the USFWS issued a Technical Assistance letter in June 2006 for the BRMP which verifies that the BRMP will contain a total of 16,925 acres which, using the USFWS panther habitat assessment methodology, will provide approximately 143,180 PHUs. Secondly, the letter indicates that the BRMP provides habitat suitable for the Florida panther and the preservation and long-term management of these lands will benefit the Florida panther. Lastly, the USFWS letter states that creation of the BRMP will receive a favorable review by the Service as part of a compensation plan to offset adverse impacts related to future development of the Babcock Ranch Community.

From SFWMD DRI Addendum Questions:

A vegetation map depicting project boundaries and vegetation types should be submitted at a scale approximating 1" = 400'.

FLUCCs Maps depicting project boundaries and vegetation types have been completed. Copies of these maps at a scale of 1" = 1000' are included in the listed species surveys. Due to the size of the property it is not feasible to utilize a scale of 1" = 400'.

From FGFWFC Guidelines for Completion:

A. General

1. A valid collector's permit from the Florida Game and Fresh Water Fish Commission is required for individuals engaged in the handling and collection of birds, mammals, and all listed species. Please provide the permit number, expiration date, and name(s) of the individual(s) involved with sampling activities which require a permit.

Noted. Individuals who may be responsible for these activities have not yet been identified for this project.

2. List all species classified as endangered, threatened, or of special concern that are known, or have the potential, to utilize the project site.

This information is included in the Protected Species reports included in this submittal.

3. Cite the reference and date of publication of the list being used.

The literature review included Florida's official list of endangered species, threatened species and species of special concern (FWC, 2004), Endangered and Threatened Species of the Southeastern United States (USFWS), and Notes on Florida's Endangered and Threatened Plants (Coile and Garland, 2003). Other resources used include the USFWS's South Florida Multi-Species Recovery Plan (1999), the FWC online bald eagle nest database, the publication "Babcock Ranch Closes the Gap", and Florida's Waterbird Colony Locator (FWC, 2003). Additionally, the most recent telemetry data for the Florida Panther and Florida black bear was obtained from FWC. Additional reference sources are included in the Protected Species reports.

4. For those protected species specifically sampled for, include the sampling methodology, sampling dates, and amount of effort expended.

This information is included in the Protected Species reports included in this submittal.

5. Identify on a map the locations of pedestrian transects, trap grids, herp arrays, or other field sampling plots used to determine the onsite status of protected species.

This information is included in the Protected Species reports included.

6. Present the results of all sampling efforts in terms of number of individuals, and map (scale 1" = 200') the location of observed individuals.

Transect and species information maps are included at a scale of 1” = 1000’ within the listed species surveys. Due to the size of the property it is not feasible to utilize a scale of 1” = 400’.

7. Discuss what measures will be taken to minimize the project's impacts on protected fish and wildlife and their habitats.

Please see the information included in D and E above.

QUESTION 13 - WETLANDS

NOTE: The information contained in the responses to Question 13 is for the entire Area 6 Property; however, development order approval is only being requested for the Charlotte County portion of the property at this time. The Lee County property within Area 6 will be developed at a later time. At this time, no changes to the existing land uses in Lee County are proposed.

A. If there are wetlands on the site, discuss and specify the following:

1. Acreage and percentage of property which is currently wetlands. These wetlands should be shown on Map F, Vegetation Associations and identified by individual reference numbers. (There numbers should be utilized in responding to the other sub-questions.)

The onsite wetlands have been field identified, flagged and mapped using GPS technology. Wetlands for the Babcock Ranch Community were delineated based on the criteria outlined in the USACOE Wetland Delineation Manual (1987) and Chapter 62-340, Florida Administrative Code. As follow up to the recent Supreme Court decisions in United States v. Rapanos and United States v. Carabell, the USACOE and Environmental Protection Agency (EPA) are examining the methods in which they describe and document jurisdictional determinations pursuant to the Clean Water Act. In light of this, wetland classifications will be based upon State status, as isolated wetlands may not be under future USACOE jurisdiction. Regardless, the delineation of the lines would not be affected by the federal jurisdiction issue.

Wetlands and Other Surface Waters within the Babcock Ranch Community (Area 6) boundaries were established using the adopted state and federal wetland delineation methodologies and are identified on Map F-5. Due to the scale of this map, the wetlands have not been identified by individual reference numbers. For individual wetland reference numbers, please refer to Map F-1 within the Environmental Supplement which provides mapping at a larger scale. The wetland reference numbers identified on this map correlate to the wetland functional assessments (UMAMs) contained in Table 13-2 of the Environmental Supplement. Site inspections and verification of wetland boundaries has been completed by the SFWMD and the Corps of Engineers.

Approximately 91.91 acres of surface waters and 2764.5 acres of wetlands are located within the Babcock Ranch Community limits. These habitats account for approximately sixteen (16%) of the entire Babcock Ranch Community land area. A total of 2086.29 acres of wetlands and 34.35 acres of other surface waters are located within the Charlotte County portion of the Babcock Ranch Community limits. The remaining 678.2 acres of wetlands and 57.56 acres of surface waters are located within the Lee County portion of the Babcock Ranch Community. The existing mining lakes are not included within the surface water acreage, but is included as part of the total mine acreage listed in Question 12.

Onsite surface waters include isolated cow ponds and borrow pits, manmade canals and ditches, portions of Trout Creek and Owl Creek, and natural and

manmade tributaries to downstream natural waterways including Telegraph Creek, Trout Creek, Owl Creek and Stricklin Gully. Many of the manmade canals and ditches interconnect wetlands while others lead to nowhere and serve simply to direct water away from active farm fields. Of the total 91.91 acres of surface waters, streams and waterways represent 77.80 acres, while cow ponds (9.16 acres), borrow ponds (2.37 acres) and open water (2.58 acres) total 14.11acres.

A variety of wetland habitats are located within the Babcock Ranch Community. These wetlands include freshwater marshes and wet prairies, cypress domes and sloughs, and mixed forested sloughs. Freshwater marshes can be found isolated within active and fallow farm fields as well as scattered within upland pine flatwoods and mixed forested sloughs. Wet prairies and shrub marshes can be found scattered within upland pine flatwoods and associated with freshwater marshes and cypress domes. Forested wetland systems including cypress, cabbage palm, laurel oak, and slash pine can be found throughout the project area. Likewise shrubby wetlands dominated by wax myrtle and saltbush can be found dominating natural sheetflow areas, particularly within the eastern portions of the site. Of the total wetlands on site, forested systems account for 817 ± acres, shrub systems cover 561.5 ± acres, and herbaceous wetlands total approximately 1386 acres for a total of approximately 2764.5 acres.

Table 13.A-1 Babcock Ranch Community (Area 6) Wetlands

FLUCCS	Description	Total Wetland Acreage	Acreage	
			Charlotte	Lee
WETLANDS				
211H	Improved Pasture, hydric	20.40	20.40	0
616	Inland Slough	41.17	0	41.17
618	Willow	6.14	0	6.14
621	Cypress	327.23	321.89	5.34
6219	Cypress, disturbed	5.39	5.39	0
624	Cypress, Pine, Cabbage Palm	205.16	205.16	0
625	Hydric Pine	214.88	130.35	84.53
6259	Hydric Pine, disturbed	1.41	1.41	0
630	Wetland Forested Mix	6.70	6.70	0
6309	Wetland Forested Mix, disturbed	15.10	15.10	0
631	Wetland Shrubs	422.72	100.63	322.09
6319	Wetland Shrubs, disturbed	132.66	132.66	0
640	Vegetated, Non-forested Wetland	39.40	0	39.40
641	Freshwater Marsh	823.64	644.11	179.53
6419	Freshwater Marsh, disturbed	71.32	71.32	0
643	Wet Prairie	355.95	355.95	0
6439	Wet Prairie, disturbed	75.22	75.22	0
	SubTotal	**2764.49**	**2086.29**	**678.2**
OTHER SURFACE WATERS				
500	Open Water	2.58	0	2.58
510	Streams and Waterways	77.80	26.37	51.43
525	Cow Pond	9.16	7.98	1.18
742H	Borrow Area	2.37	0	2.37
	SubTotal	**91.91**	**34.35**	**57.56**
TOTALS		**2856.40**	**2120.64**	**735.76**

2. Historic hydroperiods and seasonal water elevations of on-site wetlands.

The general topography of this area ranges from a high of approximately 32' NGVD north of Hercules Grade Road to less than elevation 10' NGVD along CR 78 at the south end of the property. The land at the north end of the BRC has a slope of about four feet per mile. The slope in the middle area flattens to less than two feet per mile. Land slopes at the south end are between five and ten feet per mile. The upper ends of streams within the Babcock Ranch Community limits are comprised of sloughs or broad pond areas. Just to the north of the project limits is the headwaters area for Trout Creek, known as Curry Lake. Curry Lake is contained within the limits of those lands purchased by the State of Florida. Water flows from the Curry Lake area south into the Babcock Ranch Community development limits via the Curry Lake Canal. This canal continues southward through the project, ultimately draining into Trout Creek. Trout Creek in combination with Stricklin Gully and Owl Creek serve to provide positive drainage in the area and have a significant effect on wet season water tables and wetland seasonal water elevations.

Mining activities have resulted in the creation of large lakes, secondary groundwater permeability, and a general localized lowering of the water table (surficial) aquifer in the area near SR 31. Agricultural activities on the site have also historically affected the hydrology through groundwater withdrawals, and the construction of berms and ditches. Roads and associated ditches/berms have interrupted historic surface and near-subsurface hydrologic connections. In some places, hydrologic alterations have created excessive water levels.

There are existing water management facilities within the limits of the Babcock Ranch Community, and within the limits of the lands purchased by the State of Florida.

Current wet season water table data has been compiled using monitoring well data, surface water elevation recordings, and biological indicator elevations. This data collection is still ongoing and will continue throughout the permit approval process. The information collected to date consists of surveyed biological indicators located within thirty (30) wetland areas, surveyed upland/wetland interface elevations for the thirty (30) wetland areas, and topographic profiles for twenty-six (26) wetland areas. Existing seasonal high water elevations were determined from field observations of biological indicators (e.g., drift lines, moss collars, lichen lines, water stains, adventitious rooting, etc.). Historic water elevations were primarily based on field observations of biological indicators, primarily buttressing of old-growth cypress trees and remnant lichen patterns. In some areas, historic high water indicators either did not exist or were inconclusive. In these cases, Table 13-1 within the Environmental Supplement summarizes the wswt data.

In addition, sixty (60) surficial wells have been installed within Area 6 to record surficial water table elevations every four (4) hours. Preliminary data obtained from these wells is illustrated by the graphs shown in Attachment 13-1 in the Environmental Supplement. This data will be used to determine appropriate control elevations for the planned development.

Attachment 13-1 includes an aerial which identifies the well locations, topographic transects, and biological indicator locations.

3. Acreage and location of wetlands which are to be preserved in their natural or existing state, including proposed hydroperiods, seasonal water elevations and methods for preservation.

Of the total 2120.64 acres of wetlands within the Charlotte County portion of the Babcock Ranch Community limits, approximately 1803.32 acres (85%) will be preserved. The majority of wetlands being preserved will be located outside the boundaries of development. The proposed development plan has been designed to create isolated development parcels identified as The Town of Babcock Ranch, the Village Center and multiple Villages and Hamlets on the Master Drainage Plan. The areas between these development parcels contain a mix of wetland and upland communities which will be used to create active and passive greenways. Areas required as mitigation during the Environmental Resource Permit will be placed under a conservation easement.

Table 13.A-3 Babcock Ranch Community (Area 6) Wetland Preserves

FLUCCS	Description	Total Wetland Acreage	Acreage Breakdown		Charlotte County Preserve[1]
			Charlotte	Lee	
WETLANDS					
211H	Improved Pasture, hydric	20.40	20.40	0	20.40
616	Inland Slough	41.17	0	41.17	0
618	Willow	6.14	0	6.14	0
621	Cypress	327.23	321.89	5.34	291.57
6219	Cypress, disturbed	5.39	5.39	0	2.42
624	Cypress, Pine, Cabbage Palm	205.16	205.16	0	204.37
625	Hydric Pine	214.88	130.35	84.53	125.29
6259	Hydric Pine, disturbed	1.41	1.41	0	1.41
630	Wetland Forested Mix	6.70	6.70	0	6.70
6309	Wetland Forested Mix, disturbed	15.10	15.10	0	15.10
631	Wetland Shrubs	422.72	100.63	322.09	83.19
6319	Wetland Shrubs, disturbed	132.66	132.66	0	97.16
640	Vegetated, Non-forested Wetland	39.40	0	39.40	0
641	Freshwater Marsh	823.64	644.11	179.53	529.28
6419	Freshwater Marsh, disturbed	71.32	71.32	0	67.15
643	Wet Prairie	355.95	355.95	0	296.03
6439	Wet Prairie, disturbed	75.22	75.22	0	34.93
	SubTotal	**2764.49**	**2086.29**	**678.2**	**1775.00**
OTHER SURFACE WATERS					
500	Open Water	2.58	0	2.58	0
510	Streams and Waterways	77.80	26.37	51.43	24.49
525	Cow Pond	9.16	7.98	1.18	3.83
742H	Borrow Area	2.37	0	2.37	0
	SubTotal	**91.91**	**34.35**	**57.56**	**28.32**
TOTALS		**2856.40**	**2120.64**	**735.76**	**1803.32**

1 Portions, but not all of this acreage will be required to be placed in a conservation easement per applicable permits.

4. Acreage and location of areas to be enhanced, including proposed hydroperiods, seasonal water elevations and methods of enhancement.

Please see the mitigation discussion outlined in Questions B and B1.

5. Actions taken to minimize or mitigate impacts on wetland areas, including maintaining the hydroperiod and providing buffers.

The proposed development footprint has been located to minimize impacts to wetlands and high quality upland habitats. The resulting plan provides for north-south flowways and significant greenways and preservation areas. These preserves maintain and expand a large mammal corridor between the Fred C. Babcock - Cecil M. Webb Wildlife Management Area and areas to the east The development footprint has been designed to locate the majority of the development tracts within existing agricultural farm fields and cleared uplands. To minimize secondary effects to the proposed preserve areas, the development tracts have been designed with an average 100' setback along the Area 6 boundary and an average 50' undisturbed area around most of the wetland preserve areas. The result is a development plan which consolidates preservation areas, and incorporates existing flowways, isolated wetlands and expansive native uplands. The development footprint has been confined to approximately 6800 acres, approximately 38% of the total Babcock Ranch Community acreage. Of this total development impact footprint, approximately 317 acres of the development will be located within wetlands. This information includes only the Charlotte County portion of the property at this time. The Lee County property within Area 6 will be developed at a later time. At this time no changes to the existing land uses in Lee County are proposed.

6. Acreage and location of wetlands which will be disturbed or altered, including a discussion of the specific alterations and disturbances.

The proposed development footprint has been located to minimize impacts to wetlands and high quality upland habitats. The resulting plan provides for north-south flowways and significant greenways and preservation areas. The development footprint has been designed to locate the majority of the development tracts within existing agricultural farm fields and cleared uplands. To minimize secondary effects to the proposed preserve areas, to the extent possible, the development tracts will be developed to provide an average 100' setback along the Area 6 boundary and an average 50' undisturbed area around most of the wetland preserve areas. The result is a development plan which consolidates preservation areas, and incorporates existing flowways, isolated wetlands and expansive native uplands. Wetland impacts result from the isolation of wetlands within development tracts, roadway crossings and tract development.

Table 13.A-4 Babcock Ranch Community (Area 6) Wetland Impacts

FLUCCS	Description	Total Wetland Acreage	Acreage Breakdown		Charlotte County Impacts
			Charlotte	Lee	
	WETLANDS				
211H	Improved Pasture, hydric	20.40	20.40	0	0
616	Inland Slough	41.17	0	41.17	0
618	Willow	6.14	0	6.14	0
621	Cypress	327.23	321.89	5.34	30.32
6219	Cypress, disturbed	5.39	5.39	0	2.97
624	Cypress, Pine, Cabbage Palm	205.16	205.16	0	0.79
625	Hydric Pine	214.88	130.35	84.53	5.06
6259	Hydric Pine, disturbed	1.41	1.41	0	0
630	Wetland Forested Mix	6.70	6.70	0	0
6309	Wetland Forested Mix, disturbed	15.10	15.10	0	0
631	Wetland Shrubs	422.72	100.63	322.09	17.44
6319	Wetland Shrubs, disturbed	132.66	132.66	0	35.50
640	Vegetated, Non-forested Wetland	39.40	0	39.40	0
641	Freshwater Marsh	823.64	644.11	179.53	114.83
6419	Freshwater Marsh, disturbed	71.32	71.32	0	4.17
643	Wet Prairie	355.95	355.95	0	59.92
6439	Wet Prairie, disturbed	75.22	75.22	0	40.29
	Subtotal	**2764.49**	**2086.29**	**678.20**	**311.29**
	OTHER SURFACE WATERS				
500	Open Water	2.58	0	2.58	0
510	Streams and Waterways	77.80	26.37	51.43	1.88
525	Cow Pond	9.16	7.98	1.18	4.15
742H	Borrow Area	2.37	0	2.37	0
	Subtotal	**91.91**	**34.35**	**57.56**	**6.03**
	TOTALS	**2856.40**	**2120.64**	**735.76**	**317.32**

7. Precautions to be taken during construction to protect wetland areas.

Construction will be conducted using common equipment such as bulldozers, backhoes, graders, etc. Contractors performing the construction will be required to properly maintain all equipment such that releases of oils, grease, fuels, or other pollutants into preserved wetlands or other surface waters are minimized to the greatest extent practicable. Clean soil (and possibly rocks/boulders in certain instances), which is free of pollutants, as obtained from both on-site and off-site sources, will be used as fill.

During the construction process, appropriate measures will be taken to minimize impacts to preserved wetlands and to water quality. Wetland and upland buffer areas to be preserved will be clearly marked in the field to avoid damage of and intrusion into protected areas. Appropriate construction Best Management Practices will be employed. Prior to commencement of construction near preserved wetlands, including proposed water control structures, erosion control devices will be installed to control and reduce soil erosion, sediment transport and turbidity. Such devices (*e.g.*, straw bale barriers, silt fencing, temporary sediment traps, impoundment areas to control excessive discharges, etc.) will

remain in place throughout the duration of construction until construction zones and surrounding areas are stabilized.

Specific erosion control methods/devices used during construction will generally conform with applicable standards set forth in the "FDER Florida Development Manual," Sections 6-301 through 6-500 (FDER. 1988. "The Florida Development Manual: A Guide to Sound Land and Water Management," Chapter 6: "Storm Water and Erosion Control Best Management Practices for Developing Areas; Guidelines for Using Erosion and Sediment Control Practices," ES BMP 1.01-1.67. FDER, Tallahassee, FL.).

8. If available, provide jurisdictional determinations.

Site inspections have been conducted with the SFWMD and Corps of Engineers staff to complete a review of their jurisdictional wetland boundaries. These agencies have field reviewed and provided preliminary approval of the wetland boundaries identified on Maps F-1, F-1.2, F-1.3, F-1.4 and F-2. Wetland maps and acreage figures have been modified as appropriate based on agency comments provided during the wetland review process.

B. Provide any proposed plans (conceptual or specific) for created or enhanced wetland areas, including littoral lake slopes, buffers, vegetative species to be planted, etc.

Mitigation to offset wetland impacts is proposed to occur within the boundaries of the Babcock Ranch Community (Area 6) as much as feasible. If adequate mitigation cannot be accomplished within this area, additional wetland mitigation will be provided within the Babcock Ranch Mitigation Park (BRMP). Mitigation activities within the Babcock Ranch Community limits will include wetland restoration, wetland enhancement and upland preservation and management. If necessary, mitigation activities to offset wetland impacts will also be undertaken within the Babcock Ranch Mitigation Park. The BRMP was established to offset potential impacts to Florida panther habitat, other listed species, and potential wetland impacts created within the Babcock Ranch Community. The BRMP consists of two phases; the restoration and enhancement activities phase and the management phase. The first phase includes the restoration and enhancement of 75.38 acres of existing farm fields in order to increase habitat values for wildlife utilization. The BRMP is located within lands now owned by the State of Florida. Use of these lands for mitigation purposes was approved as part of the Purchase Agreement with the State of Florida.

Site specific plans for each mitigation area will depend on existing habitats and proposed habitats. In general, the following protocols as applicable will be implemented:

For wetland creation areas well data, topographic information of creation area, outfall and adjacent wetlands will be utilized to determine appropriate grade elevations. Wetland creation will primarily be freshwater marsh habitats in addition to a myriad of other wetland habitats found within the BRC, including forested wetlands, wet prairies, and deeper open water habitats. Freshwater marsh creation areas will be over excavated 6"-8" and backfilled to final grade with hydric organic soils impacted by the site development. Tree, shrub, and prairie planting areas will have 4"-6" of top soil furloughed from the grading area or organic mulch added to achieve final grade.

Planting zones will be established for each wetland creation area. See Table B1 for wetland creation species plant list.

Table 13.B-1 Babcock Ranch Community Wetland Creation Plant List.

Plant Name	***Species***	**Size**
Alligator Flag	*Thalia geniculata*	Bare root
American Elm	*Ulmus americana*	3 gallon /4'-6'
American Elm	*Ulmus americana*	7 gallon /6'-8'
Arrowhead	*Sagittaria spp.*	Bare root
Beakrush	*Rhynchospora spp.*	Bare root
Blue Maidencane	*Amphicarpum muhlenbergianum*	Bare root
Bulrush	*Scirpus spp.*	Bare root
Buttonbush	*Cephalanthus occidentalis*	4" / 18"
Cocoplum	*Chrysobalanus icaco*	1 gallon / 2'
Cordgrass	*Spartina bakeri*	Bare root
Cypress	*Taxodium spp.*	3 gallon /4'-6'
Cypress	*Taxodium spp.*	7 gallon /6'-8'
Dahoon Holly	*Ilex cassine*	1 gallon / 2'
Golden Canna	*Canna flaccida*	Bare root
Laurel Oak	*Quercus laurifolia*	3 gallon /4'-6'
Laurel Oak	*Quercus laurifolia*	7 gallon /6'-8'
Maidencane	*Panicum hemitomon*	Bare root
Muhly Grass	*Muhlenbergia capillaris*	2" liners
Myrsine	*Myrsine guianensis*	1 gallon / 2'
Pickerelweed	*Pontederia cordata*	Bare root
Pond Apple	*Annona glabra*	1 gallon / 2'
Pop Ash	*Fraxinus caroliniana*	1 gallon / 2'
Red Maple	*Acer rubrum*	3 gallon /4'-6'
Red Maple	*Acer rubrum*	7 gallon /6'-8'
Sawgrass	*Cladium jamaicense*	2" liners
South Florida Slash Pine	*Pinus elliottii var densa*	Bare root
South Florida Slash Pine	*Pinus elliottii var densa*	3 gallon /4'-6'
South Florida Slash Pine	*Pinus elliottii var densa*	7 gallon /6'-8'
Spikerush	*Eleocharis spp.*	Bare root
St. John's Wort	*Hypericum spp.*	2" liners
Swamp Bay	*Persea spp.*	3 gallon /4'-6'
Swamp Bay	*Persea spp.*	7 gallon /6'-8'
Wax Myrtle	*Myrica cerifera*	1 gallon / 2'
Wire Grass	*Aristida stricta*	2" liners

For wetland preservation and enhancement areas, removal of exotic and nuisance species, planting of native Florida species, ditch plugging or berm removal, and prescribed burning will take place where appropriate.

For upland restoration and preservation, removal of exotic and nuisance species, supplemental plantings as required, and prescribed burning are proposed. Portions of fallow fields will be planted with rows or clusters of trees to create habitat for wildlife

movement and utilization. Existing pastures will be integrated into the preserve plan to provide prairie like habitat conducive for foraging for a variety of species and burrowing owl habitat. Dirt mounds may also be constructed with associated borrow areas to create gopher tortoise burrow habitat and upland refuge. See Table B2 for potential farm field plantings.

Table 13.B-2 Babcock Ranch Community Farm Field Plant List.

Plant Name	***Species***	**Size**
Cabbage palm	*Sabal palmetto*	7 gallon
Cordgrass	*Spartina bakeri*	Bare root
Dahoon holly	*Ilex cassine*	1 gallon / 2’
Gallberry	*Ilex glabra*	1 gallon / 2’
Laurel Oak	*Quercus laurifolia*	3 gallon / 4’-6’
Laurel Oak	*Quercus laurifolia*	7 gallon / 6’-8’
Live Oak	*Quercus virginiana*	3 gallon / 4’-6’
Live Oak	*Quercus virginiana*	7 gallon /6’-8’
Myrsine	*Myrsine guianensis*	1 gallon / 2’
Saw palmetto	*Serenoa repens*	3 gallon
South Florida Slash pine	*Pinus elliotti var densa*	Bare root
South Florida Slash pine	*Pinus elliotti var densa*	3 gallon / 4’-6’
South Florida Slash pine	*Pinus elliotti var densa*	7 gallon / 6’-8’
Wax Myrtle	*Myrica cerifera*	1 gallon / 2’
Wire Grass	*Aristida stricta*	2” liners

All lakes will have created littoral zones with 6 to 1 slopes. Littoral zones will either be planted or allowed to re-vegetate naturally. The plant material will be provided from onsite and offsite sources, or donor sites.

All preservation and mitigation areas will be buffered in accordance with the applicable permit approvals to prevent any adverse secondary impacts.

From SWFRPC Supplemental Questions and Clarification:

B.1. If wetlands are to be eliminated by filling and excavation, please describe, in detail, any mitigation proposed.

Mitigation Plan

Proposed mitigation for the anticipated unavoidable wetland impacts of ±317.32 acres within the Charlotte County portion of the Babcock Ranch Community (BRC) includes a combination of the following types of mitigation. Please note these areas also provide potential mitigation for future wetland impacts in the Lee County portion of the BRC and other offsite components related to the Babcock Ranch Community development. The following acreage figures are preliminary and may be modified per the requirements of the ERP approval.

242.40 acres of wetland enhancement
1,560.92 acres of wetland preservation

183.94 acres of wetland creation
4,699.11 acres of upland preservation and enhancement
Hydrologic restoration (Trout Creek and Telegraph Creek)

The following is a brief description of each mitigation activity.

Wetland Enhancement (242.4 acres) = Areas that qualify as wetland enhancement have a coverage of greater than 50% by exotic and nuisance species. Wetland habitats identified for enhancement include hydric pasture (FLUCFCS Code 211H, 20.40 acres), cow ponds (FLUCFCS Code 525, 3.83 acres), disturbed cypress (FLUCFCS Code 6219, 2.42 acres), disturbed hydric pine (FLUCFCS Code 6259, 1.41 acres), disturbed mixed forested wetland (FLUCFCS Code 6309, 15.10 acres), disturbed wetland shrub (FLUCFCS Code 6319, 97.16 acres), disturbed freshwater marsh (FLUCFCS Code 6419, 67.15 acres) and disturbed wet prairie (FLUCFCS Code 6439, 34.93 acres). The primary problematic species within the BRC wetland systems is torpedo grass and West Indian marsh grass. The seed source for these species is spread through cattle grazing and in some cases form thick monocultures. Primarily these wetlands are located near agricultural fields or pastures and are heavily grazed. It should be noted that these acreage figures are preliminary and may be modified per the requirements of the ERP approval.

Wetland Preservation(1560.92 acres) = Wetland preservation includes areas with less than 50% coverage by exotic and nuisance species. The predominant wetland habitats proposed for preservation include cypress (FLUCFCS Code 621, 291.57 acres), cypress, pine and cabbage palm (FLUCFCS Code 624, 204.37 acres), hydric pine (FLUCFCS Code 625, 125.29 acres), wetland shrubs (FLUCFCS Code 631, 83.19 acres), freshwater marsh (FLUCFCS Code 641, 529.28 acres), and wet prairie (FLUCFCS Code 643, 296.03 acres). Additional wetland habitats proposed for preservation include streams and waterways (FLUCFCS Code 510, 24.49 acres) and wetland forested mix (FLUCFCS Code 630, 6.70 acres). It should be noted that these acreage figures are preliminary and may be modified per the requirements of the ERP approval.

Wetland Creation (183.94 acres) = Wetland creation activities will occur primarily in fallow farm fields and will accomplish two major purposes. The first is to replace the functions and values of the wetlands being impacted by the development. The second purpose is to provide additional water quality treatment for the project. Wetland filter marshes will be created in the Charlotte County portion of the BRC totaling 183.85 acres. The majority of the wetland creation areas will be freshwater marsh, with deeper pools and areas of forested wetlands. Ephemeral wetlands will be included along the created wetland edges. Areas of the created wetlands proposed for planting will be backfilled with organic material generated from the wetland soils impacted by the project. The location of the wetland creation areas are upstream of the outfalls and will receive treated water from various development pods.

The created filter marshes have been strategically located to provided additional water quality treatment, i.e. polishing, of waters discharging from the BRC surface water management lakes. Redirecting flows into these marshes will allow for the removal of nutrients and sediments. Planted vegetation within these areas will be periodically harvested to help facilitate nutrient removal.

Another significant benefit of the created marshes is the increase of wood stork foraging habitat. Long hydroperiod wetlands are more important to wood stork reproduction as foraging habitat as it has been shown that the density of forage fish increases with hydroperiod (Loftus and Eklund 1994, Tresler et al. 2002). Typically, the wetland habitats found on the BRC (cypress, freshwater marsh and prairies) would be considered long hydroperiod (>180 days) wetlands. However, the hydroperiods of the wetlands on the BRC have been shortened by the excavation of large canals (Big Island Canal, Curry Canal) and ditching. Current well data collected from various locations throughout the BRC shows that the average hydroperiods for the several wetland habitats found onsite are much shorter than expected, often far less than 180 days, meeting the USFWS' (1999) criteria for a short hydroperiod wetland. The shortened hydroperiods are also evident in the fish data collected from 15 points within the BRC and Babcock Ranch Preserve. For example, fish species typically present in long hydroperiod wetlands and preferred by wood storks include sunfishes (*Centrarchidae*), yellow bullhead (*Italurus natalis*), marsh killifish (*Fundulus confluentus*), flagfish (*Jordenella floridae*), and sailfin molly (*Poecilia latipinna*)(Odgen et al. 1976, 1978). However, in wetlands sampled on Babcock Ranch these species only accounted for 11.5% (n=258) of the fish captured (n=2,234). The created marsh wetlands are expected to be long hydroperiod wetlands (>180 days), most likely exceeding 240 days. Additionally, the wetlands will be created to have deep "pockets" to trap fishes and macroinvertebrates during periods of water draw down, further increasing foraging opportunities for wood storks.

It should be noted these acreage figures are preliminary and may be modified per the requirements of the ERP approval.

Upland Preservation and Enhancement (4699.11 acres) = Areas that qualify as upland preservation are indigenous plant communities with less than 50% coverage by exotic and nuisance species. The predominant upland community proposed for preservation is pine flatwoods (FLUCFCS Codes 411, 4419E1 and 4119E2, 2256.13 acres total). Other upland habitats proposed for preservation include dry prairie (FLUCFCS Code 310, 2.57 acres), palmetto prairie (FLUCFCS Code 321, 163.05 acres), shrub and brushland (FLUCFCS Codes 320 and 329, 159.42 acres total), mixed range land (FLUCFCS Code 330, 47.88 acres), pine, oak and cabbage palm (FLUCFCS Code 414, 70.49 acres), pine flatwood with graminoid understory (FLUCFCS Code 416, 2.94 acres), live oak (FLUCFCS Code 427, 0.28 acres), cabbage palm (FLUCFCS Code 428, 2.49 acres), and hardwood conifer mix (FLUCFCS Code 434, 11.42 acres). When added together, these areas total approximately 2716.67 acres.

In addition, approximately 1216.77 acres of lands either used as cattle pasture or sod farm operations will continue be preserved and maintained in some form of agricultural use. These agricultural lands are located in the vicinity of North Babcock Village identified on Map H.

The remaining +/- 765 acres of upland preservation consists of lands that have previously been converted into mining, agriculture and pasture, and support facilities for these operations and are areas which are primarily located south of Hercules Grade. Improved pasture and field crops (FLUCFCS Codes 211 and 215, 698.86 acres total) comprise the majority of these lands. It should be noted these acreage figures are preliminary and may be modified per the requirements of the ERP approval.

Hydrologic Restoration = Two hydrologic improvement projects are proposed. The first one is for Trout Creek. The headwaters of Trout Creek begin within Curry Lake, just north of Hercules Grade. Prior to the middle 1940s its connection with Trout Creek was enlarged. This feature was called the Curry Lake Canal. It is a large ditch that goes dry in times of limited rainfall. The excavation of Curry Lake Canal extended completely though Curry Lake and connects some smaller wetlands to the north via ditches. The culverts at the south end of Curry Lake under Hercules Grade have an invert of 26.3 feet NAVD, which is a foot higher than the permitted elevation of 25.3 feet NAVD. A crest elevation for a weir at 27.8 feet NAVD is proposed and will provide an elevation that will inundate much of the bottom of Curry Lake. A gate in the structure will remain closed unless there are needs for more rapid lowering of the water levels. In the wet season, it is expected that water will run 0.2 feet to 0.5 feet over the weir crest for two to six months based on rainfall received allowing for a greater hydroperiod for wetlands within Curry Lake area.

The second hydrologic restoration project is planned for Telegraph Creek. Near the same time as the Curry Lake Canal was constructed, Big Island Canal was constructed along the western side of the Telegraph Swamp, which is the headwater of Telegraph Creek. The upper end of the canal begins in wetlands and continues downstream in wetlands for about a half a mile. The canal then enters into uplands where it stays for most of the rest of its course. The effect of the canal to the adjacent swamp during flood flows is limited. It does have an invert that is three to four feet below the swamp where it leaves and therefore provides the course for most low flow from the swamp above the Big Island Dike. There is a roadway crossing near the upland wetland interface. A weir placed at this location, within the BRC limits, with a crest elevation about one foot above the floor of the swamp will force low flow through the swamp once again and help to elongate its hydroperiod downstream from the Big Island Dike. A gate in the structure will allow the flexibility for management purposes while keeping it closed in most circumstances will move the southern swamp back to an earlier condition.

Preserve and Mitigation Management Plan

Conservation Easement

Areas required as mitigation during the Environmental Resource Permit will be placed under a conservation easement. Other preserves will serve as greenways with uses adhering to those adopted for the various greenways as part of the approved Comprehensive Plan Amendment.

Exotic and Nuisance Species Maintenance

Preserves will be maintained in their natural state and kept free of refuse and debris. All category I Exotics as defined by the Florida Exotic Pest Plant Council will be removed from all Preserves. Also, all non-native vegetation and nuisance or invasive plants will be removed from all Preserves. All exotics within the first 75 feet of the outer edge of every Preserve will be physically removed, or the tree cut down to grade and the stump treated. Exotics within the interior of the Preserve will either be treated in place, hand harvested or stockpiled in accordance with SFWMD guidelines. Where applicable, exotics will be mechanically harvested. When prohibited exotic vegetation is removed, but the base of vegetation remains, the base will be treated with an U.S. Environmental Protection Agency-approved herbicide with a visual tracer dye applied. Mechanical harvesting will occur in areas with greater than 75% coverage by exotics or where exotics occur along edges of areas that are easily accessible by existing trails. Areas that contain native vegetation will

be selectively cleared. A hydro ax with a mowing attachment may be used to grind exotic trees and shrub material. Mechanized equipment will either have low tire pressure or will be tracked. Areas mechanically cleared of exotics will be recontoured to natural grade. Efforts to eradicate torpedo grass may include a combination of mowing, burning, soil removal and treatment with an appropriate herbicide.

Initially, preserve areas will have 100% of the exotics removed. The management goals will be to control exotic and nuisance plants such that mitigation areas are: (a) exotic –free immediately following maintenance activities, and (b) exotic and nuisance plant species constitute no more than 5% total coverage between maintenance events. Torpedo grass coverage will be maintained at no more than 10% total coverage. The maintenance shall be conducted in perpetuity for the onsite Preserve Areas.

Prescribed Fire

Fires were a naturally occurring event in native habitats prior to mankind's intervention. The primary function of fire is to eliminate accumulated plant material, return nutrients to the soil and the germination of fire-dependent species. Proper prescribed burns promote the growth of green shoots, roots, and rhizomes of grasses and sedges that are then available for foraging. In wetlands, burning creates deep pools and edges for nesting and feeding of waterfowl, and controls or eliminates undesirable vegetation.

The prescribed fire plan for the BRC will be a program that mimics the natural fire cycle for the various habitat types identified within the mitigation and preserve areas. Timing, weather conditions, and ignition practices can be modified to accomplish goals ranging from exotic vegetation control, to wildlife habitat enhancement, to fuel reduction within burn units. The goals and objectives established for the BRC will be clearly laid out and incorporated into each prescription. Prescribed burning will be planned and carried out by a Certified Prescribed Burn Manager (as licensed by the Florida Division of Forestry) and experienced fire crews.

The BRC will be divided into burn units based on existing trails and roads, and natural features that can be used as fire breaks. Each burn unit will be placed on a regular burning schedule based on the habitat type(s) found within that unit. Annual burn cycles may vary year to year, but will generally follow the guidelines below:

Mesic pine flatwoods will be burned on a three to five (3-5) year cycle.
Hydric pine flatwoods will be burned on a three to eight (3-8) year cycle.
Marsh communities will be burned on a three to eight (3-8) year cycle.
Wet prairies will be burned on a two to four (2-4) year cycle.
Perimeter of cypress domes or strands will be allowed to burn at a frequency of every 30 years or more.

Fire maintenance of hydric hammocks will be done primarily by burning the adjacent flatwoods and marshes, reducing the fuel needed to ignite the hammock. Maintenance of natural species composition and protection from excess fuel build-up will be accomplished by allowing fire to enter the edges but not completely burn through the hammocks. Fire will be introduced into the edges of hammocks under moist conditions that will not result in a destructive fire through the hammock. Fire frequency in this situation will be dictated by the frequency of fires in adjacent communities.

Fire will be applied to freshwater marshes in conjunction with the burning of surrounding pine flatwoods to maintain open herbaceous ponds and control woody plants found primarily on the edge of these depressions. The center of depression marshes are much wetter than the surrounding flatwoods and may not burn at the same time the flatwoods are ignited. In this case, a separate fire under guarded conditions may be needed to carry the fire across the marsh. In cypress domes or strands, fire is beneficial for the control of hardwoods and reduction of ground fuels near their outside edge. Conditions dry enough to burn soils in the center of domes or strands, or muck fire, would most likely be damaging to trees within them. The burning of cypress domes and strands will take place only when moist conditions allow for light surface fires in the outer portion of the dome and avoid muck fires. Fire will be excluded from domes and strands under dryer conditions.

Qualitative observations should be made within each burn unit on an annual basis to determine current fuel loads, habitat structure and habitat quality. The burn schedule will then be modified as needed based on these qualitative observations. Areas where fire cannot be implemented will be mowed, roller chopped, or pruned to mimic effects of fire.

Monitoring Plan

The purpose of the monitoring program is to evaluate the degree of success and trends for any given mitigation activity using established protocols and to evaluate and recommend changes to the mitigation and/or maintenance program. The monitoring plan will be implemented upon receipt of all the necessary permits. Quantitative vegetation monitoring transects will be established within each different restoration area.

In order to successfully track the wetland mitigation effort, the monitoring program will document the progress of the mitigation areas over a specified time frame. In general, the monitoring program will document and report on baseline conditions, construction activities, and time zero conditions (immediately after all construction activities). Subsequently, there will be annual monitoring events to track the success criteria of the mitigation areas. Typically, the monitoring period consists of five (5) years and will involve the submittal of seven (7) reports to SFWMD and U.S. Army Corps of Engineers staff. This period may be shortened if mitigation is determined to be successful prior to five (5) years.

Mitigation Success Criteria

At the end of the second monitoring period, the mitigation areas will contain an 80% survival of planted vegetation. The 80% survival rate will be maintained throughout the remainder of the monitoring program. At the end of the five (5) year monitoring program, the mitigation areas will maintain an 80% survival rate of planted vegetation and an 80% coverage of desirable obligate and facultative wetland species for wetland restoration areas.

From FGFWFC Guidelines for Completion:

1. List the acreage and community type of all wetlands found on the project site according to the Florida Land Use and Cover classification system, Level III.

Please refer to the response in Question 13.A.1.

2. For each wetland type, include a discussion of plant species dominance and composition of the overstory, midstory, and groundcover strata.

Charlotte County Habitats

FLUCCS 211H – Improved Pasture, Hydric, – Vegetation in the upper and mid-canopy is mostly absent. The herbaceous stratum is characterized by a variety of pasture grasses and pioneering species, including dog fennel (*Eupatorium capillifolium*) and Caesar weed (*Urena lobata*). The hydric pasture is similar to upland improved pasture, except it has signs of hydrology and contains more hydrophytic vegetation, including pennywort (*Hydrocotyle umbellata*), coinwort (*Centella asiatica*), and ludwigia (*Ludwigia spp*.). Other herbaceous ground cover includes a number of pasture grasses and forbs, including Bahia grass (*Paspalum notatum*), Bermuda grass (*Cynodon dactylon*), broomsedge (*Andropogon virginicus*), ragweed (*Ambrosia artemisiifolia*), smutgrass (*Sporobolus indicus*), and chocolate weed (*Melochia corchorifolia*).

FLUCCS 510 – Streams and Waterways – The majority of streams and waterways are altered natural drainages or were created to assist with draining and irrigation of fields and pastures. Vegetation along these areas is representative of adjacent habitat types. During the height of the dry season, standing water is limited or absent. These areas provide significant conveyance during the wet season.

FLUCCS 525 – Cow Ponds – These small ponds, located throughout the site, were dug to provide a drinking water source for cattle and are typically void of vegetation.

FLUCCS 621 – Cypress; FLUCCS 6219 – Cypress, Disturbed – This forested wetland habitat is dominated by cypress in the upper stratum. Additional species in the upper canopy include swamp bay (*Persea palustris*), loblolly bay (*Gordonia lasianthus*), laurel pak, slash pine, and red maple (*Acer rubrum*). Mid-canopy species include dahoon holly, cabbage palm, wax myrtle, and groundsel tree (*Baccharis glomeruliflora*). Scattered Brazilian pepper may be found on the edges of this habitat in a disturbed system. Species observed in the herbaceous stratum include water horehound (*Lycopus rubellus*), swamp fern, royal fern (*Osmunda regalis*), false nettle (*Boehmeria cylindrica*), prairie iris (*Iris hexagona*), greenbrier, swamp lily (*Crinum americanum*), red ludwigia (*Ludwigia repens*), bushy beardgrass (*Andropogon glomeratus*), saw grass (*Cladium jamaicense*), lemon bacopa *(Bacopa caroliniana*), and redtop panicum (*Panicum rigidulum*). Dense concentrations of Old World Climbing Fern were also found in scattered, small pockets of this habitat. Disturbed cypress areas have a greater concentration of exotic or nuisance species or obvious hydrologic alterations evidenced by an abnormal concentration of transitional species.

FLUCCS 624 – Cypress, Pine, Cabbage Palm – This habitat contains a mixture of cypress, cabbage palm, and laurel oak in the upper canopy. The sparse mid-canopy is comprised of Brazilian pepper, cabbage palm, and myrsine. Ground cover is comprised mostly of swamp fern, with scattered grapevine and greenbrier.

FLUCCS 625 – Hydric Pine – Often found adjacent to other wetlands, this habitat typre is very similar to the pine flatwoods with a graminoid understory (FLUCCS 416) but has more prominent signs of hydrology and hydrophytic vegetation in the understory.

FLUCCS 630 – Wetland Forested Mix – The upper canopy of this habitat is a mix of laurel oak, cypress, pine and cabbage palm with no one species establishing dominance. Mid-canopy vegetation includes wax myrtle, groundsel tree, and myrsine. Ground cover consists of swamp fern, ludwigia sp., cape weed (*Phyla nodiflora*), St. John's-wort (*Hypericum spp*.) and coinwort.

FLUCCS 631 – Wetland Shrubs; FLUCCS 6319 – Wetland Shrubs, Disturbed - Scattered cabbage palms may be present in the canopy of this habitat type, but more typically the canopy is absent. Mid-canopy vegetation is dominated by wax myrtle and groundsel tree. Groundcover includes torpedo grass (*Panicum repens*), beakrushes (*Rhynchospora spp*.), buttonweed (*Diodia virginiana*), mermaid-weed (*Proserpinaca sp.),* maidencane (*Panicum hemitomon*), hedge hyssop (*Gratiloa ramosa*), marsh fleabane, cape weed, St. John's-wort, umbrella grass (*Fuirena sp*.), coinwort, and mock Bishop's weed (*Ptolimnium capillaceum*).

FLUCCS 641 – Freshwater Marsh; FLUCCS 6419 – Freshwater Marsh, Disturbed – This wetland system is scattered throughout the site. The canopy and mid-canopy are typically absent but may include red maple, wax myrtle, and groundsel tree. Typical species present in the herbaceous layer include alligator flag (Thalia geniculata), bull arrowhead (*Sagittaria lancifolia*), shore rush, mock Bishop's weed, blue hyssop (*Bacopa monnieri*), buttonweed, whorled pennywort (*Hydrocotyle verticillata*), smartweed (*Polygonum densiflorum*), cape weed, coinwort, flatsedge (*Cyperus haspans*), pickerelweed (*Pontedaria cordata*), Bermuda grass, and West Indian marsh grass (Hymenachne amplexicaulis). Areas mapped as disturbed typically have a significant coverage of torpedo grass.

FLUCCS 643 – Wet Praire; FLUCCS 6439 – Wet Prairie, Disturbed – Similar to freshwater marshes, this habitat type usually has less water present and occurs more landward of the deeper freshwater marsh habitats. Typical species included: beakrush, flatsedge, centella, spikerush (*Eleocharis sp*.), love grass (*Eragrostis elliottii*), cape weed, mock Bishop's weed, and buttonweed.

Lee County Habitats

FLUCCS 500 – Water – This category describes the two moderate sized borrow pits located near the southeastern gate onto the ranch and adjacent to the offsite residential home along SR78 on the southern property boundary.

FLUCCS 510 – Streams and waterways - This category includes several creeks, ditches and other linear water bodies that are present throughout the property inspected. The named creeks that are present have been channelized and straightened to some extent, but remain relatively natural in function.

FLUCCS 525 – Cow Wells - This category includes the excavated ponds that are found throughout the ranch to provide a water source for the cattle. These ponds are small, but variable in size and are dominant features in the landscape.

FLUCCS 616 – Inland Ponds and Sloughs – This area describes the small, narrow slough that enters the eastern end of the property and runs southwest across that portion of the property. Cypress is the dominant wetland tree species present and numerous live and laurel oaks are also present adjacent to the flow way. Slash pine are abundant in the adjacent uplands. Groundcover is sparse within the flow way, but Blue flag iris (*Iris virginica*) , arrowhead, pickerelweed and various sedges and forbes are scattered along the wide, flat sections of this flow way.

FLUCCS 618 – Willow – This category describes the small depressions that are dominated by dense monocultures of willow (Salix caroliniana). There are usually no other trees or shrubs present in these areas and the herbaceous vegetation is also very

sparse. Arrowhead, blue flag iris and pickerelweed are present along the perimeter of these systems with several other incidental sedges and forbes also present.

FLUCCS 621 – Cypress Wetlands – Dominant canopy vegetation in this wetland type is mature cypress. Other tree species present in this system include laurel oak, red maple and cabbage palms which are scattered around the perimeter of the cypress. Typically the groundcover vegetation is fireflag, pickerelweed, arrowhead and maidencane in the deeper portions of the wetlands with sand cordgrass *(Spartina bakeri*), wax myrtle, saltbush and other transitional species found around the perimeter.

FLUCCS 625 – Hydric Pine Flatwoods, Graminoid Understory – This category describes the pine flatwoods habitats that appear to receive periodic inundation, but don't stand in water. However, the hydroperiod is long enough to prevent upland vegetative species from growing in these areas. Gulf muhly grass (*Muhlenbergia filipes*), southern carpetgrass (*Axonopus affinis*), small fruited beakrush (*Rhynchospora microcarpa*), are the dominant herbaceous species in these areas with many other incidental species common as well. Wax myrtle and saltbush are scattered throughout these areas, but not prevalent enough to add a midstory layer in the vegetative communities.

FLUCCS 631 - Wetland Scrub – This community is associated with topographic depressions and poorly drained soil containing low scrub with no dominant species. Shrubs found in this area include coastal plain willow (*Salix caroliniana*), wax myrtle, and saltbush. Brazilian pepper has invaded the perimeter of many of these disturbed areas.

FLUCCS 640 – Herbaceous Non-Forested Wetlands – This category includes those wetlands dominated by a herbaceous wetland groundcover including carpetgrass, pickerelweed, broomsedge (*Andropogon glomeratus*), goldenrod (*Euthamia minor*), hempweed (*Mikania scandens*) and coinwort (*Centella asiatica*), but with scattered saw palmetto also present. Numerous other incidental transitional to wet species are present in this habitat type, but the wetland species outnumber the upland species. This area is primarily concentrated in the southwestern corner of the property. It appears this habitat type is maintained as pasture for cattle grazing during the winter months.

FLUCCS 641 - Freshwater Marsh - This category describes the isolated wetlands remaining in the groves and several of the pasture habitats on site. Pickerelweed, arrowhead and maidencane were historically the dominant native species in many of these wetlands. However, due to disturbances resulting from the operation and management of the water levels within the groves, sod fields and pastures, these areas are becoming dominated by primrose willow, torpedo grass, willow and other nuisance and exotic species.

FLUCCS 742H - Borrow Areas – These areas include several small pits and shallow depressions that have been created by the removal of the sand / shell for use elsewhere as fill. Several of these areas are located along the southern boundary of the property, adjacent to SR 78.

3. Discuss the importance of these wetland communities to regional drainage patterns including location and functional role within the drainage system (i.e., headwaters; 1st, 2nd, or 3rd order tributary; bay; estuary, etc.)

Please see responses to Question 13.A.1 above.

4. For each wetland type, discuss hydroperiod characteristics including depth and duration of flooding, and seasonality of fluctuation.

Please see response to Question 13. A.2 above.

5. Provide acreage figures and a map showing the location of all wetlands to be preserved or altered, by plant community type.

Please refer to Map H and Tables 13.A-3 and 13.A-4.

6. Describe mechanisms to be utilized to insure the continued viability of wetlands to be preserved onsite including building setbacks and buffers, water control structures, and water management plans.

Please see response to Questions 12 and 13.A.5 and 13.A.7.

7. Discuss types of proposed wetland alteration (i.e., dredging, filling, hydroperiod alteration, etc.

Please see response to Question 13.A.6.

8. Provide wetlands mitigation and restoration details including location, size, plant species composition, hydroperiod, and functional replacement value.

Please see responses to Questions B and B1.