Estimate of the Ecosystem Services of Existing Conservation 2020 Lands in Lee County Florida

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Introduction and Background

The natural world, its biodiversity, and its constituent ecosystems are critically important to human well-being and economic prosperity, but are consistently undervalued in conventional economic analyses and decision making. Ecosystems and the services they deliver underpin our very existence. Humans depend on these ecosystem services to produce food, regulate water supplies and climate, and breakdown waste products. Humans also value ecosystem services in less obvious ways: contact with nature gives pleasure, provides recreation and is known to have positive impacts on long-term health and happiness (Watson and Albon 2011).

Human societies get many benefits from the natural environment. Especially in Southwest Florida, we are well aware of how important eco-tourism, sport and commercial fishing, and natural products such as locally produced fruits, vegetables, and honey are to our regional economy. The natural environment also provides, for free, services that we would otherwise have to pay for, in both capital outlay, and operation and maintenance costs.

Ecosystem Services are the multitude of resources and processes that are supplied by natural ecosystems. "Ecosystems Services" refers to a wide range of natural processes that help sustain and fulfill human life, such as:

- Purification of air and water
- Detoxification and decomposition of wastes
- Pollination of crops and natural vegetation
- Cycling and movement of nutrients
- Protection of coastal shores from erosion by waves
- Moderation of weather extremes and their impacts
- Provision of aesthetic beauty and intellectual stimulation that lift the human spirit

The United Nations 2004 Millennium Ecosystem Assessment grouped ecosystem services into four broad categories:

- <u>Provisioning</u>, such as the production of food and water
- <u>Regulating</u>, such as the control of climate and disease
- <u>Supporting</u> (Habitat), such as nutrient cycles and crop pollination
- <u>Cultural</u> (Socio-economic), such as spiritual and recreational benefits

Ecosystem services values can be used by decision makers when establishing and maintaining conservation lands, siting utilities, or making development decisions, putting numbers to the impacts associated with those decisions, and adding data when critical trade-offs are being discussed. These values can also be useful in justifying grant funding and in leveraging restoration dollars.

Location

Lee County is a county in Florida located in the center of southwest Florida. It is approximately 125 miles (201 km) south of Tampa and 115 miles (185 km) west of Fort Lauderdale via Interstate 75; and approximately 125 miles (201 km) west-northwest of Miami via U.S. Highway 41.

The cities in the county are Fort Myers (the county seat), Cape Coral (the county's most populous municipality), Sanibel and Fort Myers Beach (both barrier islands) and Bonita Springs (which extends from the Gulf of Mexico to the Corkscrew Swamp watershed. In 2010 the population of the county was 618,754. According to the 2000 census, the county has a total area of 1,211.89 square miles (3,138.8 km^2), of which 803.63 square miles (2,081.4 km^2) (or 66.31%) is land and 408.26 square miles (1,057.4 km^2) (or 33.69%) is water.

As of February 2013, Conservation 2020 lands make up approximately 4.7% of Lee County's land, with 117 properties acquired making up 43 preserves totaling 24,972.9 acres (Figure 1).

Prior Ecosystem Services Studies Involving the Southwest Florida

In 1995 the CHNEP commissioned the study *Consumer Surplus and Total Direct and Indirect Income in the CHNEP in 1995 dollars* from Hazen and Sawyer (1998). The study calculated consumer surplus and total direct and indirect income.

Consumer surplus may be thought of as consumer “profit.” Although this money doesn’t actually change hands, it represents the value of human well-being associated with current use of the resources. For example, if you purchased a boat for $10,000, but were willing to pay up to $12,000, you would get a benefit of $2,000 in consumer surplus above the price you actually paid.

Total Direct and Indirect Income is described in the report as follows. Any business that relies on natural resources to make money typically depends also on supplies and services from other companies. Most businesses rely on other companies to provide support such as food, transportation, utilities, office supplies, and business/professional services. These related goods and services also produce an income, and additional benefit to our community. The combined income of a business and the related sales it generates from other companies is the total income that business generates in the region’s economy. For example, if a family on vacation rented kayaks at the wildlife refuge, they likely spent money at a hotel for lodging, rented a car for local travel, and purchased meals. In this case, total income would attempt to capture expenditures associated with this resource use.

In southwest Florida, 80% of commercial and recreational harvested marine species depend on mangrove estuaries for at least a portion of their lifecycles (Lewis et al. 1985). Evaluation of mangroves values in a Federal enforcement action in Lee County in 1986 involving a development known as "The Estuaries", utilizing conservative estimators, found that a mature 6 meter (20 ft.) tall canopy of red mangrove forest contributed $2,040.54 per year in commercial fisheries landings in 1970 dollars, not adjusted for inflation. This translates into $12,169.98 per acre per year in 2012 dollars. For all of 10,543.93 acres of mangroves in the shoreline of the project study area this sums to $128,319,417.22. For the entire CHNEP this sums to $776+ Million per Year in 2012 dollars.

However smaller and shorter mangrove canopies, including trimmed canopies, contribute less to fishery values than taller, natural canopies because there is less net primary productivity available as export from shorter canopies (Beever 1999). The difference is non-linear. A 1.5 m (5 ft.) height contributes $143.70 per acre/yr and a 10.7 m (35 ft.) tall canopy contributes $6,514.40 per acre/yr. in 1975 dollars, unadjusted for inflation. This is $618.09 and $28,020.03 per acre/yr. in 2012 dollars. In order to apply this adjustment factor it is necessary to have an accurate map of the eight different types of mangrove forest and the variety of human altered mangrove shorelines to have accurate areas for calculation. Unfortunately this information does not currently exist, although studies have been proposed to obtain this information.

These mangrove ecosystem service values do not reflect recreational fisheries values, including the prey base, which range from 5.6 to 6.5 times the primary sales of commercial fisheries (Lewis *et al.* 1982). This would range from $146 Thousand to $169+ Thousand per acre per year in 2012. This would be an additional $1,539,413,780.00 to $178,1924,170.00 for the study area

Nor do they include the ecosystem services provided by mangroves in the areas of the erosion protection value, the tourist income generated from tours, bird watching, canoeing and recreational non-fishing boating in mangrove estuaries, the water quality enhancement of point and non-point sources of water pollution, the privacy screen value and habitat value of these mangroves to endangered and threatened species.

Coastal wetlands reduce the damaging effects of hurricanes on coastal communities. A regression model using 34 major US hurricanes since 1980 with the natural log of damage per unit gross domestic product in the hurricane swath as the dependent variable and the natural logs of wind speed and wetland area in the swath as the independent variables was highly significant and explained 60% of the variation in relative damages. A loss of 1 ha of wetland in the model corresponded to an average $33,000 (median ¼ $5,000) increase in storm damage from specific storms. Using this relationship, and taking into account the annual probability of hits by hurricanes of varying intensities, we mapped the annual value of coastal wetlands by 1km 3 1km pixel and by state. The annual value ranged from $250 to $51,000 ha/year, with a mean of $8,240 ha/year (median ¼ $3,230 ha/year) significantly larger than previous estimates. Coastal wetlands in the US were estimated to currently provide $23.2 billion per year in storm protection services. Coastal wetlands function as valuable, self-maintaining ‘‘horizontal levees’’ for storm protection, and also provide a host of other ecosystem services that vertical levees do not. Their restoration and preservation is an extremely cost-effective strategy for society (Costanza et al. 2008).

Low trace gas emissions and high soil carbon sequestration from mangroves and salt marshes make a robust case for carbon credit projects. Coastal habitats mangroves and salt marsh store up to 50 times more carbon in their soils by area than tropical forests, and ten more than temperate forests. Mangroves are highly efficient carbon sinks, holding large quantities of carbon in standing biomass and in sediments. They have among the highest measured levels of carbon sequestration per acre of any system measured to date.

Fixation of 1 ton of Carbon was worth $7 per ton in 2008 in the United States and $10 to $25 in 2011 in the world markets including California. Peak mangrove carbon fixation is 16 tons per acre per year (Hicks and Burns 1975) in brackish water conditions. Peak southern slash pine carbon fixation is 14 tons per acre per year in a 50 year old stand. For the CHNEP just these two habitats could provide 3 Million tons of carbon fixation per year. For the project study area carbon fixation rates form mangroves alone would be 168,702.88 tons per year with a value of $1.6 to $4.2 in 2011 dollars/ year.

In another method of calculating carbon credit values, the monetary value of the carbon fixation of mangroves has been estimated by Leaird (1972) at $4,000 per acre per year, using the conversion rate of $1 = 10,000 kilocalories. This would be $21,871.75 per acre per year in 2012 dollars. This indicates a total carbon fixation value of $230,614,200.98 for the project study area and a total carbon fixation value in the CHNEP mangroves valued at $1.4+ Billion per year.

The travel and tourism industry is one of the United States' largest industries, generating $739 billion in travel expenditures this past year and $116 billion travel-generated tax revenue. Travel and tourism also is one of America's largest employers, with 7.7 million direct travel-generated jobs. Tourism is one of the largest economic industries in Florida, with approximately 82.4 million travelers visiting the Sunshine State in 2007. During their time here, visitors generated more than $65 billion in taxable sales. That amount of spending generated $3.9 billion in tax-related revenue to the state of Florida, which is spent on public necessities such as schools, transportation, museums and enhancing Florida's offerings to entice even more visitors. Nearly 1 million Floridians are employed by the tourism industry, creating a combined annual payroll of$15.4 billion.

In Lee County, tourism employs 1 out of every 5 people. Lee County receives approximately 5 million visitors a year that generate approximately $3 billion in economic impact. In 2011, the Tourist Tax collection generated $23.1 million dollars. Lee County benefits from the economic impact of the industry in dollars and cents, and also benefits from the quality of life to which it contributes.

The Lee County Visitor & Convention Bureau has gathered data on tourism expenditures and the distribution of visitor interest and activities. From this it is possible to calculate the Beach Visitor Expenditures from the Annual Visitor Profile and Occupancy Analyses and The Beaches of Fort Myers and Sanibel Attitude & Usage Study conducted by the Clerk of Courts that a linear mile of swimming beach generates $345,228.73 per acre in 2002 dollars. Accounting for inflation this is $443,898.13 per acre in 2012 dollars. For the study area that contains 859.45 acres of swimming beach this is $381,508,218.56 in 2012 dollars per year in Total Direct and Indirect Income.

In a presentation of some estimates of the economic values of ecosystem services provided by natural habitats found on conservation lands of southwest Florida at the Estero Bay Agency On Bay Management Cela Tega, FGCU Beever (2011) calculated the Mangrove Forest Total Economic Value for 63,831.96 total acres in the CHNEP as $49.2 Billion in 2012 dollars; the Sea Grass Bed Total Economic Value for 65,247.52 acres in CHNEP at $6.1 Billion in 2012 dollars; and the Salt Marsh Total Economic Value for 14,856.1 total combined acres in the CHNEP as $77.25 Million in CHNEP in 2012 dollars.

Dr. Richard Weisskoff (2012) has calculated that 2.29 acres of conservation land, including Conservation 2020 land in the Estero Bay Basin generates one full-time job in the Lee County economy and the onetime purchase price of conservation lands in the Estero Bay Basin is one third of a single year of tourist spending related to those lands, and subsequently conservation lands have been a good investment for Lee County. Extending Weisskoff's job estimate to all the Conservation 2020 lands generates a total of 10,905 full time jobs.

METHODS

All the 76 existing habitat types found on Conservation 2020 lands were identified by Lee County staff. The most recent available tabulation was utilized. The total area of Conservation 2020 lands is 24,927.9 acres. The largest habitat type is Mesic Pine Flatwoods which constitutes 19.3 % of all Conservation 2020 lands. Mesic Pine Flatwoods, Wet Flatwoods, Disturbed Mesic Pine Flatwoods, Mangrove Swamp, Disturbed Wet Pine Flatwoods, and Strand Swamp make up 51.47 % of all the Conservation 2020 lands.

The range and quantity of ecosystem services provided by existing habitats was estimated utilizing the methods developed by Beever and Walker (2013) for the habitats, including the marine, estuarine and freshwater wetlands, and associated native uplands of Pine Island Sound, Sanibel Island, and Captiva Island as well as for interior mainland habitats that were calculated but not reported in that study. Dollar values for ecosystem services were obtained either directly or through calculation from Allsopp et al. 2008, Beever III and Cairns 2002, Beever III 2011, Beever III et al. 2012, Bolund and Hunhammar 1999, Casey and Kroeger 2008, Committee on Assessing and Valuing the Services of Aquatic and Related Terrestrial Ecosystems (CAVSARTE) 2004, Costanza et al. 1997, Costanza 2008, Costanza et al. 2008, Dale and Polasky 2007, Dlugolecki 2012, Engeman et al. 2008, Goulder and Kennedy 2007, Goulder and Kennedy 2011, Hazen and Sawyer 1998, Henderson and O'Neil 2003, Isaacs et al. 2009, Krieger 2001, Kroeger and Casey. 2007, Kroeger et al. 2008, Lee County Clerk of Courts 2002, Losey and Vaughan 2006, Lugo and Brinson 1979, McLeod and Salm 2006, Paling, et al. 2009, Quoc Tuan Vo et al. 2012, Metzger et al. 2006, Morales 1980, Sathirathai 2003, South Florida Water Management District 2007, Spaninks and van Beukering, 1997,Watson and Albon 2011, and Wells, et al. 2006. For developed land use types the Total Ecosystem Services Value (TEV) calculation involved the estimation of the amount of non-impervious surface on the specific land use type and the vegetation type on that lands use. This information was obtained from Thompson et al. (2011), the Sanibel Plan (2012), and information provided by the U.S. Census (2010) and the Sanibel-Captiva Conservation Foundation. When a habitat was indicated as disturbed a 50% valuation of the full TEV for that habitat type was utilized based on consultation with Lee County staff concerning the extent of disturbance.

We produced a table using combined total estimated ecosystem services value for each habitat type. We then calculated the TEV for the total acreage of each habitat type within the study area. Each dollar value for ecosystem service provided by a particular habitat was specified for its year of estimation. The dollar value of the ecosystem service estimate was then normalized using the inflation rate form the consumer price index (Bureau of Labor Statistics 2012) to a 2012 dollar value using the appropriate inflation multiplier. The resulting ecosystem service value per acre was then multiplied by the number of acres of that habitat type to obtain the total ecosystem services value for that habitat type on the Conservation 2020 lands. All the habitat values were then be summed to obtain a total ecosystem services value for the entire study area (Table 1).

Results and Conclusion

The establishment of ecosystem services values for the ecologically rich Conservation 2020 lands is the second valuation using ECOSERVE in Lee County. Ecosystem services values can be used by decision makers when establishing and maintaining conservation lands, siting utilities, or making development decisions, putting numbers to the impacts associated with those decisions, and adding data when critical trade-offs are being discussed. These values will also be useful in justifying other grant funding and in leveraging future restoration dollars.

The output of this project is an assessment of the total ecosystem services provided by all habitat types on the Conservation 2020 lands in Lee County, Florida. This assessment will be made available to local governments and the public to assist in planning for use in developing conservation plans.

This work is intended to identify the range and quantity of ecosystem services provided by all the land covers types on Conservation 2020 lands including marine, estuarine and freshwater wetlands and native upland habitat, and disturbed habitats.

Based on current calculations the 2012 TEV of the Conservation 2020 lands is **$628,865,027.93** (Table 1). It is notable that the majority (92.45 %) of the TEV is found in the top nine habitats including mangrove swamp (63.33%), mesic flatwoods (15.13%) wet flatwoods (3.69%), mesic flatwoods - disturbed (2.61%), mangrove swamp - disturbed (2.21%), strand swamp (2.01%), scrubby flatwoods (1.37%), depression marsh (1.05%), and wet flatwoods - disturbed (1.77%). These nine habitats make up 54.56% of the physical area of the Conservation 2020 lands.

Given more time and resources this project could be improved by a detailed mapping of the Conservation 2020 lands including salt marsh type and mangrove forest type to better estimate the ecosystem services provided by each type and better represent the relative functions of each type in location and landscape. Alternate futures could be evaluated with additional climate change perturbations, alternate land use plans, and regulatory environments.

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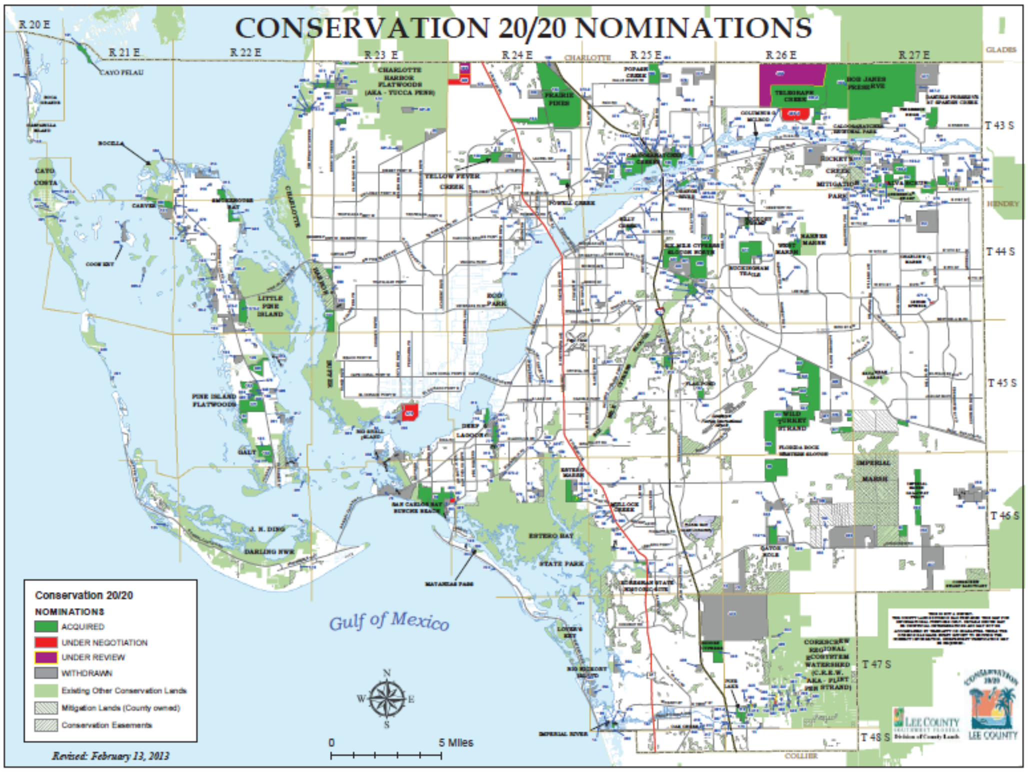

Figure 1:Map of Conservation 2020 Lands as of February 13, 2013

FNAI/FLUCCS	Total Acres	2012 value per acre	Total TEV value in 2012
Abandoned Field	939.46	$53.64	$50,392.63
Abandoned Pasture	203.09	$53.64	$10,893.75
Agriculture	750.09	$1,157.76	$868,424.20
Basin Marsh	20.93	$16,516.80	$345,696.62
Basin Marsh - Disturbed	86.35	$8,258.40	$713,112.84
Basin Swamp	256.09	$14,518.08	$3,717,935.11
Basin Swamp - Disturbed	210.83	$7,259.04	$1,530,423.40
Baygall	0.54	$10,082.00	$5,444.28
Blackwater Stream	19.02	$6,300.00	$119,826.00
Bottomland Forest	2.85	$14,518.08	$41,376.53
Cabbage Palm Flatwoods Disturbed	6.4	$4,812.68	$30,801.16
Canal/Ditch	154.32	$102.02	$15,743.73
Clearing	127.27	$72.42	$9,216.89
Coastal Berm	17.71	$53.64	$949.96
Coastal Grassland	125.01	$53.64	$6,705.54
Coastal Hydric Hammock	53.89	$5,316.87	$286,526.06
Coastal Hydric Hammock Disturbed	28.66	$2,658.43	$76,190.73
Coastal Strand	6.23	$5,316.87	$33,124.09
Depression Marsh	398.21	$16,516.80	$6,577,154.93
Depression Marsh - Disturbed	112.95	$8,258.40	$932,786.28
Developed	14.29	$976.41	$13,952.90
Dome Swamp	306.69	$10,082.00	$3,092,048.58
Dome Swamp - Disturbed	88.43	$5,041.00	$445,775.63
Dry Prairie	513.22	$172.80	$88,684.42
Dry Prairie - Disturbed	109.85	$86.40	$9,491.04
Hydric Hammock	267.51	$14,518.08	$3,883,731.58
Hydric Hammock - Disturbed	106.11	$7,259.04	$770,256.73
Impoundment/Artificial Pond	157.18	$3,440.49	$540,776.22
Invasive Exotic Monoculture	741.11	$564.93	$418,675.27
Mangrove Swamp	1558.89	$255,495.20	$398,288,912.33
Mangrove Swamp - Disturbed	108.91	$127,747.60	$13,912,991.12
Mangrove Swamp Creek	0.2	$6,300.00	$1,260.00
Maritime Hammock	5.84	$1,487.52	$8,687.12
Maritime Hammock Disturbed	15.83	$743.76	$11,773.72

FNAI/FLUCCS	Total Acres	2012 value per acre	Total TEV value in 2012
Marl Prairie	91.09	$16,516.80	$1,504,515.31
Marl Prairie - Disturbed	6.11	$8,258.40	$50,458.82
Mesic Flatwoods	4667.15	$20,381.93	$95,125,537.67
Mesic Flatwoods - Disturbed	1612.54	$10,190.97	$16,433,340.96
Mesic Hammock	377.06	$9,946.21	$3,750,317.79
Mesic Hammock - Disturbed	74.25	$4,973.10	$369,253.03
Pasture - Improved	1135.48	$1,157.76	$1,314,613.32
Pasture - Semi-Improved	349.67	$1,157.76	$404,833.94
Pine Plantation	47.27	$10,190.97	$481,727.15
Prairie Mesic Hammock	55.97	$9,946.21	$556,689.35
Prairie Mesic Hammock - Disturbed	19.26	$4,973.10	$95,782.00
Road	106.38	$0.00	$0.00
Salt Flat	78.35	$2,536.05	$198,699.52
Salt Flat Disturbed	19.26	$1,268.03	$99,349.76
Salt Marsh	445.58	$7,407.36	$3,300,571.47
Salt Marsh - Disturbed	108.05	$3,703.68	$400,182.62
Salt Marsh Creek	18.34	$6,300.00	$115,542.00
Scrub	126.42	$4,939.65	$624,470.55
Scrub - Disturbed	35.28	$2,469.83	$87,135.43
Scrubby Flatwoods	423.85	$20,381.93	$8,638,881.03
Scrubby Flatwoods - Disturbed	257.4	$10,190.97	$2,623,154.39
Shrub Bog	7.45	$16,516.80	$123,050.16
Shrub Bog - Disturbed	4.73	$8,258.40	$39,062.23
Slough	34.49	$16,516.80	$569,664.43
Slough Disturbed	6.55	$8,258.40	$54,092.52
Slough Marsh	1.58	$16,516.80	$26,096.54
Slough Marsh - Disturbed	46.51	$8,258.40	$384,098.18
Spoil Area	423.96	$72.42	$30,703.18
Strand Swamp	1252.41	$10,082.00	$12,626,797.62
Strand Swamp - Disturbed	777.23	$5,041.00	$3,918,016.43
Stringer Swamp	9.28	$10,082.00	$93,560.96
Stringer Swamp - Disturbed	27.18	$5,041.00	$137,014.38
Successional Hardwood Forest	260.97	$2,486.55	$648,914.95
Swamp Lake	17.34	$6,300.00	$109,242.00
Swamp Lake - Disturbed	0.95	$3,150.00	$2,992.50
Unconsolidated Substrate	117.62	$5,213.53	$613,215.40

FNAI/FLUCCS	Total Acres	2012 value per acre	Total TEV value in 2012
Utility Corridor	229.17	$53.64	$12,292.68
Wet Flatwoods	2302.84	$10,082.00	$23,217,232.88
Wet Flatwoods - Disturbed	1300.92	$5,041.00	$6,557,937.72
Wet Prairie	297.7	$16,516.80	$4,917,051.36
Wet Prairie - Disturbed	79.06	$8,258.40	$652,909.10
Xeric Hammock	206.19	$5,316.87	$1,096,285.18
TOTAL ACRES	24,972.9		$628,865,027.93

TABLE 1 TEV for the Study Area in 2012 Dollars

FNAI/FLUCCS	Total Acres	2012 value per acre	Total TEV value in 2012
Mangrove Swamp	1558.89	$255,495.20	$398,288,912.33
Mesic Flatwoods	4667.15	$20,381.93	$95,125,537.67
Wet Flatwoods	2302.84	$10,082.00	$23,217,232.88
Mesic Flatwoods - Disturbed	1612.54	$10,190.97	$16,433,340.96
Mangrove Swamp - Disturbed	108.91	$127,747.60	$13,912,991.12
Strand Swamp	1252.41	$10,082.00	$12,626,797.62
Scrubby Flatwoods	423.85	$20,381.93	$8,638,881.03
Depression Marsh	398.21	$16,516.80	$6,577,154.93
Wet Flatwoods - Disturbed	1300.92	$5,041.00	$6,557,937.72
Wet Prairie	297.7	$16,516.80	$4,917,051.36
Strand Swamp - Disturbed	777.23	$5,041.00	$3,918,016.43
Hydric Hammock	267.51	$14,518.08	$3,883,731.58
Mesic Hammock	377.06	$9,946.21	$3,750,317.79
Basin Swamp	256.09	$14,518.08	$3,717,935.11
Salt Marsh	445.58	$7,407.36	$3,300,571.47
Dome Swamp	306.69	$10,082.00	$3,092,048.58
Scrubby Flatwoods - Disturbed	257.4	$10,190.97	$2,623,154.39
Basin Swamp - Disturbed	210.83	$7,259.04	$1,530,423.40
Marl Prairie	91.09	$16,516.80	$1,504,515.31
Pasture - Improved	1135.48	$1,157.76	$1,314,613.32
Xeric Hammock	206.19	$5,316.87	$1,096,285.18
Depression Marsh - Disturbed	112.95	$8,258.40	$932,786.28
Agriculture	750.09	$1,157.76	$868,424.20
Hydric Hammock - Disturbed	106.11	$7,259.04	$770,256.73
Basin Marsh - Disturbed	86.35	$8,258.40	$713,112.84
Wet Prairie - Disturbed	79.06	$8,258.40	$652,909.10
Successional Hardwood Forest	260.97	$2,486.55	$648,914.95
Scrub	126.42	$4,939.65	$624,470.55
Unconsolidated Substrate	117.62	$5,213.53	$613,215.40
Slough	34.49	$16,516.80	$569,664.43
Prairie Mesic Hammock	55.97	$9,946.21	$556,689.35
Impoundment/Artificial Pond	157.18	$3,440.49	$540,776.22
Pine Plantation	47.27	$10,190.97	$481,727.15
Dome Swamp - Disturbed	88.43	$5,041.00	$445,775.63
Invasive Exotic Monoculture	741.11	$564.93	$418,675.27
Pasture - Semi-Improved	349.67	$1,157.76	$404,833.94

FNAI/FLUCCS	Total Acres	2012 value per acre	Total TEV value in 2012
Slough Marsh - Disturbed	46.51	$8,258.40	$384,098.18
Mesic Hammock - Disturbed	74.25	$4,973.10	$369,253.03
Basin Marsh	20.93	$16,516.80	$345,696.62
Coastal Hydric Hammock	53.89	$5,316.87	$286,526.06
Salt Flat	78.35	$2,536.05	$198,699.52
Stringer Swamp - Disturbed	27.18	$5,041.00	$137,014.38
Shrub Bog	7.45	$16,516.80	$123,050.16
Blackwater Stream	19.02	$6,300.00	$119,826.00
Salt Marsh Creek	18.34	$6,300.00	$115,542.00
Swamp Lake	17.34	$6,300.00	$109,242.00
Salt Flat Disturbed	19.26	$1,268.03	$99,349.76
Prairie Mesic Hammock - Disturbed	19.26	$4,973.10	$95,782.00
Stringer Swamp	9.28	$10,082.00	$93,560.96
Dry Prairie	513.22	$172.80	$88,684.42
Scrub - Disturbed	35.28	$2,469.83	$87,135.43
Coastal Hydric Hammock Disturbed	28.66	$2,658.43	$76,190.73
Slough Disturbed	6.55	$8,258.40	$54,092.52
Marl Prairie - Disturbed	6.11	$8,258.40	$50,458.82
Abandoned Field	939.46	$53.64	$50,392.63
Bottomland Forest	2.85	$14,518.08	$41,376.53
Shrub Bog - Disturbed	4.73	$8,258.40	$39,062.23
Coastal Strand	6.23	$5,316.87	$33,124.09
Cabbage Palm Flatwoods Disturbed	6.4	$4,812.68	$30,801.16
Spoil Area	423.96	$72.42	$30,703.18
Slough Marsh	1.58	$16,516.80	$26,096.54
Canal/Ditch	154.32	$102.02	$15,743.73
Developed	14.29	$976.41	$13,952.90
Utility Corridor	229.17	$53.64	$12,292.68
Maritime Hammock Disturbed	15.83	$743.76	$11,773.72
Abandoned Pasture	203.09	$53.64	$10,893.75
Dry Prairie - Disturbed	109.85	$86.40	$9,491.04
Clearing	127.27	$72.42	$9,216.89
Maritime Hammock	5.84	$1,487.52	$8,687.12
Coastal Grassland	125.01	$53.64	$6,705.54
Baygall	0.54	$10,082.00	$5,444.28
Swamp Lake - Disturbed	0.95	$3,150.00	$2,992.50

FNAI/FLUCCS	Total Acres	2012 value per acre	Total TEV value in 2012
Coastal Berm	17.71	$53.64	$949.96
Road	106.38	$0.00	$0.00
TOTAL ACRES	24,972.9		$628,865,027.93

TABLE 2 TEV for the Study Area in 2012 Dollars Ordered by Total Amount