

Case Study



Aerial view of The Old
Collier Golf Club

The Old Collier Golf Club (TOCGC), Naples, Collier County, Florida is the first, Audubon International certified, Gold Signature Sanctuary golf course. This designation comes under the aegis of the Audubon (International) Signature Program. Gold Signature Sanctuary certification carries with it a commitment to merging wildlife conservation, habitat enhancement, resource conservation, environmental improvement, and sustainable development. Gold Signature members establish a partnership with Audubon International *prior* to project location and design. Then technical experts prepare an Environmental Master Plan for all aspects of the property, including very detailed, site-specific strategies for natural resource conservation and management, architecture, infrastructure, landscaping, and community outreach. The success of any program can be measured by the degree of correlation between initial stated objective and end result or outcome. Regarding the objectives of the Audubon Signature Program, The Old Collier Golf Club exemplifies and validates the concept of co-habitable “common ground” for sustainable economic development and long-term environmental quality.

Environmentally sensitive factors such as regional hydrology, wetlands, and threatened species habitat make this parcel unique and strongly influenced the project design and implementation. The entire Old Collier property consists of roughly 267 acres of mixed upland and wetland habitat bounded to the north by the Cocohatchee River, and to the east, south, and west by major thoroughfares servicing commercial, residential, and institutional development (Figure 2). Prior to construction the parcel was undeveloped except for a storm water management system servicing surrounding residential and commercial properties, and it had been zoned for a planned, 800-unit development. Of the 267 total acres, approximately 53 acres of mangrove and wetland habitat bordering the Cocohatchee River were set aside and remain untouched. The golf course is superimposed on the remaining 214 acres of primarily upland habitat. The project consists of an 18-hole “golf-only” facility (i.e., no pools, tennis courts, or residents) with 77 acres of irrigated turf; 28 acres of surface water distributed over 11 wholly contained, man-made lakes; and approximately 109 acres of connected native habitat.

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Water Quality Management

Since the Cocohatchee River (north boundary of the property) is designated as an Outstanding Florida Waterway (OFW), water quality was an overriding factor in The Old Collier Golf Club project from its inception. Succinctly stated, the water quality objective at TOCGC is to maintain or improve the hydrologic standard that was in place prior to property development. In its undeveloped state the property served as a buffer zone between the River and the 400+ acre Naples Park residential development to the south.

According to stipulations for development set forth by the South Florida Water Management District, it was necessary to insure that the golf course project would not alter the existing hydrology of the area. That is to say, the project could neither impede drainage water exiting Naples Park, nor accelerate water movement toward, nor allow overland flow into, the Cocohatchee channel. To protect from direct overland flow into the River, design specifications dictated that, after development, the property must be equipped to retain the total water-equivalent of a 25-year storm falling within the property borders plus the water draining from Naples Park following a storm of that severity.



Prior to construction

To control and contain the projected water volume from a 25-year storm, eleven lakes (totaling slightly over 28 acres) were constructed on the



Final locations of water management lakes shown in perspective with original property.

property. Underground pipes connect nine of the eleven lakes so that they may act as a unified storm water management system. A portion of the piping system serves as a direct replacement for the original aboveground storm-water drainage channel. This surrogate storm water channel occurs in the form of a series of three, side-by-side, 72-inch pipes that carry the storm-water influx from Naples Park through two lakes and then to the wetland zone very near the end of the old storm water drain channel. The remainder of the storm water management system consists of single, 24-inch pipes through which storm water accumulations are shared among all lakes and eventually channeled to the river basin in a slow, controlled release. In addition to the storm water management system, water quality is addressed daily by taking full advantage of the

“prescription” irrigation system and by using Best Management Practices (BMPs). Water quality BMPs include minimizing overall chemical applications (discussed in the Integrated Pest Management section of this report), and implementing operational procedures that isolate turf chemicals from the lakes.

The “prescription” irrigation system is configured such that water application is strictly limited to turfgrass areas. This is achieved by watering turf edges with directional sprinkler heads positioned to throw water back toward the center of the grassed areas. While this design serves as a water conservation feature, directional irrigation also impacts the quality of water eventually reaching the Cocohatchee River by filtering irrigation water through dense turfgrass. Also discussed later in this report are the water quality protections incorporated in the Resource Management Center.



A series of three, 72-inch pipes direct water from Naples Park through TOCGC to wetlands near the river.

Water Conservation

Water conservation is probably the single most critical factor impacting sustainable development in Southwest Florida. Despite this on-going problem, population growth in the region continues at a record pace, and many new housing communities feature golf courses as the major amenity. If development in Southwest Florida is to continue at a sustainable rate, it is imperative to employ every possible tactic to reduce water use.

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At TOCGC the very first consideration was to find a variety of grass that would best fit the objective of minimizing water consumption, particularly fresh water consumption. Seashore Paspalum was selected partly because of its deep-rooted character and low water requirement compared to other turf grasses. Seashore Paspalum also has the advantage of being tolerant to water with high Total Dissolved Solids (TDS), including high levels of Sodium Chloride (NaCl), which would be detrimental or even lethal to other turfgrass varieties. TOCGC design took full advantage of these Seashore Paspalum characteristics. Irrigation water is tapped mainly from two sources that are of very little use in supporting the human population in SW Florida. The first pump station installed at TOCGC draws water directly from the Cocohatchee River at the north edge of the property. Since this is a tidal river, during dry-season (winter) months the TDS content of this water often exceeds 25,000 ppm, and in many instances approaches pure seawater with TDS of 34,000 ppm. It is reasonable to assume that about 50% of the seawater TDS load is actual NaCl. The second TOCGC pump station pulls water from a holding pond replenished from an aquifer 587 feet below the surface. The water from this well is naturally high in sulfur and bicarbonates (5200 ppm TDS), which makes it non-potable for humans without substantial treatment; Seashore Paspalum, however, thrives on this water. The well is “artesian” in nature, which means there is sufficient pressure in the aquifer to push the water all the way to the surface without need of an energy-consuming pump. During the first 16 months of managing these water sources a distinct water-use strategy evolved. River water supplements precipitation during the rainy-season (summer months) when river flow is primarily seaward and TDS (salinity) falls between 2,000 and 10,000 ppm. Then, from November through May, the deep well is used as the primary irrigation source.

In any climate where evapotranspiration (ET) exceeds precipitation, chemical “salts” accumulate at the soil surface. During the dry season, TOCGC personnel monitor for signs of physiological wilt (bluish discoloration) in the turf. Soil TDS is sampled and if the level is above 2000 to 3000 ppm it is necessary to initiate a “fresh water” flush of the soil. The process of flushing salts from the turf root zone uses the third source of irrigation water at TOCGC: the on-property lakes. In the event of high soil TDS, the prescription is a full irrigation cycle using lake water. Because this process effectively taps the surficial (shallow) water table, soil salt levels are closely monitored, and fresh water flushes are scheduled only when TDS readings exceed the acceptable threshold.

All irrigation programming takes advantage of the on-site weather station wired directly to the irrigation computer. Evapotranspiration (ET) is monitored daily, and irrigation requirements adjusted accordingly. Irrigation design also plays an important role in water conservation. TOCGC has nearly 2300 sprinkler heads. The heads range from short-throw 720 series to larger 760 series heads. The golf course is zoned into several partitions based on a variety of criteria, and corresponding “programs” selectively water these partitions; e.g., all the turf, tees only, greens only, “hot-spots” only, etc. etc. The irrigation programming integrates computer driven ET data with soil probe analysis and visual observation. The measurable result is minimal overall water use, and a virtually insignificant impact on the potable water supply.

Wildlife Conservation and Habitat Enhancement

Given that TOCGC is a Gold Signature Sanctuary, wildlife conservation and habitat enhancement were designed into the property from the earliest planning stages. Pre-construction soil, topographic, vegetation, and animal surveys established baseline data for the property. Using that information as a guide, the golf course was superimposed on the property so as to optimize space distribution between that necessary to create a championship level golf course, and that necessary to retain the greatest possible percentage of continuous, diverse habitat. This process enhanced the carrying capacity for a wide range of mammals, birds, amphibians, reptiles and insects.

Adjacent to the tidal Cocohatchee River, 50+ acres of the property clearly qualify for designation as “wetlands” under Section 404 of the Clean Water Act. Away from the river, the “upland” portion of the property contains at least 50 acres of prime Gopher Tortoise habitat. As part of the Audubon International Signature Program philosophy, these and other valuable habitat features were identified and isolated during the design and construction phases, and now remain intact for long-term preservation. Documented sightings are recorded for adult and juvenile gopher tortoise either in their native scrub oak/pine habitat or making their way across open turf areas. During winter and spring months, adult and fledgling eagles from an adjacent nest are often observed roosting in snags or trees on The Old Collier Golf Club property.



A resident Gopher Tortoise



Bald Eagle at TOCGC

As for diversity, the species originally found on the property have been retained. Moreover, maintaining snags, adding birdhouses, creating brush piles, and the substantial addition of open freshwater, grassland, and edge habitats collectively contributes to increased species richness in the form of numerous waterfowl, song birds, ground nesters, and birds of prey that were not observed on the site prior to development. Annual wildlife species and habitat monitoring will document long-term population patterns for both former and new residents.



Habitat juxtaposition as seen from #15 Tees



Purple Martin House



Classic Snag



Opportunities abound for cavity nesters

Integrated Pest Management

A. Historical Perspective

Regardless of the specific name, IPM represents a major paradigm shift away from the “control” mentality that was prevalent during the 1940s, ‘50s, and early ‘60s. Pesticide application programs are often categorized as either “preventative” or “curative”. Preventative programs are control oriented, and consist of regular, periodic applications of pesticides to continually keep pests in “check”. History proves that the web of ecosystem interactions is so complex that “control” of the entire system or even single components (e.g., an undesirable species) is highly improbable. Shifting from preventative to curative management philosophy requires acceptance of “pests” as endemic, opportunistic organisms competing to survive. This means that, under the curative approach, there will likely always be at least some evidence of pest impacts. Also under the curative philosophy, treatment to suppress pest-related effects is applied only when pest population levels reach epidemic proportions, and become manifest in the form of damage that surpasses an established threshold level of acceptability. The curative philosophy provides at least three correlated advantages: 1) reduced pesticide use, 2) reduced likelihood of pesticide resistance, and 3) reduced operating costs. Considering these features alone, IPM holds a substantial advantage.

Given that The Old Collier Golf Club site occurs within a region with high potential population and low potential fresh water supply, it made sense to select a grass for the golf course that possessed excellent golf turf characteristics and a tolerance for poor quality water. In accordance with these criteria, Seashore *Paspalum* was chosen as the grass for use over the entire golf course. As mentioned earlier in the section on Water Conservation, *Paspalum* has a very high tolerance for brackish water. During the SW Florida dry season, one source of water at TOCGC is virtual seawater, usually with total dissolved solid (TDS) content approaching 34,000 ppm. Experience has proved that, while *Paspalum* grows better at lower TDS loads, it is capable of survival using straight seawater. This makes *Paspalum* a strong competitor at TOCGC, thus providing the opportunity to naturally survive attacks from pathogenic organisms.

C. Operational IPM at TOCGC

TOCGC adopts an expanded meaning of “IPM” to reflect that successful plant community management goes well beyond the treatment of “pests”. At TOCGC, “IPM” is understood mean “Integrated *Plant* Management”. “Plant” is taken to include the entirety of the human and material resources comprising the operation (i.e., equipment, people, natural resources, and man-made resources). *Paspalum* as “the right plant in the right place” serves not only to reduce pesticide applications, but also to reduce the consumption of other resources such as fertilizer, water, and time. In addition to genotype selection, turfgrass management that contributes to the overall goal of sustainable development requires an

appropriate daily maintenance philosophy, and it also requires wise decisions on the part of all employees everyday.

On a daily basis, IPM at TOCGC is a crew-wide function. Specifically with respect to “pests”; insects, fungi, and weeds are the three broad categories that impact turf quality. As part of their daily assignments crewmembers look for the presence of, among other things, insects, insect damage, bird-peck activity, signs of fungal activity, or discolored turf. On report of any sightings, the Natural Resource Manager or a senior staff member investigates, documents the symptoms or signs, and constructs a list of possible causal agents. Potential problem areas are put on a monitoring list, and suspect sites are revisited daily to determine status. TOCGC is proving to be a working example that the best defense against pests is healthy turf. As of April 2002 (seven months after opening), roughly 98% of the intended grass area was covered with dense, uniform turf. The absence of pest problems is noteworthy.

One of the purported advantages of using seawater for irrigation is weed suppression. Since common broadleaf and grass-type weeds are usually not salt tolerant, hypothetically they should not compete effectively with *Paspalum* if exposed to seawater. Based on current evidence at this facility, that hypothesis holds true. The effects of salt-water irrigation were very noticeable during grow-in when grass cover was thin. Weeds occurred in greater numbers on areas where salt water was not applied.

Conversely, areas of the golf course where salt water was regularly applied remained virtually weed-free. Now that turf density is high over the entire golf course, despite shifting away from seawater in favor of a second (lower TDS load) water source, weeds are a relatively minor issue in turf areas. Weed suppression activity mostly targets invasive species in the native areas of the property. Brazilian Pepper, Melaleuca, Old World Climbing Fern, and other exotics are removed on a continuing basis.

Also since completion of grow-in, insect pests have shown a similar decline in numbers and impact. The major pests in evidence during grow-in were sod webworm, armyworm, white grub, mole cricket, and billbug. While these species are still present, they seem to exert little significant impact on turf quality, and, again, this negative impact generally occurs only where turf is weaker or less dense. If insect damage does surpass threshold acceptability, it is TOCGC policy to use application rates at the “low” end of the recommended label range. Moreover, to guard against development of pesticide resistance, TOCGC rotates among at least three different modes of action (differing chemicals) in each pest category.

Pathogenic fungi have not been a significant problem in TOCGC *Paspalum*. The most prevalent fungus “season” appears to be January and February. Cooler temperatures, lower light quality, and shorter day-length combine to create poorer growing conditions for *Paspalum*, and the grass is less able to defend against fungal attack. Yellow patch and Dollar Spot comprise the noticeable fungal activity. While both of these fungi produce lethal effects, TOCGC maintains a different management strategy for each. Yellow Patch outbreaks tend to enlarge quite rapidly, and, while not 100% lethal, once infected, turf recovery time can be substantial. As such, Yellow Patch is treated with a fungicide application within 7 days of appearance. Dollar Spot, on the other hand, is generally NOT treated with fungicide. Experience here shows that Dollar Spot is present over the entire golf course, but becomes “visible” only if turf is weakened by an irrigation failure or by low fertility. In the event that Dollar Spot does appear, fertilization and irrigation rates are adjusted accordingly. Higher calcium and potassium rates appear to reduce the incidence of these diseases. Once the grass returns to a healthy condition it seems to resist significant impact from Dollar Spot.

While the long-term environmental advantages of IPM are difficult to measure, existing budget records show that TOCGC IPM philosophy definitely reduces operating costs.

Resource Management Center

(Maintenance Facility)

Since the maintenance function of any golf course is closely related with storage and use of fuels, fertilizer, solvents, and pesticides, special consideration must be given to isolating potential contaminants from soil and water. TOCGC's Resource Management Center (RMC) uses special technology and design to accomplish these objectives.

A continuous concrete surface nearly surrounds the RMC. The concrete surface was selected in preference to asphalt for two reasons. First, it lends to the energy efficiency of the RMC complex by reducing absorption of solar radiation (heat storage studies show concrete to be at least 40°F cooler than asphalt). Second, concrete serves as a nearly impermeable surface separating potential contaminants from the soil underlying and surrounding the RMC. Since the integrity of the impermeable surface is dependent in part on its continuous nature, the pad is constructed of 6-inch, steel reinforced concrete, and is capable of supporting at least 83,000 lbs. gross vehicle weight. With these design specifications, the pad basically has the structural character of a major roadway and readily supports the weight of large vehicles such as dump trucks or motorized cranes that service the facility on a regular basis. Interior RMC floors used for equipment maintenance or storage are minimum 4-inch, steel reinforced concrete with load bearing capacity of at least 3,000 lbs./sq. in., and the concrete surface is coated with chemically resistant urethane.



Equipment Maintenance



Equipment Storage

Also for water quality protection, the Equipment Service Facility has no connection to storm or sanitary sewers. Equipment wash water is collected in two belowground sumps, filtered and chlorinated, and returned to a 1200-gallon storage tank for re-use. The pad is designed to contain a large fuel or wash-water leak.



Equipment Service Facility

TOCGC keeps pesticide use to a minimum, however sometimes an application is appropriate. Given that TOCGC is only two miles inland from the Gulf of Mexico, there is almost always a land breeze or a sea breeze in effect. To insure that the pesticide spray reaches only the intended target, hood and rubber boot assemblies surround the booms of the spray apparatus. During application the booms are fully deployed and these attachments confine the spray to the area immediately below the nozzles.



Spray Apparatus

Similar to the Equipment Service Facility, the Chemical Storage Building or IPM Control Center has no sewer connections; therefore, potential spills are isolated to the space inside the building. A concrete wall divides the building; dry chemicals are stored in one half, while all liquid chemicals are stored in the Mix/Load area. The Mix/Load bay has a 300-gallon sump plus three 150-gallon elevated storage tanks. These storage areas plus the capacity of the center-sloping, sealed concrete floor, provide the capability to isolate a liquid spill in excess of 600 gallons; this is 300 gallons greater than any single container in use at TOCGC.



Chemical Storage Building



Dry Storage Bay



Mix-Load Bay



Fuel can storage cabinet



Waste oil storage

Portable fuel cans, paints, and solvents are stored in fire retardant metal cabinets. Used oil is stored in a separate tank with secondary containment. Periodically, the tank contents are transferred through a specially designed piping system into a transport vehicle to be taken for recycling.

Energy Efficiency

A. Resource Management Center

1. Heating and cooling. Regardless of season, Southwest Florida's climate is best characterized as sunny, warm, and humid. According to the National Climatological Data Center, annually, nearly 73% of days are either clear or partly cloudy. Clear skies and proximity to the Gulf of Mexico contribute to average daily high temperatures of 71°F in January and 90°F in August. In this climate, a work facility that is both comfortable and energy efficient must employ creative design features that inexpensively reduce the absorption of solar radiation and increase the dispersal of accumulated heat. Energy efficiency was one of the primary objectives of facility design at The Old Collier Golf Club.

Among the RMC external design features is a concrete surface covering the vehicular access areas; the lighter color significantly reduces heat accumulation in "paved" areas. This contributes to worker comfort outside the building, and reduces re-radiated heat transfer from paved areas to the RMC building. Palm trees planted around the outside of the RMC block solar radiation from reaching the walls and roof. An aluminum roof provides a highly reflective surface, and extends beyond the exterior walls to form a four-foot eave around the entire building. On the front (south) side of the RMC near the main entrance, the roof extends to become a nine-foot porch. The eaves and porch provide a partial barrier diverting solar radiation from building walls and windows. All exterior windows are tinted, double-pane insulated glass. Exterior walls are painted light tan to reduce absorption of solar radiation. Tan (instead of white) was selected as the exterior color to create a better blend with exterior colors of neighboring business buildings.

Of the RMC's 19,000-sq. ft., only the offices, crew room, and equipment repair "clean-room" are air-conditioned (6,000-sq. ft.). In air-conditioned spaces, ceilings have R49 insulation accompanied by R19 insulation in exterior walls. To reduce heat accumulation, the equipment maintenance bay is insulated (but not air conditioned), and strategically located windows, doors, ceiling fans, and a large gable mounted exhaust fan provide for continuous, rapid air exchange. All air-conditioned areas are outfitted with ceiling fans. Ceiling fans provide a significant cooling effect such that an 80°F room with a ceiling fan effectively feels like 78°F. The air-conditioner unit for the RMC carries a Seasonal Energy Efficiency Ratio (SEER) rating of 18.00, and utilizes a "variable speed air handler". The variable speed air handler is more efficient at removing humidity, and reduces energy consumption by operating only at the minimum speed necessary to meet immediate airflow demand. Electronic air filters reduce energy consumption while providing high quality air to breathe.

2. Illumination. Inside the RMC, T8 fluorescent lights (with electronic ballast) provide the artificial illumination. According to the Virginia State Office of Facilities Management, T8 lamps use up to 20% fewer watts than standard T12 lamps, and provide 7-10% additional efficiency when outfitted with electronic ballasts. Eight-foot, T8 lamps use up to 33% less energy than the most efficiently configured T12 lamps, and T8 lamps have an average life expectancy 25% longer than standard T12 lamps. T8 lamps not only have a higher efficacy (lumens/watt) rating, but also provide better color rendering.

Skylights are employed to provide natural illumination to areas of the RMC buildings with no internal ceilings. On clear to partly cloudy days, starting at approximately one hour after sunrise, the amount of natural light transmitted through the skylights is sufficient to provide safe working conditions.

3. Irrigation. The Old Collier Golf Club has two pump stations tapping different sources of brackish water. Each station is Variable Frequency Drive (VFD), which allows the pump system to “ramp-up” slowly thereby decreasing the overall “demand” portion of the electric bill. The VFD system also permits variable motor speeds to supply only the current flow demand. Additionally, irrigation is scheduled during “off-peak” hours as identified in rate information secured from Florida Power & Light (FP&L). “Off peak” hours change by season in SW Florida, so irrigation scheduling is continually reprogrammed to coincide with these fluctuations as updated by Florida Power & Light.

4. Energy Management. A great deal of thought and action has gone toward creating a golf facility that will optimize energy consumption. For example, all water heater circuits are wired with time clocks to limit operation to the first portion of the workday. This is but one of many design elements that give the RMC potential for energy efficiency. However, without a continuing management philosophy that increases employee sensitivity toward habitual energy conservation, the “break-even” point on the initially higher investment (for energy efficient fixtures and features) would occur much later in time. The measurable payoff here at The Old Collier Golf Club is a monthly average energy bill of between \$450 and \$500 for the entire maintenance facility. This includes electricity for vending machines, microwaves, coffeemaker, ice machine, arc welder, grinders, lights, fans, air compressor, hand dryers, and two 5-ton air conditioning units.

B. Main Clubhouse

Opening November 2002, the design of the clubhouse takes into consideration the same energy efficient features and factors underlying the RMC. An important difference at the clubhouse will be the cooling system. Total air-conditioned space within the clubhouse is approximately 22,000 sq. ft. The cooling technology employed is “Ice Thermal Storage (ITS)” (Baltimore Aircoil Company). Simply characterized, an ITS unit makes and stores ice at night during off-peak energy hours, and then uses the ice to cool air during the day. Aside from the obvious advantage of operating the energy consumption cycle at night (never pay a demand charge), the ITS unit can be located a considerable distance from the structure being cooled. In this case the ITS is nearly ¼ mile from the clubhouse. Air is circulated between the building and the ITS through underground piping. Given that the line is underground, there is very little line loss over the ¼ mile distance. Also, since the ITS unit is relatively large and readily visible, the remote location eliminates the need to mask or camouflage the unit from view.

Waste Management

Waste management has been in effect at The Old Collier Golf Club since the inception of design and construction. Low impact, long life span construction materials were selected for buildings. All materials utilized were screened for potential hazards to occupant health, and energy efficiency was paramount in selection of all electrical fixtures. On the golf course, bridge surfaces were constructed of material made from recycled plastic. The projected life span of the bridge surface material far exceeds that of wood products used for the same purpose.

Now that The Old Collier Golf Club is operational, the waste management goal is to maximize on-site, green-waste decomposition, and to recycle non-biodegradable materials whenever a market exists.



Bridge surface made from recycled plastic.



Brush Pile

Grass clippings – No grass clippings are shipped off TOCGC property. Walking greensmowers are the only equipment outfitted to catch grass clippings. After being captured in the greensmower baskets, the clippings are emptied behind the green and thoroughly dispersed by broom or blower. Since clippings are comprised of 72%-75% water it is unlikely that future problems will arise. However, to be certain, the practice is monitored closely.

Limbs, leaves, etc. – This debris is disseminated, in the form of brush piles, throughout the property in upland areas. Brush piles are easily concealed from view, and they create excellent cover for small mammals during the three to five year period over which they decompose.

Aluminum – Cans are crushed and redeemed for cash every 2 or 3 months.

Plastic, office paper and magazines – These materials are carried to county recycling along with aluminum. Recycling trips are made only with full loads, and coincide with other planned travel.

Glass – Currently there is no glass used at the RMC, but glass used at the clubhouse is recycled with the current group of recycled materials.

Cardboard – A “cardboard only” recycling container is maintained at the RMC, and TOCGC employees understand that *all* cardboard is to be deposited therein. TOCGC pays a fee of \$52 per month for the cardboard recycling service.

Pesticide containers – All plastic pesticide, fertilizer or other plastic containers are triple rinsed, left to dry, and then stored until a recycling contractor retrieves them. The recycling contractor shreds the containers on-site, at no cost, and ultimately re-uses the plastic fragments to make pallets.

Information and Outreach

During the summer of 2001, in conjunction with The Conservancy of Southwest Florida, approximately 280 children ranging from 2nd to 5th grade toured The Old Collier Golf Club and participated in various ecologically based learning exercises. Also toward the same learning goal, in April and May of 2002, all six, 5th grade classes from Naples Park Elementary School toured TOCGC. The six classes represented approximately 160 children, 15 adults, including six teachers and the school principal.

Because the golf course is grassed with Seashore Paspalum and irrigated with water ranging from 200 PPM to 34,000 PPM dissolved solid content, TOCGC has proved to be of both national and international interest. Visitors have come from China, Switzerland, Great Britain, Canada, Argentina, Dominican Republic, Puerto Rico, Bahrain, Costa Rica, Mexico, and from over 30 of the United States including Hawaii. Perhaps the largest single agronomy related tour occurred in early April 2002. On that day, thirty-two individuals assembled at TOCGC for a 3-hour tour arranged through the Florida Fruit

and Vegetable Association. The group included representatives from the U.S. Environmental Protection Agency, Florida Department of Agriculture, and parties of varied interests from Georgia, Florida, and China.

As time allows, representatives from TOCGC travel to speaking engagements, seminars, symposia, and professional meetings to share successes and needed improvements. On rare occasions this travel will include individual or company visitations. On-site informational tours for groups or individuals will continue as time and operations permit.

Contact Person

For additional information about The Old Collier Golf Club or the Audubon International Signature Sanctuary Program contact::

“The Signature Program promotes the merger between the free-enterprise system and productive environmental management. A healthy, well-maintained golf course can be cost efficient by reducing pesticides and conserving water, and in the process becomes vital habitat for plants, wildlife, and people.”

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