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## An Implementation Toolbox for Green Infrastructure

*An easement is a legal instrument or agreement between a landowner and a qualified governmental entity or conservation organization which contains restrictions on the property. To enter into an easement: the landowner can voluntarily agree to place an easement over all or some portion of their property; the landowner can be required to place some property under easement through various permitting regulatory processes; or the easement can result from an infrastructure project such as a roadway, stormwater management, or other utility passage.*

*Building on the Florida-specific planning strategies outlined in Chapter 5, there are also many other tools that can be used to develop a wildlife – and habitat – friendly green infrastructure. Easements, conservation subdivisions, upland habitat protection ordinances, habitat conservation plans, mitigation and restoration plans and mitigation parks and banks can all assist with protecting habitat and wildlife on natural lands. No one tool will serve as a panacea. Communities that achieve successful wildlife and native habitat friendly outcomes will likely use a mix of these tools.*

### EASEMENTS

An easement is a legal instrument or agreement between a landowner and a qualified governmental entity or conservation organization which contains restrictions on the property. There are three primary ways to enter into an easement: the landowner can voluntarily agree to place an easement over all or some portion of their property; the landowner can be required to place some property under easement through various permitting regulatory processes; or the easement can result from an infrastructure project such as a roadway, stormwater management or other utility passage. Easements are generally negotiated on a case-by-case basis and can include provisions that allow active management such as timbering, grazing or other functional or marketable actions.

In planning for its green infrastructure and habitat conservation, a community would be smart to develop a general conservation easement plan and guidance document that identifies area or project types appropriate for potential large scale voluntary easements, off-site conservation easements for mitigative actions, substantial infrastructure easement linkages, and other easement development and placement tips.

**Voluntary Easements** – These are legal agreements that permanently restrict the use of land to protect resources such as productive farmland or wildlife habitat. Voluntary easements are essentially custom-made to meet landowner and often regional

management objectives and do not require public access (though this option can be included). Most of these easements are perpetual, although some are time-limited. Landowners may receive a number of benefits such as:

- **Substantial federal income tax reduction.** Donation of the easement (e.g., to a local land trust) qualifies as a charitable income tax deduction. A landowner can stage the donation over several years to overcome annual charitable deduction limitations.
- **Possible reduction of property taxes and possible prevention of forced land sales.** After establishment of the easement, reassessment by the local tax appraiser office including the reduced future development potential may lower taxable value and thus yearly property tax.
- **The elimination or reduction of estate taxes.** Easements may be gifted and transferred to a government or IRS approved nonprofit organizations (exempt from federal gift taxes). The gifted easement value amount based on the fair market value of the easement property reduces the estate value and taxes to be paid.
- **Estate Tax Exclusion for Qualified Conservation Easements (QCE) under federal tax provisions.** With a QCE, up to 40 percent of the land's value may be excluded from the federal estate tax. The exclusion applies after the value of the easement is subtracted from the fair market value of the land.
- **Permanent generational protection of valued resources of the land.**
- **Reduction in the potential for disagreements or misunderstanding about the long-term conservation areas and objectives for the land.**
- **Landowner flexibility to meet monetary and use of the land objectives for their private lands.**

Photo Courtesy of Neil J. Lamb Ph.D and Edwin J. Keppner, Ph.D.



Example of regulatory easements for wetlands around subdivisions in Bay County.

To maximize the benefits of a landowner’s voluntary easement, a qualified tax advisor counsel should be sought. (Source: Martin B. Main, Annisa Karim and Mark E. Hostetler, University of Florida. *Conservation Options for Private Landowners in Florida, 2003 and 2006*)

**Regulatory Easements** – Easements are often required by various regulatory processes in Florida such as wetland and surface water management permitting actions of the US Army Corp of Engineers, Florida Department of Environmental Protection, or the appropriate water management district. These easements can be located, within the limitations of the permitting process, to increase their value to the local ecosystem. For example, they can be used to expand existing areas of protected habitat, interconnect existing patches of habitat, and maintain the diversity of natural biotic communities in the ecosystem.

Because intergovernmental coordination requirements relating to the establishment of regulatory easements are weak (i.e., agencies do not always inform or work with local governments regarding placement of these easements), it is important to establish intergovernmental agreements with the agencies to ensure that the

appropriate local government departments receive notice of the easements.

Pragmatically, from a green infrastructure development standpoint, a local government in coordination with the affected regulatory agencies should develop a plan for guiding the strategic placement and linkage of regulatory easements for permit mitigation actions (onsite or off-site). Compensatory mitigation actions may include, but are not limited to, onsite mitigation, off-site mitigation, offsite regional mitigation, and the

purchase of mitigation credits from permitted mitigation banks. The plan should guide the maximization of the ecological value of the easements, and provide for better management, and easier monitoring and enforcement of the easement conditions and restrictions. Further, guidelines should strive where feasible to expand existing protected areas of habitat, interconnect existing patches of habitat, and to maintain the diversity of natural biotic communities in the ecosystem.

**Infrastructure Project Easements** – Easements related to larger infrastructure placement can be designed and managed for increased habitat and wildlife value. Examples include regional, sub-regional and neighborhood stormwater treatment and conveyance facilities, road side edges or road bridging or culverts. These easement areas can often serve as reasonable linkages to other protected habitat patches within and between other conservation areas.

**Conservation Easement Requirements and Planning**

**Tips** – The following activities are often prohibited on property subject to a conservation easement.

- Construction or placing of buildings, roads, signs, billboards, or other advertising, utilities, or other structure on or above ground.

*“Woe unto them that join house to house, that lay field to field, till there be no place that they may be placed alone in the midst of the earth.”*

*- Bible, Isaiah 5:8*

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*Each local government should inventory and map the easements in the community. First priority should be given to larger voluntary conservation easements, as well as those regulatory easements held by the water management district, Department of Environmental Protection, and U.S. Army Corps of Engineers, as these are often directed at preserving lands for their natural characteristics.*

- Dumping or placing of soil or other substances or material as land fill, or dumping or placing of trash, waste, or unsightly or offensive materials.
- Removal or destruction of trees, shrubs, or other vegetation, with exception of nuisance and/or exotic plant species, as may be required by regulatory agencies.
- Excavation, dredging, or removal of loam, peat, gravel, soil, rock, or other material substances in such a manner as to affect the surface.
- Surface use except for purposes that permit the land or water area to remain predominantly in its natural condition.
- Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation.
- Acts or uses detrimental to such aforementioned retention and maintenance of land or water areas.
- Acts or uses detrimental to the preservation of any features or aspects of the property having historical, archaeological or cultural significance.

Each local government should inventory and map the easements in the community. First priority should be given to larger voluntary conservation easements, as well as those regulatory easements held by the water management district, Department of Environmental Protection, and U.S. Army Corps of Engineers, as these are often directed at preserving lands for their natural characteristics. Infrastructure projects easements should also be mapped as they can add opportunities for wildlife habitat linkages and strengthen the overall community green network. Substantial conservation easements may also be incorporated as conservation or preservation lands on the jurisdiction’s comprehensive plan’s future land use map and more detailed zoning maps.

When working on larger development projects (for example Planned Unit Developments, DRIs and Sector Plans) added effort should be made to interconnect on-site conservation easements and to link the easements to off-site natural areas. Isolated patches of conservation easements within development proposals should be avoided particularly the inclusion of conservation easements as part of multiple individual residential lots. The “hodge-podge” of differing lot layouts, vegetation and ground maintenance schemes, fences, lighting and other activities make reasonable easement management for habitat and wildlife difficult to impossible. Smaller easement fragments are difficult to manage and to monitor and less ecologically sustainable.

**Long-term Management and Monitoring** – Long-term management of dedicated easements and dedicated open space will be necessary. The development review process should require that conservation area management plans be submitted and approved prior to final subdivision approval. The management plan should spell out the special characteristics of the conservation area, the specific goals of the plan (i.e. reha-



Photo Courtesy of Tim Donovan, FWCC

FWCC biologist Robin Boughton prepares a young red-cockaded woodpecker for relocation to another property. Using a net, biologists capture the birds from their cavities in live pines and move them to other areas to increase the likelihood of the species’ survival.

bilitation of the red-cockaded woodpecker habitat or natural undisturbed edges along creeks and wetlands) and list the best management practices that may be suitable. The management plan should be included as an appendix to the conservation easement, and also be included within the homeowner's or property management association materials.

The management entity is largely dependent upon who holds title or easement to the property. In many cases, the landowner or homeowner's association may be in charge of management. If the area is of particular ecological concern, the local government or a local land trust may be willing to get involved in the management, especially if there is a corresponding dedicated maintenance funding source and if the easement links to other protected areas off-site. Once a management plan has been accepted by all parties and the land is placed under easement, it is possible to revisit and alter the management plan if needed, but usually only if circumstances have changed enough to warrant such changes.

**Other Costs** – There are two particular costs that may apply to a conservation subdivision that may not be encountered with a traditional subdivision. These include initial regulatory review costs, and costs associated with managing and monitoring the easement. For communities that have antiquated ordinances, the greatest cost associated with conservation subdivisions compared to traditional subdivisions may be for obtaining rezoning, variances and permits to allow for the necessary clustering. Old fashioned, inflexible zoning and restrictive design standards are typically the principal barriers. Proactive local governments remove these impediments and speed up the approval process as effective incentives. Increasingly, more local governments adopt land development regulations that provide for conservation subdivisions without having to obtain special variances and permits. Some municipalities are creating specific land use categories and

implementing policy while others are creating overlay zones or other mechanisms that guide use of conservation subdivisions.

There are also costs associated with managing and monitoring the easement over time.

Although conservation easements typically are granted at no cost to the conservation entity, there will be administrative and, perhaps, management costs in holding and monitoring the easement property. Some local governments and land trusts require a stewardship fee commitment from the developer and eventually the homeowners association, others just have one time fee – percent of value of easement or per acre one time assessment to fund the long-term management, monitoring and enforcing costs for the easements (including periodic site visits).

Sometimes an endowment can be established at the time the easement is granted, in an amount sufficient to generate income for the annual land managing and monitoring expenses. If such an endowment cannot be established by the landowner at the time of easement creation, potential donor(s) may be identified to assist meeting these needs or the local government (or land trust) may agree to assume the costs if the costs are marginal or can be captured by linking them to other public or privately held conservation lands or conservation easements. As noted above, such actions increase the size of the preserved areas, provide for more efficient monitoring and management, help to defragment the ecosystem, and provide larger areas for wildlife habitat and passive human use. (Source: Southern Appalachian Highlands Conservancy. Conservation Easements, Frequently Asked Questions, [www.appalachian.org/about/faq.htm](http://www.appalachian.org/about/faq.htm))

If the land is dedicated to a land trust or local government they assume the legal responsibility for that land. They may strike a deal with the landowner or homeowners association or another party for all or some of the long-term management actions.

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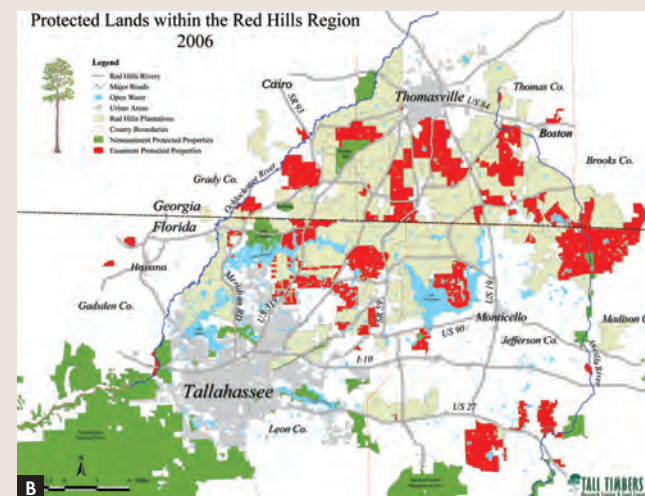
Conservation subdivisions can be ecologically and economically beneficial alternatives to traditional subdivisions. Generally speaking, a conservation subdivision features clustered homes and other development with a large portion of the property's environmentally sensitive areas legally protected through an easement as habitat and open space.

Photo Courtesy of Tall Timbers Research Station and Land Conservancy



A) Healthy longleaf pine forests in the Red Hills region. This habitat type must be regularly burned. Developments in the region should be cognizant of this need.; B) The Red Hill region spreads across the Florida-Georgia border. Areas in red are under conservation easement, areas in green are public conservation lands, and grey areas are the urban-suburban areas of Tallahassee and Thomasville.

### CASE STUDY Tall Timbers Land Conservancy



Over the last two decades, the Tall Timbers Land Conservancy in the Red Hills region of North Florida and Southwest Georgia has had an impressive track record with regard to voluntary conservation easements. Since 1990, Tall Timbers has conserved over 108,000 acres of working forests, farms

### SUBDIVISIONS AND CONSERVATION SUBDIVISIONS

Conservation subdivisions can be ecologically and economically beneficial alternatives to traditional subdivisions. Generally speaking, a conservation subdivision features clustered homes and other development with a large portion of the property's environmentally sensitive areas legally protected through an easement as habitat and open space. It is a variant of a Planned Unit Development (PUD), a common tool used by communities to craft

for a parcel of land a specific development plan that meets various community objectives. Common steps in the conservation subdivision process include (adaptation from various works of Randall Arendt):

- Identifying primary conservation areas on the property (high value habitat areas, hammocks, wetlands, streams, sinkholes, floodplains, etc.) followed by secondary conservation areas that should be protected to the maximum extent possible (forested areas, and scenic, sensitive, or historically significant features). Always look for opportunities to work with adjacent

and recreational lands, and are working toward protecting another 100,000 acres by 2020.

Tall Timbers' primary focus is protecting lands from Tallahassee, Florida to Thomasville, Georgia and from the Aucilla River to the Ochlockonee River. Recently, Tall Timbers began working to conserve high quality habitat in an area centered-around Albany in South Georgia. These ecologically rich areas contain some of the last remnants of the nation's great longleaf pine forests and more than 60 listed species of plants and animals. The region also contains some of the highest recharge areas for the Floridan Aquifer, the primary source of drinking water for portions of Florida, Georgia and Alabama. Easements placed on these lands protect the region's water quality, air quality, wildlife and distinctive scenic roads.

Healthy longleaf pine forests in the Red Hills region. This habitat type must be regularly burned. Developments in the region should be cognizant of this need. Tall Timbers Research Station and Land Conservancy

The majority of the land in the Red Hills region has been privately owned as large quail hunting plantations for generations, and has to date been largely spared from sprawling development.

Landowners donate conservation easements because of a strong desire to protect their land for their families and future generations. Conserving land using a conservation easement allows the landowner to retain ownership and prescribed use of the property, while providing substantial tax benefits through the reduction of federal income and estate taxes, and possible property tax relief. Landowners retain all property rights except those specifically relinquished or restricted by the easement and, in many cases, are free to use their property as they have in the past.

Changes to the federal tax code in 2006 raised the deduction donors can take for donating an easement. Congress is considering making these changes permanent or alternatively, extending them some time period. The new rules provide a significant benefit to landowners who previously could not deduct the full value of their gift. By taking advantage of incentives provided by federal tax law, understanding the needs of its landowner base, and protecting the natural, scenic, and cultural traditions of this working rural landscape, Tall Timbers has developed a model of conservation well suited to the Red Hills region. Perhaps this is a model that can be reproduced elsewhere?

*Conserving land using a conservation easement allows the landowner to retain ownership and prescribed use of the property, while providing substantial tax benefits through the reduction of federal income and estate taxes, and possible property tax relief. Landowners retain all property rights except those specifically relinquished or restricted by the easement and, in many cases, are free to use their property as they have in the past.*

properties to link topographic and habitat features.

- Locating clustered development and home sites in a manner that avoids the identified sensitive areas. Use the set-aside areas to the best advantage to add value to the clustered home sites.
- Aligning streets, utility easements, sidewalks and trails to best serve home sites while minimizing impacts on the landscape (e.g., use the streets and stormwater facility easements to provide separation between conserved habitat areas and home cluster locations).

- Drawing in the lot lines and identified easement areas.
- Drafting and recording easements and easement area management guidelines and any directives to be part of the homeowner's covenants.

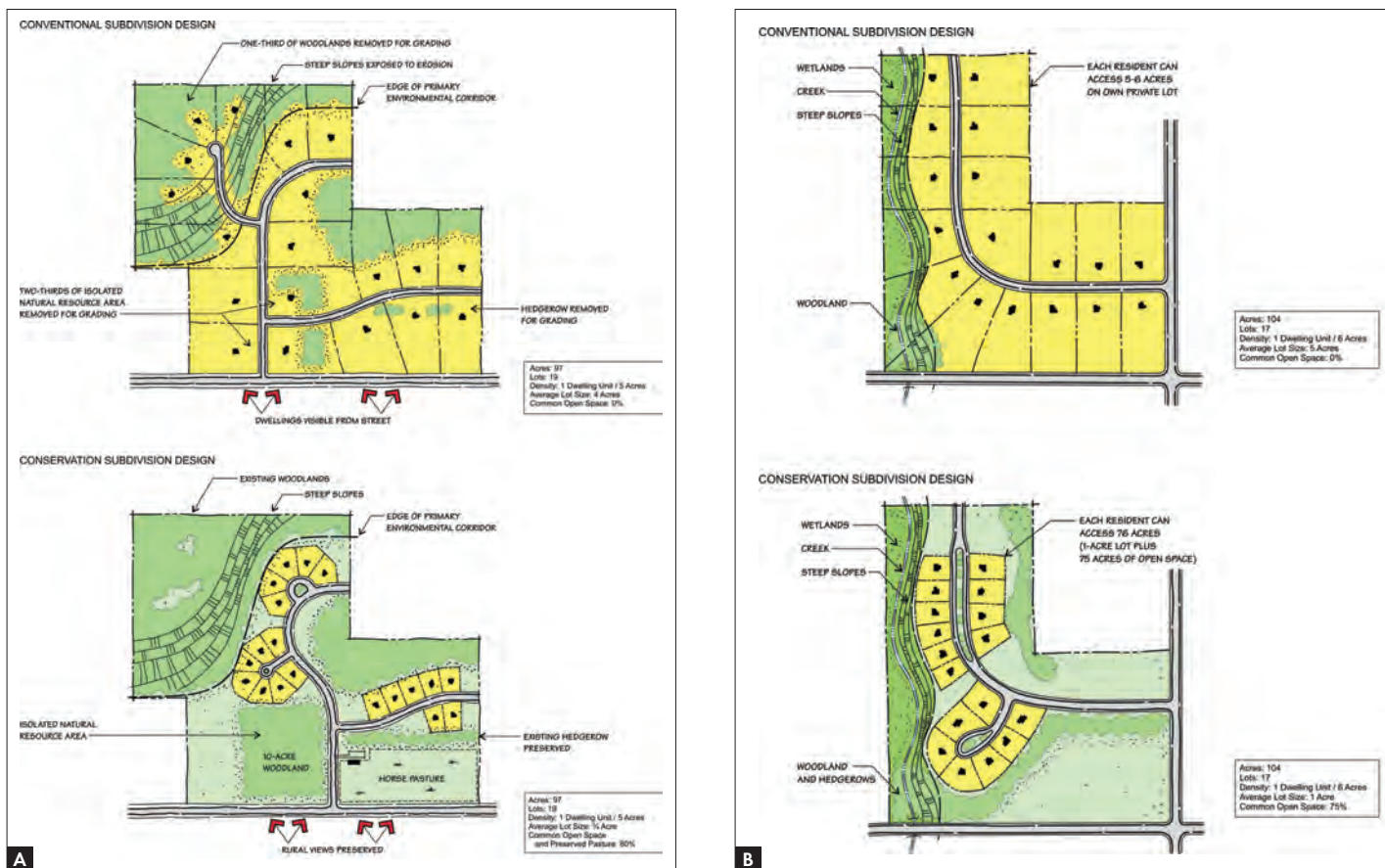
The open space in a conservation subdivision can be protected with a conservation easement or other legal apparatus to ensure that the area is left undeveloped and is appropriately managed. Such easements can allow discrete but sizeable environmentally sensitive areas on a property to be linked via dedicated open space. This provides the opportunity to increase the functionality

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When developing a conservation subdivision there are some general ecological guidelines that should be followed with regard to habitat protection and conservation. The first rule of thumb is to know the lay of the land and the potential wildlife and habitat types both on and adjacent to the site. It is important to design a site that does not disrupt, fragment or otherwise isolate habitats.

Photo Courtesy of Southeastern Wisconsin Regional Planning Commission



A) The same piece of land can be subdivided to better conserve the natural system, habitat and wildlife resources (bottom) or subdivided in what is commonly called conventional subdivision design (top).; B) Subdividing property judiciously to preserve the natural features and wildlife opportunities. The top illustration shows the traditional subdivision of land, while the bottom illustration has the same number of lots, but preserves the natural features and wildlife opportunities.

of on-site wildlife habitat.

The usefulness of a given conservation subdivision to wildlife will largely depend on local plans and objectives, care of the landowner, an understanding of the life needs and habitat requirements of the species affected, and the topography of the land being developed. This tool is useful in suburban and suburbanizing rural-fringe areas, but should be approached

cautiously in rural areas as it can promote premature “leap-frog” development and sprawl.

Local governments should strive to differentiate between areas with established urban service areas-urban fringe designations and designated rural lands beyond the urban fringe where the adopted plan is attempting to conserve rural land. In counties relatively high unit per acre density in throughout the rural area



(e.g., 1 unit per acre) the use of conservation subdivisions may be preferable to conventional practices because of the ability to cluster the units.

#### **General Ecological Guidelines for Site Protection –**

When developing a conservation subdivision there are some general ecological guidelines that should be followed with regard to habitat protection and conservation. The first rule of thumb is to know the lay of the land and the potential wildlife and habitat types both on and adjacent to the site. It is important to design a site that does not disrupt, fragment or otherwise isolate habitats. Additionally, every effort should be made to retain or enhance contiguous blocks (or swaths) of habitat and to minimize habitat breaks or long thin corridors that limit or impede wildlife movement and exacerbate edge effects (e.g., loss of important microclimate or physical features such as the humidity provided by a hardwood hammock or dry sandy soils of regularly burned xeric scrub areas). Sizing and shaping conserved areas to limit edge effects via wider corridors and preserved understory environments maintains biodiversity in the area.

When waterbodies, wetlands and karst features are involved, the easement area and management plan should limit adjacent impacts harmful to the natural values. Including natural buffers adjacent to water and wetland features ensures that wildlife will have continued access to water and associated food, cover and nesting benefits.

**Legal Tools to Protect Common Space within Conservation Subdivisions –** There are several legal tools to protect the habitat and open space of a conservation subdivision: conservation easements; dedication of common space to a local government or land trust; or covenant conditions and restrictions. There are many variables that should be considered when deciding which tool will work best:

- **Conservation Easements –** Easements are advantageous because they run with the land, can last in perpetuity, are well accepted by courts, and are not easily changed. Easements

spell out in detail the allowable uses and intentions as well as those activities that are prohibited. This approach may have an economically beneficial aspect to developer landowners from tax breaks. Additionally, the property sale value of homes adjacent to protected open space generally shows an increase more than parcels that do not abut protected land.

- **Dedication of the Common Space –** Dedication of the conservation open space involves transferring the title of the property to a second party (usually either a land trust or local government) through a charitable donation or bargain sale. Either method can be advantageous to the landowner, who may be eligible for federal tax deductions or may transfer the ongoing maintenance costs and management duties to another party. By taking title of the land, the second party also assumes the costs associated with management of land as well as liability of owning the land. An important factor to note in dedication of land to a local government is that it typically results in public access to the land. This may be undesirable to many home owners associations.
- **Covenants, Conditions and Restrictions (CCRs) –** A final option for preserving the set-aside lands involves relying on the Covenants, Conditions and Restrictions within the declarations that are a part of the conservation subdivision's community association. While it is important to have such restrictions, they are not generally enough on their own. First, CCRs are typically dynamic in nature and can be changed by a vote of the community association's members. Second, the term of the covenants is subject to each state's common law. Finally, enforcement of the CCRs can be problematic.

#### **UPLAND HABITAT PROTECTION ORDINANCES**

A local government can adopt an upland habitat protection ordinance to protect upland natural plant communities and wildlife habitat. This type of ordinance can promote air and water quality maintenance, erosion control, stormwater runoff reduction, water

*A local government can adopt an upland habitat protection ordinance to protect upland natural plant communities and wildlife habitat. This type of ordinance can promote air and water quality maintenance, erosion control, stormwater runoff reduction, water resources conservation, aquifer recharge area preservation, biological diversity, and native upland habitat preservation.*

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*When habitat islands which would normally be too small to support diverse populations are in close proximity to or connected by habitat corridors with larger areas, they have been found to be capable of maintaining such populations. Virtually any suitable physical link between habitat areas may serve as a corridor for some species.*

Photo Courtesy of Don Pennington, 1000 Friends of Florida



A preserved upland buffer pine forest area in Tampa sits adjacent to a development stormwater treatment pond. The protected pine forest upland links to wetlands and a stream to provide a variety of linked habitats.

resources conservation, aquifer recharge area preservation, biological diversity, and native upland habitat preservation. These ordinances should be linked to specific goals, objectives and policies in the comprehensive plan to require local implementation actions to conserve significant wildlife habitat and environmentally sensitive areas (see Appendix 1 for some examples). These specific actions generally occur during local land development planning processes and reviews to protect both important upland habitats and contiguous environmentally sensitive areas needed to sustain various terrestrial wildlife species.

For example, in areas such as Tampa and Hillsborough and Pasco counties, many undeveloped landscapes are being subdivided and developed under multiple large Planned Unit Developments (PUDs) and DRIs. These areas naturally contain a matrix of upland habitats, creeks, wetlands and river systems of sufficient size and connectedness to sustain wildlife populations if an integrated development-to-development approach is taken.

A viable matrix of uplands and related wetlands can be maintained and integrated through protecting areas that include:

- Jurisdictional wetlands, streams and linked cypress domes to form a corridor of undeveloped lands.
- Significant upland wildlife habitat layered along these corridor areas.
- Stormwater facilities, trails and bike paths for adjacent developments located alongside the protected wildlife areas.

Then, where the opportunity presents itself, these areas are linked to other existing environmentally sensitive areas to enlarge the wildlife sustaining effects.

Determination of the minimum width(s) necessary for an area to function as an upland wildlife corridor is based on a number of factors which can only be determined by evaluating site-specific characteristics. These factors may include: 1) the species which would be expected to use the corridor; 2) whether the corridor would be used by a single species, several species, or an entire assemblage of species; 3) the individual needs of the species expected to use the corridor; 4) the corridor length, or the distance between larger tracts of habitat connected by the corridor; 5) the habitat quality; 6) the habitat composition (e.g., the amount of wetland and upland habitat); and 7) the adjacent land uses and disturbances.

When habitat islands which would normally be too small to support diverse populations are in close proximity to or connected by habitat corridors with larger areas, they have been found to be capable of maintaining such populations. Virtually any suitable physical link between habitat areas may serve as a corridor for some species. Hedge rows and abandoned railroad grades are examples of very narrow corridors which have been shown to provide travel routes for wildlife. Nevertheless, the wider and more solid block of upland habitat that can be preserved, the more species and individuals it will harbor and sustain.

**CASE STUDY**

**Upland Ordinances in Tampa and Martin County**

Martin County’s comprehensive plan includes policies that a minimum of 25 percent of the existing native upland habitat shall be preserved per development. This may be increased to more than 25 percent for planned unit developments or DRIs which take advantage of variances in lot sizes, density and clustering. Martin County also requires the retention, in an undisturbed state, of all existing native trees and native vegetation not located in buildable areas. Increased conservation of native habitats which are determined to be endangered, unique, or rare in Martin County, or regionally rare may also be required. On sites where endangered, unique, or rare native upland habitat exists, up to 25 percent of the total upland area shall be preserved, using cluster development where possible, in a manner that is consistent with a reasonable use of the property.

In Tampa and Hillsborough County, policy guidance to protect the significant wildlife habitats is included in the comprehensive plan along with an upland habitat

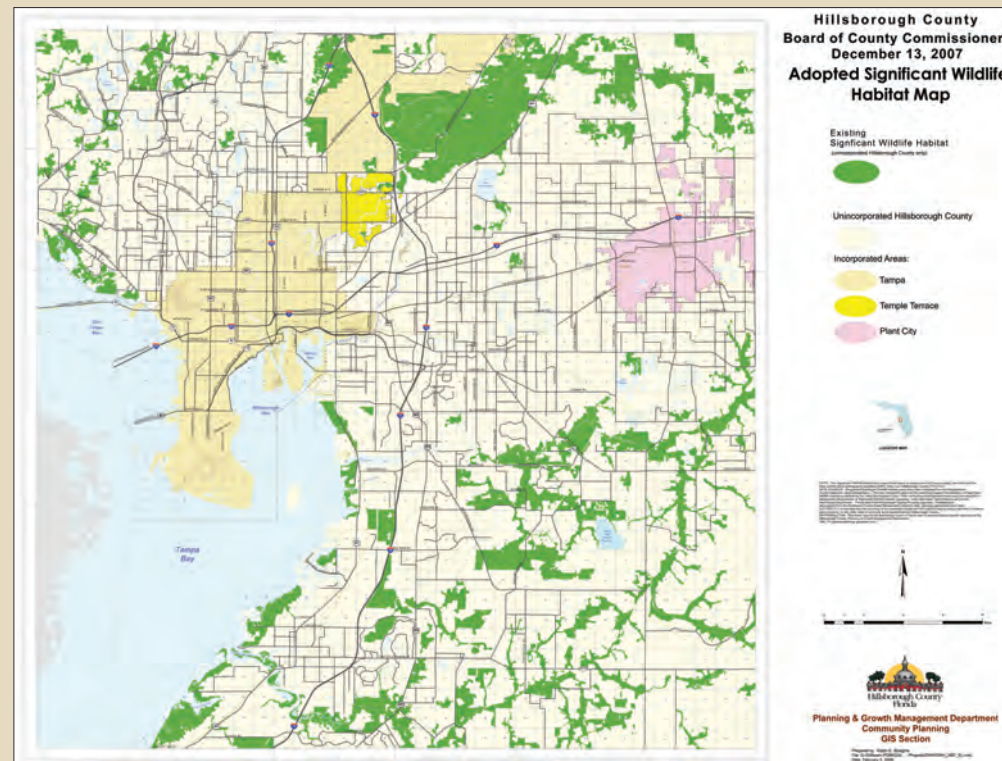
protection ordinance in the City’s land development code. In the City, most of the original upland wildlife habitat has been replaced with urban or suburban development. The remaining upland habitat is comprised of xeric and mesic natural plant communities that are either uncommon, scarce, occur in very restricted geographic areas, or have few high quality sites remaining. Protection of those xeric and mesic habitats which constitute significant wildlife habitat is necessary to retain remaining habitat diversity and

wildlife corridors and to maintain healthy and diverse populations of wildlife.

The ordinance directs the protection of significant and essential wildlife habitats throughout the city with regulations to protect designated areas from the negative impacts of development. Implementation is assisted provision of significant wildlife habitat minimum width and size criteria, habitat management guidelines and general guidelines for listed species.

This ordinance further references a “Significant Wildlife Habitat Map” identifying possible locations of habitat to consider. The implementation of the ordinance for a particular project is subject to specific field verification of the presence of significant wildlife habitat as depicted on the map.

The approach recognizes that the City has a mix of unique urban, suburban and natural environments. Comprehensive protection of significant wildlife habitats and specific site implementation of the ordinance must be able to take into account differences between areas such as size of habitat patches, location and linkage within the developed and natural landscape and, applicability of protection strategies.





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*The Federal Endangered Species Act (ESA) mandates protection of threatened and endangered species and their habitat on federal and private land by prohibiting "take" of listed species through direct harm to individuals or habitat destruction.*

### HABITAT CONSERVATION PLANS

The Federal Endangered Species Act (ESA) mandates protection of threatened and endangered species and their habitat on federal and private land by prohibiting "take" of listed species through direct harm to individuals or habitat destruction. Section 10 authorizes states, local governments, and private landowners to apply for an Incidental Take Permit for otherwise lawful activities that may harm listed species or their habitats. To obtain a permit, an applicant must submit a Habitat Conservation Plan (HCP) outlining what is to be done to "minimize and mitigate" the impact of the permitted take on the listed species. Under this amendment, private landowners affecting land known to be home to listed species are required to design and implement a plan that will minimize and mitigate harm to the impacted species during the proposed project.

Approved HCPs vary greatly in size, duration, and species covered. According to the U.S. Fish and Wildlife Service, the trend among HCPs is towards larger, regional plans, "evolving from a process adopted primarily to address single developments to instead, a broad-based landscape level planning tool utilized to achieve long term biological and regulatory goals."

As a wildlife protection tool, an HCP should meet the requirements of federal law and federal Fish and Wildlife Service policy. The adequacy of the HCP should be assessed by asking certain critical questions such as:

- What species are covered by the plan? What habitat types?
- What area is covered by the plan? What area should be covered?
- What are the scientific assumptions of the plan? How were they evaluated? Are the objectives clearly stated?
- Does the plan rely on adjoining land uses? Is its reliance valid?
- What alternatives are considered? What impacts are analyzed?
- What will the plan do for listed species over time?
- What will the plan do for unlisted species?
- What provision is made for funding the plan?
- What activities are covered by the plan?

### CASE STUDY

#### Sarasota County HCP for Scrub-Jays



A) The Florida Scrub-Jay is a very friendly and rather gregarious bird.

Photo Courtesy of Jack Rogers and the Florida Wildlife Federation

- How long will the plan last?
- How is it assured that the plan is being implemented and if it's working?

(Source: *A Citizen's Guide to Habitat Conservation Plans*, National Audubon Society, Inc. at: [www.audubon.org/campaign/esa/hcp-guide.html](http://www.audubon.org/campaign/esa/hcp-guide.html))

The federally threatened Florida Scrub-Jay population has been declining across its entire range, and Sarasota County is no exception. Scrub-jays live only in sandy scrubs, which are dominated by squat scrub oaks and an occasional pine tree. The same habitat suits several other threatened and endangered species, including gopher tortoises and indigo snakes.

Between 2000 and 2005, the county's Florida Scrub-Jay population declined by 23 percent. More than two thirds (71 percent) of the occupied scrub patches within the county experienced population declines during this period, and several are nearly extirpated. Statewide, the greatest threats to Florida Scrub-Jay persistence are outright habitat loss, habitat degradation owing to absence of fire management, habitat fragmentation, and

poor reproductive success as a consequence of proximity to human habitation. The same patterns hold true for Sarasota County: jays in unprotected habitat patches are experiencing precipitous declines, and even the most "optimally" managed scrub preserve appears to function as a "catching basin" for displaced and dispersing jays.

In an effort to create a comprehensive approach to scrub-jay conservation and provide an improved regulatory framework for property owners, Sarasota County pursued a county-wide habitat conservation plan for scrub-jays. The county worked to draft a habitat conservation plan for the remaining scrub-jays to attempt to provide a means to sustain this threatened species. The work underscores the importance not only of protecting suitable habitat for scrub-jays within Sarasota County, but also of aggressively managing large areas of potentially suitable habitat to create optimal conditions for re-colonization, survival, and successful reproduction.

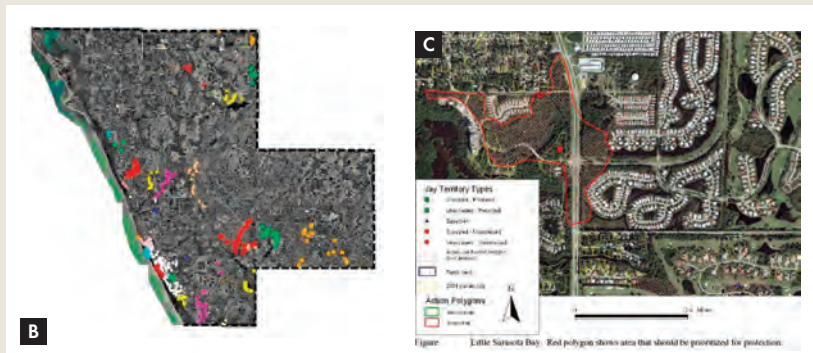
Many of the birds live in suburban areas that are under enormous development pressure. As the county strives to develop a habitat conservation plan it should address where habitat may be lost, will establish a preserve area network, and will

create a mitigation framework. For example, where long-term survivability is low in the Venice suburbs sub-population, a scientific model suggests restoring habitat at Lemon Bay Preserve and on County property. This approach is designed to create viability and establish a county-wide network preserve. In a promising trend, a few scrub-jays appear to have moved into patches that are being aggressively managed or restored by the County. Ideally, the plan and subsequent implementation will result in permanent scrub-jay populations throughout the county on adaptively managed habitat areas. Displaced birds may potentially relocate to managed land within preserve areas.

The plan must be approved by federal officials, but once approved a property owner within identified scrub-jay habitat will be able to get the necessary development authorization directly from the county rather than going through the federal process. Mitigation will be local under the county's plan. The change saves property owners time, keeps local fees for local preserves, and sets a clear strategy for giving the animals a place to live and breed into the future.

Source: Fitzpatrick, John W. Ph.D., et al. *Draft Habitat Conservation Plan and Adaptive Management Recommendations for Threatened Florida Scrub-Jay (Aphelocoma coerulescens) in Sarasota County.*

Photo Courtesy of Sarasota County



B) Map showing 24 patches or clusters of Florida scrub-jay territories, including potential territories on currently unoccupied habitat in Sarasota County; C) Little Sarasota Bay area, the red polygon showing the area that should be prioritized for protection.

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## An Implementation Toolbox for Green Infrastructure

*Growing communities necessitate the construction of new and expanded roadways, utilities, stormwater management facilities and other public works projects. While all public works projects are designed to avoid negative impacts to wildlife and habitat, there are times when impacts cannot be avoided. Such impacts, even when minimized, must be mitigated for, and such mitigation cannot always effectively occur on the site of the project.*

Photo Courtesy of: David Moynahan Photography



**The Pros and Cons of Habitat Conservation Plans** – If not properly created; HCPs can result in plans that allow for development that may further threaten the species in question. HCPs can result in a net loss of habitat. Additionally, the “No Surprises Rule” which gives land owners assurance that they will not have to change their plan if additional resources are found can constrain the ability to improve HCPs and avoid species decline. HCPs may be based on inadequate scientific assessment of the situation, and complaints arise that the public does not have adequate opportunity to provide input.

Nevertheless HCPs often serve to benefit wildlife and habitat

conservation in an area because they can: 1) Shift the conservation focus from single-species management to multi-species and habitat management; 2) Engage private landowners and local governments in conservation planning; 3) Protect unlisted species, thereby reducing the likelihood that listing will be needed; and, 4) Promote long-term conservation of species and habitats through protection and management.

### MITIGATION AND RESTORATION PLANS

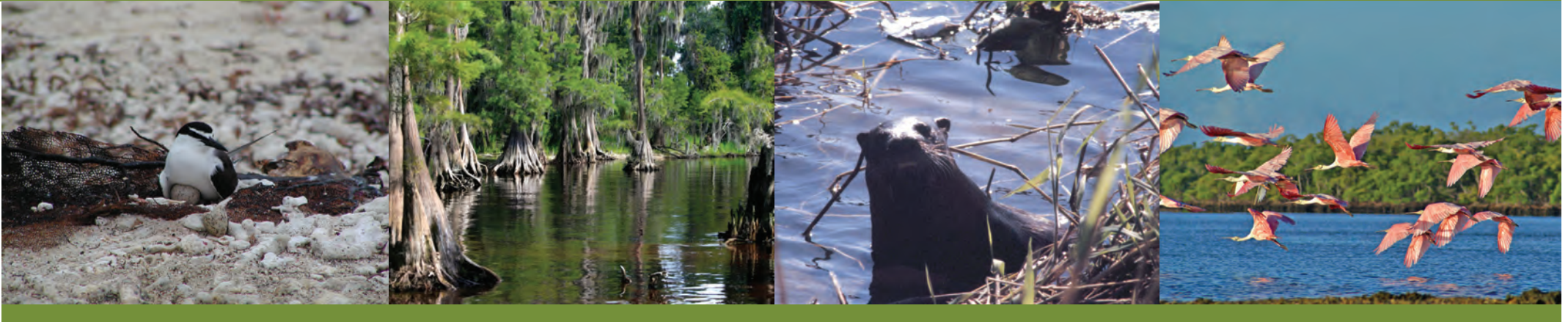
Growing communities necessitate the construction of new and expanded roadways, utilities, stormwater management facilities and other public works projects. While all public works projects are designed to avoid negative impacts to wildlife and habitat, there are times when impacts cannot be avoided. Such impacts, even when minimized, must be mitigated for, and such mitigation cannot always effectively occur on the site of the project. A local government mitigation and restoration plan is a tool designed to compensate for the environmental impacts of infrastructure projects in a logical, environmentally and economically sound manner. The mitigation and restoration plan has three main purposes:

1. To provide a master strategy by which critical environmental features within the community continue to be preserved.
2. To provide “safe harbor” approaches for mitigation projects that are required for the infrastructure needed to accommodate growth, which in turn will enable the budgeting process to be reliable.
3. To restore degraded natural resources important for the health, safety, and welfare of the public.

Importantly, linking of non-green infrastructure impact mitigation to green infrastructure restoration, management and acquisition serves to align long-term habitat mitigative and restoration efforts to local budgetary, comprehensive planning and regulatory processes.

A coordinated local mitigation and restoration plan must use the jurisdiction’s reoccurring planning and budgeting process for its





identified projects. Mitigation plan requirements are addressed synergistically through local government planning, budgeting and operational efforts, capitalizing on larger landscape level restoration and preservation opportunities for water pollution abatement and wildlife and natural habitats conservation.

Further, a mitigation plan can provide a vehicle whereby a local government can seek to ameliorate consistency and cumulative accountability problem inherent in incremental habitat impacts of a continuing public works program. Once in place, a mitigation plan will allow a jurisdiction to more effectively accommodate the growth that is occurring, while ensuring the restoration and long-term protection of the important natural resources that provide identified community benefits.

A mitigation plan envisions use and modifications to the Capital Improvements Program (CIP). As capital infrastructure development projects are identified in the five-year CIP, the Mitigation Plan calls for:

- Including a gross quantification of impacts that will result from each capital project.
- Listing of mitigation projects that may provide the remedy for these impacts. These mitigation projects may stand alone, or be part of larger restoration, remediation, or preservation efforts that

are also underway.

- Funding estimates and identification of sources for mitigation.

A Capital Improvement Mitigation Plan captures this information and serves as an addendum to the overall CIP.

Implementation of the Mitigation Plan may be incrementally facilitated through the local government's annual work plan and identifies and funds through the CIP. Mitigation Plan implementation depends on several key elements such as:

- Its adoption as a supporting document to the Comprehensive Plan.
- The partnership of regulatory and related regional agencies.
- A process that ensures ongoing review and updating so that it reflects changes that occur in the restoration and protection priorities.

Mitigation Plans can be designed to be reviewed and updated on an annual basis as a part of the capital budgeting process. They can be expected to continually evolve and be influenced by the development of new or improved management techniques; increased coordination with other regional programs and conservation organizations; and changes in federal, state and local regulations.

*A mitigation plan can provide a vehicle whereby a local government can seek to ameliorate consistency and cumulative accountability problems inherent in incremental habitat impacts of a continuing public works program.*

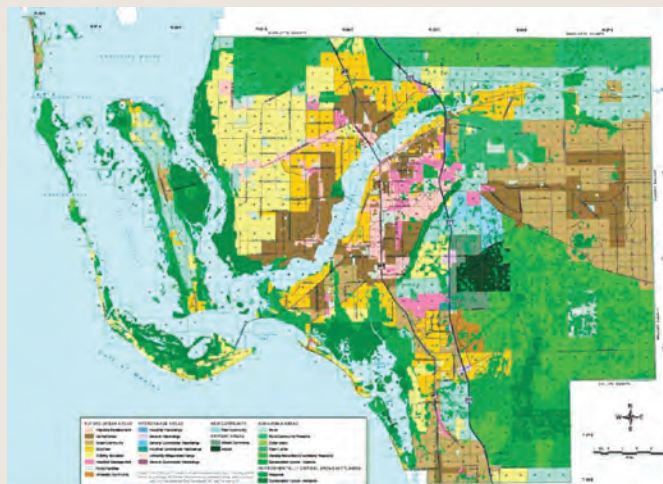
Photo Courtesy of: Bird on Beach – David Moynahan Photography; Undisturbed Shoreline, Lake Louisa State Park – Myrna Erlen Bradshaw and the Florida Wildlife Federation; River Otter – David Moynahan Photography; Flock of spoonbills, Everglades National Park – Constance Mier and the Florida Wildlife Federation

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## An Implementation Toolbox for Green Infrastructure

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### CASE STUDY Lee County Capital Improvements Plan



Source: Lee County Master Mitigation Plan (Environmental Quality Investment and Growth Mitigation Strategic Plan), May 16, 2007.

Here is an example from the Lee County experience. Project "X" is in the Five Year CIP. The project is initially assessed through a preliminary planning phase to have impacts on specific resources – wetlands, water storage, listed species, and associated water quality. Through overall plan review with the appropriate regulatory agencies, the degree to which impacts can be satisfied "off site" is ascertained. Then, using the sample calculations for mitigation, the Five Year CIP can include an estimate of some permitting costs affiliated with each capital project. These costs can then be aggregated and compared to projects (or a series of projects) on a master mitigation list that are deemed suitable. That project is then added to the CIP as the Capital Improvement Mitigation Plan (CIMP) addendum. The CIMP will have several components. In addition to straight-up mitigation and restoration, there are sections on land acquisition, water quality/remediation and legitimate corollary expenditures by the local parks and recreation department. Below is a sample of the listed projects. Note the involvement of multiple departments and divisions within the Lee County government.

LEE COUNTY GOVERNMENT DEPARTMENTS AND DIVISIONS		
CIP Number	Department/Division	Project Name
204083	Transportation	Gladiolus Road Widening
204007	Transportation	Environmental Mitigation
203091	Natural Resources	Blind Pass Ecozone
208545	Natural Resources	Briarcliff Ditch Filter Marsh
208546	Natural Resources	Island Park Filter Marsh
208547	Natural Resources	Three Oaks Parkway Filter Marsh
201999	Parks/Recreation	Estero Community Park
201873	Parks/Recreation	South Fort Myers Community Park
207097	Utilities	Corkscrew Wellfield - Alico Road
207240	Utilities	Pine Island WWTP Reuse System
208800	County Lands	Conservation 2020 Land Acquisition Program



**CASE STUDY****Island Park Regional Mitigation Site at Estero Marsh Preserve**

In 2006, the Lee County reached a significant milestone when the first project in a cooperatively developed Natural Resources Preservation and Master Mitigation Plan was completed. This first project, The Island Park Regional Mitigation Site at Estero Marsh Preserve, linked restoration and enhancement mitigation actions for unavoidable impacts associated with the expansion of the Three Oaks Parkway Extension South to other publicly-owned lands. The regional mitigation site is land acquired under Lee County's Conservation 20/20 program. Conservation 20/20 lands are acquired using property taxes approved by county residents in 1997 to preserve biodiversity while conserving and enhancing water resources.

The Natural Resources Preservation/Master Mitigation Plan is the product of the Lee County Commission, Lee County Conservation Land Acquisition and Stewardship Advisory Committee, US Army Corps of Engineers, Charlotte Harbor National Estuary Program, Florida Department of Environmental Protection, South Florida Water Management District and the Southwest Florida Regional Planning Council, including the Estero Bay Agency on Bay Management. From the beginning of the process, the Southwest Florida Regional Planning Council, serving as the facilitator, brought all the key agencies and organizations to the table to discuss and plan this major environmental project. These agencies worked cooperatively to establish a plan to efficiently restore wetlands on county-owned and environmentally

sensitive Conservation 20/20 lands. They addressed potential cumulative impacts to the county's natural resources, including water supply, water quality and wildlife habitat, due to existing and future private development and public works. Through this proactive and comprehensive approach, meaningful environmental mitigation projects and results can be obtained in exchange for impacts to lower quality wetlands and wildlife habitat from public infrastructure projects.

The County Commission endorsed the developed plan in May 2005, allowing mitigation of public sector projects by improving habitat, water quality and hydrology on Conservation 20/20 parcels. This first project is an 80-acre project on the 243-acre Estero Marsh Preserve in Lee County. Exotic vegetation was removed and replaced by native species and overtime additional native plants will be planted. The remainder of the preserve will be restored and enhanced in the next phase. Further cooperative actions included Florida Power & Light granting a right-of-way consent agreement to allow culverts to be installed under the power line easement. This is allowed meaningful water quality

improvement because reestablishing historic water flows and the creation of the filter marsh provide additional water quality treatment prior to discharge into Hendry Creek and Estero Bay, both Outstanding Florida Waters. Overall, through the use of regional mitigation sites and careful coordinated planning between local, regional and other agencies, area restorative and enhancement action can improve habitat and wildlife objectives.

Sources: *Charlotte Harbor National Estuary Program (CHNEP), [www.CHNEP.org](http://www.CHNEP.org), Partnership Between Agencies and the Public Produces Better Results, "Harbor Happening", Volume II, Issue 1: 2007 and personal communications with Cathy Olson and Betsie Hiatt from Lee County and Lisa Beever, Director, CHNEP.*



Pictured is a rather raw Island Park Mitigation site where wetlands are being restored. Note the line of Melaleuca tree infestation in the background. In the foreground, mitigation efforts have removed all such exotics and work is progressing to re-establish water flows and native wetland habitat species.

Photo Courtesy of Dan Pennington, 1000 Friends of Florida



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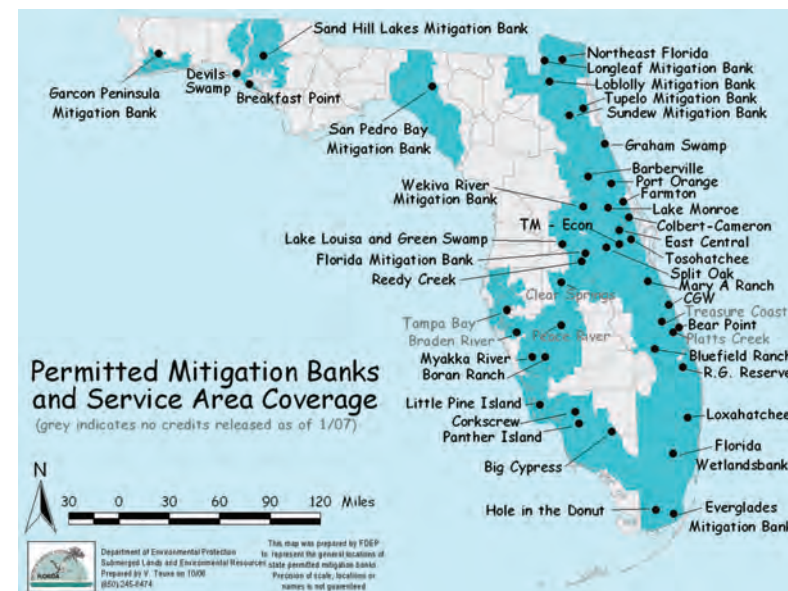
*Mitigation banking is a practice in which an environmental enhancement, restoration, and preservation project is conducted by a public agency or private entity (“banker”) to generate and sell mitigation credits to offset permitted wetland impacts within a defined region.*

### FEDERAL, STATE AND WMD MITIGATION BANKS AND PARKS IN FLORIDA

Mitigation banking is a practice in which an environmental enhancement, restoration, and preservation project is conducted by a public agency or private entity (“banker”) to generate and sell mitigation credits to offset permitted wetland impacts within a defined region. The “mitigation service area” is generally based on the watershed in which the bank lies. The Department of Environmental Protection or water management districts issue the permits for mitigation banks. The permits define the mitigation and long-term management plans, assess the total number of potential credits, provide performance criteria for incremental credit release and success criteria for final release, and determine the mitigation service area. The bank is the site itself, and the currency sold by the banker to a permittee who wants to impact wetlands is a credit. A credit represents an increase in wetland ecological value equivalent of one acre of successful creation/restoration, i.e., restoring one acre with no wetland function to optimal wetland function. On average it takes a little over three acres of wetlands in a mitigation bank to create one credit.

Currently, there are 48 permitted mitigation banks in Florida with a total of about 120,000 acres. The median size of a bank is 1,300 acres. A total of about 40,000 potential credits are permitted, of which about 16,000 have been released by the agencies for use. About 11,000 credits have been used. Although it is difficult to assess with the current data systems, it is estimated that about half of wetland impact acreage is being mitigated at mitigation banks.

Mitigation banks are authorized by granting a Mitigation Bank Permit, which includes the Environmental Resource Permit (ERP), by the FDEP or water management districts. Additionally, a mitigation bank requires federal authorization in the form of a Mitigation Bank



Florida Department of Environmental Protection

Instrument (MBI) signed by several agencies, with the Corps of Engineers as lead.

As stipulated by the mitigation bank permit, credits are released for sale and use by the permitting agency based on activities (i.e. recording conservation easement, removing exotic vegetation, etc.) and success criteria (i.e. having a certain coverage of appropriate native plant species, etc.). No credits may be released until the mitigation bank property is placed in a conservation easement and financial assurance is obtained for the full implementation of the permit and for the long-term management of the bank property. The agency that permitted the bank maintains a ledger of the total number and type of potential credits released to the bank; an up-to-date accounting of the credits that are available for sale or use; and an accounting of the number and type of credits used for each impact permit. The banker determines the cost of the credit. The FDEP and WMDs do not regulate the amount a banker can charge or are they in any way associated with money collection. The permitting agencies are only involved in maintaining the ledger as noted above.

Mitigation banks are established throughout the state; however, not all portions of the state are serviced by a mitigation bank. The map shows mitigation bank locations along with service area coverage. Mitigation service areas for different banks may overlap; thus some areas in the state may be serviced by more than one mitigation bank. More information is available at:

[www.dep.state.fl.us/water/wetlands/mitigation/](http://www.dep.state.fl.us/water/wetlands/mitigation/)

**FWC Mitigation Park Program** – Attempts to protect listed wildlife through land use regulations in Florida have frequently involved the "on-site" preservation of habitat within the boundaries of a development. Such efforts are often opposed by the landowner or developers whose particular project might benefit if mitigation could occur off-site. In response to some of the problems associated with "on-site" mitigation, the FWC has authorized the development and implementation of the Mitigation Park Program as an alternative wildlife mitigation strategy. The goal of this program is to provide an off-site alternative for resolving certain wildlife resource conflicts.

Thus the FWC "parks" are managed, conservation lands set up to receive individuals of an imperiled species displaced by development and manage for them (e.g., gopher tortoise and red-cockaded woodpecker).

In practice, this program consolidates mitigation throughout a geographical region and directs these efforts toward the acquisition of large and manageable Mitigation Parks. Each park is publicly owned and ranges in size between 350 and 2,000 acres. Management activities are tailored to emphasize the protection and enhancement of habitat important to upland listed wildlife.

In general, the program increases the biological effectiveness of mitigation and it: (1) provides an opportunity to direct wildlife habitat protection and acquisition efforts to the most biologically important sites in a region; (2) can consolidate many otherwise small and isolated protection efforts into larger units which maximizes resource protection efforts; (3) allows public access and

use of mitigation lands that are managed by the state for the long-term protection of wildlife resources; and (4) from an economic perspective provides a cheaper form of mitigation than preserving acreage within a development, and developers retain greater use of a project site for development.

Most mitigation park facilities are developed in cooperation with other local, state and federal agencies, usually following the signing and execution of a Memorandum of Understanding (MOU). Developers who direct monies to the mitigation park program make their deposits to the FWC's Land Acquisition Trust Fund in care of the appropriate regional mitigation park account. Lands that are eventually approved for acquisition are vested with either the Board of Trustees, or another appropriate government entity.

The responsibility for the management of lands acquired through the mitigation park program rests with the FWC. These parks are managed primarily to enhance listed species populations, particularly those animals for which state and federal approvals are required prior to their being impacted by new land development. All mitigation parks are designated by the FWC as Wildlife and Environmental Areas, and are open to the public for low-intensity forms of recreation such as wildlife viewing, hiking and nature study.

Funding for land management within the mitigation park program is generated through an endowment-based format which allows the program to be virtually self-funding. Management fees that are collected from the sale of mitigation credits are deposited into separate management endowment accounts, and invested with the State Board of Administration. Only the interest that accrues on behalf of the management endowment is used to fund management expenses, thus preserving the earning power of the endowment and the availability of management funds for future years.

As of 2008, land purchases in excess of 9,700 acres have been completed. For additional information concerning this program, please call the FWC Mitigation Park Coordinator at (407) 846-5300.

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