HOUSTON AUDUBON SOCIETY

LAND CONSERVATION PLAN FOR GALVESTON BAY EAST

July 15, 2020

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I. EXECUTIVE SUMMARY

For the purposes of supporting the conservation of birds and their supporting environments, Houston Audubon Society has been directly involved in land conservation since its first acquisition in 1975, now owning 3,477 acres of land managed in 17 sanctuaries across five counties. In recognition of its need to prioritize resources and strategically think through land conservation needs in light of existing threats and emerging challenges, the organization obtained funding from the Land Trust Alliance in fall 2019 to develop a land conservation plan. This plan focuses on land east of Galveston Bay and north to Houston Audubon's Damuth and Winters Bayou sanctuaries.

Phase One of the project began in early 2020, with the engagement of a contractor to facilitate plan development, and the recruitment of technical advisors to help identify and define criteria for guiding principles for land conservation. (Phase Two will be the identification of priority areas and the development of conservation goals and will occur at a future date not yet determined.)

The team of nine advisors met to identify, define, and prioritize/rank characteristics of land to be considered for bird conservation, in consideration of priority avian species as well as current and emerging threats to important habitat. This first step involved selection of overarching categories of land characteristics (e.g., species/habitats for focus). Then, individual land characteristics within the categories were identified and defined (e.g., coastal prairie as a habitat for focus). Third, the characteristics within each category were ranked in terms of their level of concern. The completed definitions and ranking led to reconsideration and re-grouping into five categories: species/habitats for focus, preferred starting conditions, spatial priorities, management/resource considerations, and context concerns.

These criteria provided the framework that resulted in development of the following five Guiding Principles for Land Conservation for Houston Audubon Society:

> Principle 1. Focusing on habitats of greatest conservation need, with benefits to diverse avian species.
>
> Principle 2. Targeting lands that provide the greatest connectivity (or potential connectivity) to other conservation lands.
>
> Principle 3. Prioritizing initial land conditions with the highest habitat integrity and the least need for restoration or intensive management.
>
> Principle 4. Preferring lands that have the greatest funding opportunities, best access, and least vulnerability to climate change issues.
>
> Principle 5. Considering neighboring conditions (existing and potential future) that pose the least threat of risks from development.

The technical advisors and Houston Audubon staff leadership also discussed and defined additional considerations for land conservation actions, including methods of land protection/conservation, improving habitats, and public access. The results were also vetted by the technical advisors, Houston Audubon's Land Conservation Committee, and its Board of Directors.

The land characteristics, definitions, priorities, guiding principles, and additional considerations for land conservation are laid out in the full report, along with a description of the mapping assessment tools developed for this project.

II. BACKGROUND

A. LAND CONSERVATION BY HOUSTON AUDUBON SOCIETY TO DATE

The mission of the Houston Audubon Society ("Houston Audubon") is to advance the conservation of birds and positively impact their supporting environments. Located in the upper Texas Gulf Coast region around Galveston Bay, Houston Audubon's 11-county service area is within a prime migratory bird area for the nation, existing in the overlap between the Central and Mississippi flyways of North America, and including a first and last stop for birds transiting the Gulf of Mexico.

Over the 50+ years since its beginning in 1969, Houston Audubon has consistently included land conservation work toward one of its original purposes: "promote conservation of wildlife and natural resources through education, *maintenance and management of sanctuaries*…" [emphasis added]. Beginning with the initial acquisition of 17.53 acres on Rummel Creek in west Houston in 1975, Houston Audubon has acquired a total of 3,477 acres of land, which it manages in 17 sanctuaries across five counties: ten sanctuaries along the coast (Galveston Co.), four in urban Houston and its northern suburbs (Harris Co.), one in the Columbia Bottomlands (Brazoria Co.), and two in the pineywoods (Liberty Co.). Ranging in size from 1.1 acres to 1,204 acres, and with everything in between, the sanctuaries also range in habitat types: coastal marsh wetlands, pineywoods, colonial waterbird islands, coastal prairie, bottomland forests, and coastal woodlots. Many of the sanctuaries are known worldwide and contribute to Houston Audubon's reputation as a bird conservation leader in this region.

B. NEEDS/BENEFITS FOR A HOUSTON AUDUBON LAND CONSERVATION PLAN

Spread across such a broad geography and varied ecologies, Houston Audubon has long recognized the need to develop a land conservation plan to help "prioritize how and when resources are directed for land conservation and what conservation tool is most appropriate." Strategic land planning will allow for a more proactive approach in consideration of emerging needs and challenges as well as provide a basis for fundraising. In the fall of 2019, the Land Trust Alliance ("LTA") provided the grant resources to help Houston Audubon to develop such a plan. This also from the LTA proposal: "Key elements of a land conservation plan that will be considered include identification of threats and stressors, opportunities for connectivity, important bird habitats, and bird species at risk as a result of habitat changes or loss."

This Houston Audubon strategic land conservation plan is being developed in two phases. Phase One involved partner coordination, data collection and compilation, mapping, and development of guiding principles for land conservation, along with identifying and prioritizing land characteristics that would contribute to implementing those principles. Phase One results are presented herein. Phase Two will be the identification of more specific priority areas and the development of conservation goals.

C. GOALS FOR PHASE ONE

With Houston Audubon's sanctuary operations centered in High Island, this location provides a practical base for focusing on the geographic area targeted for this land conservation plan – the east side of Galveston Bay, in Chambers, Galveston, and Liberty counties. High Island has four sanctuaries that together host its premier roosting and nesting area for waterbirds and its famous stopover for Nearctic-Neotropical migratory birds circumnavigating or crossing the Gulf of Mexico

in fall and, especially, in spring. The targeted area for this plan is an extension of priority habitat for migrating birds, while also offering a prime opportunity to help build a corridor of existing Houston Audubon-conserved lands from the coast to north of Houston, and to connect other federal and state preserved lands in the area.

Four goals have been identified for this Phase One land conservation plan:

Goal 1: Identify (bird) species at risk or of conservation priority, habitats types, ecosystem services, recreation and education opportunities, and other priories for conservation and restoration.

Goal 2: Identify existing and emerging stressors and risks to natural resources, including sea level rise and development.

Goal 3: Inventory and map currently conserved lands, including Houston Audubon sanctuaries, areas protected by other Houston area land trusts, and publicly owned lands; and create layers for areas impacted by parameters identified under goals one and two.

Goal 4: Determine guiding principles for prioritizing areas and conservation actions, including acquisitions, conservation easements, habitat restoration, habitat creation, and public access.

Areas of southeast Texas that are beyond this plan's scope are generally being covered by other accredited land trusts but may also be addressed by Houston Audubon in subsequent conservation planning. Furthermore, while this plan focuses on areas east of Galveston Bay, it does not preclude acquisitions in other areas.

D. Geographical Mapping Assessment Tools

Mapping assessment tools for this project were developed by HARC (Houston Advanced Research Center) and are accessed online using an Internet browser. These tools help with identifying and evaluating features of potential land acquisitions within the target area of this Land Conservation Plan, 2020, Galveston Bay East. The main component of the tools is an online portal with secured access to a set of GIS interactive maps, with various layers and interactive tools for assessment. The other component is a set of basic static maps of the region, for printing or other production.

The *online portal site* – Houston Audubon Strategic Planning Portal – is a secure site for use by Houston Audubon staff and leadership, as well as others in the land conservation community, accessed at https://www.harcresearch.org/HASSPP, with username and password credentials available from Houston Audubon. The portal provides access to five interactive maps: Overview Map (with protected lands), Marsh Habitat (present and future marsh), 9-Class Land Cover (past and present), 22-Class Land Cover (past and present), and Sea Level Rise.

The key portal map is the Strategic Planning Overview Map, which covers the target area, and includes current development, Houston Audubon properties, and areas protected by others, as a base. The Developed Areas on this map is the NOAA CCAP Land Cover 2016 dataset for all developed classifications, and the Areas Protected by Others on this map are features that were collected as part of another HARC land conservation project.

Key interactive features of the Overview Map include: zooming in on a target area; measuring, by drawing lines or approximate boundaries and calculating distances or areas; and turning on or off

various layers to provide more detail for areas of interest, such as land cover, marsh habitat, and sea level rise, at different times. In another interactive feature of the online Overview Map, the background basemap can be changed from default to imagery or to other basemaps available through ESRI. A print function is also available, with the Map Only option working best. Bookmarks have been pre-set to certain important areas (more may be added).

The two 9-class land cover map layers for the Overview Map show the differences in land cover in the region in 1996 and 2016. The classes of land cover on these layers are a HARC Research reclassification of the 22 classes from the NOAA CCAP land cover dataset into 9 broader categories. (Layers with the full 22 NOAA classes of land cover are also available, using 1996 re-released data.)

Two other layers show current (2020) and projected (2040) Marsh Habitat, based on an estimated 1.5 feet of sea level rise by 2040. The data for these two layers were developed by NOAA and are part of their coastal change program.

Separate sea level rise layers include 1-foot and 2-foot rise.

Somewhat spectacularly, the separate Sea Level Rise, Marsh Habitat Change and Land Cover Change maps on the portal employ the Swiper tool for comparisons. This tool allows the viewer to compare datasets by zooming to a particular area, and swiping between current and future (or past) conditions for sea level rise, marsh habitat change, or land cover change – viewing the change as a moving overlay on the existing base.

For additional analysis, pop-ups are enabled to see the attribute information of features on the maps (such as size and ownership of a specific area). Also, all maps, including the portal site, can be viewed using mobile devices, tablets, or a laptop or desktop computer; the maps will resize depending upon the device used.

The *static map set* is included here in the Appendix and may also be accessed by downloading the folder: https://harcresearch.sharefile.com/d-s9eaf6fd9f7e4b16b. The following online static maps are available in PNG format for inserting into Word documents, and in pdf version for a stand-alone map or for incorporating in Adobe Acrobat document: Overview of Protected Lands (with all Houston Audubon lands in the targeted region), 9-Class Land Cover (1996 and 2016), Marsh Habitat (current and projected 2040), and Sea Level Rise (1-foot and 2-feet), along with 22-Class Land Cover (1996 and 2016).

III. GUIDING PRINCIPLES FOR HOUSTON AUDUBON'S LAND CONSERVATION

The following represents the Guiding Principles for Land Conservation that were developed through the planning process, with background and guidance provided by Houston Audubon technical advisors and leaders, to aid Houston Audubon in delivering more, and more effective, bird conservation through land conservation.

The Houston Gulf Coast region is especially important for migratory birds. With the growing, and spreading, human populations here, the losses of bird habitats, and threats of losses, are increasing. These conditions and Houston Audubon's mission to advance the conservation of birds and their supporting environments have, in turn, led to habitat protection as an essential element of its bird conservation work. To help determine how and when its resources are to be directed to land conservation, and when priority land protection projects should be championed with partners, Houston Audubon has identified the following five Guiding Principles.

By following the Guiding Principles as a rationale for targeting lands for conservation, pressures on existing resources will be reduced, and opportunities for accessing other resources to increase land conservation in the region will be enhanced.

Principle 1. Focusing on habitats of greatest conservation need, with benefits to diverse avian species. The bird habitats of most concern for protection, in highest priority order, are coastal prairie, forests, and emergent marshes. Also key are working (agricultural) wetlands and bird islands. The avian species to be addressed will also affect the desired size and shape, as well as freshwater access and buffer benefits, of lands of interest.

Principle 2. Targeting lands that provide the greatest connectivity (or potential connectivity) to other conservation lands. By its very nature, increasing the contiguous footprint of land that is permanently conserved increases its benefits for avian populations – more food and shelter, combined with less threat from adjacent/nearby land uses. The connectivity may be achieved by either large or small additions to protected land.

Principle 3. Prioritizing initial land conditions with the highest habitat integrity and the least need for restoration or intensive management. The closer the habitat is to pristine condition, the better, for its immediate avian benefits and for reducing potential management costs. Preferred characteristics (in order of priority) are: diverse, native plant species, with few invasives; lack of structures; no encroachments (or easily corrected); natural drainage, or modified for bird benefits; and, where applicable, employment of agricultural best management practices.

Principle 4. Preferring lands that have the greatest funding opportunities, best access, and least vulnerability to climate change issues. Funding considerations include the priorities of the funding sources and the purchase price per acre. Access is important for both staff and the public, with proximity to High Island being the best. Climate change issues will be of greatest concern closest to the coast, with the potential for land loss, and effects on species migration and residence patterns that are associated with changes in temperature and rainfall.

Principle 5. Considering neighboring conditions (existing and potential future) that pose the least threat of risks from development. Land use on neighboring properties may pose risks to conserved lands, particularly if the neighboring properties are developed, with the attendant potential for pesticide use, predation, and spills, among other impacts. Thus, a change in neighboring land use patterns that is trending to residential or industrial development may mark a great threat to avian populations.

IV. IMPLEMENTING THE GUIDING PRINCIPLES THROUGH CONSERVATION PRIORITIZATION / RANKING

To develop the overarching guiding principles for land conservation for Houston Audubon, consideration was given to the underlying categories and characteristics of land to be considered for bird conservation, and their relative ranking in priority, based on the level of concern for their benefit or threat.

The resulting priorities / rankings were developed in four steps. First, overarching categories of land conservation priorities were considered. Then, individual land characteristics within the categories were identified and defined. Third, the characteristics within each category were ranked in terms of their level of concern. Lastly, the completed definitions and ranking led to reconsideration and re-grouping into five categories. The following is the result of the collaboration toward developing the background for Houston Audubon's Guiding Principles for Land Conservation. These characteristics are to serve as the supporting analysis in implementation of the Guiding Principles.

Note that while the numbered characteristics within each of the five categories are ranked from highest concern to lesser concern, all the listed characteristics are considered as having some level of concern for bird conservation.

A. SPECIES/HABITATS FOR FOCUS

1. Coastal Prairie – less than 1% remaining; characterized by mima mounds and isolated depressional wetlands in untilled prairies; utilized by a diverse suite of species; present on Smith Point

2. Forests

    a. *Bottomland Hardwood Forests* – large deciduous/mixed forest blocks on rivers of high importance
    b. *Coastal Woodlots* for migrant land birds, including "fire escape" habitat of smaller patches close to the coast

3. Emergent Marshes

From fresh to salty marshes, for their bird communities: waterfowl (wintering and breeding) → marsh birds → shorebirds → seaside sparrow

4. Other Key Habitats

    a. *Working Wetlands* – Ag lands (primarily rice/crawfish) that provide significant wildlife value
    b. *Bird Islands* (coastal) – colonial or solitary nesters; islands or mainland beaches

5. Key Avian Species

    a. *Species of Greatest Conservation Need* (SGCN) – as defined by the Texas Conservation Action Plan of TPWD (87 species)
    b. *Prairie Species* – grasslands with appropriate structure, e.g., bunch grasses with overhead cover allowing birds to walk, or grasslands within one mile from wetlands for mottled ducks

B. PREFERRED STARTING CONDITIONS – Habitat conditions that are closer to pristine provide for better conservation, since it is more effective to acquire a property in good shape than to try and reclaim one in poor shape. In fact, it is often easier to start a prairie from scratch than reclaim it.

1. Plant Species – diverse; native; with low coverage of invasives

2. Land Use – no structures; ideally no pipelines, powerlines, or canals; providing a buffer from surroundings

3. Encroachments (structural or access, e.g. ATV use) – none (or easily corrected)

4. Water Management – natural drainage or water structures for bird habitat value

5. Agricultural BMPs employed – without poor practices, such as: overgrazing, with the resulting lack of overhead cover for grassland birds; lack of disturbance in grasslands (fire, prescribed grazing), resulting in conversion to shrub dominated habitat; disking of prairie to crops; or conversion to exotic grasslands

6. Topography – not leveled or disked/tilled

C. SPATIAL PRIORITIES – e.g., size, shape, connectivity

1. Continuity of Conservation Lands – how close is the nearest conserved land (directly adjacent or within reasonable distance of any land under permanent conservation), or will it aid in connecting other conserved lands

2. Size (variety) – dependent on needs of target species; must be large enough or optimal to support species of concern for the habitat type; also consider capabilities of managing entity

3. Shape – ability to provide a habitat that has some degree of buffer from surrounding areas; compact tend to be easier to manage than long linear tracts, which can cover several habitat types

D. MANAGEMENT/RESOURCE CONSIDERATIONS – e.g., HAS staffing, funding

1. Management Cost – based on starting conditions

2. Funding Sources

   a. *Grants/donors* – consider assistance program targets; great potential from conservation assistance programs, such as those of: Natural Resources Conservation Service, North American Wetlands Conservation Act, Texas Farm and Ranch Land Program
   b. *Houston Audubon funding* – consider other available Houston Audubon funding
   c. *Purchase cost* – consider value/acre

3. Access/Proximity

   a. *Access* – staff and public can visit easily
   b. *Proximity* – closer to High Island –Houston Audubon's sanctuary operations center – is better for this Galveston Bay East plan

4. Climate *(temperature and rainfall)* – land loss due to erosion, subsidence, or saltwater intrusion; likely horizon of 50 years; how increase in temperature and rainfall affect species migration and residence patterns of species from other areas

E. CONTEXT CONCERNS – Context concerns are those risks from current or high potential activities in nearby or surrounding properties that do, or would, pose threats to birds. They are divided into potential direct threats and those threats that would be involved with described changes in land use. Within these two categories, the risks are ranked from greatest to lower priority threat to bird conservation.

1. Potential Direct Impacts (from greatest priority threat to lowest)
   a. Pesticide use (declines in avian food base of insects, due to neonicotinoids)
   b. Cats and dogs (predation)
   c. Presence of abandoned transformers manufactured before 1979, due to possible PCB (polychlorinated biphenyls) contamination
   d. Oil/chemical spills
   e. Invasive species (Chinese tallow, shrub invasion of grasslands, *Salvinia* spp, elevated predation rates from human subsidized predators)
   f. Light
   g. Plastic pollution
   h. Sulfur disposal sites from prior oil and gas operations
   i. Traffic
   j. Noise

2. Trends, with their attendant risks of impacts
   a. Coastal prairie land uses: residential development
   b. Coastal area land uses: LNG/other industry, resorts
   c. Tourism (increased human disturbance; chronic disturbance of beach/island shorebirds and waterbirds resulting in reduced fitness, loss of eggs/chicks)
   d. Changes in land use patterns (e.g., rice→row crops→rangeland→ranchettes *or* forest→grazing)

V. ADDITIONAL CONSIDERATIONS FOR LAND CONSERVATION ACTIONS

A. EVALUATING METHODS FOR LAND PROTECTION/CONSERVATION

The two primary methods available to Houston Audubon for protecting conservation lands are: (a) acquisition of fee title or (b) acquisition of a conservation easement. Either method may be accomplished by donation from the landowner or by purchase from the landowner, or even some combination (e.g., a bargain sale). Houston Audubon may also consider land protection through partnerships with other entities. The following provides some discussion of key criteria for use in evaluating the appropriate method for protecting a potential conservation land.

1. Conservation Certainty – Achieving Houston Audubon's goals and objectives for a potential conservation land are more easily achievable when Houston Audubon has sole responsibility and authority for actions on the land, through owning fee title to the land. Holding a conservation easement on the land leaves primary responsibility and authority to the current landowner, within the constraints described in the conservation easement. Those constraints would be described in a conservation or habitat management plan to which both parties must agree, and which must include a timeline. Also, a conservation easement itself may be short-term or long-term or perpetual (which affects the cost and funding), but the easement term must be perpetual to maintain Houston Audubon's accreditation as a land trust. In all, with a conservation easement, there is still typically a gap between the owner's priorities and the organization's priorities, one that must be bridged somehow.
On the other hand, holding a conservation easement has certain advantages over fee title ownership. The first advantage is acquisition cost, in that the cost of acquiring a conservation easement may be on the order of fifty percent less than the purchase price. A second is that the existing landowner has primary responsibility for stewarding the land, relieving Houston Audubon of that particular burden. A third advantage is that the existing landowner can become a partner in bird conservation with Houston Audubon, thus expanding the community of bird and land conservation.

2. Acquisition Cost and Funding Availability – As noted above, purchasing a conservation easement is less expensive than purchasing fee title. In either case, price per acre must be considered in relation to market value.

Also in either case, acquiring funding depends on the current competitive conditions of funding entities. These conditions may be affected by the amount of dollars available for such projects given: their sources of funding (donations, estates, legislation, etc.); their current priorities; the current land market; and their pool of potential recipients. Additionally, some funding sources are more inclined to support either fee title acquisition or conservation easement acquisition.

The time for raising funds must also be considered, whether from private or public dollars, with the latter usually taking longer – typically one to three years – from the time of developing a concept and preparing a proposal to the time when funds become available and a project can close. The costs and benefits of borrowing funds to meet a landowner's timeline could also be evaluated.

3. Stewardship Responsibility and Cost – Stewardship costs for a holding a conservation easement include those for monitoring land conditions, documenting changes, communicating

with landowner, and contributing to a legal defense fund. These costs would ostensibly be covered by a stewardship fee paid by the landowner at the time of easement acquisition. Responsibility for maintaining the land according to the easement conditions rests with the landowner, with monitoring by the easement holder.

Stewardship costs for owning land in fee include monitoring land conditions and implementing habitat projects, and costs must be considered in terms of management capacity and the necessary resources available within Houston Audubon. Restoration funding is often available from public sources (state and federal agencies).

4. Partnership Opportunities and Costs – Not every land conservation opportunity is suitable for Houston Audubon to undertake solo. Some would be better accomplished by others, or in concert with others. The following is a checklist of considerations for developing a land conservation partnership for a potential land conservation project.

a. What entities are available with greatest interest and compatible goals for the project?
b. What is the best structure for a partnership?
c. What are the best methods to maintain communications with partner(s)?
d. Is the project within the boundary of a national wildlife refuge?
e. Does a mitigation funding opportunity exist?
f. Is the Texas Coastal Exchange a viable opportunity?

B. Improving Habitats

Opportunities for improving habitats on land conservation properties – by restoring or creating bird habitat – will not be a priority in deciding on a land conservation project, as noted in the "Preferred Starting Conditions" category for ranking a potential project. Potential future habitat restoration/creation projects will depend on an evaluation of the starting conditions of the property and availability of funding and management resources.

C. Public Access Considerations

Where feasible and manageable, Houston Audubon will consider providing public access to its conservation lands, but that possibility will not be a determining factor in evaluating a land conservation opportunity.

VI. ACKNOWLEDGMENTS

To help accomplish the goals of this Land Conservation Plan, 2020, Houston Audubon contracted Linda Shead of Shead Conservation Solutions, for development and facilitation of meetings of technical advisors, for preparing and coordinating input into Guiding Principles from advisor input, and for drafting a final plan for Phase One. Houston Audubon then identified and recruited key partner technical advisors, for their expertise in the field of bird conservation and the local geography.

The groundwork for the development of Guiding Principles for Land Conservation was laid down during meetings of nine technical advisors, with participation also from Executive Director Helen Drummond and Conservation Director Richard Gibbons. Linda Shead organized and facilitated the meetings, including maintaining communications with Houston Audubon staff and the advisors, designing agendas and facilitation strategies, conducting the meetings, and preparing resulting outputs.

The nine advisors (who attended one or both meetings), with their affiliations, were:

Trey Barron, Wildlife Diversity Biologist, Oak-Prairie Wildlife District, TX Parks & Wildlife Dept.

Bill Bass, Sr. Manager, Geospatial & Analytics, HARC Research

Tim Cooper, Project Leader, Anahuac National Wildlife Refuge, U.S. Fish & Wildlife Service

Joy Hester, Board Member and former Chair, Houston Audubon Society

Lindsey Lippert, Natural Resources Uses Coordinator, Galveston Bay Estuary Program

Julie Shackelford, Texas Program Director, The Conservation Fund

Matt Singer, Conservation Lands Manager, Galveston Bay Foundation

Bill Vermillion, Bird Conservation Specialist, Gulf Coast Joint Venture, U.S. Fish & Wildlife Service

Woody Woodrow, Fish and Wildlife Biologist, Texas Coastal Program, U.S. Fish & Wildlife Service

In addition to participating in the meetings of technical advisors, Bill Bass of HARC Research also developed the mapping assessment tools for use with implementation of this Plan, as described in Section II.D.

Review and comment on the draft principles and report were provided by Houston Audubon staff, the Houston Audubon Land Conservation Committee, the technical advisors, and the Houston Audubon Board.

VII. CONCLUSIONS

With a loss of one billion birds in North America compared to some 40 years ago (a nearly nine percent decline), conservation of birds continues to be a considerable driver for land conservation of habitat in support of birds. And land conservation continues to be a key focus for accomplishing Houston Audubon's mission, and is supported by the organization's accreditation as a land trust.

Challenges to successful land conservation by land trusts abound, but certainly included, and critical to success, are: finding land/habitats of interest that also have willing sellers/donors, securing necessary funding, and matching the interests and timing of the resulting partnerships.

It is the finding of land/habitats of interest that this plan seeks to address, by clarifying Houston Audubon's land conservation interests. This has been accomplished through defining guiding principles for land conservation, and with defining/prioritizing/ranking the land characteristics and considerations that contribute to the implementation of those principles. Understanding and having clarity of the organization's interests will also help with matching these interests with those of willing sellers/donors and of funding sources.

Additionally, the mapping assessment tools developed for this plan will facilitate identification of land characteristics – past, present, and projected future (2040) – that will be important in evaluating a tract of land for how well it meets the criteria defined in the prioritization/ranking, and then the resulting fit with the Guiding Principles.

The five Guiding Principles for Land Conservation developed through this planning process are the fundamental, general practices the organization will follow in making decisions on how and when resources are to be directed to land conservation.

It is important to note that the prioritizations/rankings defined here, in support of the guiding principles, are not intended to be rules, but rather a way to think about these characteristics and considerations, when evaluating the benefits or risks of conserving a specific tract, and especially when comparing tracts for their potential use of resources. Using these prioritizations / rankings will serve as supporting analysis for implementing the Guiding Principles. They may, in fact, result in revealing still other considerations to be evaluated in deciding on properties to be targeted for land conservation.

VIII. APPENDIX

The static maps included in this appendix are listed below:

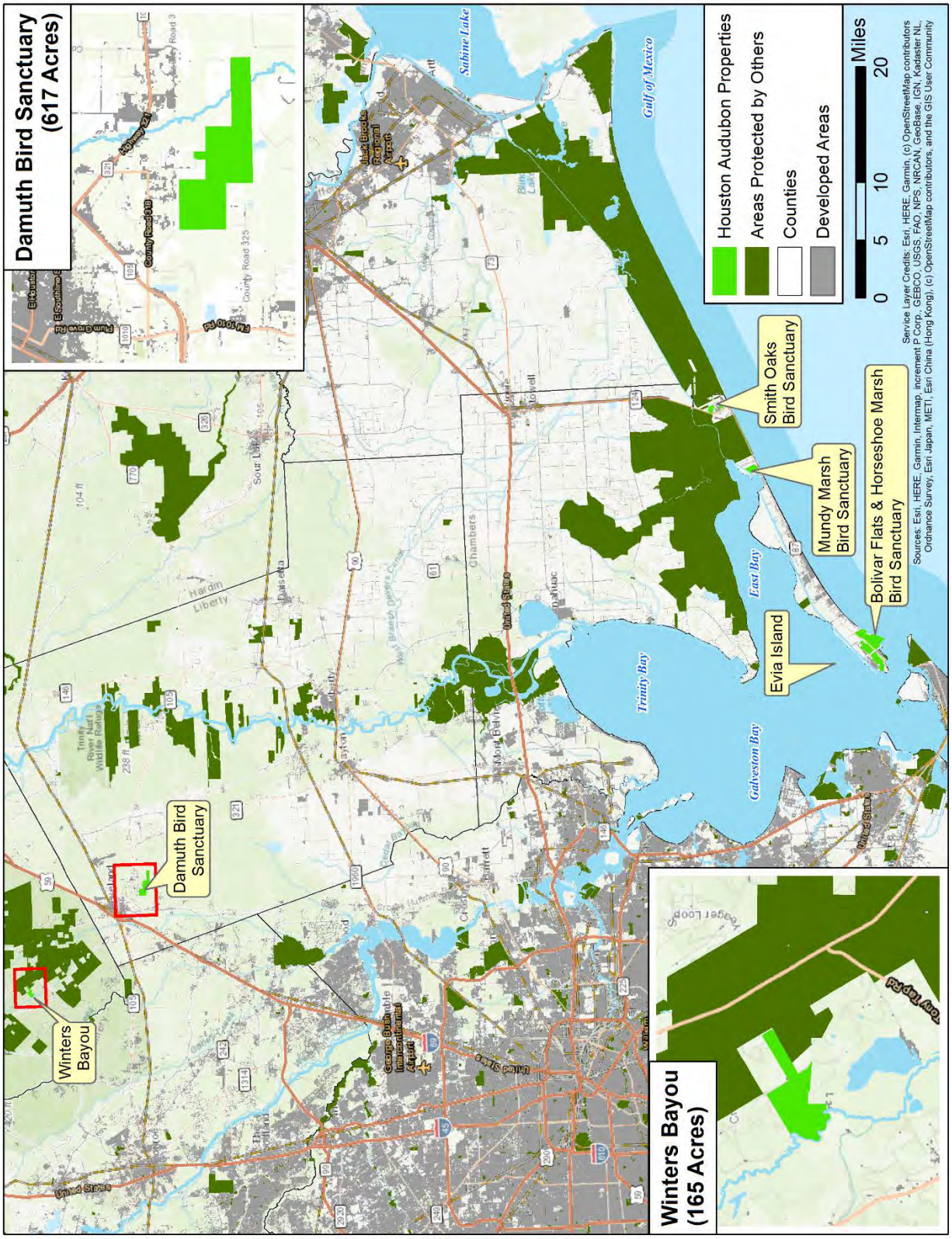

Figure 1. Overview of Protected Lands

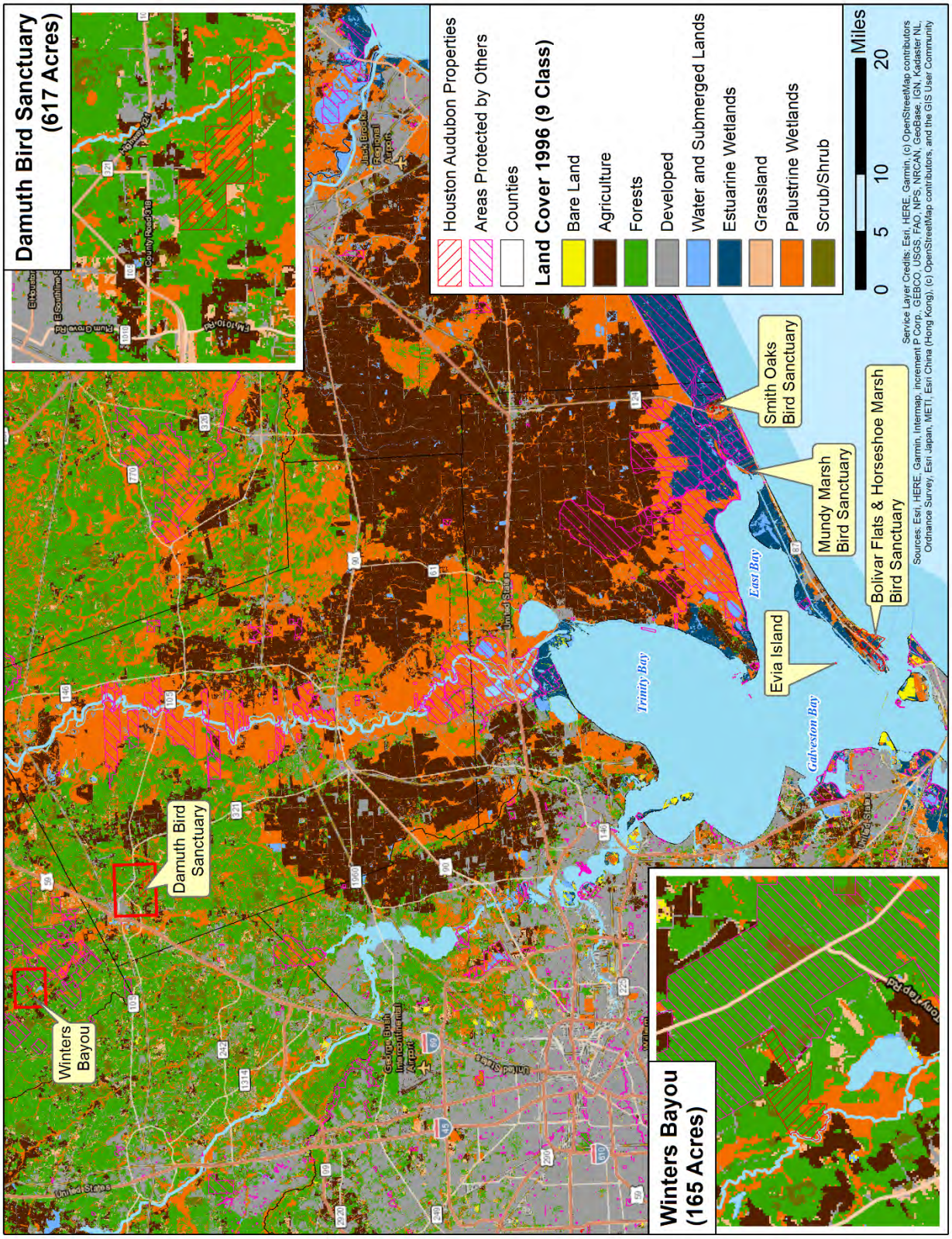

Figure 2. 9-Class Land Cover, 1996

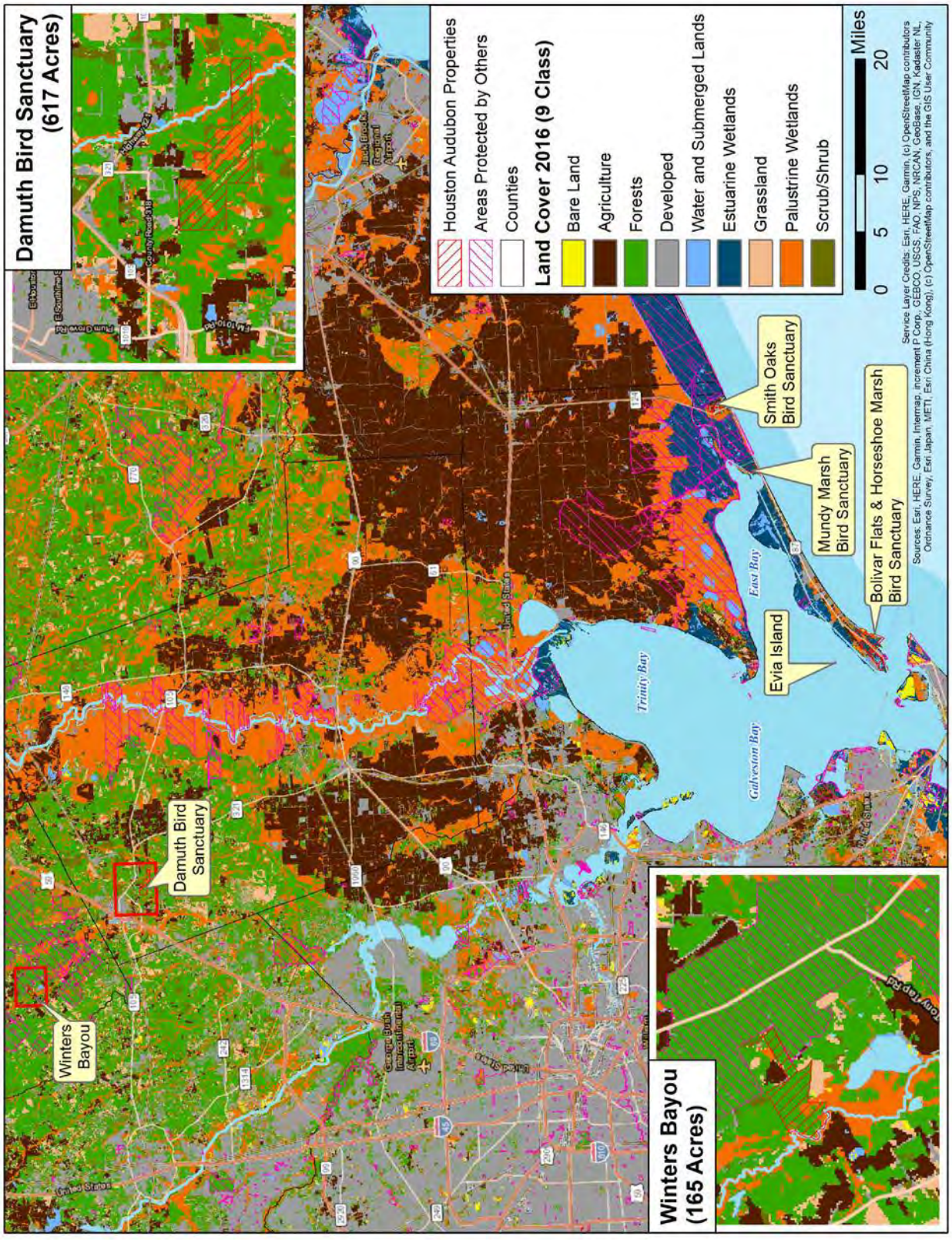

Figure 3. 9-Class Land Cover, 2016

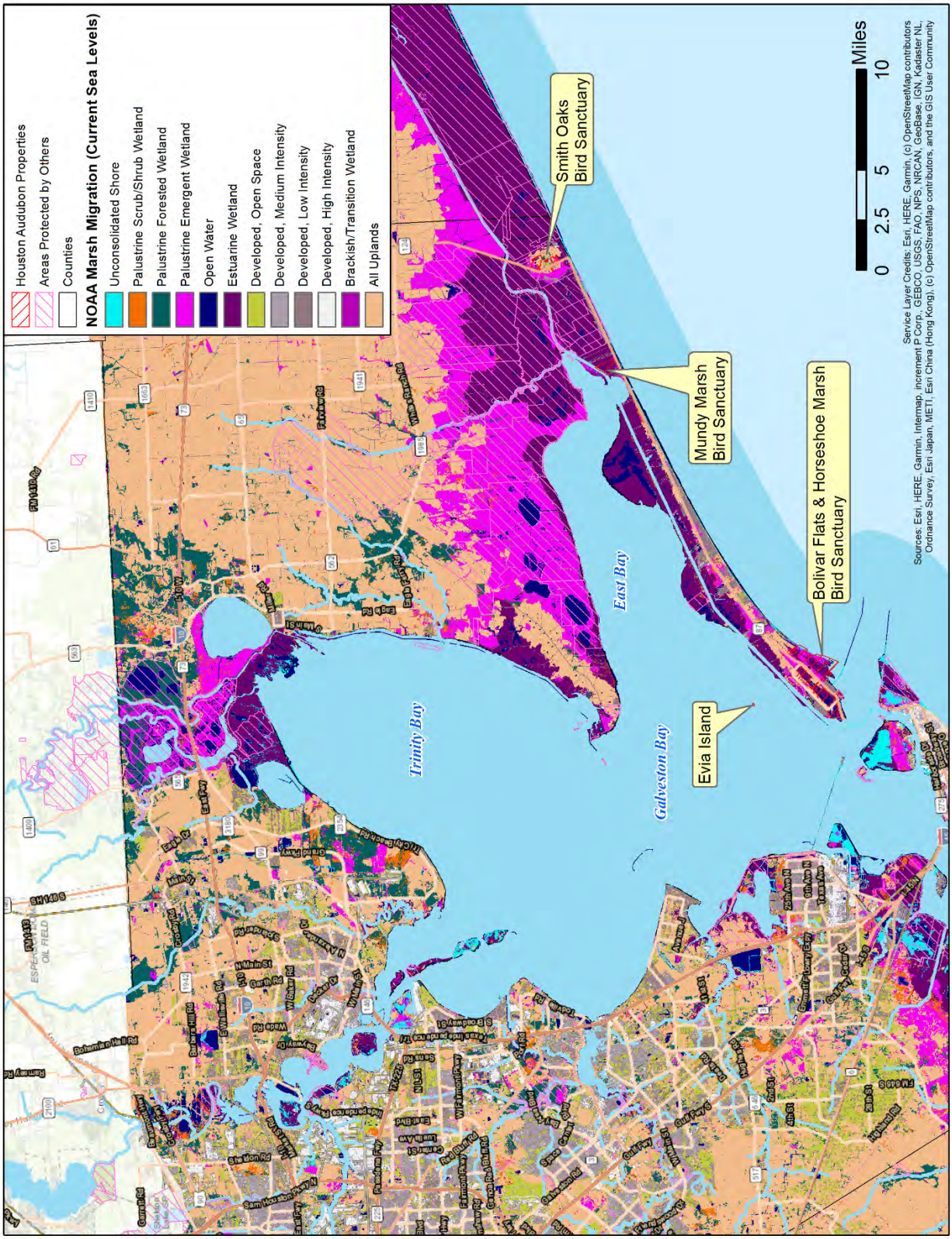

Figure 4. Marsh Habitat, Current Sea Level

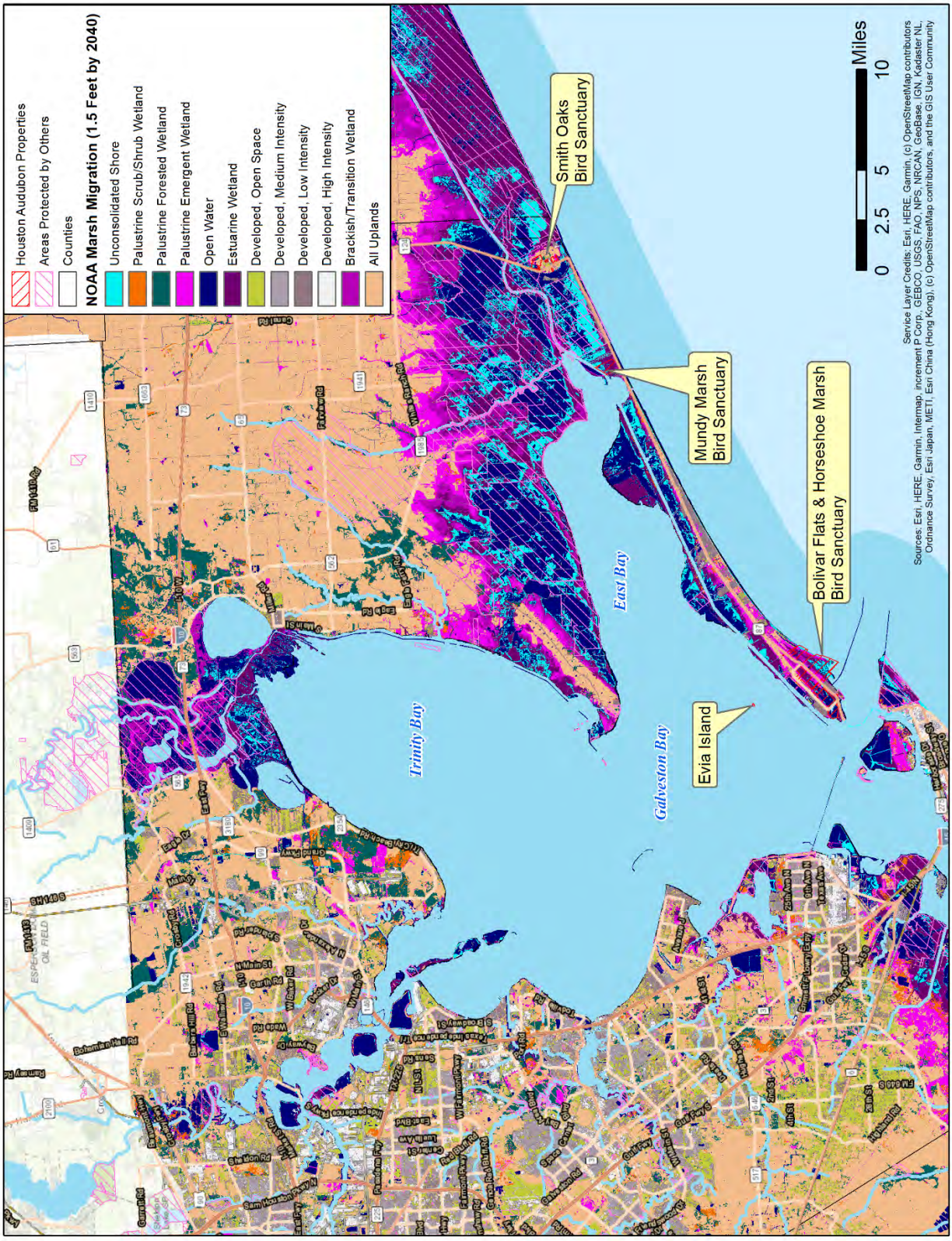

Figure 5. Marsh Habitat, 1.5 Feet by 2040

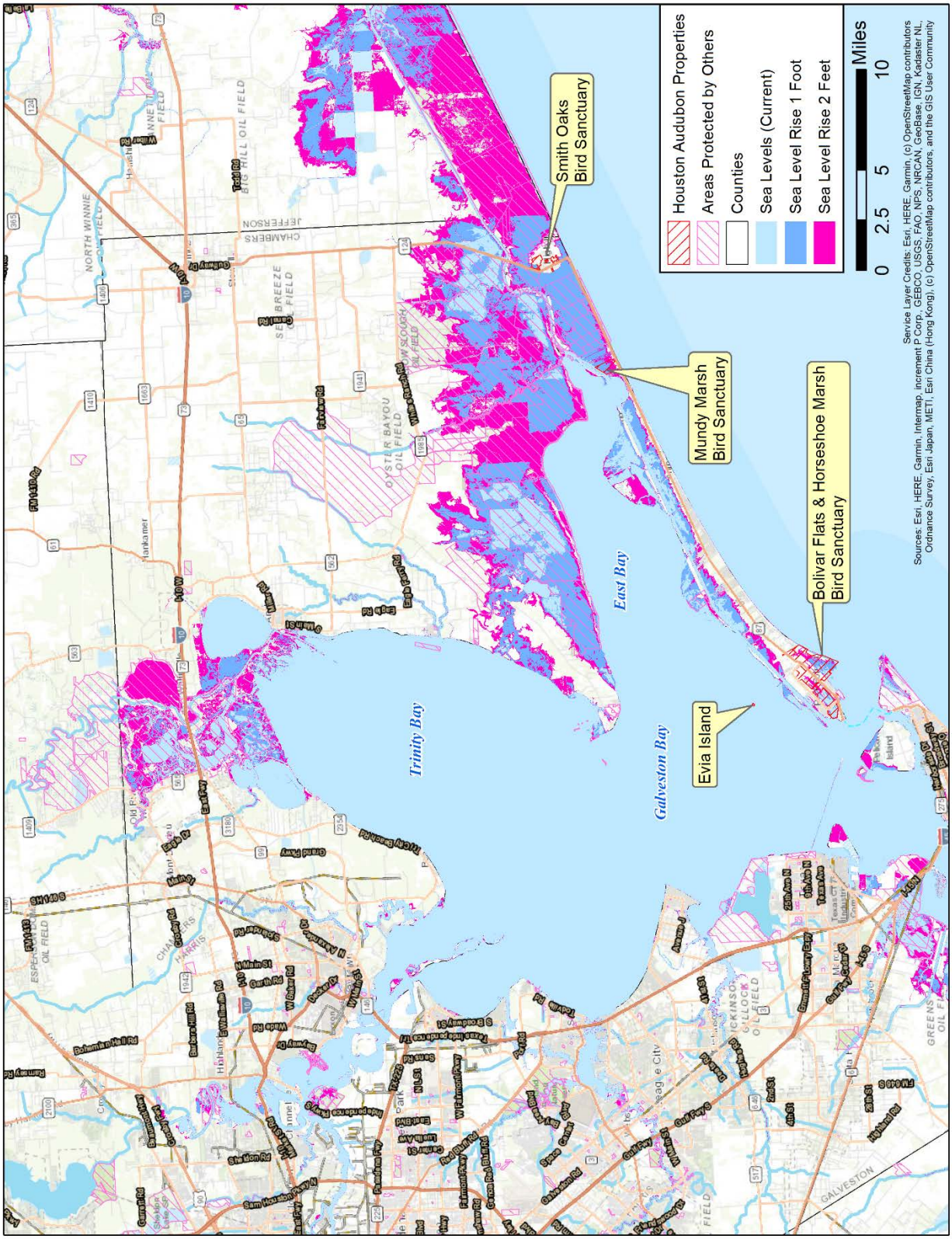

Figure 6. Sea Level Rise, 1 foot and 2 feet

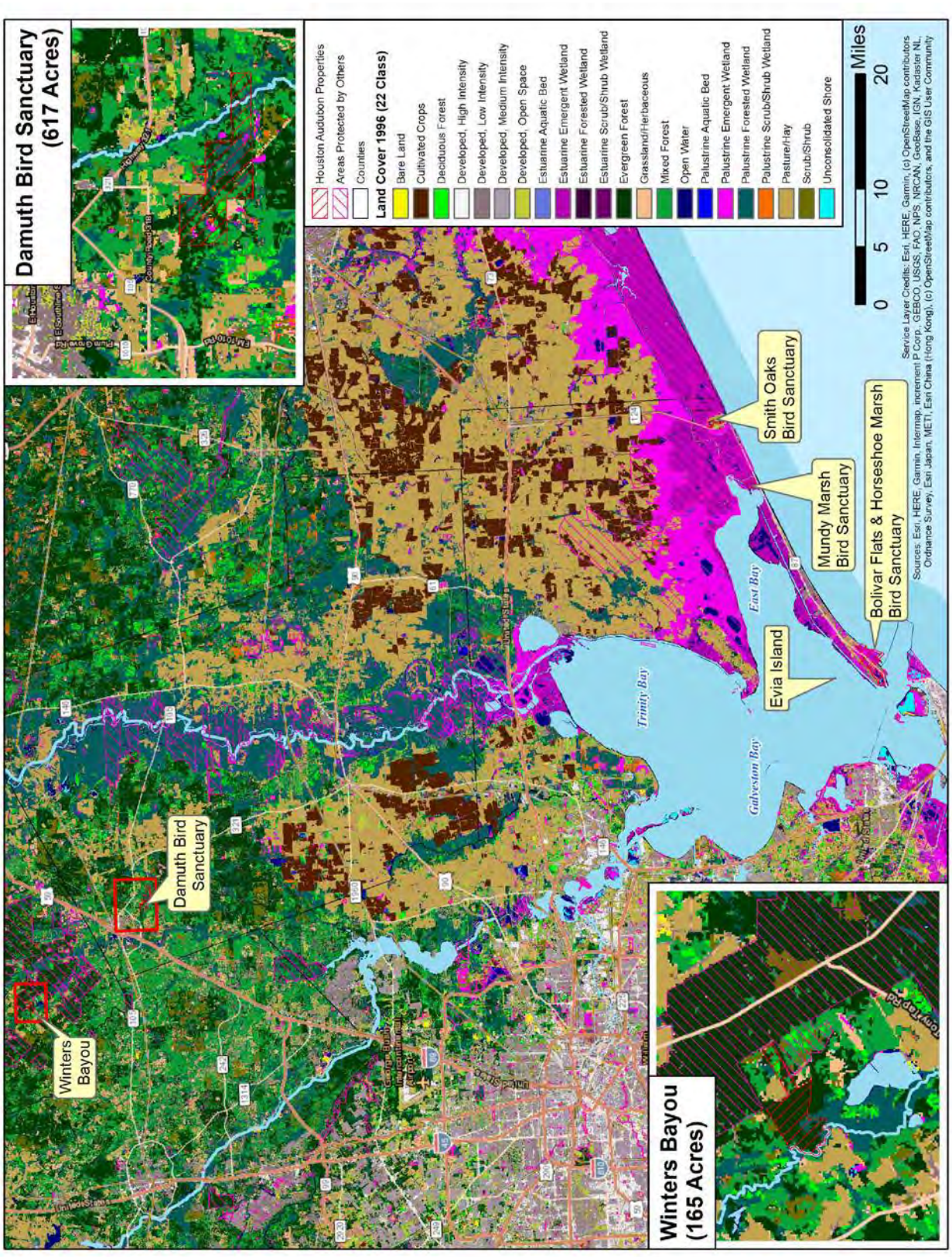

Figure 7. 22-Class Land Cover, 1996

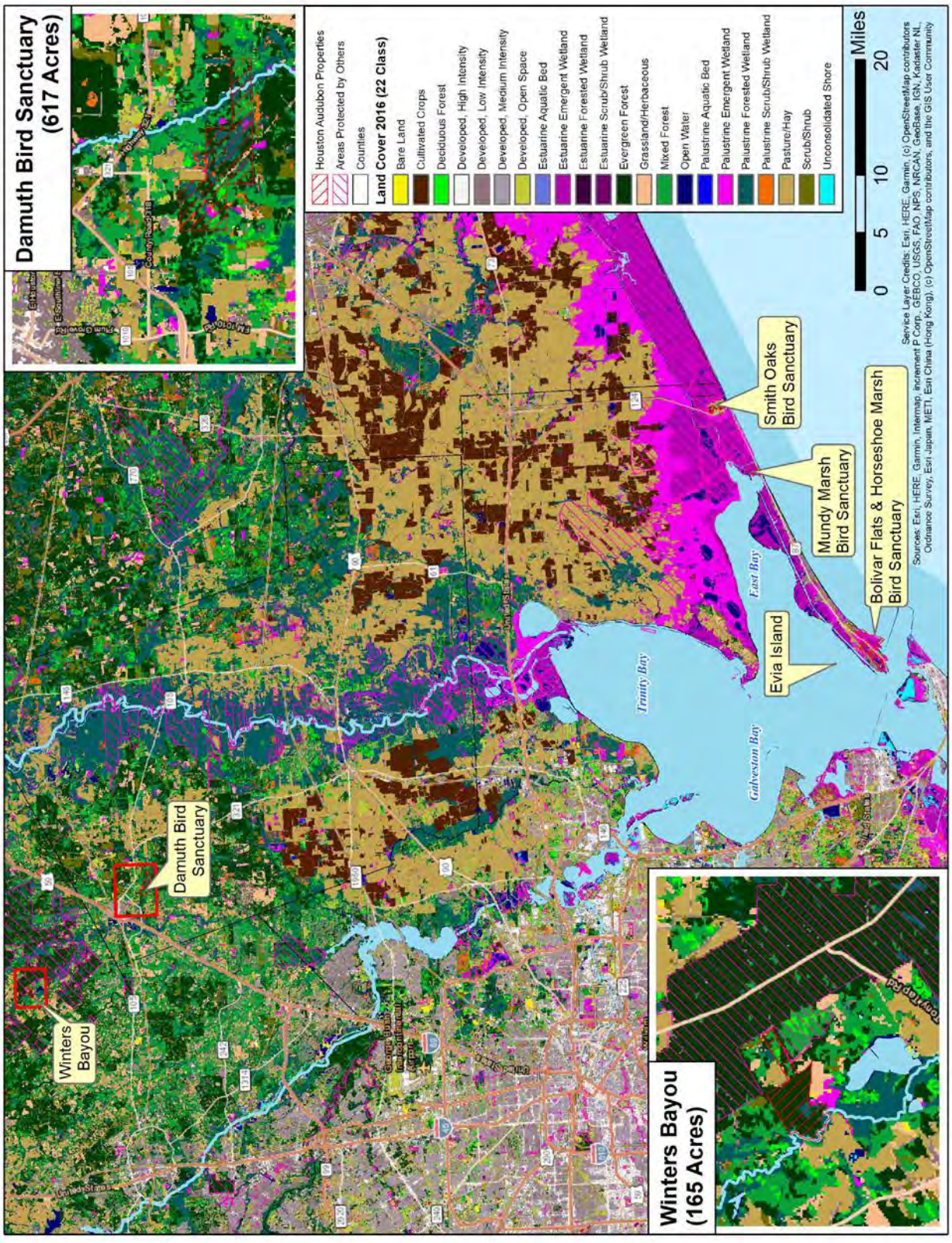

Figure 8. 22-Class Land Cover, 2016