

### **Indicator 3.4 - System-Wide Spatial Extent of Habitat**

#### **What is the desired restoration condition?**

The desired restoration condition for system-wide spatial extent of habitat is to increase 1) the spatial extent (acres of public land to be managed as natural areas), and 2) the functional value of native habitats.

#### **Why is the indicator important and why is it a good indicator of CERP restoration?**

At least half of the original spatial extent of the Everglades wetlands has been lost over the last century (Davis et al. 1994). Water management activities and urban development were the primary factors leading to this loss. The functional value of the remaining Everglades ecosystem has declined as a result of nutrient pollution, altered hydroperiods, and altered flows. The *Central and Southern Florida Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement* (USACE and SFWMD 1999) lists “Increase the total spatial extent of natural areas” and “Improve habitat and functional quality” as two goals for the Comprehensive Everglades Restoration Plan (CERP). In addition, the draft conceptual ecological models developed for South Florida provide further justification for evaluating this attribute as an Interim Goal (Appendix A in RECOVER 2004). For example, the Ridge and Slough (Ogden 2004) and Southern Marl Prairies (Davis et al. 2004) Conceptual Ecological Models explicitly identify loss of spatial extent as a major stressor. The total system conceptual ecological model, although still not final, identifies loss of spatial extent, including reduction in total area of natural wetlands and habitat fragmentation, as a system-wide stressor (Ogden et al. in prep). Estimates of system-wide benefits to spatial extent were used in during the Central and Southern Florida Project Comprehensive Review Study, know as the Restudy, to justify the CERP. The measures used were a combination of "green acres" (number of acres scored as "green" in the Restudy team's evaluation of Alternative D13R) and habitat units (a weighted sum of acres and River of Grass evaluation methodology scores).

The selected alternative, D13R, promised a total benefit of 2.4 million "green acres" and a total increase of about 900,000 habitat units over the existing condition and future without CERP condition. These measures constitute the “promise” of the CERP to restore habitat system-wide. Several CERP projects will acquire natural lands to increase the spatial extent of natural habitats. Due to intense urbanization and development in much of South Florida, opportunities for increasing the spatial extent of natural areas may be more prevalent in the northern and southwestern portion of CERP project areas.

### How is the interim goal for this indicator predicted?

Increase in the spatial extent of native habitat is calculated as the increase in acres of public land to be managed as natural areas. Predictive methods for estimating functional value of native habitats are under development and not yet available to develop an Interim Goal related to the increase in functional value. When a methodology is developed, this measure could readily be applied to predicting net habitat benefits over time.

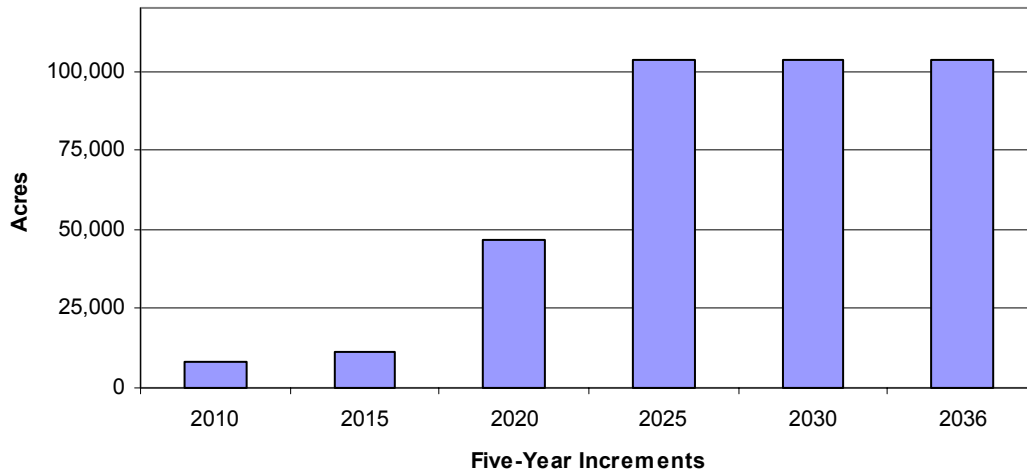
The uncertainty associated with spatial extent predictions are related to the cost and availability of lands for purchase. We are assuming that all the natural area land acquisitions, as described in the Restudy, will be acquired. The real estate market may make it impossible to acquire some lands. In contrast, CERP projects may identify new opportunities for increasing the spatial extent of native habitats and the overall increases might exceed current predictions.

### What are the predictions for five-year increments?

Nine individual CERP projects propose to acquire lands to be maintained as native habitats (Table 3.4.1). A total of just over 100,000 acres of habitat should be acquired by the year 2025, approximately ten years before the completion of the CERP (Figure 3.4.1). No additional land acquisition is planned after 2025.

**Table 3.4.1.** CERP projects that will acquire public lands to increase the spatial extent of native habitats

<b>Project</b>	<b>Completion Date</b>	<b>Increase in Acres</b>
Southern Corkscrew Regional Ecosystem Watershed (CREW) Project Additional Imperial River Flowway	2010	4,670
Winsburg Farms Wetlands	2010	175
Pineland Hardwood Restoration	2010	52
Protect Wetlands adjacent to Loxahatchee National Wildlife Refuge	2010	3,335
Bird Drive Recharge Area	2015	2,877
Indian River Lagoon North fork	2020	3,000
Indian River Lagoon Cypress Creek	2020	32,600
Indian River Lagoon Pal Mar Complex	2025	17,000
Indian River Lagoon Allapattah	2025	40,000
<b>TOTAL</b>		<b>103,709</b>



**Figure 3.4.1. Cumulative increase in public land acquired to increase the spatial extent of native habitats for the CERP.**

**How will we track whether the interim goals established for the indicator have been achieved?**

Every five-years, using the most current benefits evaluation methodology, increased spatial extent will be calculated based on the acreage and function of any completed CERP projects.

**What additional work is needed to improve this interim goal?**

Predicting increases in the spatial extent of native habitats is relatively straightforward and only requires close communication with CERP project planning teams. However, predicting increased levels of function among native habitats is more challenging. The River of Grass evaluation methodology is no longer being used as a predictive tool for the CERP. CERP's Restoration Coordination and Verification Team (RECOVER) will need to develop additional tools to predict habitat function.

**References**

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