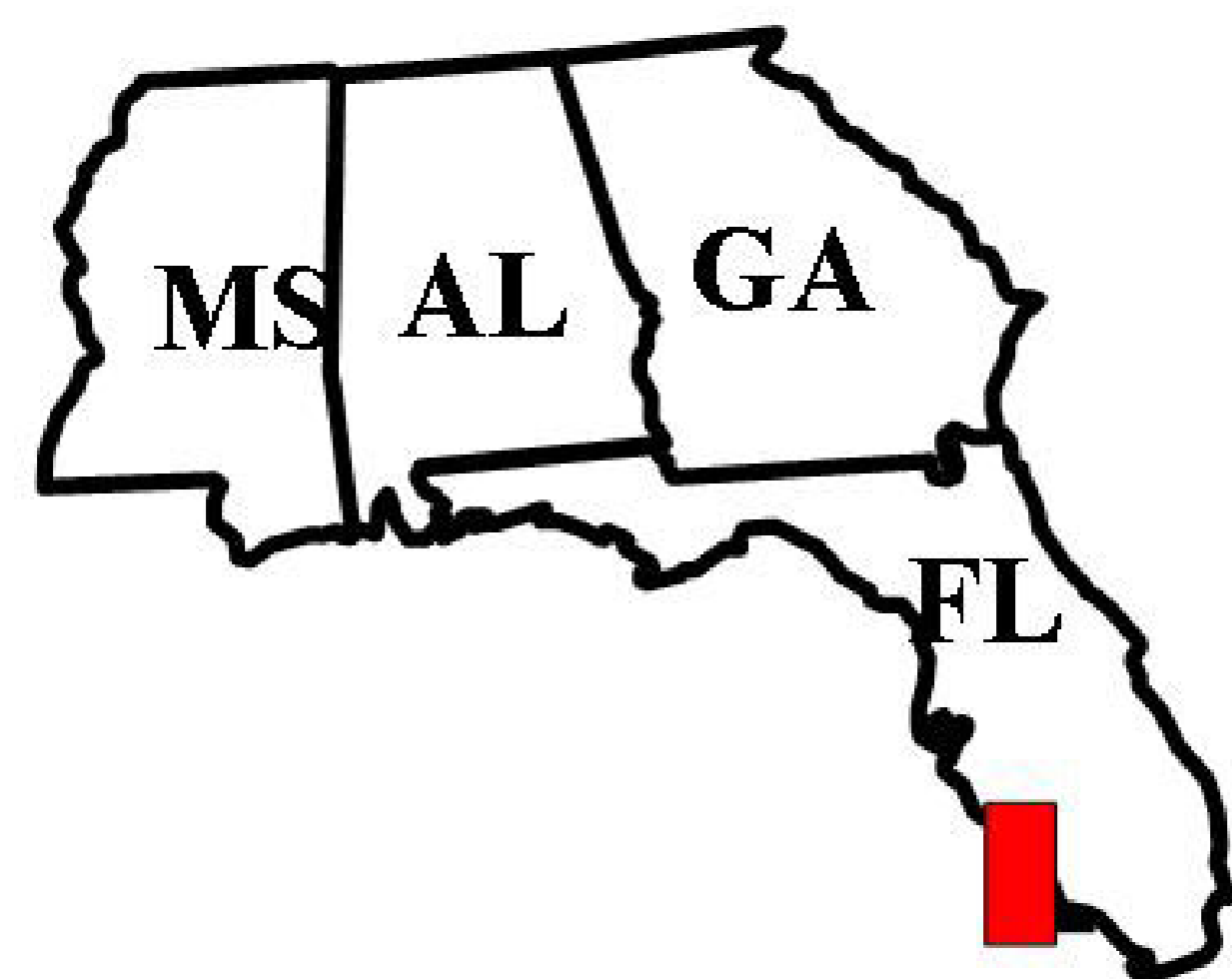




INTRODUCTION

The Ten Thousand Islands National Wildlife Refuge (TTINWR) is a major feeding and resting destination for wintering migratory birds in southwestern Florida. Many species of wading and shore birds rely specifically on marshes as foraging habitat, making mangrove encroachment a concern for wildlife managers. With the alteration of freshwater flow to the region and global sea level rise, mangroves have migrated upstream into traditionally brackish marshes on the refuge. Aside from localized freezes in some years, very little seems to be preventing mangrove encroachment with the current hydrologic balance incident to TTINWR.

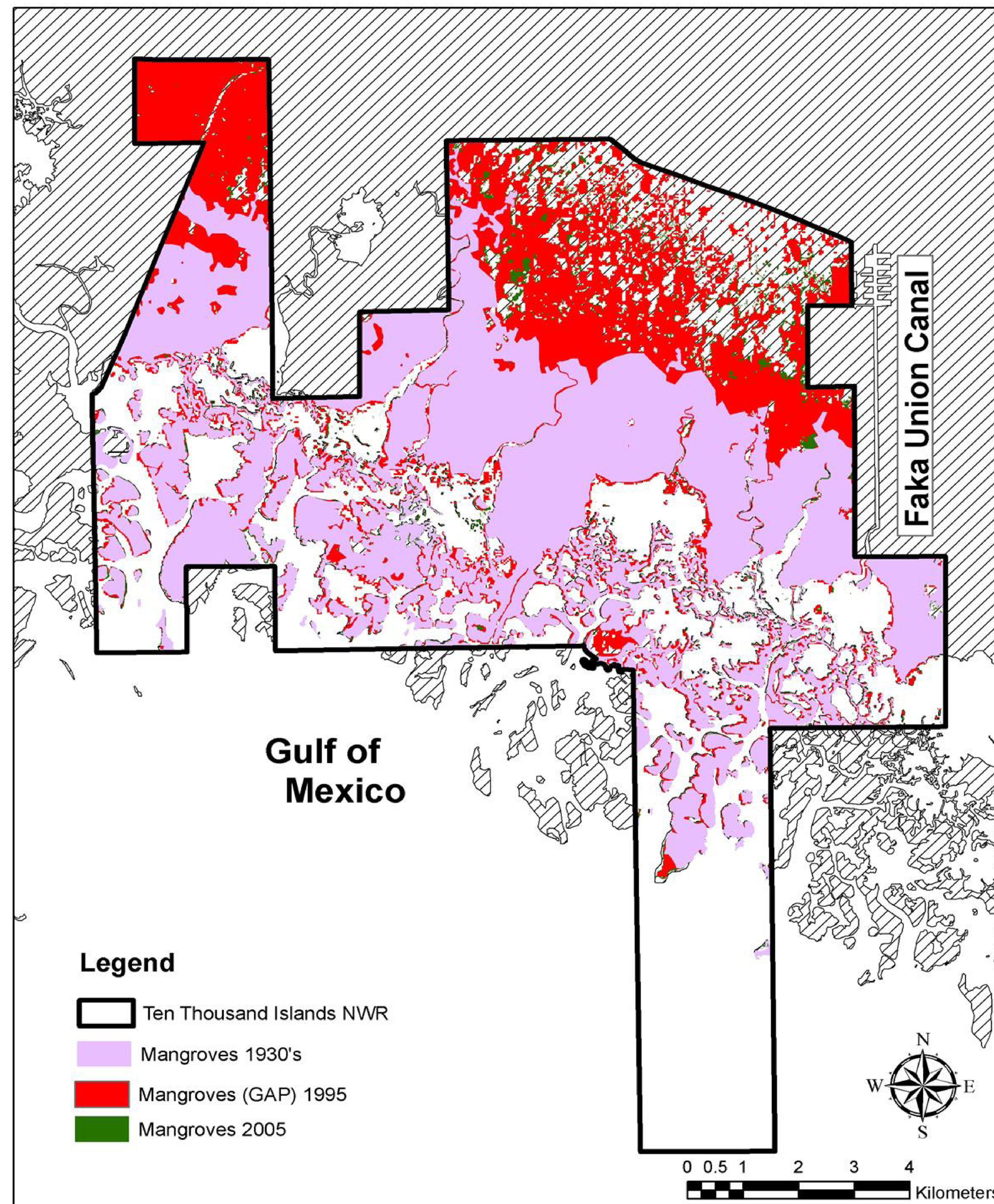
Location of Ten Thousand Islands NWR



METHODS

Using historic topographic sheets, south Florida Gap Analysis Program (GAP) data, 2005 Collier County aerial photography, and field verifications, we mapped mangrove stands in TTINWR from the Gulf of Mexico inland to the Tamiami Trail (US Highway 41). Extracting mangrove classes from historic imagery, we compared the area encompassing TTINWR from the 1930s era to the GAP data collected in 1995 and to aerial photographs from 2005.

Mangrove Change since the 1930's



RESULTS

We determined the area of mangroves within TTINWR to be approximately 7281 hectares in 2005, which represents an 1845 hectare increase since the 1930's. This time frame also included the construction of the Faka Union Canal in 1968, which is likely to have added considerably to mangrove encroachment as tidal signatures were vectored inland. Overall change represents an approximately 34% increase in mangrove coverage on TTINWR since the 1930's, with mangroves currently occupying 70-80% of emergent land within TTINWR.

RELATED FIELD STUDY

An on-going hydrologic monitoring and modeling project on TTINWR will help determine how water management may mediate transitions of mangrove to marsh during future restoration activities, and will assist wildlife managers in making water management decisions to maintain a more favorable balance of marsh to mangrove as critical wading and shore bird habitat (See Krauss et al. poster #4).

REFERENCES

- Smith III, T.J., Ann M. Foster, Peter R. Briere, John W. Jones and Carson R. van Arsdall, Conversion of Historical Topographic Sheets (T-sheets) to Digital Form: Florida Everglades and Vicinity, Open-File Report 02-204. 2002.

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