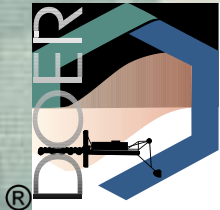


Recovery of the Interior Least Tern through Engineering with Nature

How USACE R&D is providing science support and using interagency cooperation to delist the Interior Population of Least Tern

Dredging Operation and Environmental Support Program
Dredging Operations Technical Support Program

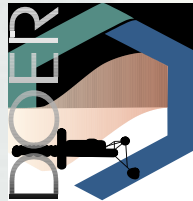
Richard A. Fischer, Ph.D.
Todd M. Swannack, Ph.D.
ERDC Environmental Laboratory



Interior Least Tern (ILT) Recovery

Problem

- Least terns nest on bare sandbars, but modified hydrographs have eliminated some of the habitat
- ESA concerns for the federally listed Interior Least Tern (ILT) affect many USACE mission areas
- USACE costs to monitor ILT populations and manage habitat (including BiOp compliance) often exceed \$10 million/year
- Population size far exceeds Recovery Plan goals, but “Recovery” cannot be secured without evaluating the population consequences of multiple chronic threats under alternative management strategies



Objectives

- Provide science support based on EWN principles to USFWS that promotes ILT *Recovery*
- Assist Districts with ESA Conservation Planning along major inland rivers with ILT
- Leverage expert assistance from American Bird Conservancy and USFWS ILT Recovery Lead
- Help reduce ESA expenditures, and ESA conflicts with USACE Missions
- Support Delisting (i.e., remove from ESA protection)



Interior Least Tern (ILT) Recovery

Approach

- Assemble Interagency Collaborative Modeling Team
 - USACE-ERDC, USFWS, American Bird Conservancy, USGS-Columbia, USGS-Mississippi State
- Work collaboratively with USGS, USFWS, and American Bird Conservancy to develop a spatially-explicit, range-wide metapopulation model for ILT.
- Contribute science support through DOER and DOTS to USFWS 5-year Status Review for ILT
- Assist USFWS ILT Recovery Lead in establishing a formal, cost-effective conservation management program with MVD and SWD that would encompass >75% of the current ILT population.
- Work directly with MSC's on Regional Conservation Planning for T&E Species Recovery through ESA Section 7(a)(1)
- Complete efficient, low-cost Range-wide Post-listing Monitoring Plan



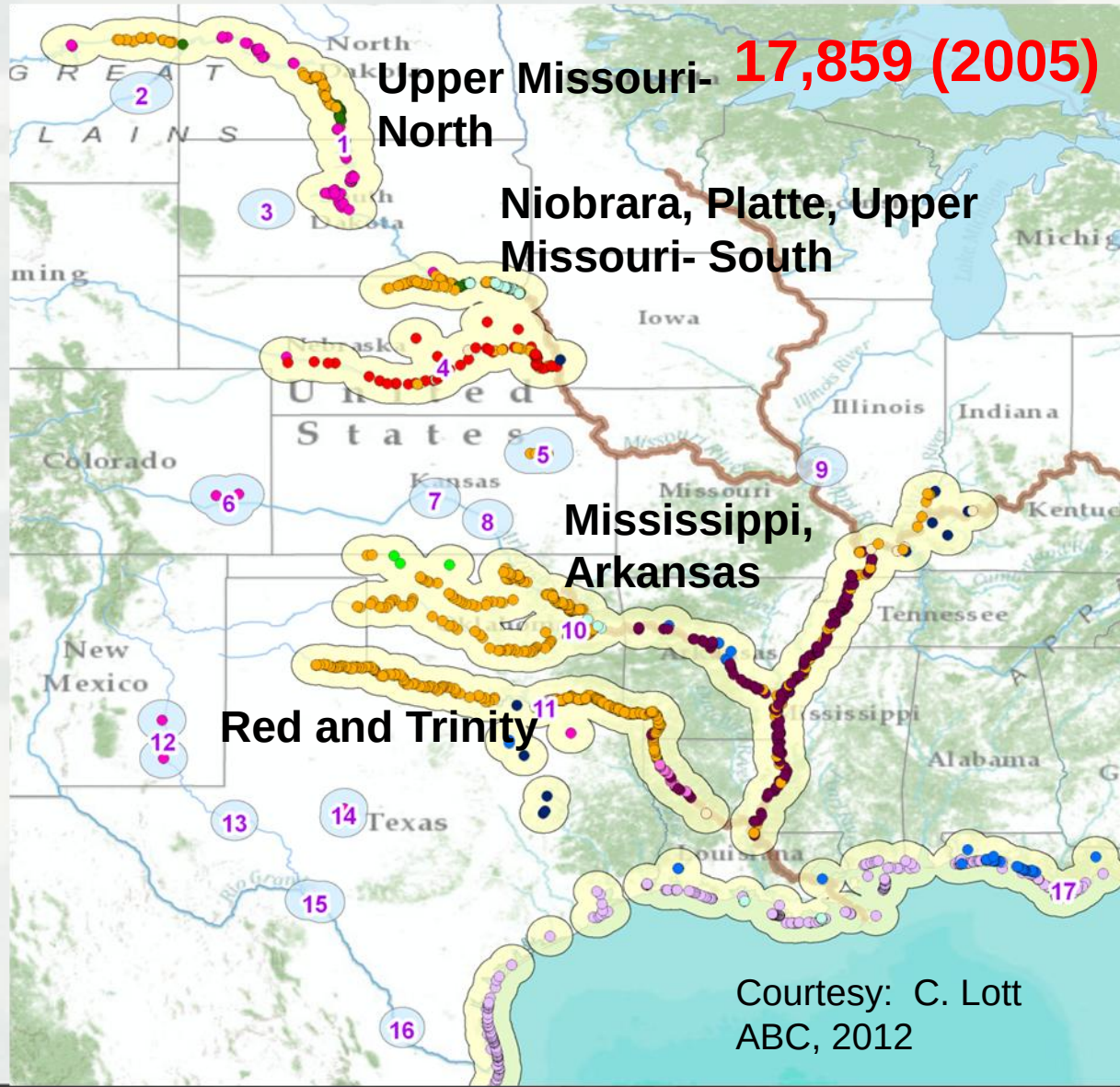
RECOVERY STATUS

Recovery Criteria (1990)

- When listed (1985), only 1970 birds throughout distribution
- Protect habitat, establish management plans, increase ILT population to 7,000 birds range-wide and maintain for 10 years.
- Requires active management/monitoring



Current Abundance and Distribution

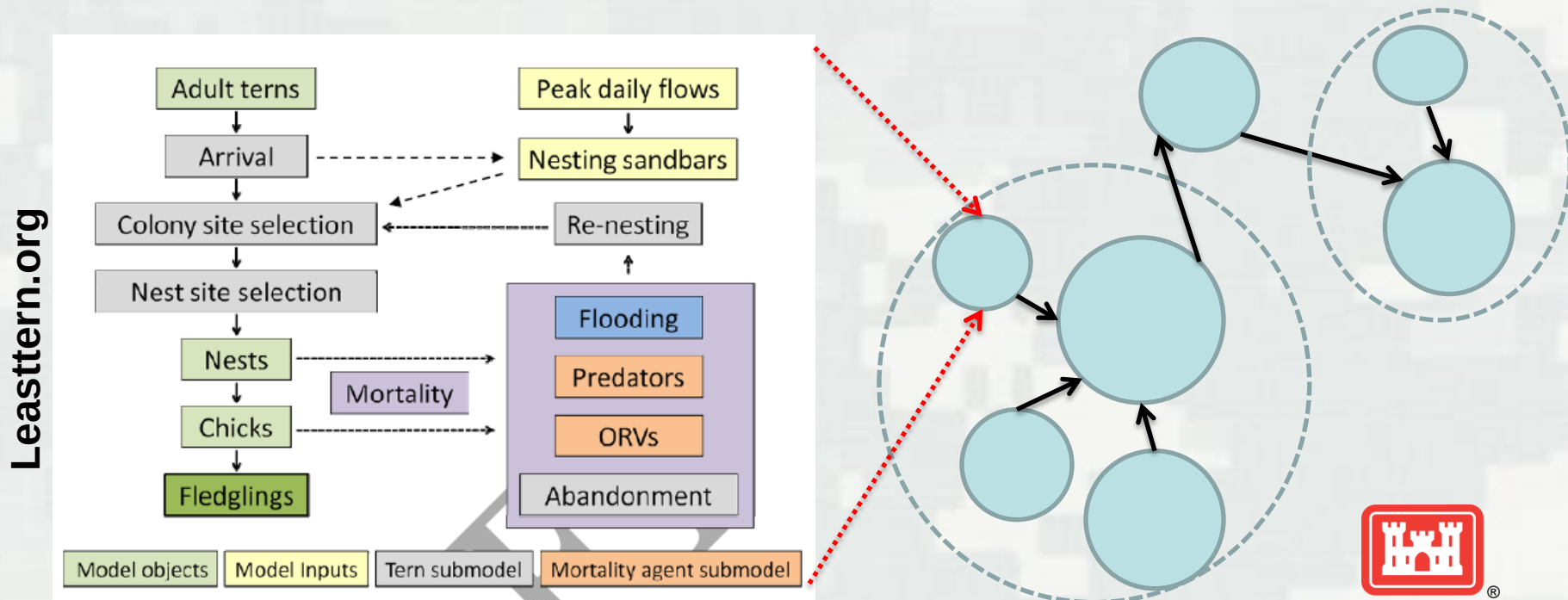


- 16 discrete ILT populations (96 km)
- 47 subpopulations (26 km)
- 4 main populations account for **97.8%** adults, **95.4%** sites
- 34 subpopulations within 4 main pops.



ILT Metapopulation Modeling

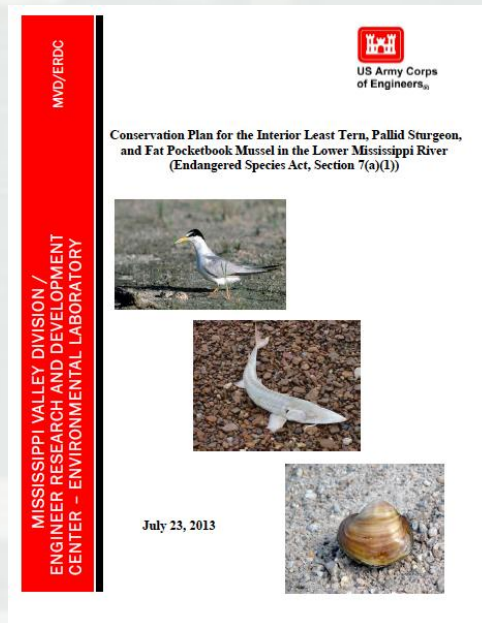
- Objective - provide sufficient science to warrant a petition for delisting the Interior Least Tern
- Goal – Develop a model that will facilitate understanding of underlying ecological processes for ILT so managers can evaluate **long-term** consequences of management actions and how they affect dynamics and conservation of the ILT



USACE/EWN Science Support for ILT Recovery

Accomplishments

- ✓ Successful interagency collaboration and funding
- ✓ DOTS funding to American Bird Conservancy (ABC)
 - ✓ Completion of critical range-wide survey in 2005
 - ✓ Assistance with 5-Year Review input
 - ✓ Significant expertise for metapopulation model
- ✓ USFWS 5-Year Status Review recommends *Delisting* (2013)
- ✓ Final Lower Mississippi River Conservation Plan – ESA Sect. 7(a)(1) – signed by Gen. Peabody (2013)
- ✓ Initiation of similar Conservation Planning in SWD and GLORD (2013-14)
- ✓ Initiation of Range-wide metapopulation model (slated for 2015 completion)
- ✓ USFWS, USACE/DOER, and ABC jointly funding and developing a rangewide post-listing Monitoring Plan (2014-15)



Summary

- Active EWN actions created habitat to increase bird abundance
- Modeling can help understand long term management actions
- Range and population size of ILT significantly exceeds recovery criteria.
- Recovery requires management programs that ensure habitat quantity and quality to support ILT [7(a)(1)]!!
- MVD has demonstrated ability to utilize authorities to maintain and manage ILT habitats in the LMR through Conservation Planning
- Successful development and implementation of this metapopulation strategy in the Mississippi, Arkansas, and Red rivers will fulfill recovery management criteria for 90% of the listed ILT population.
- Working toward completion of metapopulation model and post-delisting monitoring plan



Questions/Comments?



BUILDING STRONG®

Lower Mississippi River Dike Notch Construction

**\$167,000 to maintain island integrity in 11.25 mile reach
(Reduced predator/human access)**

Pre-Construction



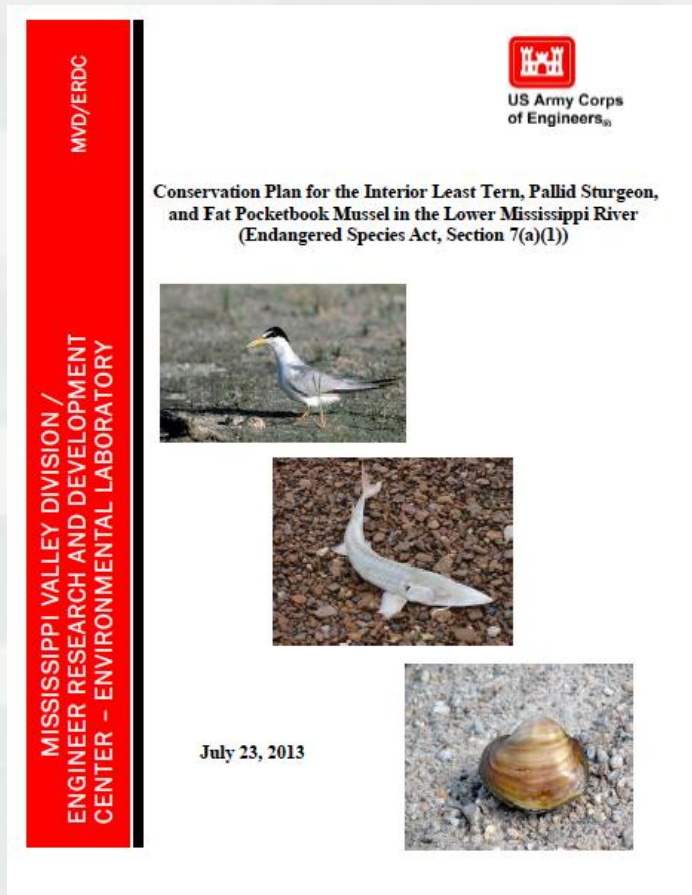
Courtesy: M. Thron
COE, 2012

After Construction (Post Flood)



09/11/2011

MS River Habitat Conservation Plan



- Proactive and innovative
- Creates “buy-in” from multiple agencies and organizations
- Addresses multiple species
- Conserves habitat in perpetuity for listed species
- Provides template for others to follow
- Long-term cost-savings to USACE
- Supports USFWS 5-Year Status Reviews for listed species

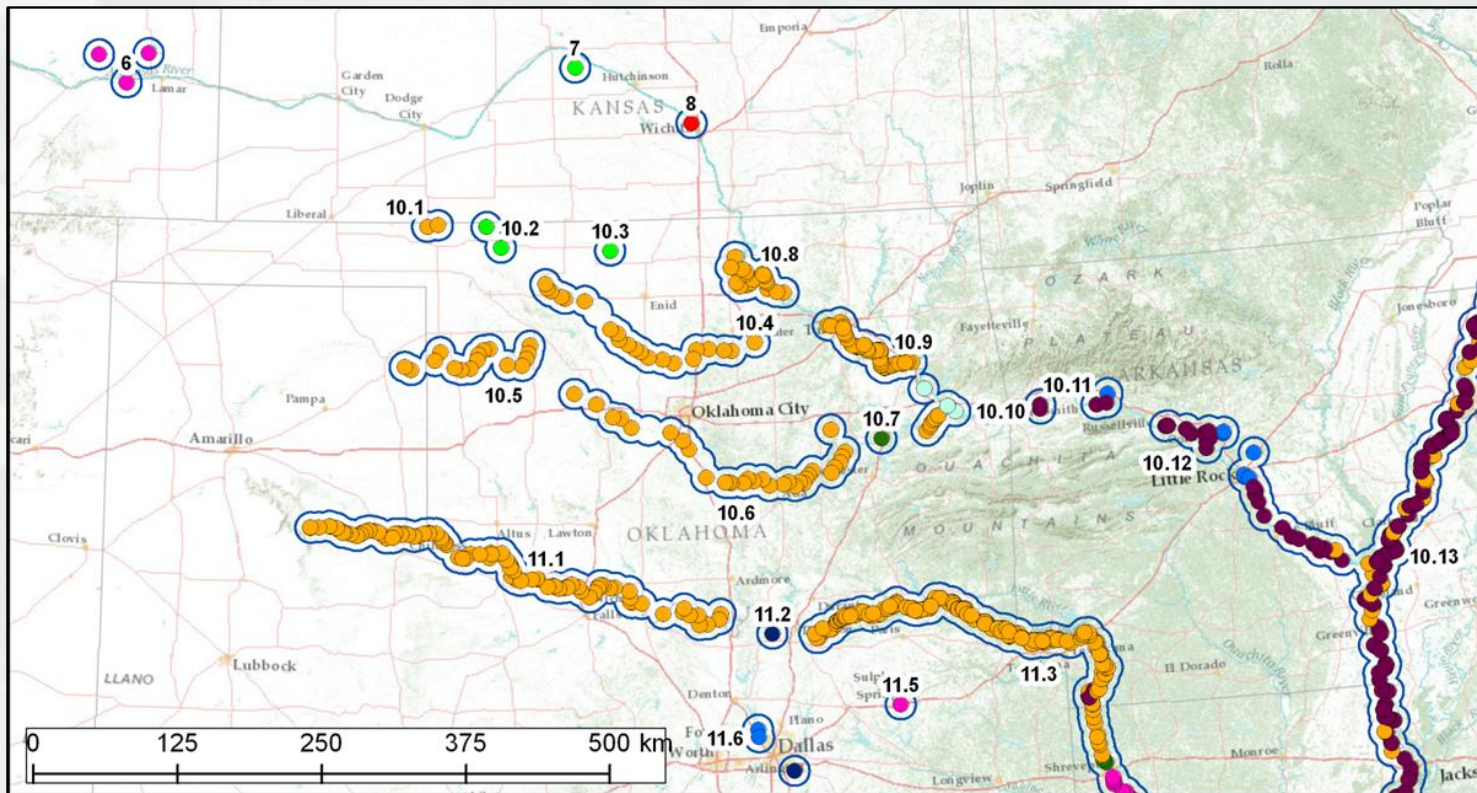


RECOVERY STATUS SUMMARY

- Range-wide numerical criteria have been exceeded for 20 years.
- Range has >doubled since Recovery Criteria were identified (1990); however,
- Until 2013, no viable management strategy or plan has been successfully developed and implemented on a regional or range-wide scale.
- Management and monitoring strategies, efforts, and success vary greatly among drainage populations.



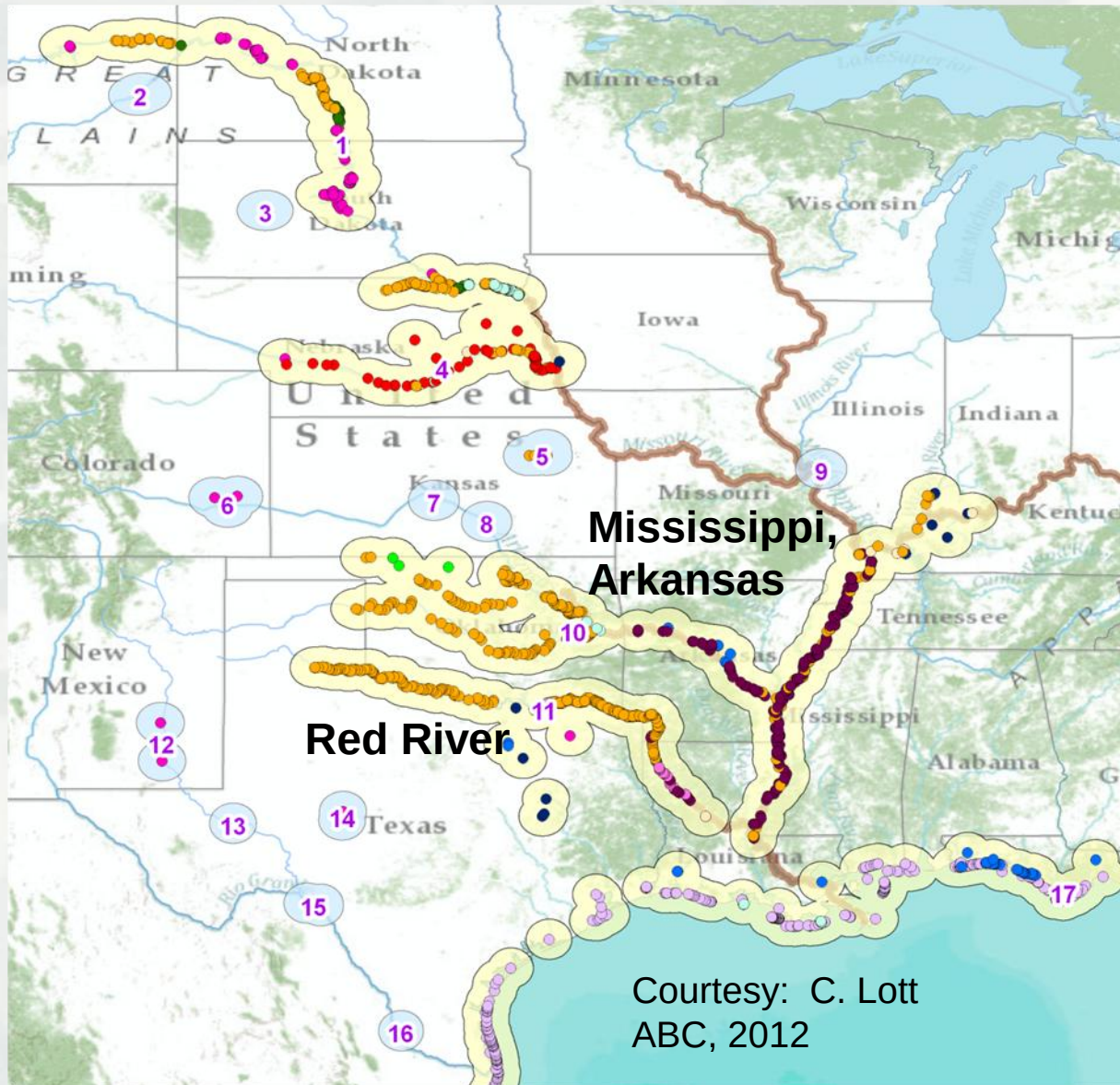
Next Step: Extend Habitat Conservation Program for Interior Least Tern into the Arkansas and Red River Drainages



Courtesy: C. Lott
ABC, 2012

BUILDING STRONG®

Mississippi/Arkansas & Red River Complexes



- 2 population complexes account for **90%** adults, **85%** nesting sites
- Lower AR and lower RR are in MVD

Objective is realistic:

- 120 – 160 breeding sites documented over the past 10 years within the AR and RR
- (AR – MVD ~11 sites; RR – MVD ~20 sites)



BUILDING STRONG®

Goal

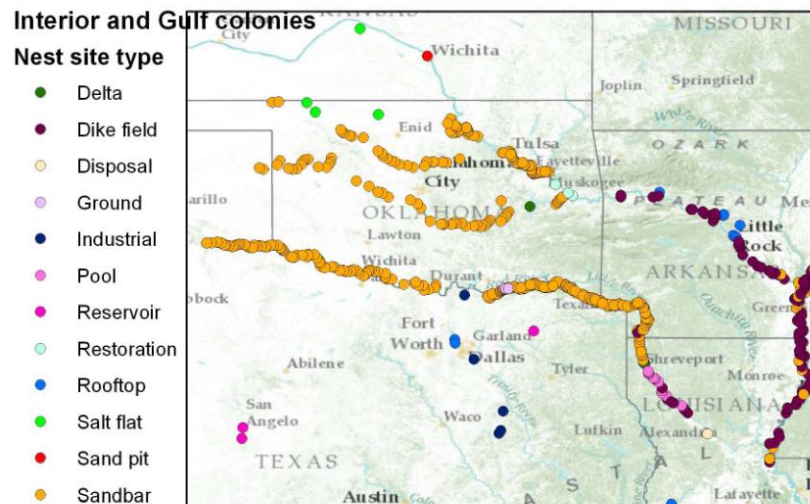
Utilize existing regulatory authorities and actions to assure the persistence and expansion of ILT colonies within the Red and Arkansas River drainages

Objective

Maintain a minimum of 80 suitable ILT nesting colony sites within the Red and Arkansas regulated river channels below major COE Reservoirs and/or within Navigation Project areas

Action

MVD/Region 4 work with SWD/Region 2, to extend the strategy, where appropriate, into the middle and upper Red/Arkansas Rivers.



Courtesy: C. Lott
ABC, 2012

USACE Science Support for ILT Recovery

Benefits of R&D to USACE

- ✓ *Return on Investment* – USACE and USFWS funding provides critical science support with future ROI in the millions of \$\$
- ✓ *Potential Delisting and Mission Support* - reduced costs of ESA compliance enhance USACE ability to meet mission requirements
- ✓ *Modeling* - allows USACE and others to understand the population consequences of alternative management strategies on rivers
- ✓ *Improved Management* – R&D promotes adaptive management strategies that are measurable; also promotes ILT metapopulation persistence
- ✓ *Conservation Planning* - 7(a)(1) approach allows USACE to be proactive in consultation and conservation processes rather than reactionary (similar approach for other spp. may reduce likelihood of a non-jeopardy BiOp).

