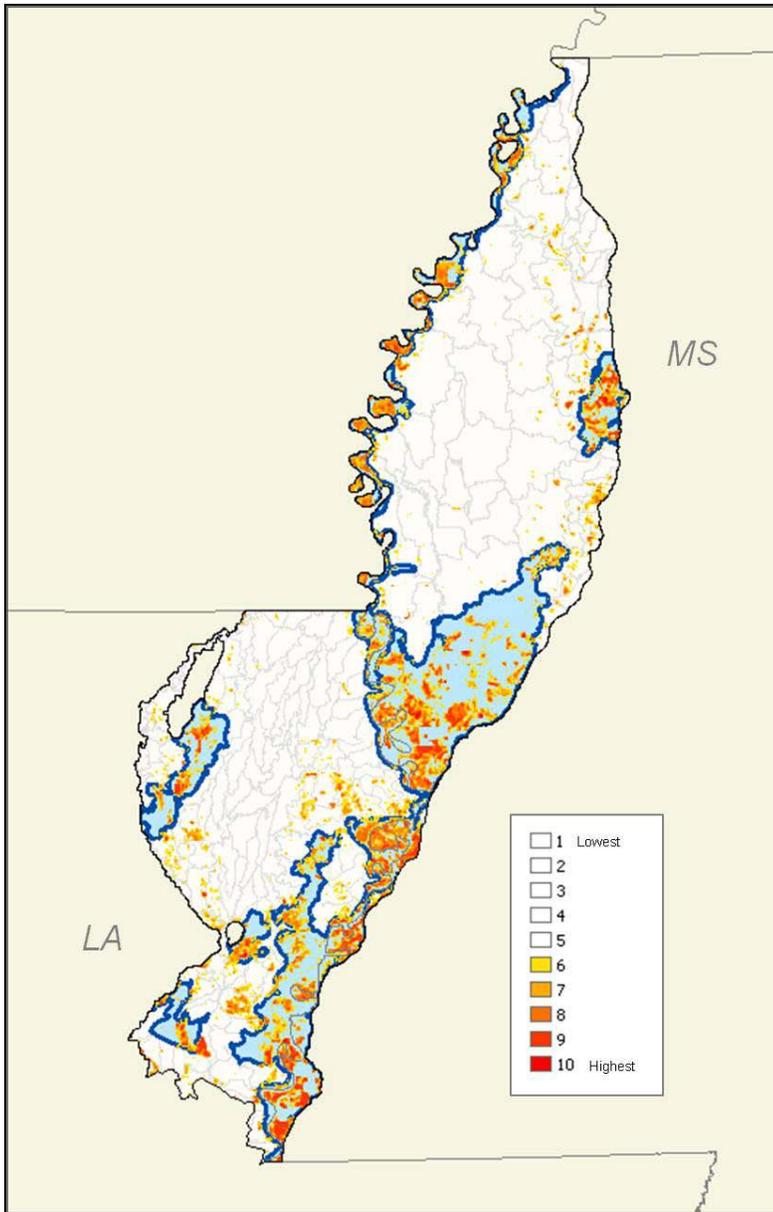# The Louisiana - Mississippi Conservation Delivery Network
Project Prioritization Tool --
*A Partnership Approach to Prioritizing Conservation Actions*

To facilitate partner collaboration and help direct restoration in the newly established Louisiana - Mississippi Conservation Delivery Network (CDN), its member participants first recognized the need to develop an effective approach to identify and prioritize conservation actions in the CDN geography. CDN members agreed that any approach to defining conservation priorities would be fundamentally based on the goals and objectives set by the Lower Mississippi Joint Venture (LMVJV), but would also consider the collective institutional priorities of CDN partner organizations in a manner that would most benefit areas that were known to be of greatest restoration priority. The group agreed that the methodology should be scientifically justifiable and clearly demonstrate concerted thought and planning on the part of the CDN partnership. Numerous "priority conservation area" maps from various partners were reviewed and considered in relation to the broader CDN goals and objectives, but the great diversity of approach and scale across the variety of priority maps considered called for a more refined approach. There was consensus that inclusion of all available conservation objectives could not be considered a priority, or readily integrated into a functional delivery planning tool. However, formulating a tool that is as precise and functional as possible, that ranks project objectives to assist in responding to funding opportunities, and that supports coordination of conservation delivery activities among partners was deemed critically important by the CDN.

To develop this approach, the CDN formed a **Delivery Planning Working Group**. Through assessing and evaluating available priority maps and models, the group agreed that utilizing the most spatially-explicit information available would provide the most value for targeted conservation delivery. This approach would

allow the CDN to capitalize on existing wetland and reforestation planning models to, in essence, *"prioritize the priorities"* allowing CDN partners the opportunity to work cooperatively in areas where their organization's conservation priorities and objectives jointly overlap existing conservation priority layers (i.e. areas that a specific agency has already indicated they prefer to work based on organizational mission).
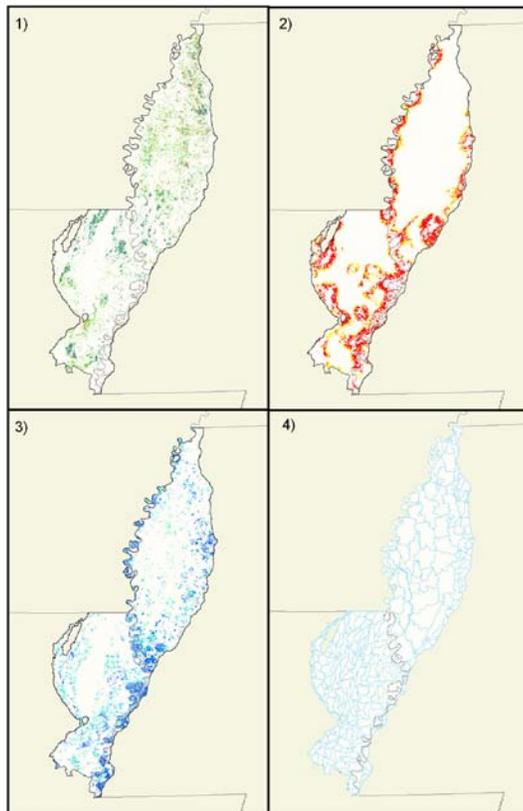
The Working Group ultimately settled on three such spatially-explicit conservation decision support models (DSMs; see images for each at left and abstracts on following pages) – 1) Ducks Unlimited's Wetland Restoration Suitability Model, 2) the Forest Breeding Bird Reforestation Decision Support Model that was developed by the LMVJV Partnership, 3) Ducks Unlimited's Easement Protection Priority Model. Each of these models was designed to protect and/or restore wetland habitat and functions to the landscape of the MAV area of Louisiana and Mississippi. While they do utilize some similar data and there is overlap in application, each model was designed for unique purposes and has distinct output products. Further, the methods and design of the models are fully documented and some have been rigorously peer-reviewed, making our conservation decision more supportable and justifiable.

As a part of a draft refinement of the model, the two restoration models were normalized with the one protection model so that the two conservation methods would be represented equally in the model. Other data sets were investigated for incorporation into the planning tool, in particular several data associated with water quality, but the Working Group could not justify their inclusion, primarily due to an issue of scale of focus.

Finally, watershed boundaries were used to define the CDN Focus Areas. Watershed Boundary Dataset Hydrologic Units that are developed by USGS and NRCS define the drainage basins in a nested arrangement for the entire US. The newest and most detailed watershed boundaries available are Hydrologic Unit Code 12 (i.e. HUC-12s) -- they describe the drainages of 2nd and 3rd order streams. By using HUC 12s as our Focus Area boundaries, we provide an accepted and justifiable definition to our Focus Areas.

By combining these data sources, we are readily able to take advantage of quality science and decision-support capabilities developed individually and collectively by a large number of CDN partners, and do so in a way that selects the highest priority areas from each decision support system. This allows the CDN focused management activities to be targeted to areas where they will have the greatest impact for wetland conservation. This approach also demonstrates a more developed and concerted methodology than simply having experts subjectively identify circles on a map. The Tool and the resultant Focus Areas not only put critical decision support information into the hands of conservation professionals most aptly capable of best utilizing this information, it also places the partnership in the position of being uniquely qualified when it comes to responding to grant-funding opportunities.

SITE SUITABILITY MODELING FOR THE RESTORATION OF FORESTED WETLANDS
IN THE MISSISSIPPI ALLUVIAL VALLEY
(wetland_restoration_suitability model)

Stacey Shankle, Dawn Browne, Jerry Holden Jr.
Ducks Unlimited, Inc
Southern Regional Office

Ducks Unlimited, Inc. (DU), as one of the primary delivery agents of the USDA Natural Resource Conservation Service's Wetland Reserve Program in the MAV, has constructed a reforestation priority model for identifying optimal sites for restoration of forested wetlands in the region. The model harnesses the functionality of ERDAS Imagine's Expert Classifier to construct a logical decision tree that considers weighted confidence values in pixel classification, thereby permitting more sophisticated analysis than afforded by traditional modeling methods. The output of the restoration priority model represents the culmination of three years of data development projects by DU with assistance from regional conservation partners. The model facilitates intelligent analysis of multiple, regional datasets critical to determining site suitability in the MAV, including: a Soil Moisture Index (DU), Natural Flood Frequency (DU), a 1973-2001 Forest Loss dataset (DU), Sinks/Depressional Areas (DU derived from USGS National Elevation Dataset (NED)), and graduated stream buffers by stream order (DU derived from USGS/USEPA National Hydrography Dataset). The output of the restoration priority model will assist with directing the future reforestation efforts of multiple parties to the most appropriate locations throughout the MAV.

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FOREST BREEDING BIRD RESTORATION
DECISION SUPPORT MODEL

Dan Twedt, Bill Uihlein, Blaine Elliott
USGS – Patuxent Wildlife Research Center /
Lower MS Valley Joint Venture Office
(Forest_bird_restoration_DSM)

Historic forest cover in the Mississippi Alluvial Valley has been reduced by >75%. Remaining forests are fragmented, hydrologically altered, and heavily influenced by human activities. Because well drained forests were easily cleared, most remaining large forest fragments are wet forest types. Because forest fragmentation and altered hydrology have negatively affected forest bird populations, we developed a spatially explicit decision support model for bird conservation.

This model establishes priority areas for forest restoration that de-fragment the existing bottomland hardwood forests. Our primary objective was to increase the number of forest patches that harbored >2000 ha of interior area (core) that is at least 1 km from a hostile edge. We also sought to increase the number of forest cores that were >5000 ha and to add additional forest core to larger contiguous forest areas. Forest restoration was

targeted to achieve at least 60% forest cover within local (10 km) landscapes. Finally, within priorities that defragment forest cover, we emphasized restoration of high-site (well drained) bottomland hardwood forests.

The Lower Mississippi Valley Joint Venture has established a restoration objective of 800,000 ha of bottomland forest by 2020. If linked to our forest restoration priorities, this objective could be achieved by reforesting <10% of restorable lands. The resultant area of forest core would exceed the habitat objectives described in the Partner-in-Flight Bird Conservation Plan and would be equivalent to the area of forest core present in the early 1950s. Targeting reforestation based on this decision support model would result in >8 times more forest core than would result from reforestation of randomly located fields.

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LAND PROTECTION PRIORITY MODEL

Ducks Unlimited, Inc
Southern Regional Office
(easement_priority_model)

The purpose for this product is to prioritize the Mississippi Alluvial Valley for restoration of land through conservation easements. Level 1: Existing forest blocks over 150 acres that are frequently flooded, and within FBCA, and within 10 miles of existing publicly managed habitats or existing forest blocks over 10,000 acres that are frequently flooded. Level 2: Existing forest blocks over 150 acres that are frequently flooded or existing forest blocks over 10,000 acres Level 3: All existing forest blocks over 150 acres in size, all WRP easements. Public Lands were excluded and all WRP Easements were classified as priority 3 because they already contained some protection. WRP Easements were forced into priority 3 State WMA were excluded from the model NWR were excluded from the model USFWS Partners Projects were not excluded nor forced into a particular class DU Conservation Easements that were closed were excluded and those that are pending were not excluded from the model DU Partners Projects were not excluded from the model.