

Working with partners to conserve bird habitat



Rainwater Basin Joint Venture History

The Rainwater Basin Joint Venture (RWBJV) was established in 1992 under the North American Waterfowl Management Plan (NAWMP), a conservation initiative that recognized the need for regionally-based, self-directed partnerships focused on habitat conservation. In 2000, the RWBJV Management Board embraced the opportunity to expand its mission to include priority species identified in other national bird conservation initiatives. The Management Board has representation from the U.S. Fish and Wildlife Service, Nebraska Game and Parks Commission, Natural Resources Conservation Service, Farm Service Agency, Nebraska Association of Resources Districts, local Natural Resources Districts, Ducks Unlimited, Pheasants Forever, The Nature Conservancy, and local landowners. Since the RWBJV's inception, the Management Board recognized the importance of science-based conservation and of coordinating with local landowners to develop conservation programs that not only provide quality habitat but also can be integrated into this highly agriculture landscape.

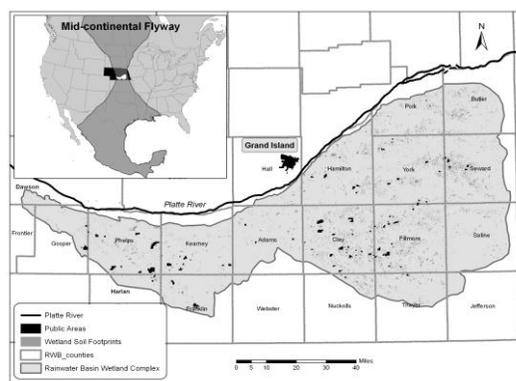


Figure 1. The Rainwater Basin Wetland Complex

The Strategic Habitat Conservation Business Model

In 2005, the RWBJV refined its approach to habitat conservation. Initially RWBJV partners focused on “conservation delivery”: implementation of on-the-ground habitat projects. As project funds became limited, however, Joint Venture partners wanted tools and data that could describe explicit habitat goals, identify conservation priorities, and describe the biological response of priority species to partnership projects. Now the RWBJV's conservation business model integrates the elements of the Strategic Habitat Conservation framework to promote wetland protection, restoration, and enhancement activities throughout the Rainwater Basin region (RWB). The RWBJV's implementation of the four SHC elements (Figure 2) and associated sub-elements is described below.

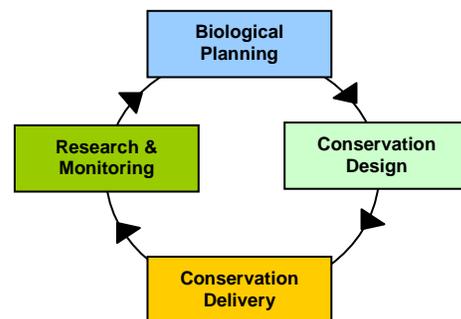


Figure 2. The four elements of Strategic Habitat Conservation (SHC).

Biological Planning

The RWBJV undertook an intensive planning process to estimate habitat needs for wetland dependent species. The RWBJV's Conservation Planning Workgroup estimated that 8.5 million waterfowl use the Rainwater Basin region during spring migration. The workgroup developed a bio-energetic model, incorporating waterfowl-use estimates, forage selection, and nutritional requirements, to estimate the total energetic needs of spring-migrating waterfowl at 15.6 billion kilocalories (kcal). The model suggests that a majority of the waterfowl energetic needs can be met with the region's abundant waste grain; however, a component of the energy (4.4 billion kcal) would need to be provided from natural wetland foraging habitats, because waste grain lacks key amino acids and essential minerals, and is not suitable for some species. Numerous studies have found that female waterfowl that acquire sufficient nutritional resources successfully continue migration and recruit young into the population, because they initiate nesting earlier, produce larger clutches, and have a higher propensity to re-nest if an initial nest is lost. Mid-latitude migration habitats like the RWB are the last stopover site for many waterfowl before they arrive on the breeding grounds; thus, recruitment benefits when more birds depart the RWB in better physical condition. Data and research results have been collected to quantify the energetic resources available in different wetland vegetation communities. Results suggest that to fully meet waterfowl energetic requirements, approximately 25,000 acres of high-quality RWB wetlands will need to be flooded during migration.

Through aerial surveys, the RWBJV annually collects geospatial habitat inventories to quantify available habitat. The compiled annual inventories show that just over 40,000 acres of RWB wetlands have demonstrated some level of function (ponding water, growing hydrophytes) in at least one of the assessment years. Also in conjunction with annual habitat survey information, the RWBJV compiled climate models which suggest that under “average” climate conditions only 20% of the area of presently functioning wetlands pond water and thus provide foraging habitat. Therefore, an additional 17,000 acres of wetlands need to be flooded during spring migration to achieve RWBJV conservation goals. Flooded wetland habitat, wetland distribution, and wetland abundance were identified as factors limiting RWB habitat availability. To guide future habitat delivery, a conceptual model was created that integrates results from several research products, to prioritize wetlands and wetland complexes for restoration, enhancement, and protection. (Figure 3).

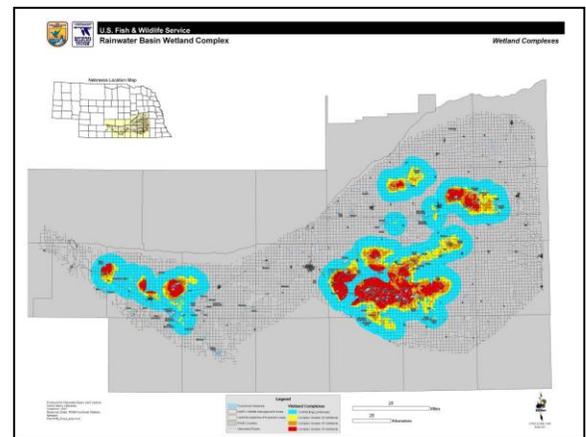


Figure 3. RWB Wetland Complexes

Conservation Design

Several geospatial Decision Support Tools (DSTs) were developed in a GIS to target priority wetland and watershed projects. The wetland prioritization model identifies hydric soil footprints within wetland complexes that have the greatest potential to provide quality foraging habitat if restored or enhanced. The watershed restoration DST identifies and prioritizes hydrologic modifications such as re-use pits and surface drains, whose removal would increase ponding frequency, duration, and intensity in the associated wetland.

Conservation Delivery

Conservation delivery staff have adopted the SHC model and are using the DSTs to direct outreach and marketing to landowners and agriculture producers with high-priority wetlands and watersheds on their land. In 2010 the RWBJV developed three new initiatives to increase conservation delivery success: the Watershed Initiative, the Management Initiative, and the Wetlands Reserve Enhancement Program initiative. In its first year, the Watershed Initiative resulted in removal of 40 irrigation re-use pits from the watersheds of seven public properties, thus completely restoring the hydrology of these public areas and their watersheds. The Management Initiative provided additional resources to treat invasive species on over 7,100 acres, using a combination of herbicide and mechanical disturbance (disking and sediment removal). The Wetlands Reserve Enhancement Program is marketed by United States Department of Agriculture field staff. The RWBJV developed a WREP model that identified eligible producers whose wetlands rank high for the program and, if restored, would complement existing wetland complexes. This model was used to conduct targeted outreach and directed mailings. As a result, enrollment has tripled, and over 600 acres of wetland and associated upland will be restored and protected through perpetual easements.



Figure 4. Waterfowl using Clark Waterfowl Production Area after restoration

Monitoring and Research

The success of the SHC business model depends on its ability to incorporate new information collected through directed research and assumption-driven monitoring. Currently there are several directed-research projects occurring in the RWB. One project conducted by the University of Nebraska-Lincoln is collecting data to refine estimates of the energy (kilocalories/acre) produced by different wetland vegetation communities; we will use resulting data to update our bio-energetic model. Understanding the varying quantities of kcals available to foraging waterfowl in different vegetation communities will help drive management objectives and ultimately habitat goals for the RWBJV partnership. Land managers across the RWB are collaborating on a long-term monitoring project to assess effectiveness of management treatments. Since 2004, all management activities have been recorded in a GIS database. Each fall, monitoring data have been collected on all state and federal wetlands throughout the RWB. These monitoring data have been compiled into a database and are now being analyzed to improve our understanding of management effectiveness, duration of benefit, and cost effectiveness. Results will be published in a “Best Management Practices for Rainwater Basin Wetlands” document for use by managers of public and private wetlands.