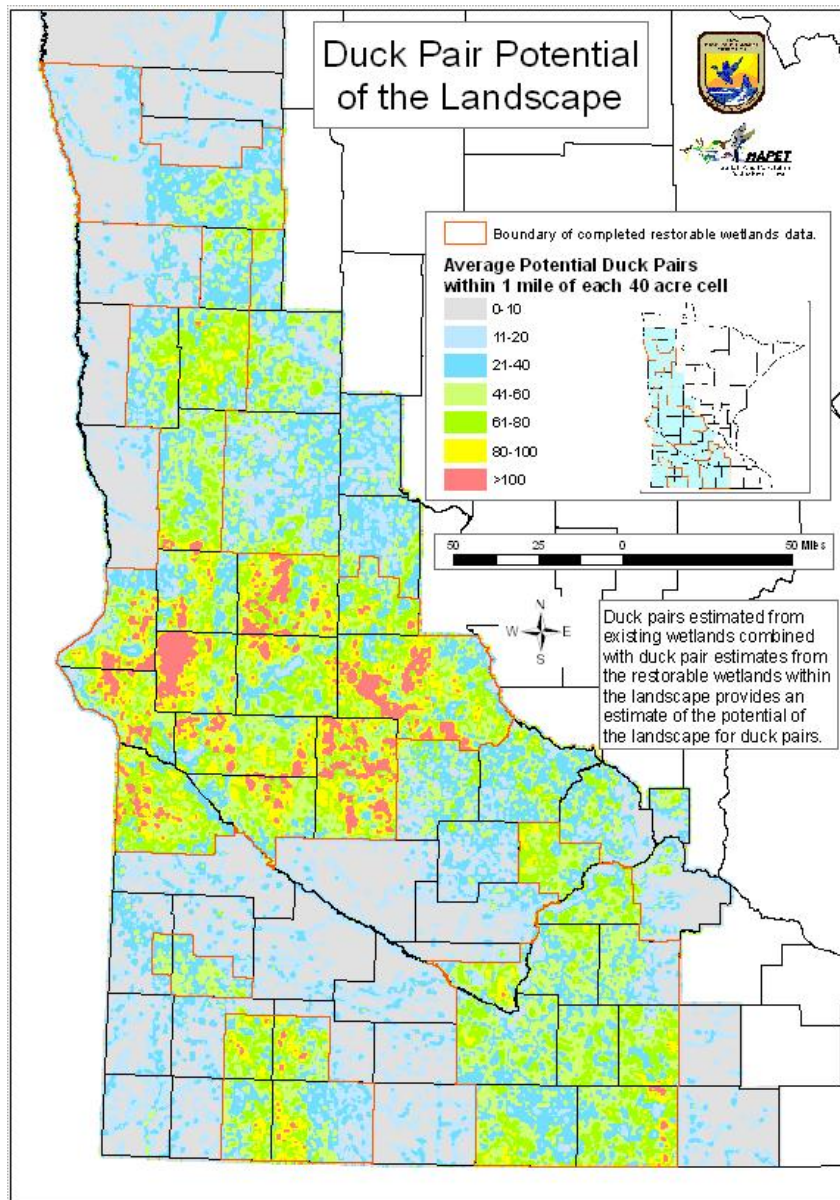# Fact Sheet

A Measure of the Potential of a Landscape to Evaluate Habitat Restoration Prioritization. Arguably, the richest most productive land is drained and being farmed. What is left for wildlife could be considered marginal. Conservation agencies have a tendency to concentrate our efforts in areas where existing habitat remains in the landscape because those areas are less degraded. Whether or not working in those areas is the best possible option or the most productive has always been a concern. How to estimate the productivity potential of a landscape has been a concept of interest. The current availability of various data layers and GIS tools has made it possible to make an initial attempt to estimate the potential of a landscape for duck production. The restorable wetlands inventory data played a key role in this process.

In order to measure the potential of a landscape it is important to know the current condition of those landscapes. One of the steps in the process to create the pair density maps was to apply pair regressions developed from the 4 sq mile survey to processed NWI data and calculate a pair value for every wetland. These regressions were applied to the NWI basin data so that every existing wetland had a pair value assigned to it. This provided an estimate of the number of pairs on every existing wetland. The pair values for the wetlands were then summed for each 40 acre block across the landscape. Areas of **existing wetland complexes** can now be highlighted. The pair values for each 40 acre block can then be used in conjunction with an estimate of recruitment rate derived from the deterministic recruitment model from "Evaluation of Duck Habitat and Estimation of Duck Population Sizes with a Remote-Sensing-Based System" (Cowardin et. al. 1995) {the 4 sq. mile survey} to estimate current recruitment for each 40 acre block. Areas that **currently have the highest duck recruitment** can be highlighted.

Duck Pair Potential of the Landscape

Boundary of completed restorable wetlands data.

Average Potential Duck Pairs within 1 mile of each 40 acre cell

- 0-10
- 11-20
- 21-40
- 41-60
- 61-80
- 80-100
- >100

Duck pairs estimated from existing wetlands combined with duck pair estimates from the restorable wetlands within the landscape provides an estimate of the potential of the landscape for duck pairs.

Where restorable wetlands inventory (RWI) data is available pair regressions developed from the 4 sq mile survey were applied to the combined NWI, RWI data so that every wetland, either existing or restorable, had an assigned pair value. The pair values for the wetlands were then summed for each 40 acre block across the landscape. Areas of **potential wetland complexes** can now be highlighted. The pair values for each 40 acre block can then be used in conjunction with an estimate of recruitment rate derived from the deterministic recruitment model from the 4 sq. mile survey to estimate potential recruitment for each 40 acre block. Areas that have the **highest potential for duck recruitment** can be highlighted. This would provide **a measure of the potential of the landscape.** The same process was done using only the restorable wetlands to estimate pair values. Those pair values for the wetlands were then summed for each 40 acre block across the landscape. Areas that have the **highest potential for increase in duck pairs** can now be highlighted. The pair values for each 40 acre block can then be used in conjunction with an estimate of recruitment rate derived from the deterministic recruitment model from the 4 sq. mile survey to estimate current recruitment for each 40 acre block. Areas that have the **highest potential increase in duck recruitment** can be highlighted. Restoration efforts in areas with higher potential for increase in recruits are **more efficient** than equal restoration efforts in areas with lower potential for increase in recruits.

Uses of these products include prioritization of round-outs to waterfowl production areas (WPA) or state wildlife management areas (WMA), prioritization of conservation programs such as CRP, WRP and RIM, prioritization of restoration of wetland and grassland complexes, enables tract to tract comparisons, acquisition prioritization ensuring wildlife benefits when targeting areas for floodwater retention, carbon sequestration, or nitrogen and phosphorous retention.

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