*The Wildlife Action Network developed for the 2015-2025 MN Wildlife Action Plan*
Minnesota Department of Natural Resources – 13 April 2016

**Wildlife Action Network**

The Wildlife Action Network (Figure 1) is composed of mapped terrestrial and aquatic habitats, buffers, and connectors that represent a diversity of quality habitats that support Species in Greatest Conservation Need (SGCN). The Network is made up of mapped habitat representing viable or persistent populations and "richness hotspots" of Species in Greatest Conservation Need (SGCN). Added to this information are other data on the relative condition of habitat including spatially prioritized and connected Sites of Biodiversity Significance, Lakes of Biological Significance, and Streams with "exceptional" Indices of Biological Integrity. Consideration should be given to projects or activities that could result in the loss, degradation or fragmentation of habitat within the Wildlife Action Network, as habitat loss was identified as a substantial contributor to SGCN population declines. **Improvements are underway that will allow users to get attributes on the components that make up the network – so please check for updates to the shapefile in the near future.**

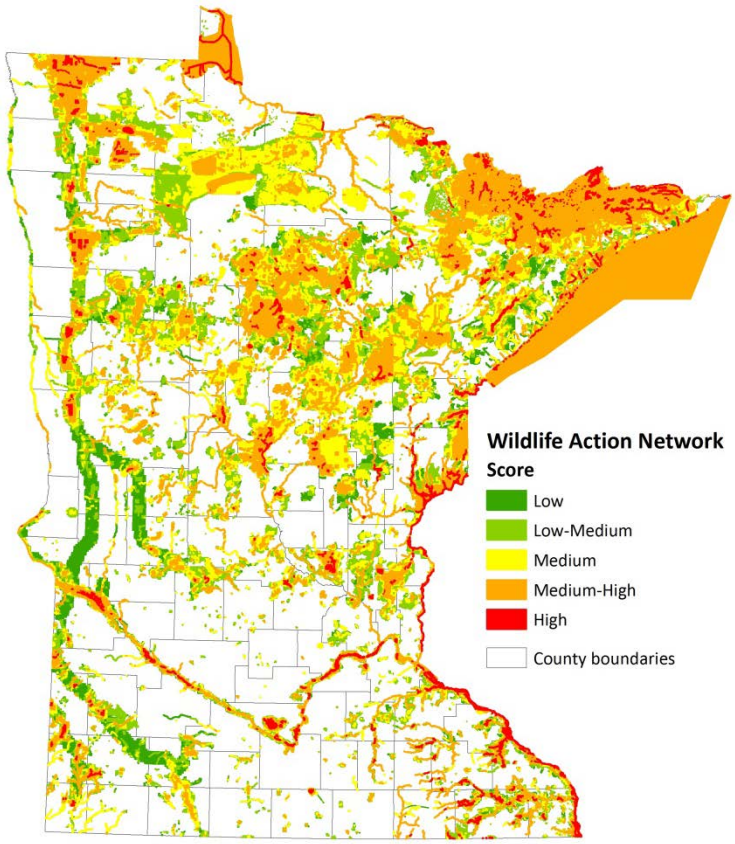


**Figure 1.** The Wildlife Action Network Scored. Scores are based on five scalable metrics: SGCN population viability scores, SGCN richness, spatially prioritized Sites of Biodiversity Significance, ranks of Lakes of Biological Significance, and Stream Indices of Biological Integrity (IBI). Lower scores (green) in a given area indicate the metric scores for any of these five components were either relatively low or zero, while high scores (red) indicate that multiple metrics of high scores overlap. For example, a red area could indicate several good or outstanding SGCN populations, high SGCN richness (including species that did not have population maps available) and were either a high scored Site of Biodiversity Significance, lake of Biological significance, or stream IBI. The area in northeastern Minnesota delineating a portion of Lake Superior represents Minnesota's managed area of the lake.

The Wildlife Action Network was created by overlaying several GIS layers. It is important to note that some of the data used in its development are still considered draft, and the Wildlife Action Network will be updated over time as data are refined and new data become available. The following describes the GIS layers used in the Wildlife Action Network (for more detailed information, see Appendix E of the 2015-2015 MN Wildlife Action Plan):

**a)** Top 95 percent of SGCN populations composite.

**b)** Good or excellent populations of state or federally endangered and threatened species.

**c)** Richness hotspots falling outside the top 95 percent of populations.

**d)** Cores and Corridors from Minnesota Prairie Conservation Plan.

**e)** Marxan outputs from the Scientific and Natural Area strategic plan.

**f)** New Marxan runs of additional final and preliminary sites of biodiversity significance in remaining ecological subsections not analyzed for the SNA strategic plan.

**g)** Sites of Biodiversity Significance that intersect with Marxan outputs and high and outstanding sites where Marxan runs were not completed (Littlefork-Vermillion Uplands and the north half of the Agassiz Lowlands subsections).

**h)** High conservation value forests.

**i)** Lakes of biological significance.

**j)** Streams with an exceptional index of biotic integrity score.

**Scoring the Wildlife Action Network**

To help prioritize the information provided in the conservation network, we carried out a GIS scoring exercise. This exercise was limited to five layers that were entirely or almost entirely statewide in extent and had a score that was either a continuous variable or an ordinal categorical variable. The five layers were also chosen for their complementarity. The composite SGCN population scores and the SGCN richness grid represent aquatic and terrestrial SGCN populations and occurrences. Marxan scores represent mainly terrestrial areas of biological significance, while the Stream Index of Biological Integrity and the Lakes of Biological Significance represent aquatic components of biological significance for those respective systems. While the SGCN population scores and SGCN richness grids are likely highly correlated, it was decided to use both as scoring variables since the SGCN richness grids provide information on SGCN that did not have mapped populations. With the exception of the composite SGCN population scores, the raw values of continuous variables were rescaled between 0 and 1. The highly skewed distribution of the composite SGCN population scores required first categorizing the data using Jenks natural breaks (Jenks 1977) in ArcMap and then scoring based on the five categories. Other categorical variables had three categories and were linearly scaled starting at 0.4. This starting point was used since these data already represent a prioritization, and other areas not represented in this prioritization (e.g., Sites of Biodiversity Significance mapped as “below” or not mapped at all) likely have a distribution of levels with a “quality” below these prioritized layers.

a) Composite SGCN Population Scores.
b) SGCN richness grid used in the hotspot analysis.
c) Marxan scores of prioritized Sites of Biodiversity Significance.
d) Stream Index of Biological Integrity.
e) Lakes of Biological Significance.