Nebraska Land Cover Development. 2011.

Andy Bishop, Austin Barenberg, Nicholas Volpe, John Riens and Roger Grosse
Rainwater Basin Joint Venture, Grand Island, NE

Overview:
Spatially explicit habitat data are crucial in development of accurate biological plans or habitat delivery tools. At a minimum, these landcover data provide a baseline inventory of the types, composition, and distribution of habitats across the landscape. The dataset can also be used to predict species distribution, model species-habitat relationships, identify areas in conservation need, and monitor changes in habitat. A variety of spatial habitat datasets are available in Nebraska, each focusing on different habitat types, and none of which, when viewed alone, are sufficient to meet the needs of effective biological planning or conservation program delivery. We created a landcover dataset integrating data from numerous sources to provide comprehensive coverage in Nebraska.

Methods:
Our habitat classes were based on the Hierarchical All Bird System's (HABS) habitat associations and conditions. HABS defines habitats based on requirements of priority bird species in Nebraska. Habitat associations are coarse classes and, when appropriate, can be further refined into conditions. (See Table 1 in the complete Nebraska Land Cover Development article for a list of all associations and conditions.)

To build the seamless dataset for the Nebraska landcover, we integrated multiple existing spatial data layers. To develop the final dataset, we used the mosaic tool in ERDAS Imagine (ERDAS, Inc., Norcross, Georgia). This function involves a stacking process where more accurate or explicit data sets are "stacked" on top of less accurate or explicit data. The higher stacked data take precedence over the underlying dataset. The order by which we stacked data for Nebraska is as follows, starting at the bottom stack:

1) Nebraska Ecosystem layer
2) Nebraska cropping layer derived from National Agriculture Statistics Service (NASS) data
3) Farm Service Agency Conservation Reserve Program (CRP) data layer
4) Regional wet meadow mask
5) Regional forest/woodland mask
6) Regional developed lands mask
7) Statewide National Wetlands Inventory (NWI) mosaic
8) Rainwater Basin (RWB) wetland vegetation layer
9) RWB hydrological modification layer
10) Regional sandsage mask
11) Regional badlands/cliffs mask
12) Roads layers

Prior to stacking, each dataset was crosswalked, converting cover classes to those used in HABS. Soil Survey Geographic Database (SSURGO) data were used to refine the wetlands and open water classes of the Ecosystem and NASS layers. Also, we are only authorized to use CRP data for internal use. Therefore, all CRP was reclassified as grassland for distribution.

Each of these datasets provides a unique representation of habitats or features that influence habitat selection and use by different species. The resulting landcover represents contemporary conditions to the best extent currently possible.

Final Landcover and Intended Uses:
The final Nebraska landcover maps over 49 million acres of habitats that influence wildlife population distribution and abundance (Figure 1). To view the accuracy assessment of the landcover data, see Rainwater Basin Joint Venture (2012).

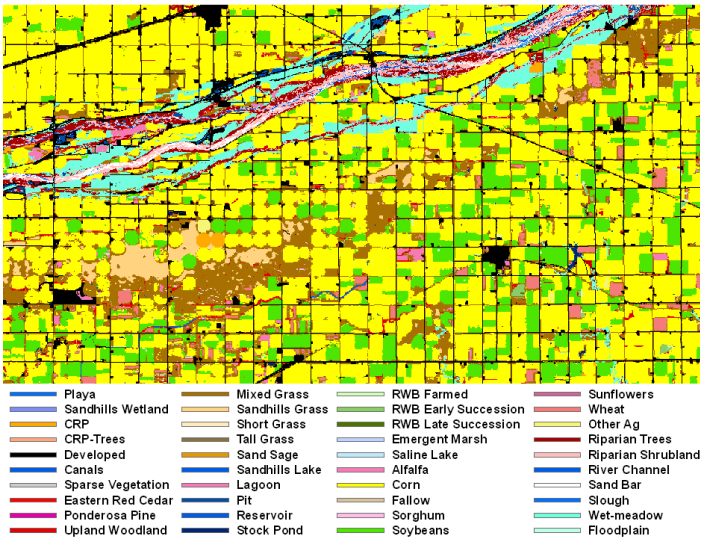

Figure 1. Final landcover map for a portion of Buffalo County, Nebraska.

We offer these cautions for the appropriate use and interpretation of the landcover:

- Due to inclusion of heterogeneous coverage from regional datasets in the Nebraska landcover, statewide accuracy is also likely heterogeneous. Statewide spatial models run using this dataset should be interpreted only with full understanding of the datasets that were used to build this landcover.
- "Wet meadow" has a variety of definitions. In the Nebraska landcover, wet meadow is mapped primarily as a function of hydrology and is defined somewhat broadly. Although wet meadows may be correctly classified on this basis, wet meadow associated plants and animals likely use a species-specific subset of these wet meadow features.

Literature Cited:
Rainwater Basin Joint Venture. 2012. Rainwater Basin Joint Venture landcover accuracy assessment report. Rainwater Basin Joint Venture, Grand Island, NE