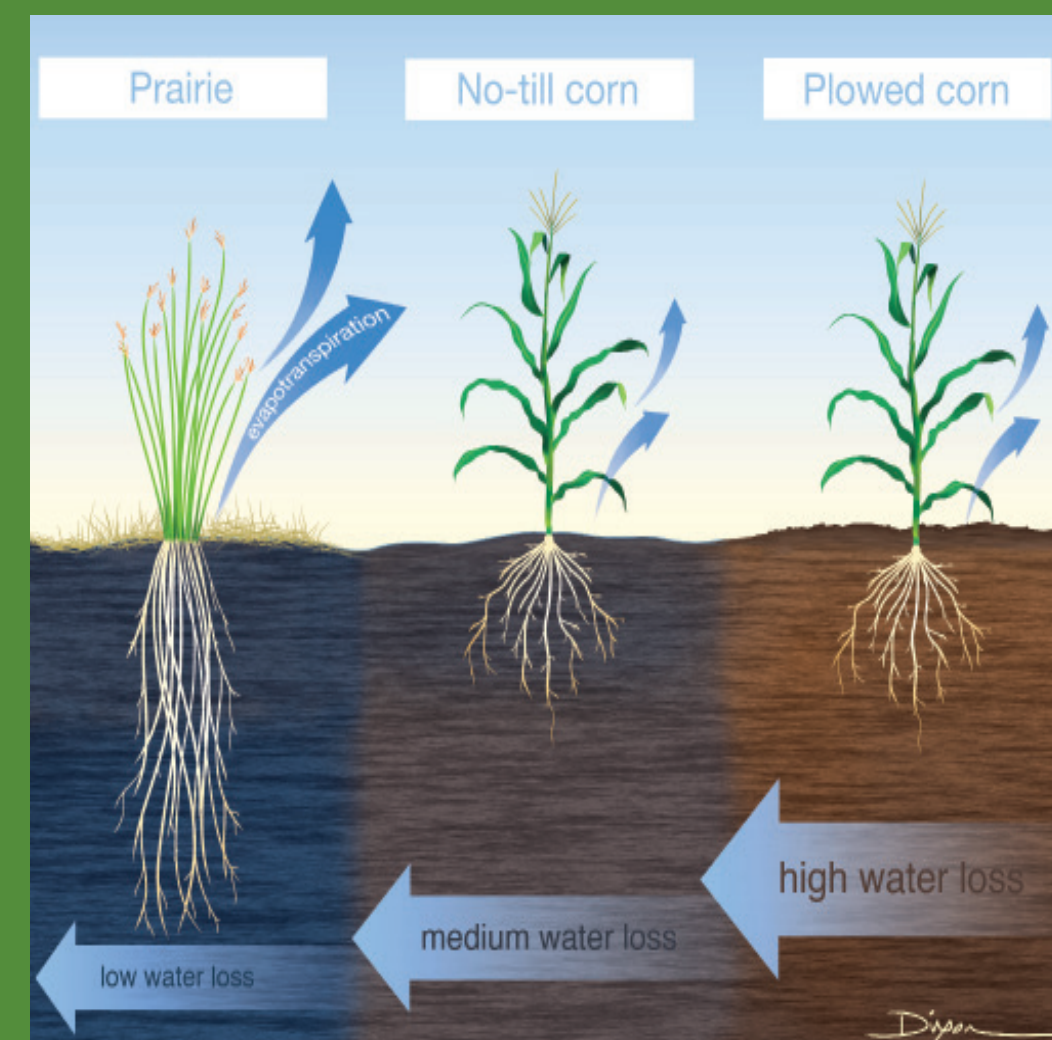


INCORPORATING PRAIRIES INTO MULTIFUNCTIONAL LANDSCAPES

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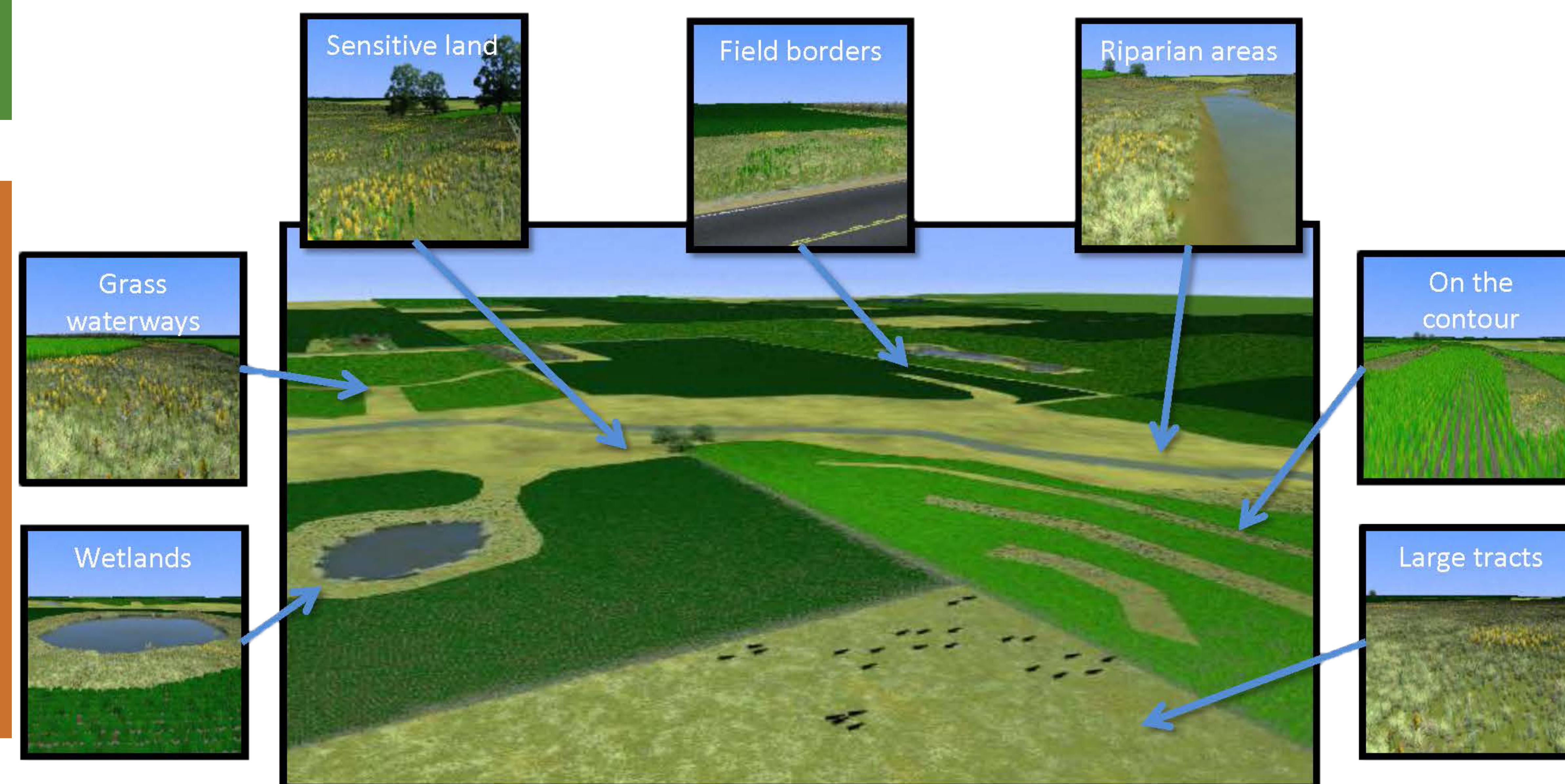
PRAIRIE ECOSYSTEM SERVICES



Incorporating prairies, including wetlands, into a watershed can stabilize the hydrology of the watershed by reducing periods of peak water flow and increasing the amount of water held in the soil.

Tallgrass prairies are a threatened ecosystem with less than 5 percent remaining (Samson and Knopf 1994), and current trends in land-use change are reducing the amount of prairie even more (Faber et al. 2012). In the Western Corn Belt, total grassland cover declined by nearly 530,000 ha (more than 1.3 million acres) from 2006 to 2011 with South Dakota having the greatest net loss of grassland at 182,000 ha (Wright and Wimberly 2013). As the native ecosystem of most of the Great Plains, prairies produced the fertile soils of our region, and reincorporating prairies into agricultural landscapes can provide a wide range of ecosystem services. These services provided by prairies, however, are not currently monetized. Prairies can also provide a range of ecosystem goods that have market value (Jarchow and Liebman 2010).

The importance of tallgrass prairies is increasingly being understood. For example, the Conservation Title of the 2014 Farm Bill directs the Secretary of Agriculture "...in delivering conservation programs, to give priority within the tallgrass prairie region to the use of appropriate tallgrass prairie species for watershed management, flood mitigation/prevention, reduction of soil erosion and nutrient loss, biomass crop production, and other conservation measures."



Prairies provide habitat and food resources (pollen and nectar) to pollinators and natural enemies.



Incorporating prairies into agricultural landscapes reduces the soil erosion and nutrient pollution in the ecosystems. Within prairies, soil erosion and nutrient pollution is limited. This picture is soil under corn production (left) and remnant prairie (right).

Reincorporating prairies into the upper Great Plains can contribute to the sustainability of our landscapes through its impacts on the water, energy, and food nexus.

WATER: Incorporating prairies into agricultural landscapes improves water quality by reducing soil erosion and nutrient pollution and improves the timing of water delivery.

ENERGY: Utilizing prairies for bioenergy, whether through direct combustion or conversion to a biofuel, would provide environmentally beneficial renewable energy.

FOOD: The support that prairies provide to beneficial insects, pollinators and natural enemies, provides essential ecosystem services to most food crops.

MARKETABLE PRAIRIE PRODUCTS

Prairies can be used to produce bioenergy. Prairie biomass can be burned for heat and/or electricity generation. Prairie could also be converted into a liquid fuel either through thermochemical or biochemical conversion.



The seed from prairie plants can be sold either as bulk mixes or as individual species.



Prairie biomass can be used as hay. In some markets prairie hay can receive price premiums because the legumes and other forbs in the prairie provide trace nutrients that may not be found in other hays.

