

DNR Talking Points – Converting Forests to Annual Crops

LCCMR Tour – July 17, 2013

Conversion of forest lands to agricultural uses cause changes – above ground and below ground.

Minnesota DNR used an interdisciplinary approach to assessing impacts of forest conversion, and identified the highest priority to acquire or protect those lands most likely to be converted to agriculture where the conversion would have the greatest impact to groundwater.

This effort is a focus to retain key parcels in forest cover through acquisition that could be applied to private ownership generally. This is consistent with DNR's Strategic Land Asset Management initiative, which seeks to provide integrated planning for public lands.

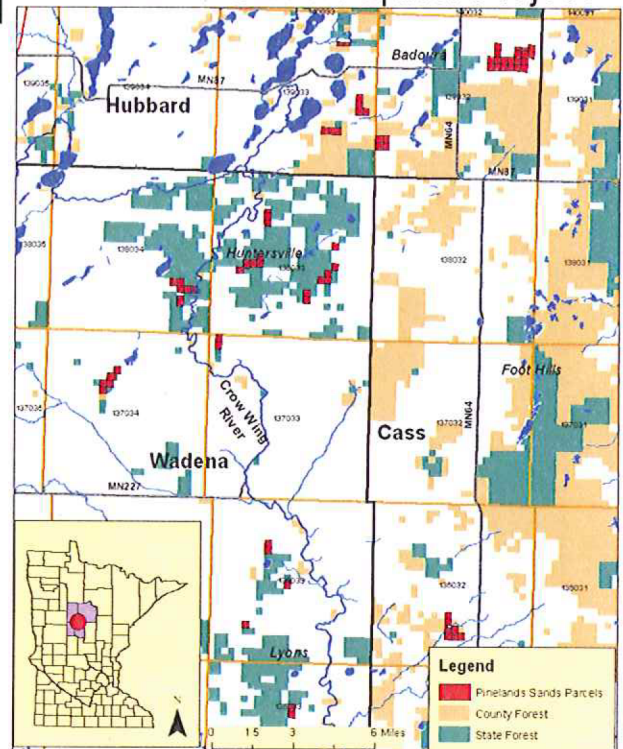
The most significant impact is below ground to ground water – both quality and quantity are affected. The evidence of the impact can be measured in stream flow and lake levels.

Above ground, forest conversion to agricultural lands limits access to state and county lands, eliminates or reduces wildlife habitat, timber supply, rare plant communities and rare species, and finally, the below ground effect on ground water can impair fish habitat. Because the conversion changes quasi-public lands to private lands, it reduces recreational opportunities. In short, protection of key industrial lands is an important strategy for protecting the benefits that nature provides people. DNR and UMN scientists want to work with stakeholders to investigate how various land management and precision conservation scenarios affect such benefits as sediment retention, water purification, groundwater protection, carbon storage and timber production over 50 years. This proposal has been submitted to LCCMR and would use state-of-the-art tools to inform precision conservation acquisitions in the region.

There are 60,000 acres of Potlatch timberland in Cass, Hubbard and Wadena counties, almost all of which is over the Pinelands Sands Aquifer. The Pineland Sands Area is a glacial outwash area characterized by fine to coarse grained sands and gravels which are well drained. The area is underlain by an extensive surficial sand and gravel aquifer (water table) along with buried sand and gravel aquifers. The water table aquifer and surface water bodies in this area are interconnected and



Pinelands Sands Aquifer Project



dependent on one another. Withdrawals in the water table aquifer can cause lower water levels in the nearby wetlands, lakes and streams. Some of the streams are designated trout streams and highly dependent on a cold groundwater supply. The deeper buried sand and gravel aquifers also have some connectivity to the shallower water table aquifer in different locations throughout this area and withdrawals from these deeper aquifers can also impact surface water bodies.

Because the soils are well drained, chemicals applied to the surface can infiltrate quickly into the soil; especially water soluble chemicals like nitrate. This can lead to groundwater contamination. This is demonstrated in the City of Park Rapids water table wells with nitrate concentrations reaching MDH Health Risk Limits; probably due to agricultural application of nitrogen fertilizers in the City well head protection area.



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