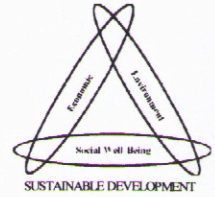
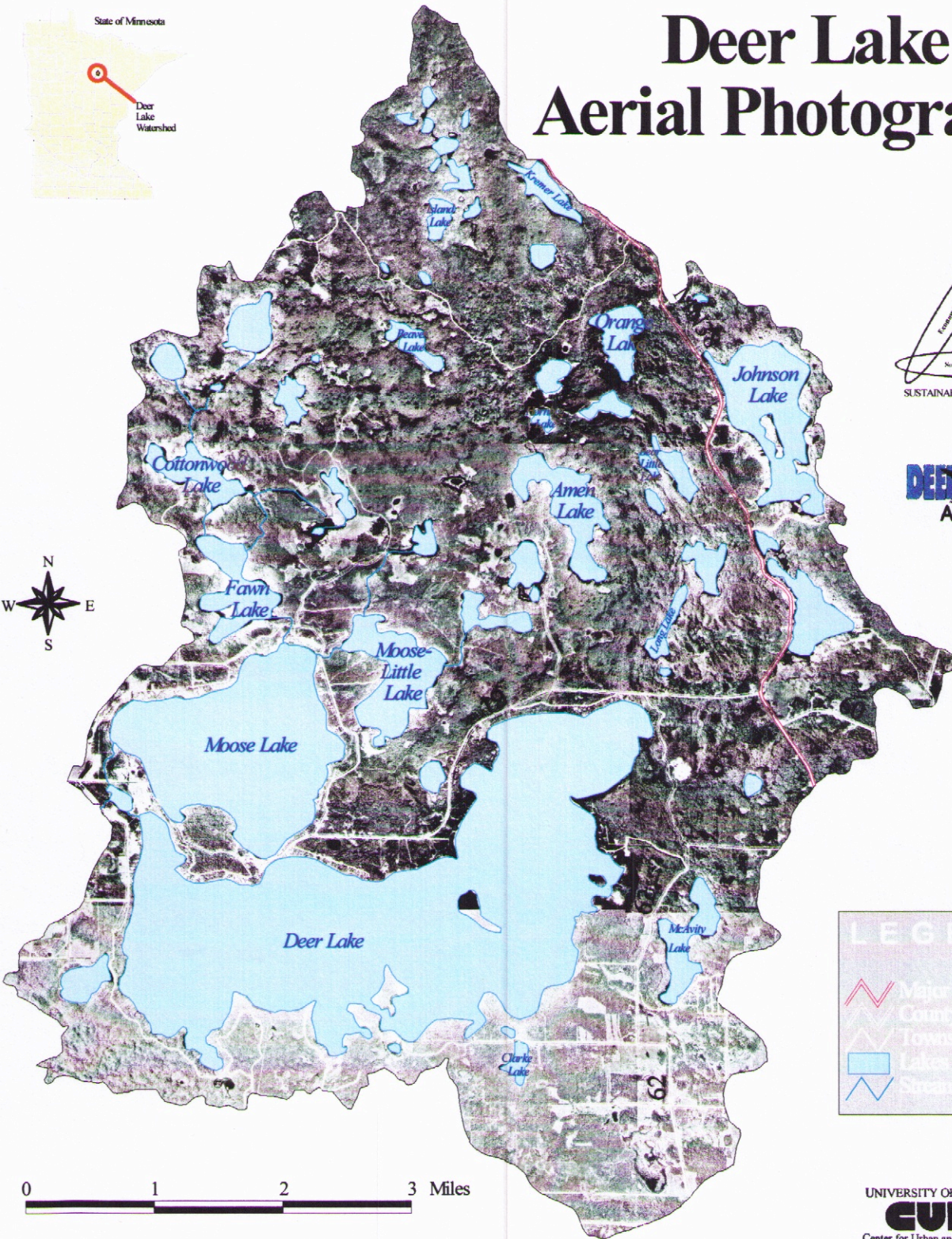
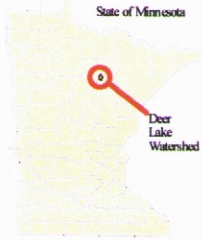


# Deer Lake Aerial Photography



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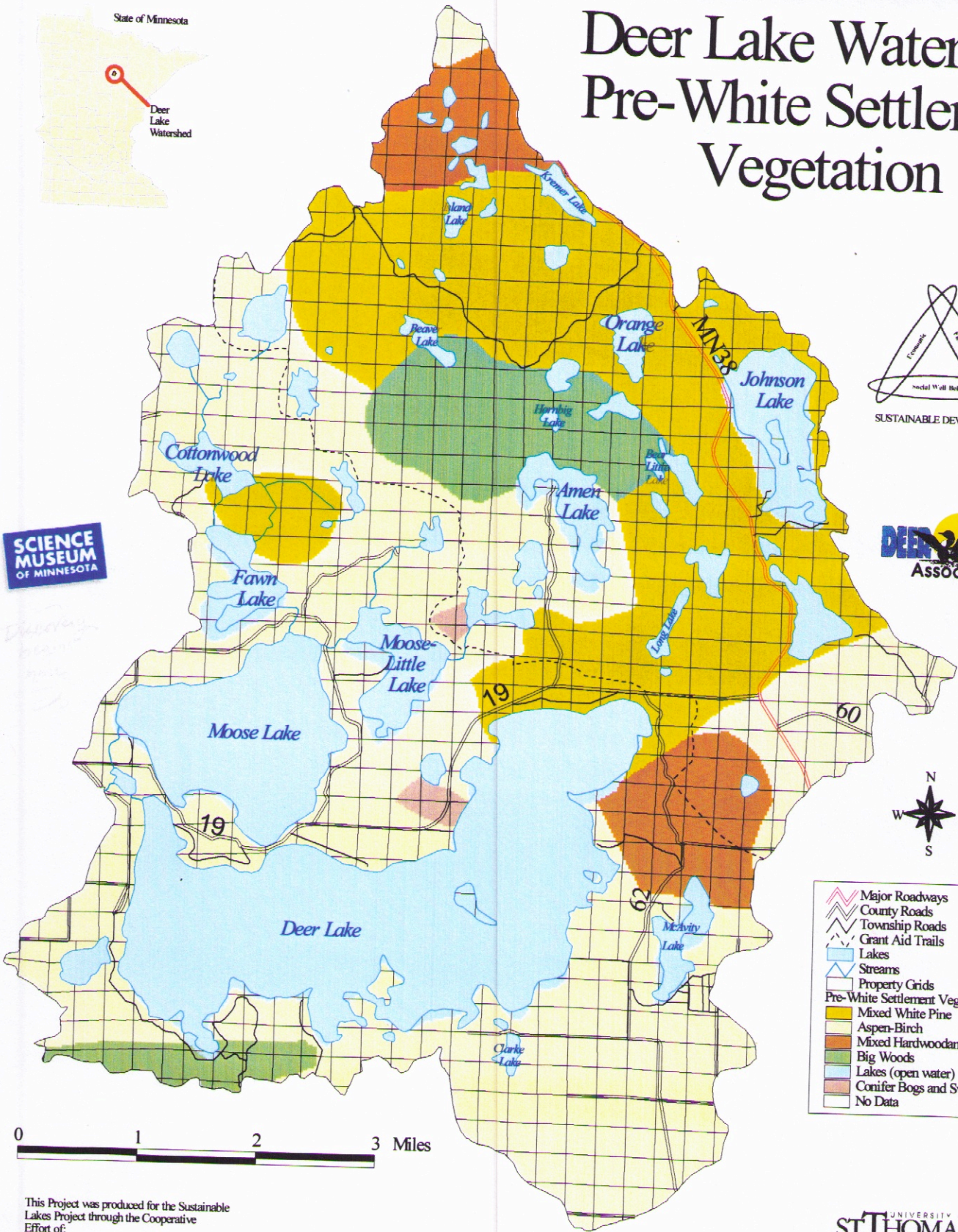
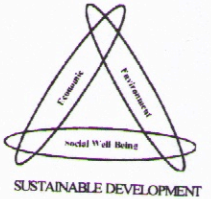
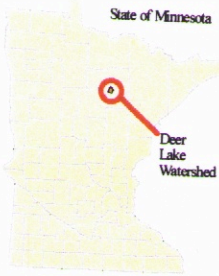
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USGS Scale 1:75,000  
 Data Source: United States Geological Survey (USGS), 1992.  
 Map Design by Daphne Karpis in July 1998  
 Contact: kary0003@tc.umn.edu



# Deer Lake Watershed Pre-White Settlement Vegetation



- Major Roadways
- County Roads
- Township Roads
- Grant Aid Trails
- Lakes
- Streams
- Property Grids
- Pre-White Settlement Vegetation**
- Mixed White Pine
- Aspen-Birch
- Mixed Hardwood and Pine
- Big Woods
- Lakes (open water)
- Conifer Bogs and Swamps
- No Data



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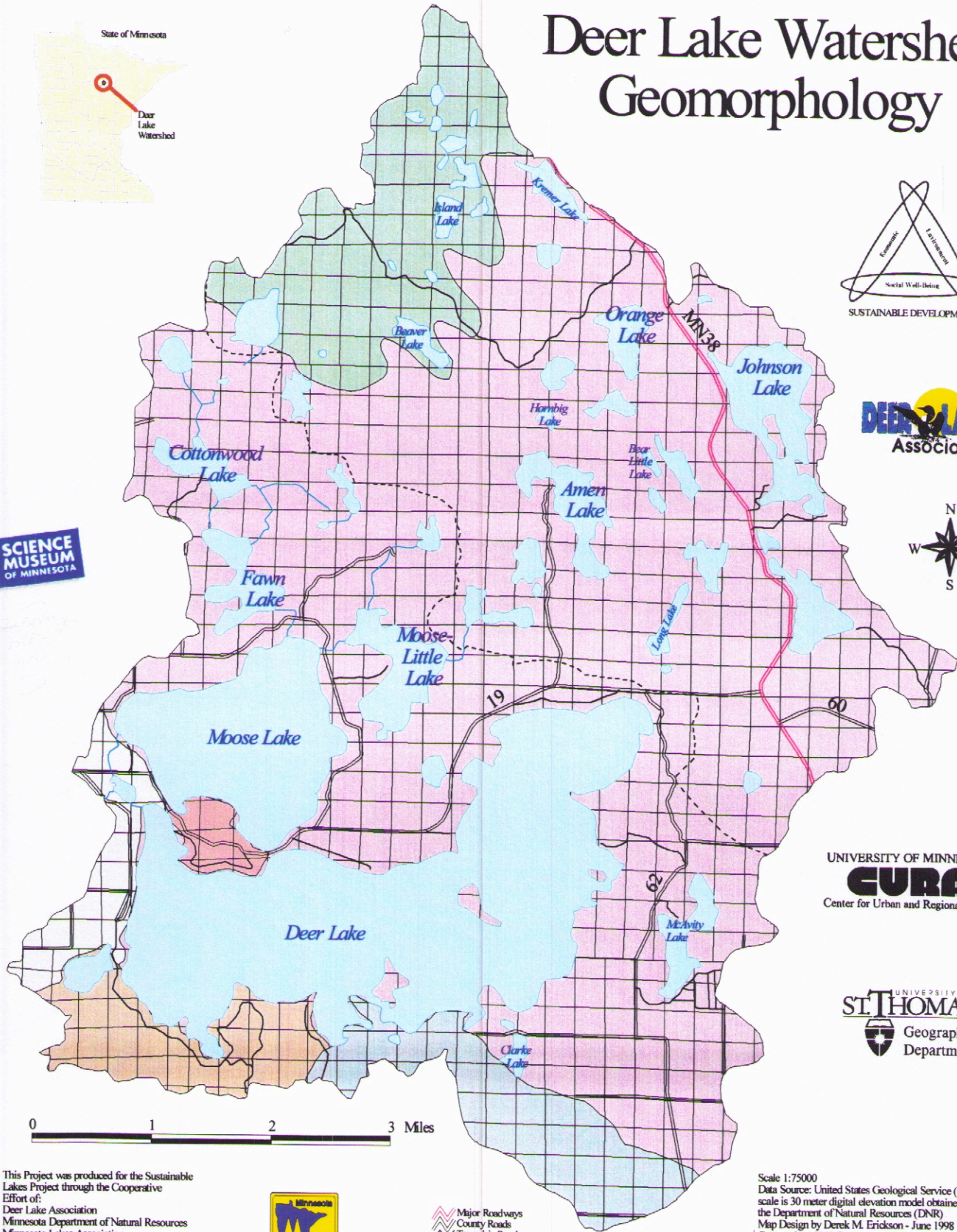
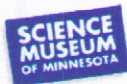
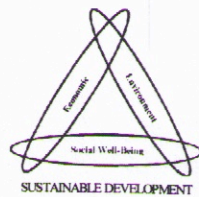
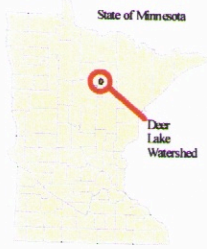
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Scale 1:75,000  
 Data Source: Minnesota Natural Heritage Program and Nongame Research Program of the Division of Fish and Wildlife, MNDNR.  
 Map Design by Derek M. Erickson - June 1998  
 Contact: kary0003@tc.umn.edu



# Deer Lake Watershed Geomorphology



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- Major Roadways
- County Roads
- Township Roads
- Grant Aid Trails
- Lakes
- Streams
- Property Grids

- Geomorphology**
- Koochiching Lobe, Guthrie, Rolling to Undulating, Supraglacial Drift Complex (638 acres : 2.22%)
  - Koochiching Lobe, Guthrie, Hummocky, Ice Contact, Esker (1,242 acres : 4.32%)
  - Koochiching Lobe, Guthrie, Hummocky, Supraglacial Drift Complex (1,030 acres : 3.59%)
  - Koochiching Lobe, Guthrie, Hummocky, Supraglacial Drift Complex, Predominately ice-contact deposits (2,480 acres : 8.64%)
  - Koochiching Lobe, Undifferentiated, Rolling to Undulating, Ice Contact (22.4 acres : 0.78%)
  - Koochiching Lobe, Undifferentiated, Hummocky, Outwash (23,097 acres : 80.45%)

Scale 1:75000  
 Data Source: United States Geological Service (USGS), scale is 30 meter digital elevation model obtained through the Department of Natural Resources (DNR)  
 Map Design by Derek M. Erickson - June 1998  
 Contact: kary0003@tc.umn.edu

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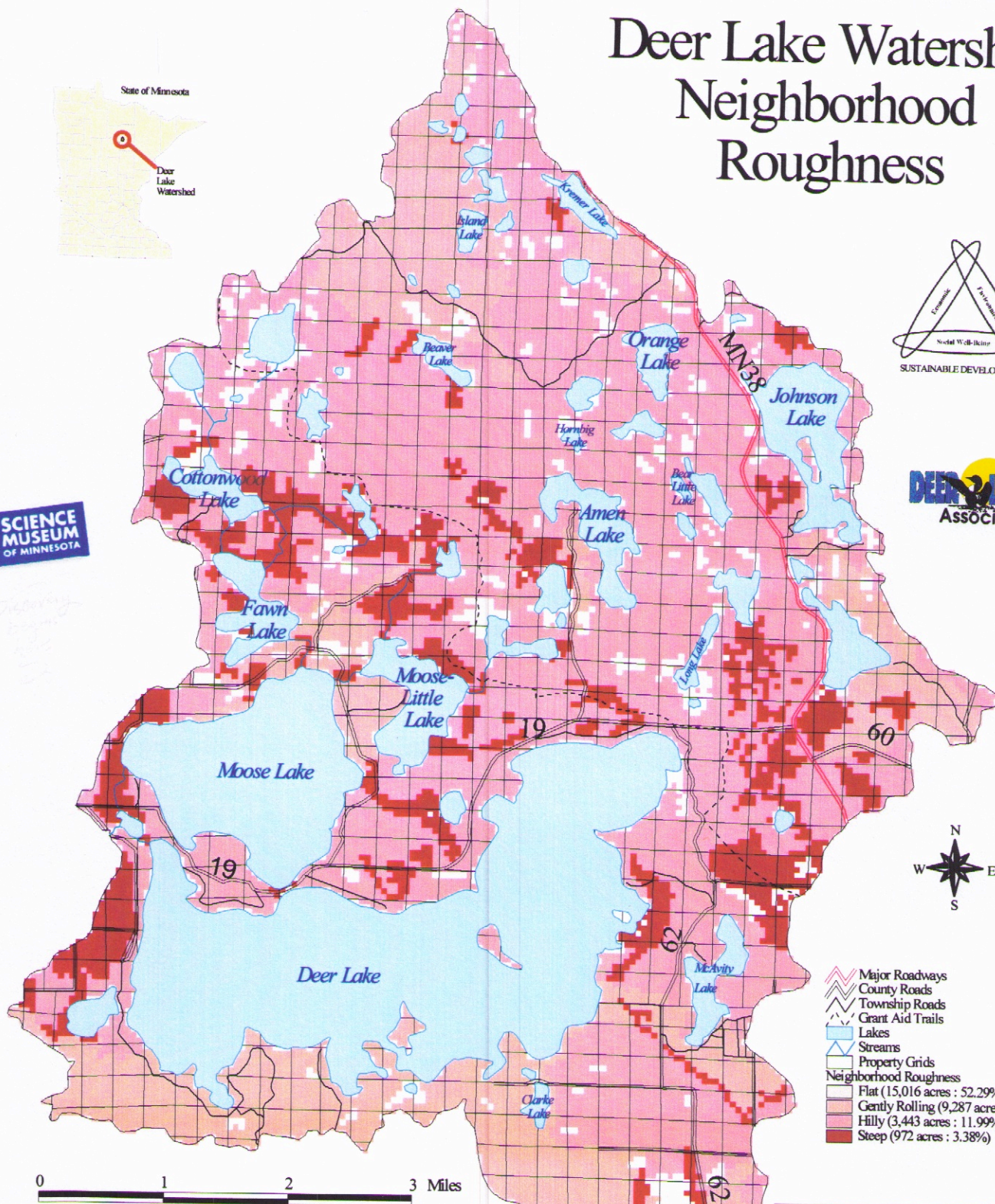




# Deer Lake Watershed Neighborhood Roughness



*Deer Lake  
Association*



- Major Roadways
- County Roads
- Township Roads
- Grant Aid Trails
- Lakes
- Streams
- Property Grids
- Neighborhood Roughness
  - Flat (15,016 acres : 52.29%)
  - Gently Rolling (9,287 acres : 32.34%)
  - Hilly (3,443 acres : 11.99%)
  - Steep (972 acres : 3.38%)

Neighborhood Roughness is how steep or flat an area is in relation to the surrounding area. The Roughness of a given area on this map was determined by comparing the given area to the surrounding slopes and hills that were within a 0.25 mile radius.

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Scale 1:75,000  
Data Source: United States Geological Service (USGS).  
Created through a 30 meter digital elevation model obtained through the Department of Natural Resources (DNR).  
Map Design by Derek M. Erickson - June 1998  
Contact: kary0003@tc.umn.edu





# Deer Lake Watershed Erosion (Run-Off) Susceptibility



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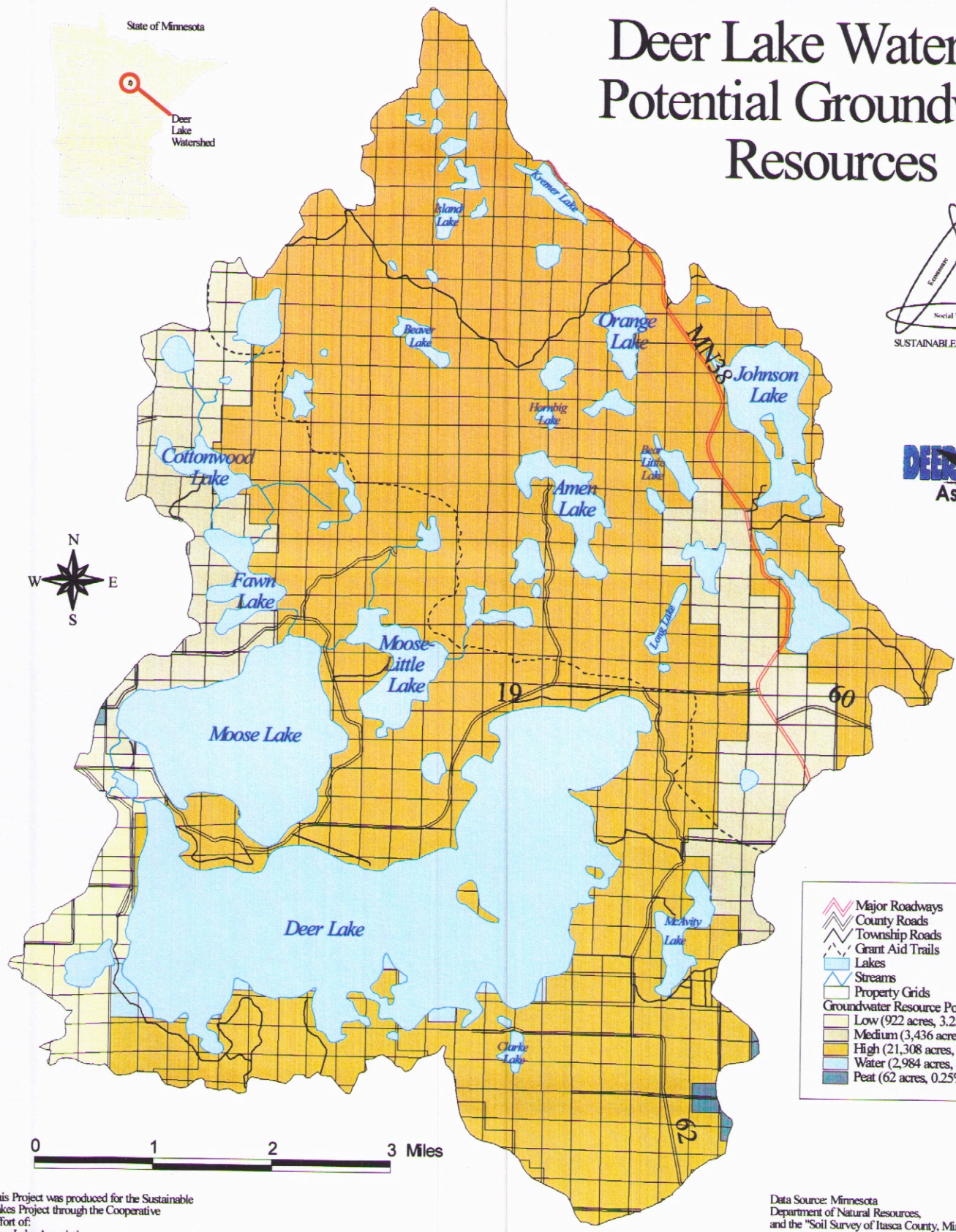
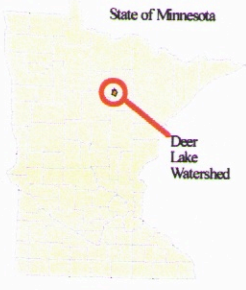
USGS Scale 1:75,000  
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- Major Roadways
- County Roads
- Township Roads
- Grant Aid Trails
- Lakes
- Streams
- Property Grids
- Potential Erosion (Runoff) Sources
- Non-Sensitive Areas (19,694 acres, 94.76%)
- Loam to Clay Loam Soils (2,953 acres, 14.21%)
- > 8% Slope (787 acres, 3.79%)
- Farmland, Rural/Urban Dev. (155 acres, 0.55%)
- > 8% Slope and Farmland, Rural/Urban Dev. (11 acres, 0.05%)
- Loam to Clay Loam Soils and Farmland, Rural/Urban Dev. (76 acres, 0.37%)
- Loam to Clay Loam Soils and > 8% Slope (53 acres, 0.26%)
- Loam to Clay Loam Soils, > 8% Slope, and Farmland, Urban/Rural Dev. (3 acres, 0.01%)



# Deer Lake Watershed Potential Groundwater Resources



	Major Roadways
	County Roads
	Township Roads
	Grant Aid Trails
	Lakes
	Streams
	Property Grids
<b>Groundwater Resource Potential</b>	
	Low (922 acres, 3.25%)
	Medium (3,436 acres, 12.0%)
	High (21,308 acres, 74.25%)
	Water (2,984 acres, 10.25%)
	Peat (62 acres, 0.25%)

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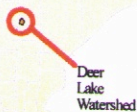
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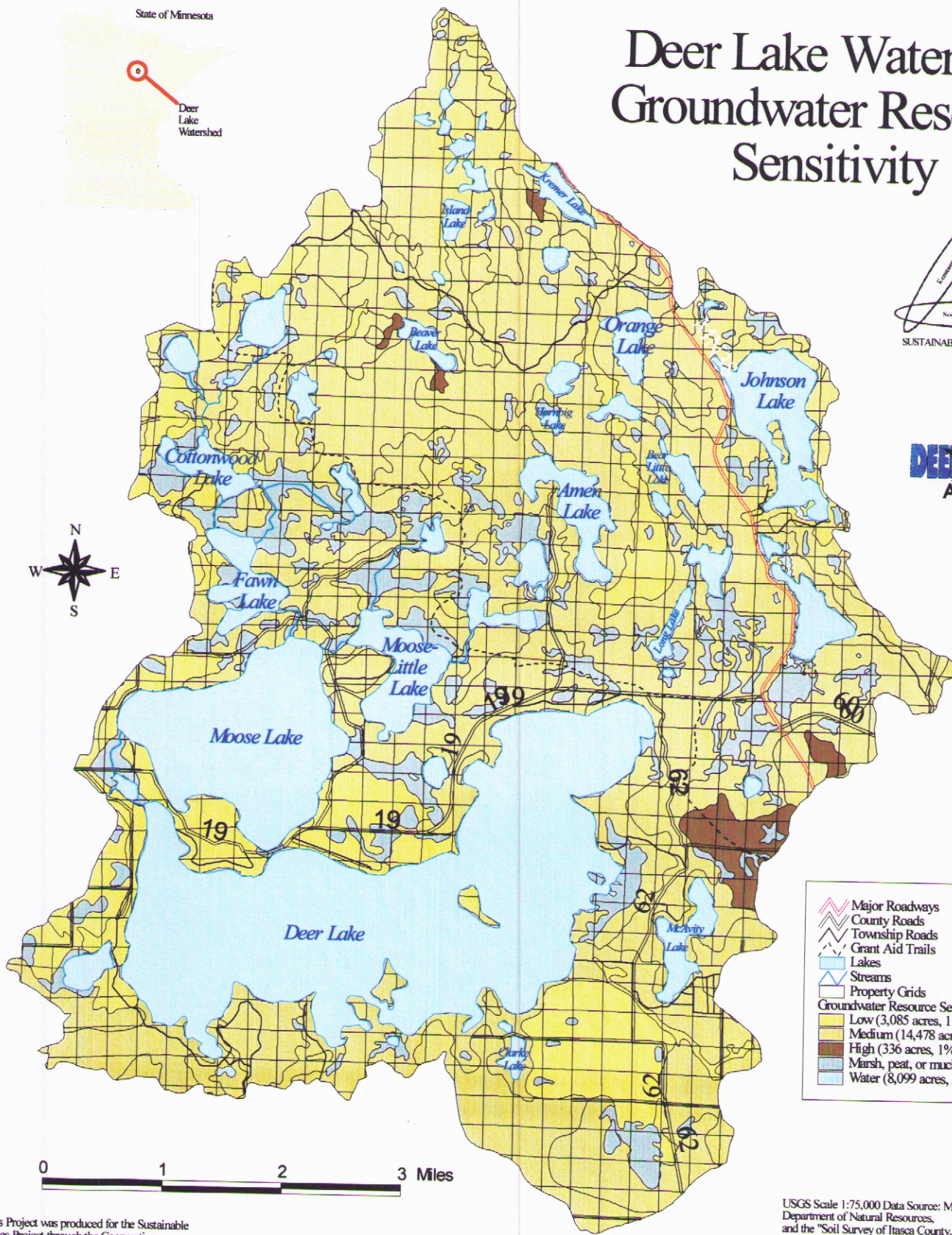
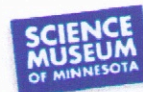
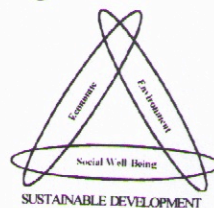
Data Source: Minnesota Department of Natural Resources, and the "Soil Survey of Itasca County, Minnesota," created by the United States Department of Agriculture, and the Soils Conservation Service  
 Map Design by Daphne Karypis, February 1999  
 Contact: kary0003@tc.umn.edu



State of Minnesota



# Deer Lake Watershed Groundwater Resource Sensitivity



	Major Roadways
	County Roads
	Township Roads
	Grant Aid Trails
	Lakes
	Streams
	Property Grids
<b>Groundwater Resource Sensitivity</b>	
	Low (3,085 acres, 11%)
	Medium (14,478 acres, 50%)
	High (336 acres, 1%)
	Marsh, peat, or muck (2,712 acres, 9.5%)
	Water (8,099 acres, 28%)

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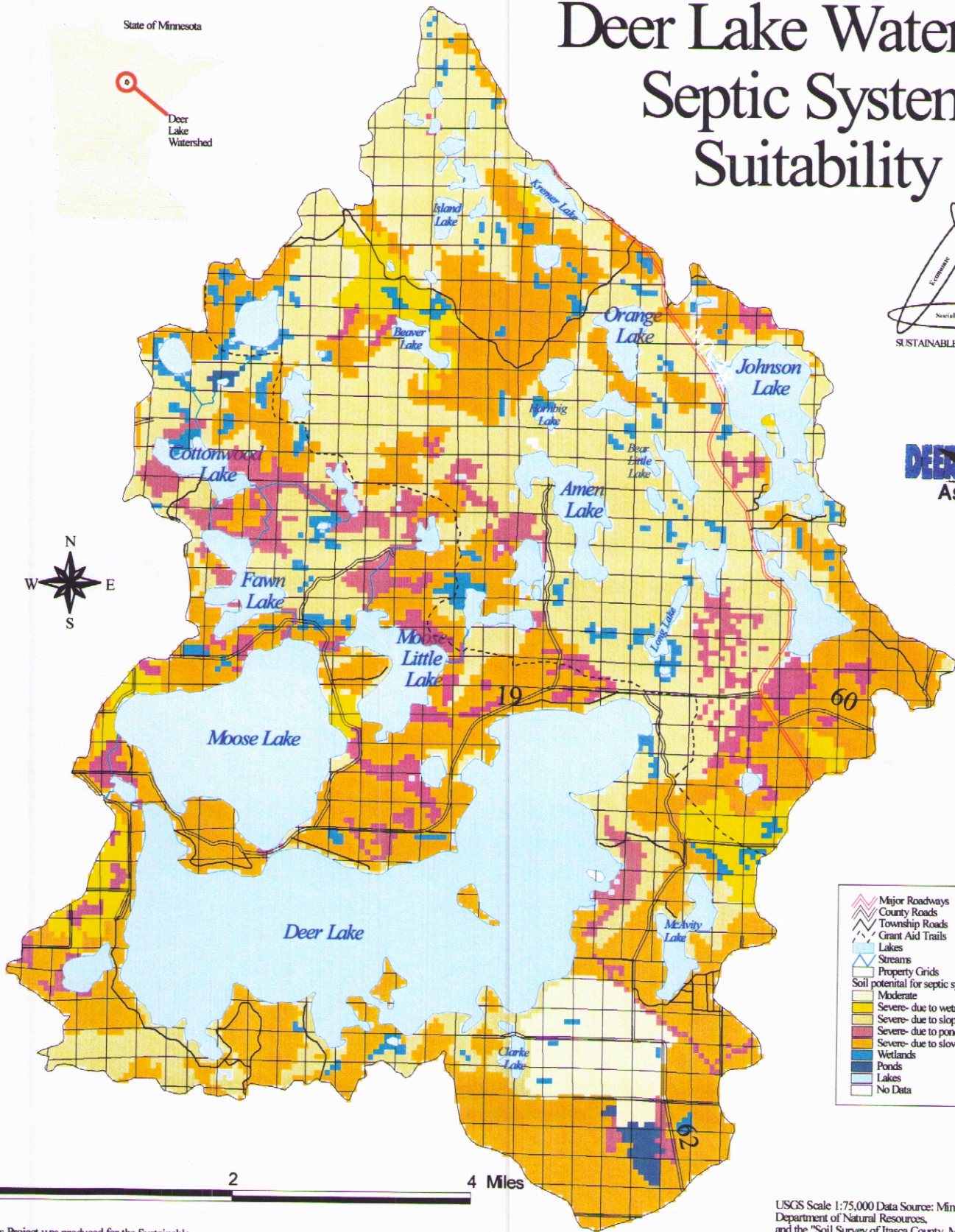
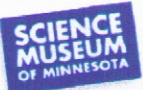
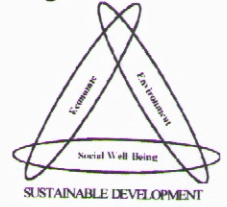
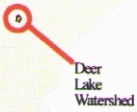


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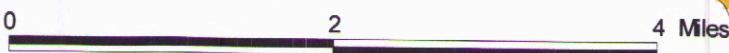


# Deer Lake Watershed Septic System Suitability

State of Minnesota



- Major Roadways
- County Roads
- Township Roads
- Grant Aid Trails
- Lakes
- Streams
- Property Grids
- Soil potential for septic systems
- Moderate
- Severe- due to wetness
- Severe- due to slope
- Severe- due to ponding
- Severe- due to slow percolation
- Wetlands
- Ponds
- Lakes
- No Data



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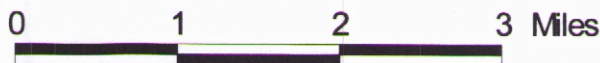
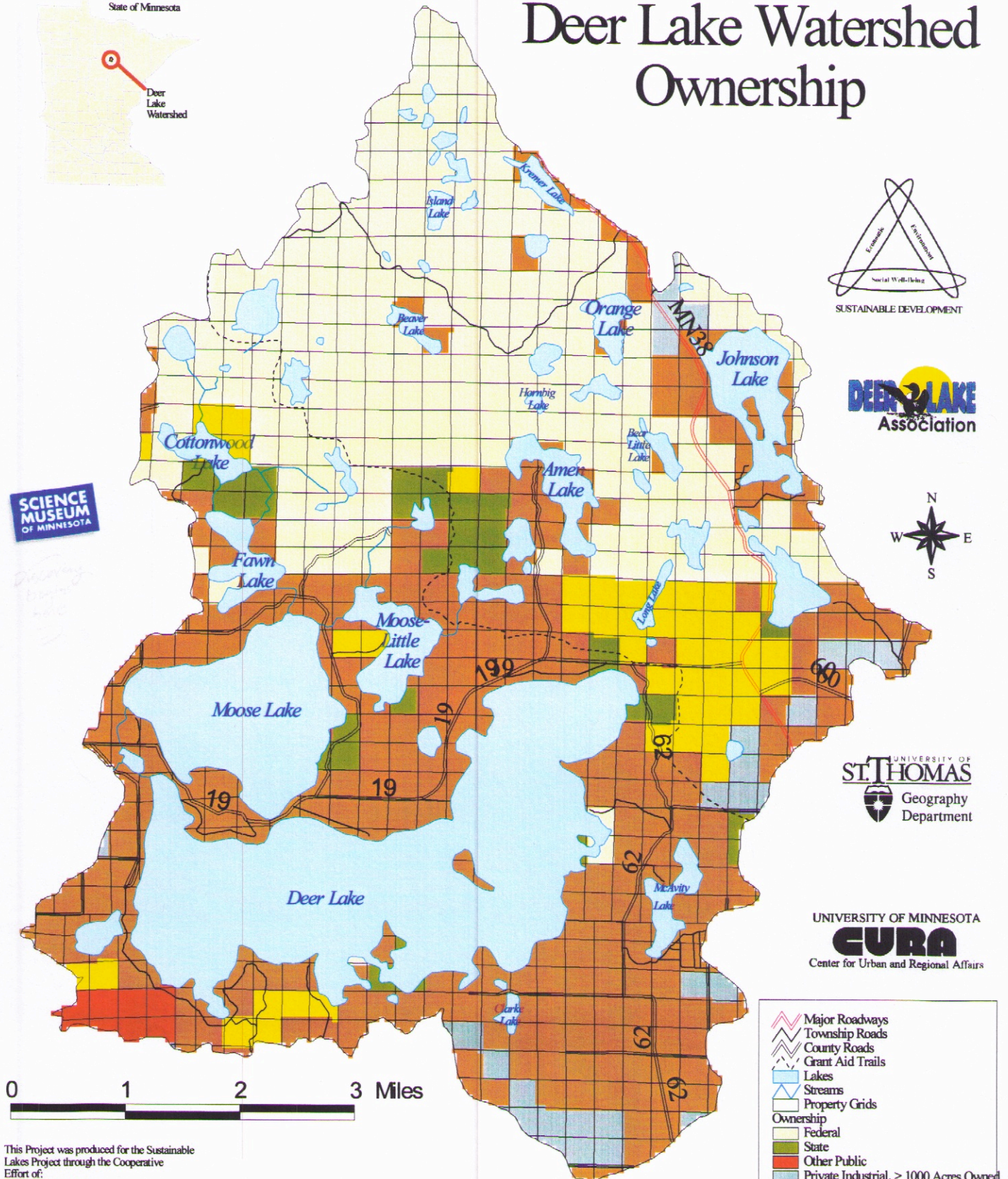
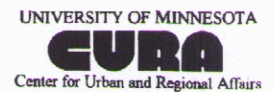
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# Deer Lake Watershed Ownership



*Delivering  
Inspiration  
2000*



- Major Roadways
- Township Roads
- County Roads
- Grant Aid Trails
- Lakes
- Streams
- Property Grids
- Ownership**
- Federal
- State
- Other Public
- Private Industrial, > 1000 Acres Owned
- County
- Other Private Property
- No Data

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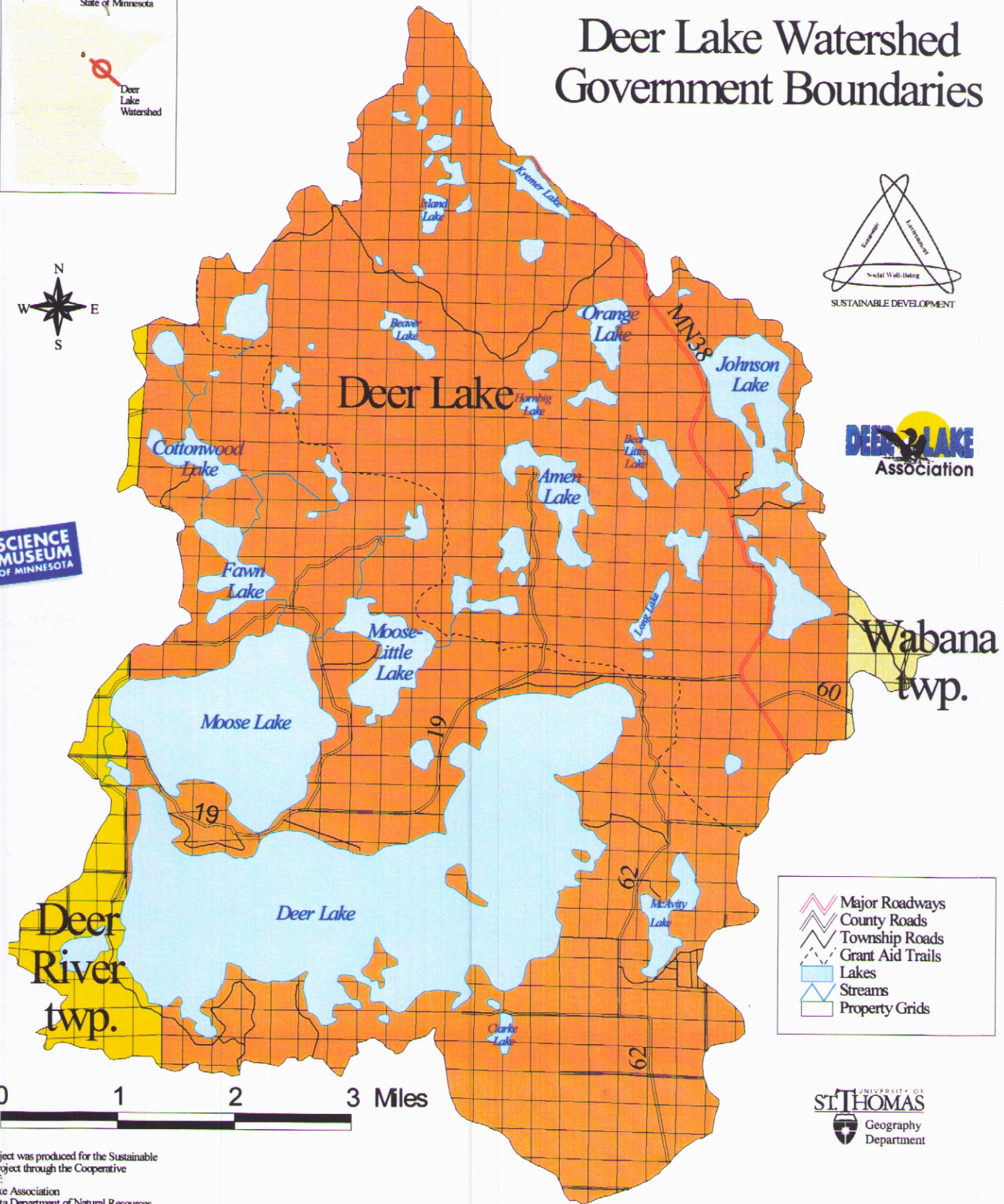
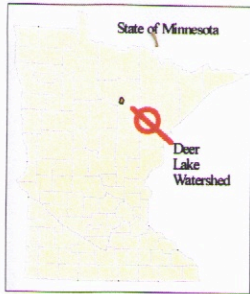
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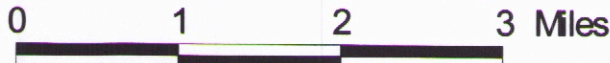
Scale 1:75,000  
 Data Source: Minnesota Land Management Information Center (LMIC)  
 Map Design by Derek M. Erickson in June 1998  
 Contact: kary0003@tc.umn.edu



# Deer Lake Watershed Government Boundaries



- Major Roadways
- County Roads
- Township Roads
- Grant Aid Trails
- Lakes
- Streams
- Property Grids



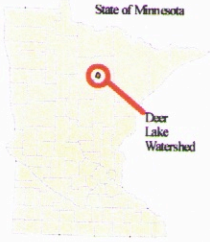
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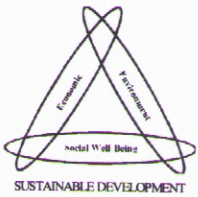


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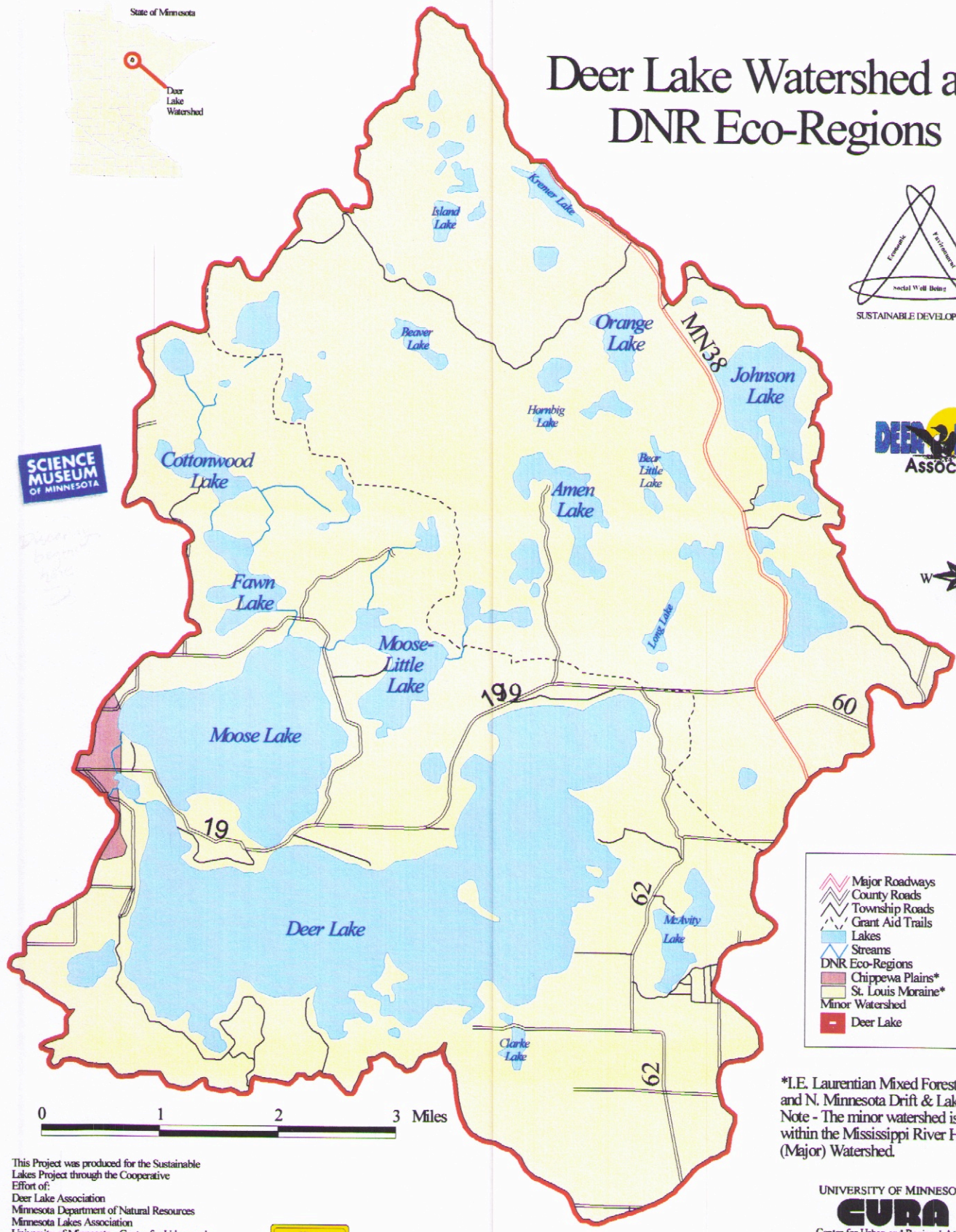


# Deer Lake Watershed and DNR Eco-Regions



	Major Roadways
	County Roads
	Township Roads
	Grant Aid Trails
	Lakes
	Streams
	DNR Eco-Regions
	Chippewa Plains*
	St. Louis Moraine*
	Minor Watershed
	Deer Lake

\*I.E. Laurentian Mixed Forest Province and N. Minnesota Drift & Lake Plains  
 Note - The minor watershed is located within the Mississippi River Headwaters (Major) Watershed.



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