

Identifying high infiltration and ground water recharge areas in Dane County, WI

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- ✦ High infiltration/recharge areas provide valuable ecosystem services in landscapes
- ✦ Infiltration databases are relatively data-poor and inconsistent, but this information is a valuable resource for community planners

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- ✦ Can maps of these sensitive areas become part of community/regional urban development planning?
- ✦ Will developers actually utilize the information and what format do they prefer?

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- ✦ Assess the impact of development on the infiltration rates of soils
- ✦ Develop tools to make this information readily accessible to the public

Model development

- ◆ Weighting and rating model combined with GIS layers to identify specific areas of interest

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- ◆ Three land-use categories: agricultural, residential, recreation/open/vacant/woodland
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- ◆ Information for land-use from Dane County Regional Planning Commission (2005)

Activities – Stage 1

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- ◆ Field measurement of K_{sat} using confined ring infiltrometer, lab data obtained from cores with falling head permeameter

Field sampling strategy

- ◆ Number of sample points for each combination land use and estimated infiltration class is approximately proportional to land area coverage for that class

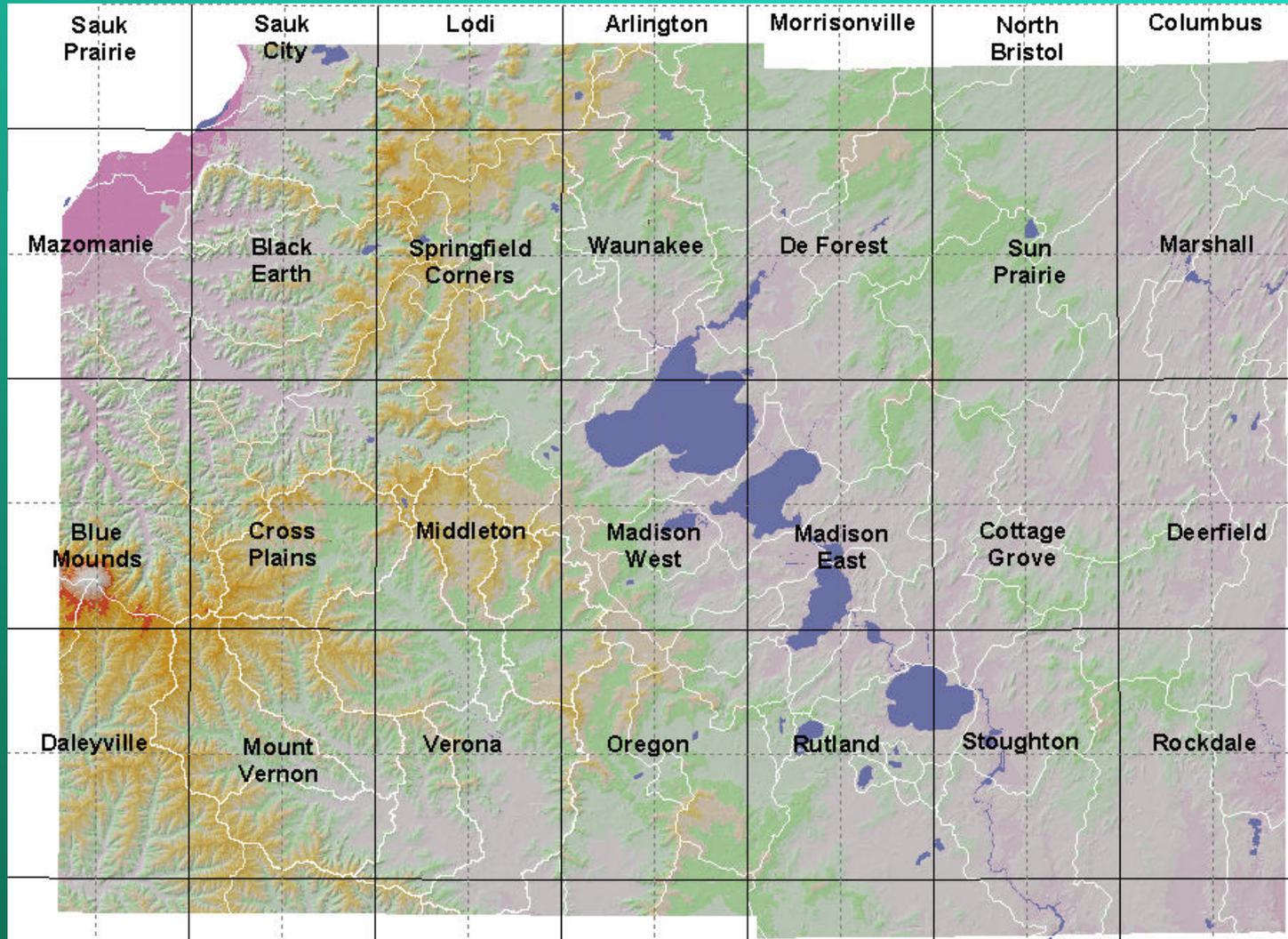
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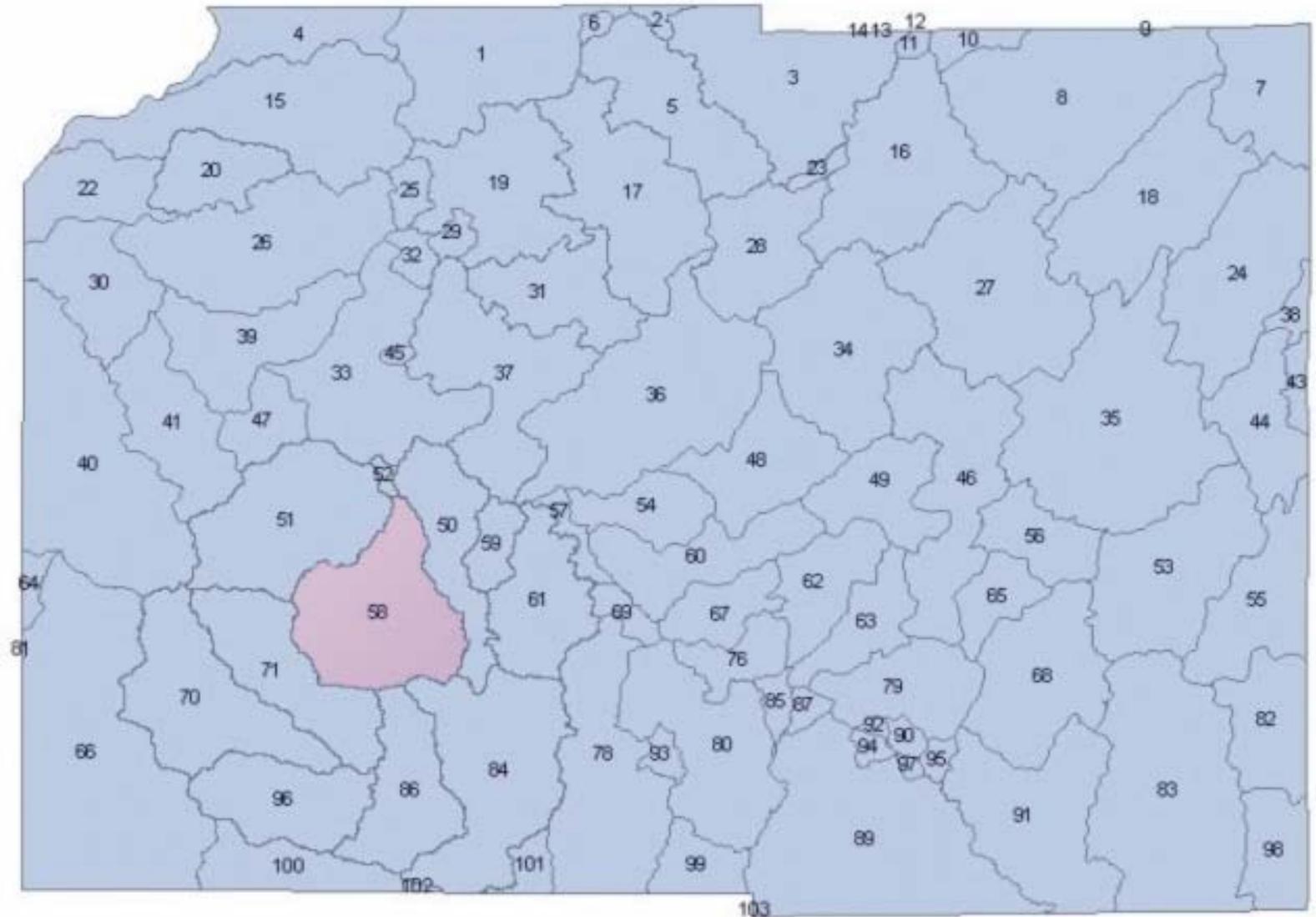
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- ◆ Stratified random sampling from SoLIM data points dependent upon relevant classes

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Field measurements

- ◆ Surficially confined portable infiltrometer
- ◆ 1m x 0.5m rectangular steel frame surrounding a portable instrument
- ◆ Two replicates per landscape sample point
- ◆ Constant head maintained by ponded water on the surface within the confines of the ring
- ◆ Cores recovered and returned to lab for falling head permeameter measurements of separate horizons

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- ◆ Modeling information publication through USGS/WNHGS for knowledgeable land-use managers



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