Using LiDAR to delineate wetlands:
Should we account for culverts?

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Objective

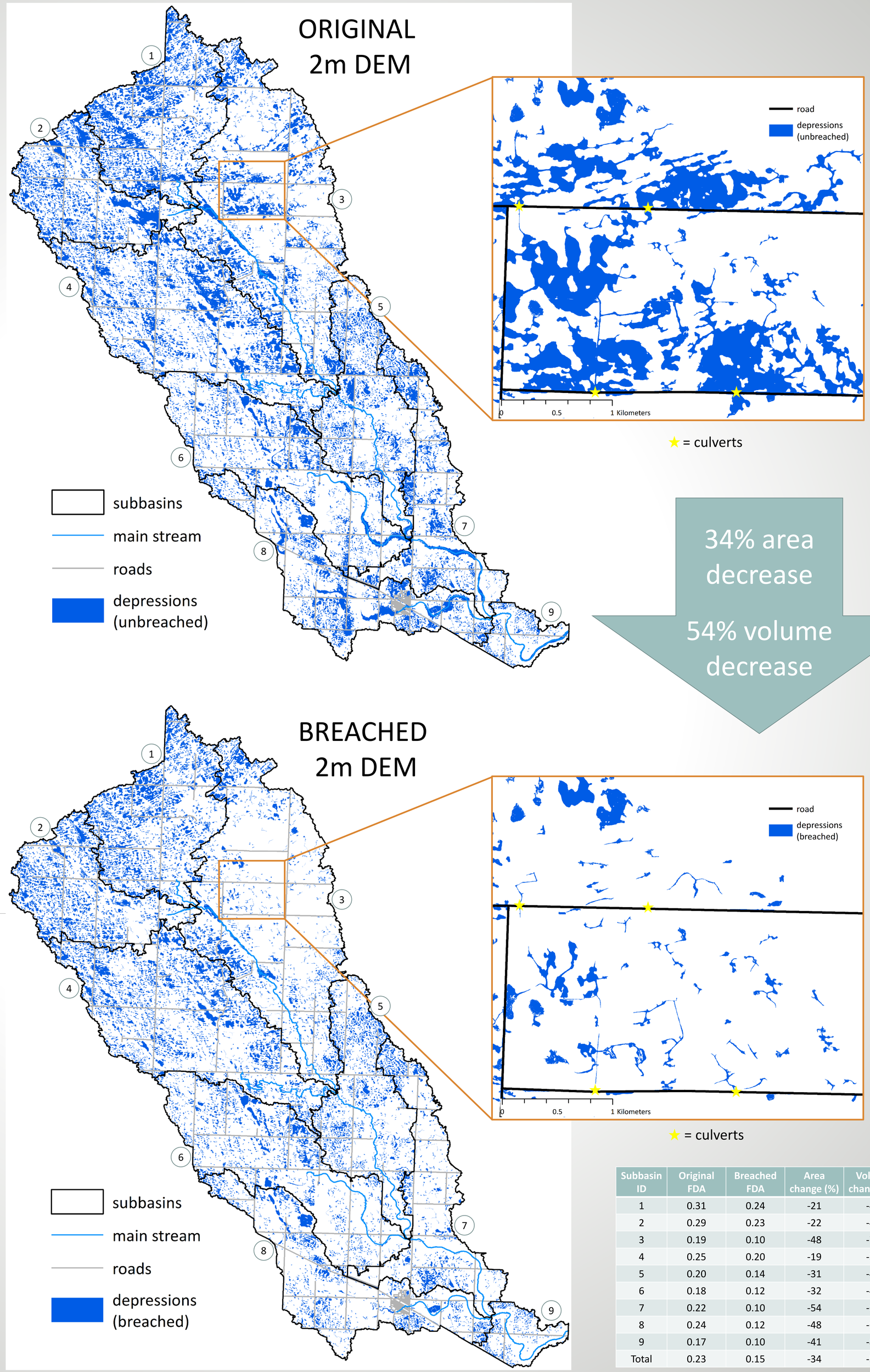
- Quantify the influence of roads on LiDAR-based delineation of wetland depressional storage capacity

Methods

- Site: Smith Creek Research Basin
- Manually breach roads at known and assumed culvert locations in a 2m DEM using SAGA
- Delineate depressions in original and breached DEMs
- Compare maximum depressional storage area and volume results

Results

- 926 road breaches
- 34% decrease in maximum depressional storage area
- 54% decrease in maximum depressional storage capacity



Subbasin ID	Original FDA	Breached FDA	Area change (%)	Volume change (%)
1	0.31	0.24	-21	-41
2	0.29	0.23	-22	-45
3	0.19	0.10	-48	-71
4	0.25	0.20	-19	-36
5	0.20	0.14	-31	-46
6	0.18	0.12	-32	-49
7	0.22	0.10	-54	-69
8	0.24	0.12	-48	-63
9	0.17	0.10	-41	-82
Total	0.23	0.15	-34	-54

FDA = fraction depressional area

What impact does it have on hydrological modelling?

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