1   **WATERSHED CLASSIFICATION FOR THE CANADIAN PRAIRIE**

2   **Supplementary Data**

3   **Table S1 –** Criteria and steps applied to select a study set of watersheds.

| Variable	Threshold Criterion	Rationale	# watersheds after selection
Canadian watersheds within the prairie ecozone	Dataset constrained to watersheds completely contained within the prairie ecozone.	Focus candidate watersheds to the study region.	4729
Watershed area	Removed watershed with area greater than 4000 km^2 and less than 5 km^2.	Remove large and small watersheds to constrain the area of the watersheds included in analysis.	4359
Urban area	Removed watersheds where area of urban land greater than 40%.	Restrict candidate watersheds to those not highly impacted by urban development and infrastructure.	4329
Lake	Removed watersheds designated as entirely lake or reservoir (from HydroSHEDs dataset).	A binary variable coded in original dataset. We focused our analysis on terrestrial systems and thus removed those designated as lakes.	4180
Water area	Removed watershed where water area greater than 90%.	Second cleaning step to remove watersheds where a majority of area was inundated but not coded explicitly (as lake or reservoir) in the dataset.	4175

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6   **Table S2** – Types and sources of data used in cluster analysis.

Data	Dataset	Agency	Reference
Watersheds	HydroSHEDs	Academic	Lehner and Grill (2013)
Climate	CANGRID	Government	ECCC (2017)
Flow data	HYDAT stations, Water Survey of Canada	Government	ECCC (2016)
Water extent	Global Surface Water	Academic	Pekel et al. (shook)
Streams	Canvec series	Government	NRC (2016)
Surficial geology	-	Government (Provincial)	Atkinson et al. (2017), Matile et al. (2006), Simpson (2008)
Soil particle size classes, zone	Detailed Soil Survey	Government	AAFC (2013, 2015)
Land cover	Annual Crop Inventory 2016	Government	AAFC (2016)
Tillage practice	Census of Agriculture (2011, 2016)	Government	Statistics Canada (2016)

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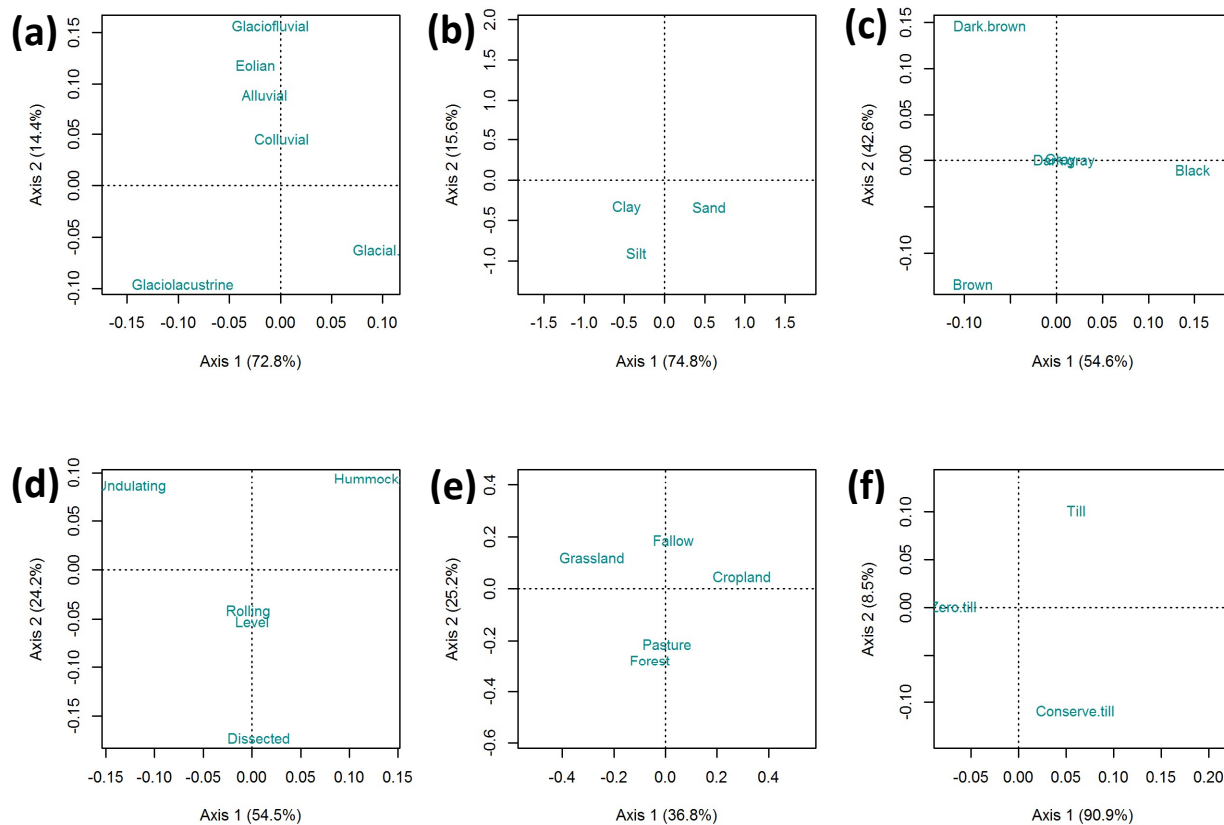
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9   **Figure S1** – PCA ordinations of compositional datasets: (a) surficial geology, (b) particle size
10 class, (c) soil zone, (d) surface land form, (e) land cover, and (f) tillage practice. The percentage
11 of variation explained by each axis is shown.