

## Supplementary Material

Table S1

*Reclassification of Land Cover Classes According to UN-SPIDER and USDA*

ID	Description	New ID	New Description
2	Wetland	1	Water
61	Lake and watercourse		
62	Sea		
121	Pine forest on wetland		
122	Spruce forest on wetland		
123	Mixed coniferous forest on wetland		
124	Mixed coniferous forest on wetland		
125	Trivial deciduous forest on wetland		
126	Deciduous forest on wetland		
127	Coniferous broadleaf forest on wetland		
128	Temporary no forest on wetland		
51	Developed land, building	2	Medium residential
52	Developed land, not building or road/railway		
53	Developed land, road/railway		
111	Pine forest outside wetland	3	Forest
112	Spruce forest outside wetland		
113	Mixed coniferous forest outside wetland		
114	Mixed coniferous forest outside wetlands		
115	Deciduous forest outside wetland		
116	Deciduous forest outside wetland		
117	Coniferous broadleaved forest outside wetland		
118	Temporary no forest outside wetland		
3	Arable land	4	Agricultural
41	Other open land without vegetation		
42	Other open land with vegetation		

Table S2

*Reclassification of Soils According to HSG*

Soil type	HSG	Description
Glaciofluvial sand Glaciofluvial sediment Postglacial fine sand Postglacial sand Sandy till Shingle Silty to fine sandy till Wave-washed gravel Young fluvial sediment, sand	A	High infiltration rate and low runoff. Consists of sand, loamy sand, or sandy loam types of soils.
Glacial silt Silt	B	Moderate infiltration rate. Consists of silt loam or loam.
-	C	Slow infiltration rate. Consists of sandy clay loam.
Artificial fill Bog peat Clay till Crystalline rock Fen peat Glacial clay Gytja clay Postglacial clay Postglacial clay, clay con- tent >25% Postglacial clay, clay con- tent 15–25% Till alternating with sorted sediments Water Young fluvial sediment, clay to silt	D	Slow infiltration rate and high runoff poten- tial. Consists of lay loam, silty clay loam, sandy clay, silty clay, or clay.

*Note.* Adapted from NRCS (2007) and Nilsson (2018).

Figure S1

### Algorithm to automatically assign HSG's to soil types

Each “when” line checks the JG2 column in the attribute table and assigns one of the soil type identification numbers in brackets a HSG in a new column (1=A, 2=B, 3=C, 4=D). The “else ‘other’” line was used to manually check if any soil type identification number was not represented in the code.

```
case
  when "JG2" in
    ('10','13','28','31','33','34','36','50','55','57','76','93','95',
    '229','917','8809') then '1'
    when "JG2" in ('24','48','100','2306','9010') then '2'
    when "JG2" in
    ('39','86','136','214','8802','8806','8950','9060') then '3'
    when "JG2" in
    ('1','2','5','6','9','16','17','19','22','30','40','43','51','75',
    '81','85','91','92','101','116','121','200','212','215','227','3',
    '22','823','850','888','890','916','1950','8114','8175','8814','91',
    '47','9792','9794') then '4'
    else 'other'
end
```

Figure S2

*Hydrologic Soil Map (a) and Land Cover Classes (b) for the Adjoining Sub-basins*

