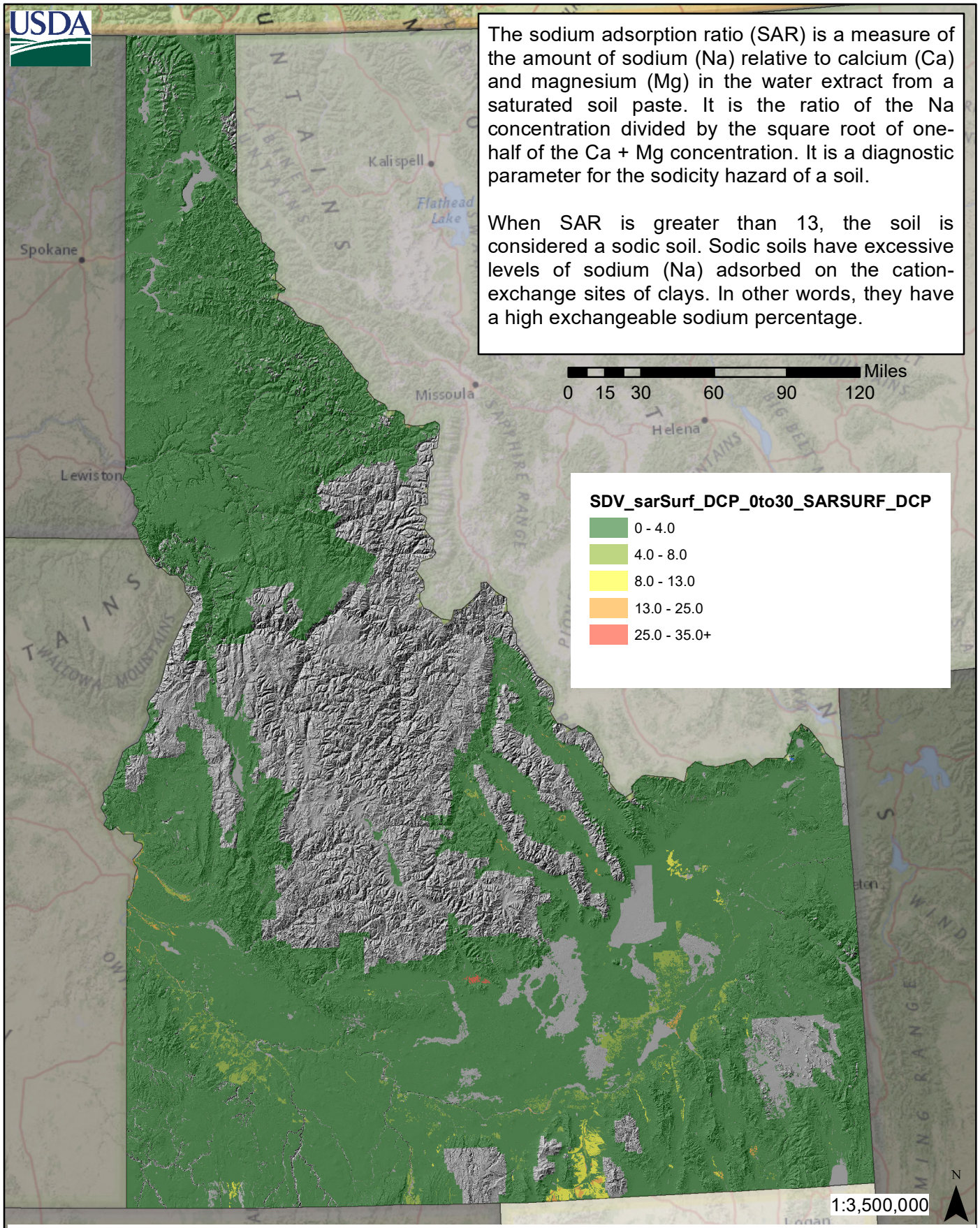
Soil Health - Sodium Adsorption Ratio (SAR), 0 to 30cm



The sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from a saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. It is a diagnostic parameter for the sodicity hazard of a soil.

When SAR is greater than 13, the soil is considered a sodic soil. Sodic soils have excessive levels of sodium (Na) adsorbed on the cation-exchange sites of clays. In other words, they have a high exchangeable sodium percentage.

Soil Survey Staff. Gridded Soil Survey Geographic (gSSURGO) Database for Idaho. United States Department of Agriculture, Natural Resources Conservation Service. Available online at http://datagateway.nrcs.usda.gov/. 20190917 (FY2020 official release).