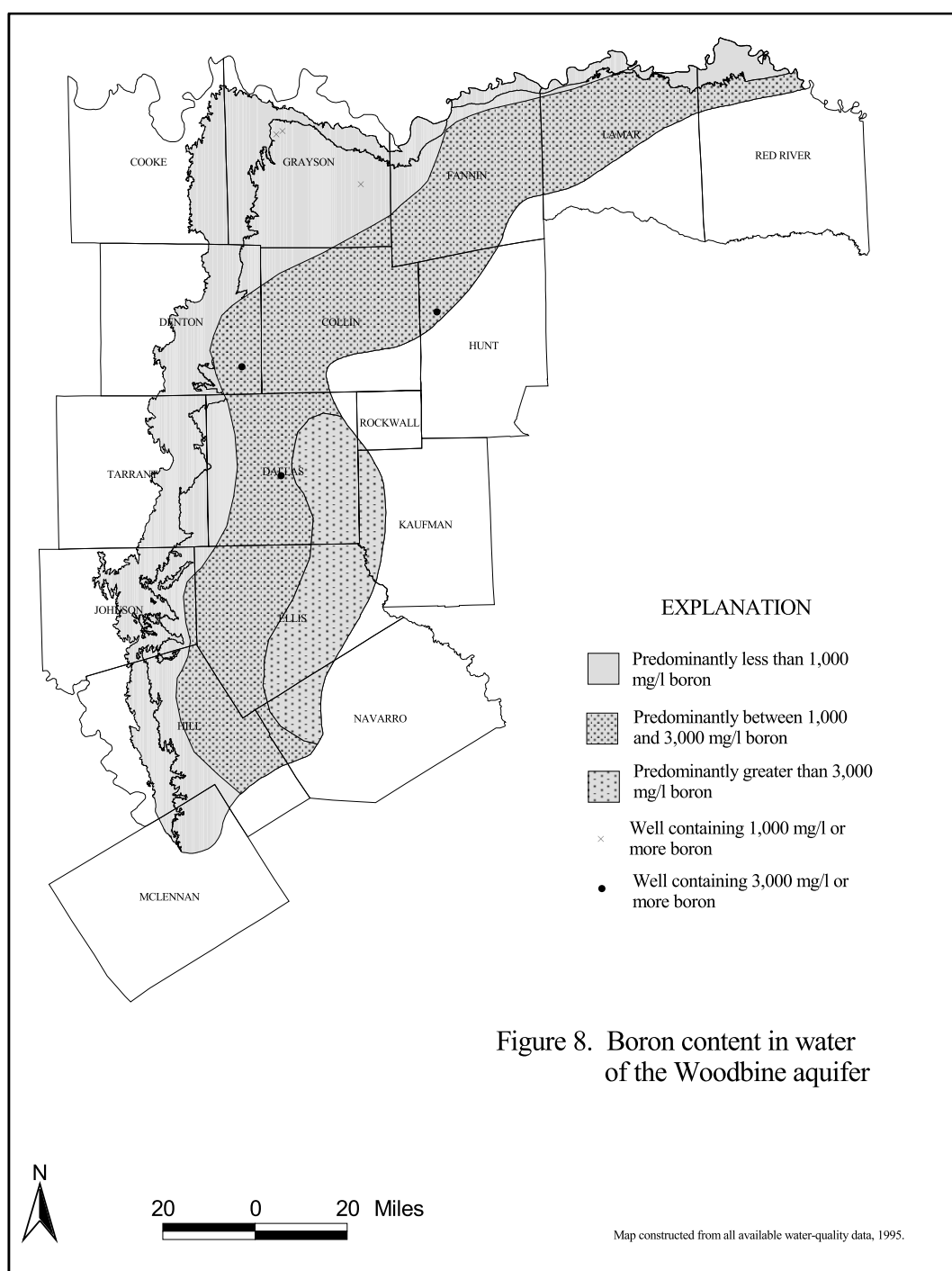


There is no MCL for boron; however, its concentration determines the suitability of the water for irrigation. Concentrations as high as 1.0 mg/l are permissible for irrigation of boron-sensitive crops such as deciduous fruit and nut trees; as high as 2.0 mg/l for irrigation of semi-tolerant crops such as most grains, cotton, and potatoes; and as much as 3.0 mg/l for tolerant crops such as alfalfa and most root vegetables. The highest concentrations of boron occur in the southeast portion of the study area, as illustrated in the map in Figure 8. Fortunately, water is used for irrigation only in the northwest outcrop portion of the aquifer. High sodium concentrations, particularly in conjunction with high specific conductance, would also be of concern in irrigated areas, but similarly these conditions do not characterize the aquifer in the northwest (Nordstrom, 1982).



Nutrients

Of the five nutrients analyzed in each well (ranges, averages, and percents above detection are listed in Table 5), only nitrate and nitrite have drinking water standards. Nitrate, an end product of the aerobic stabilization of nitrogen, particularly organic nitrogen, is a potential pollutant in any agricultural area. It is to be expected at high concentrations where fertilizers are used and in decayed animal and vegetable matter. Ground-water concentrations are also commonly higher in leachates from sludge and refuse disposal and in industrial discharges. Nitrite is formed by the action of bacteria upon ammonia and organic nitrogen. When nitrite is detected in potable water in considerable amounts, it is an indication of sewage/bacterial contamination and inadequate disinfection (De Zuane, 1990). In such reducing environments, nitrite is not oxidized to nitrate. Ordinarily, however, in the oxidizing environments common in most aquifers, nitrites are converted into nitrates, and nitrite values are lower. In this study, neither was found in excess of the MCL.

Radioactivity

Constituent	Range	Average	% Above Detection
Ammonia	<0.02 - 5.5	0.96	99
Nitrite	<0.01 - 0.22	0.07	12
Nitrate (NO ₃)	<0.01 - 1.01	0.10	89
Kjeldahl	<0.10 - 7.2	1.19	97
Orthophosphate	<0.01 - 0.42	0.15	61

Table 5. Dissolved nutrients in Woodbine ground water in milligrams/liter.