Agricultural Moisture Situation Update
February 14, 2024

Synopsis

Since January 1, 2024 much of southern Alberta has been receiving appreciable moisture, at least for this time of year. Bear in mind that January and February are historically amongst the driest months of the year (**Map 1**). Nonetheless, this is at the very least, a favorable trend that hopefully will continue as the winter abates and the prospect of spring comes into focus.

So far this year (2024), most of the province south of the Yellowhead highway has received at least near normal moisture (**Map 2**), and many lands along the foothills from about Nordbegg to the US border have received above normal moisture, a trend which extends across much of the Southern Region and even into the Special Areas. In the 45 days since January 1st, eleven high elevation stations located along a line from just west of Chain Lakes Reservoir, down to the US border have recorded over 100 mm of precipitation (**Map 3**). The greatest amount (170.6) mm was measured at the Spionkop Creek station, located about 25 km north-west of Waterton. For perspective, the 1991 to 2020 averages over this time frame, for this group of stations are estimated to range from a low of 60 mm up to approximately 130 mm. Many parts of the Special Areas have received at least 20 mm of moisture and this grades to well over 60 mm across the foothills west of both Calgary and Lethbridge.

In sharp contrast, province wide, most of the lands north of the Yellowhead Highway have received below normal moisture since January 1st (**Map 2)** with a few areas estimated to be near once in 50-year lows. Precipitation accumulations across many of these areas are less than 10mm (**Map 3**), well below the averages for this period that range from 25 to 45 mm. Very few areas north of the Yellowhead Highway have received more than 20 mm of moisture since January 1st. This trend has continued for several months now, and warm winter weather and frequent melt episodes has resulted in very anemic snowpacks.

Snowpack accumulations

This winter has generally been warm, with the exception of the brutal January cold snap. For most lands lying north of the TransCanada Highway snow pack development is well below normal for this time of year (**Map 4**) and the situation deteriorates as one moves father north. Most of the province north of Red Deer has snowpacks this low, less than once in 12 to 25 years with large parts of the Peace Region having snowpacks this low less than once in 50-years. For the Peace Region, winter precipitation (November 1 to March 31) on average, accounts for nearly 35% percent of the annual precipitation accumulations and are thus an important source of moisture for the landscape in the spring. This is even true down at least as far south as Red Deer, but to a lesser extent as in this part of the province only about 20% of the average annual moisture falls during the winter period.

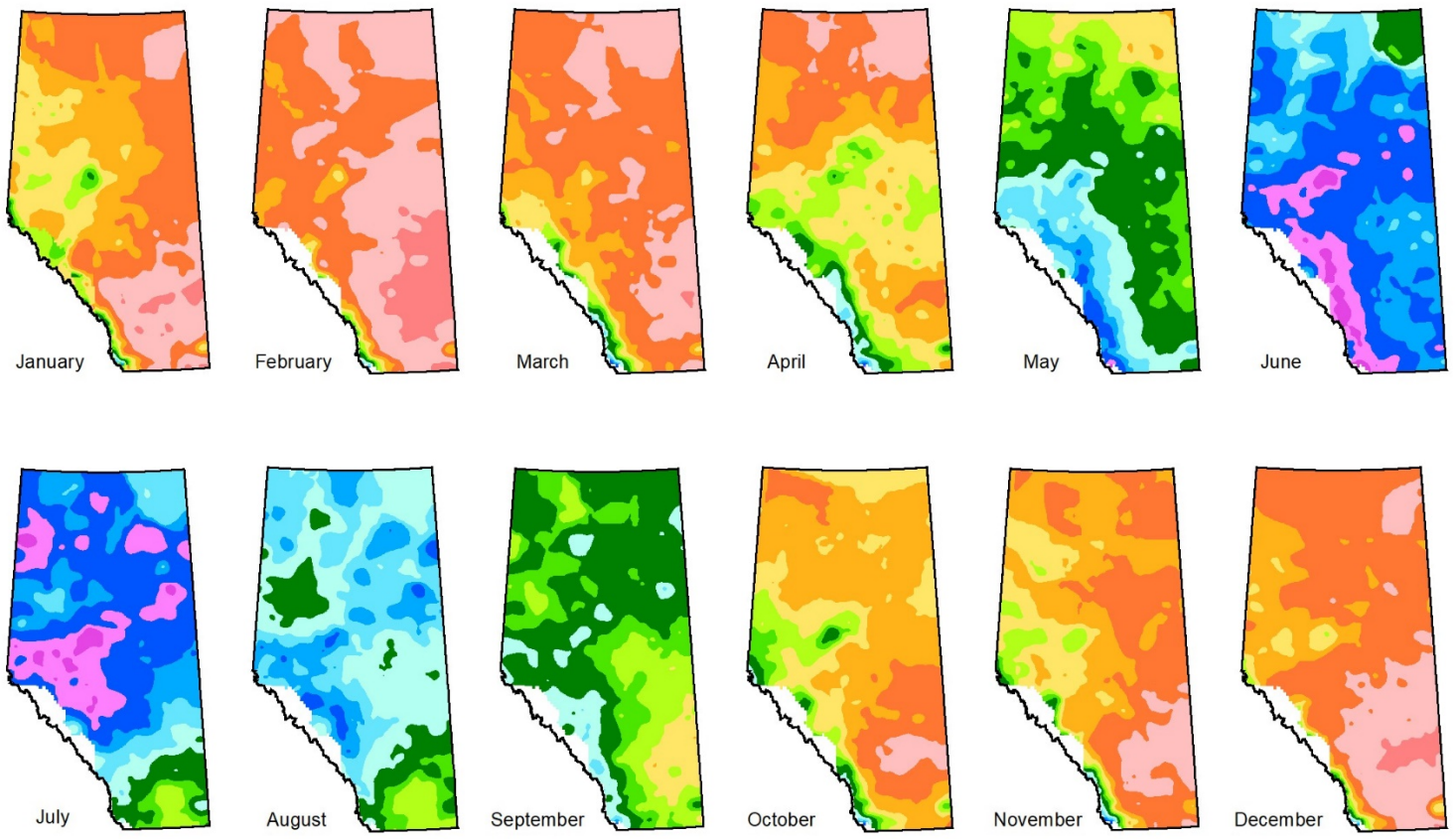
Currently few agricultural areas in the province have more than 20 mm of water residing in the snow pack (**Map 5**). For lands lying north of Red Deer, this is well below the 30-year average for this time of year (**Map 6**), that ranges from 60-70 mm in the Red Deer area to nearly 125 mm throughout most of the Peace Region.

Perspective

The El Niño synopsis from National Weather Service states "*A transition from El Niño to ENSO-neutral is likely by April-June 2024 (79% chance), with increasing odds of La Niña developing in June-August 2024 (55% chance).*" For Alberta, it's difficult to predict what this will mean, but hopefully it bodes well for the development of some wide spread wet weather events as we transition into spring.

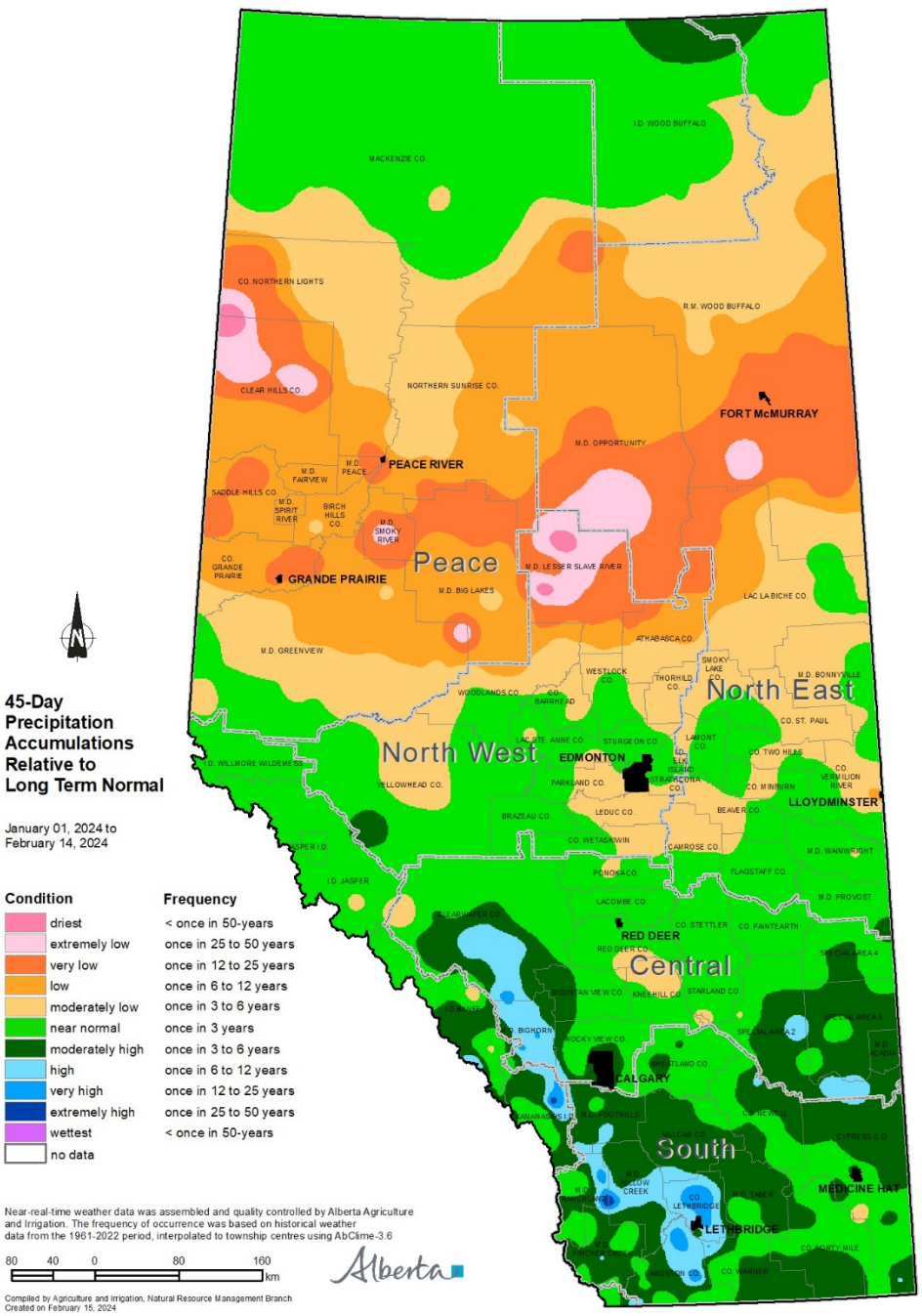
Province wide, many areas have experienced serious multiyear moisture deficits that along with the absence of any wet years has resulted in a "deep dry" across the landscape. Above normal moisture will be needed now and well into the summer to help ameliorate long standing moisture deficits that in many areas have taken several years to develop into the state they are in now. That being said, from a cropping perspective, most rain fed crops can still do relatively well this year even with slightly below average moisture, provided that it is well timed during the growing season.

Map 1



https://open.alberta.ca/publications/moisture-situation-update

Map 2



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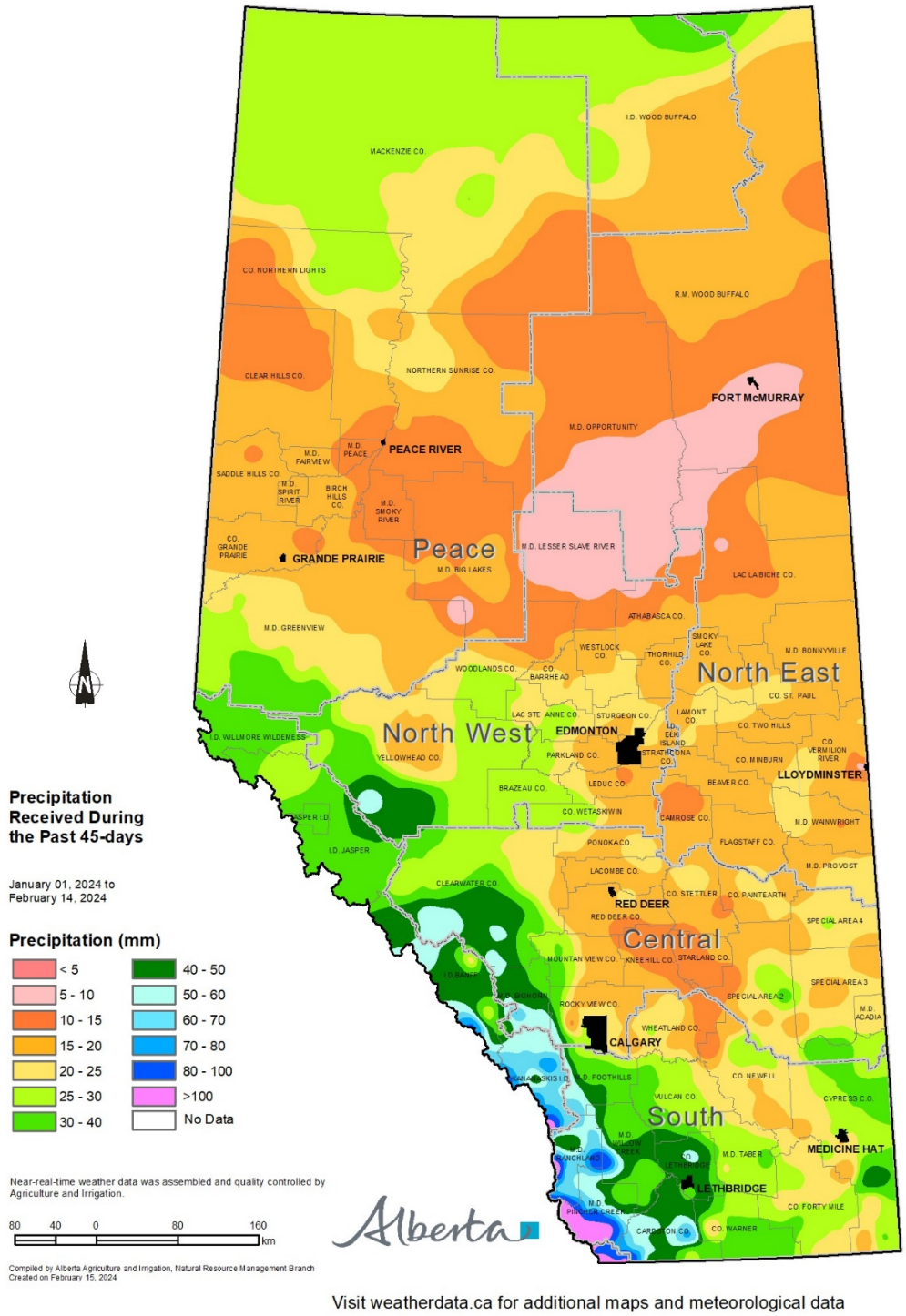
Map 3



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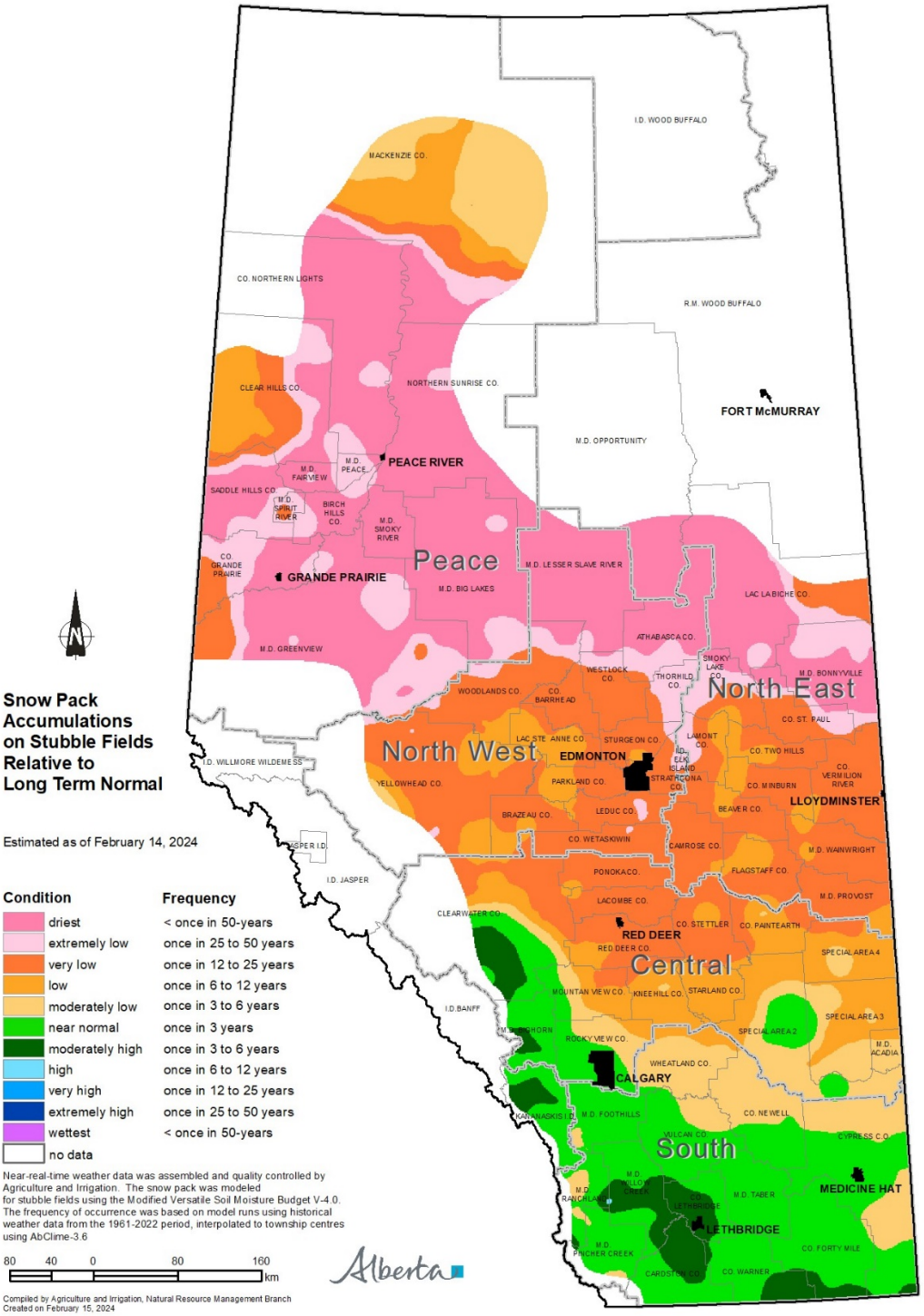
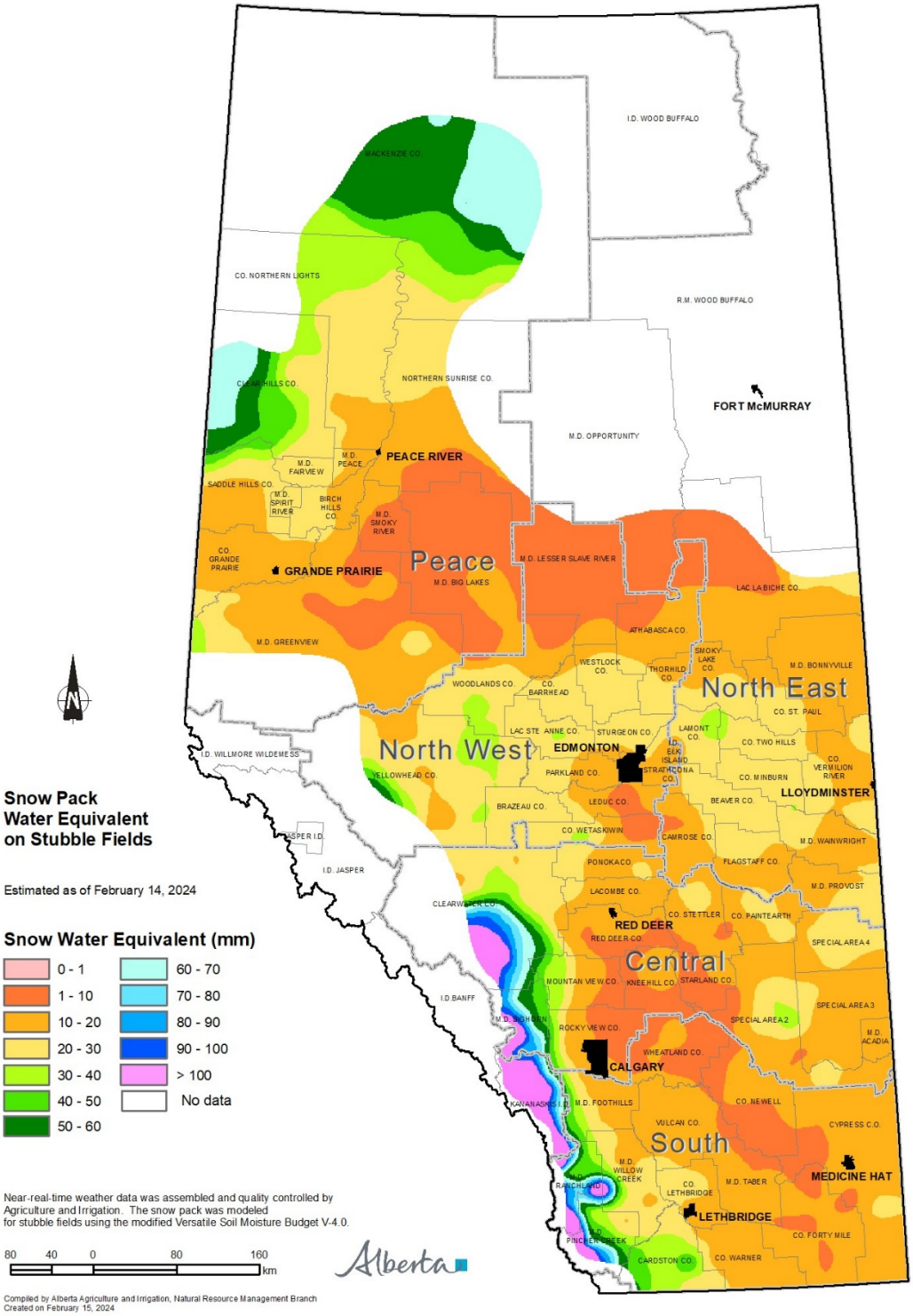
Alberta

Map 4



Map 5



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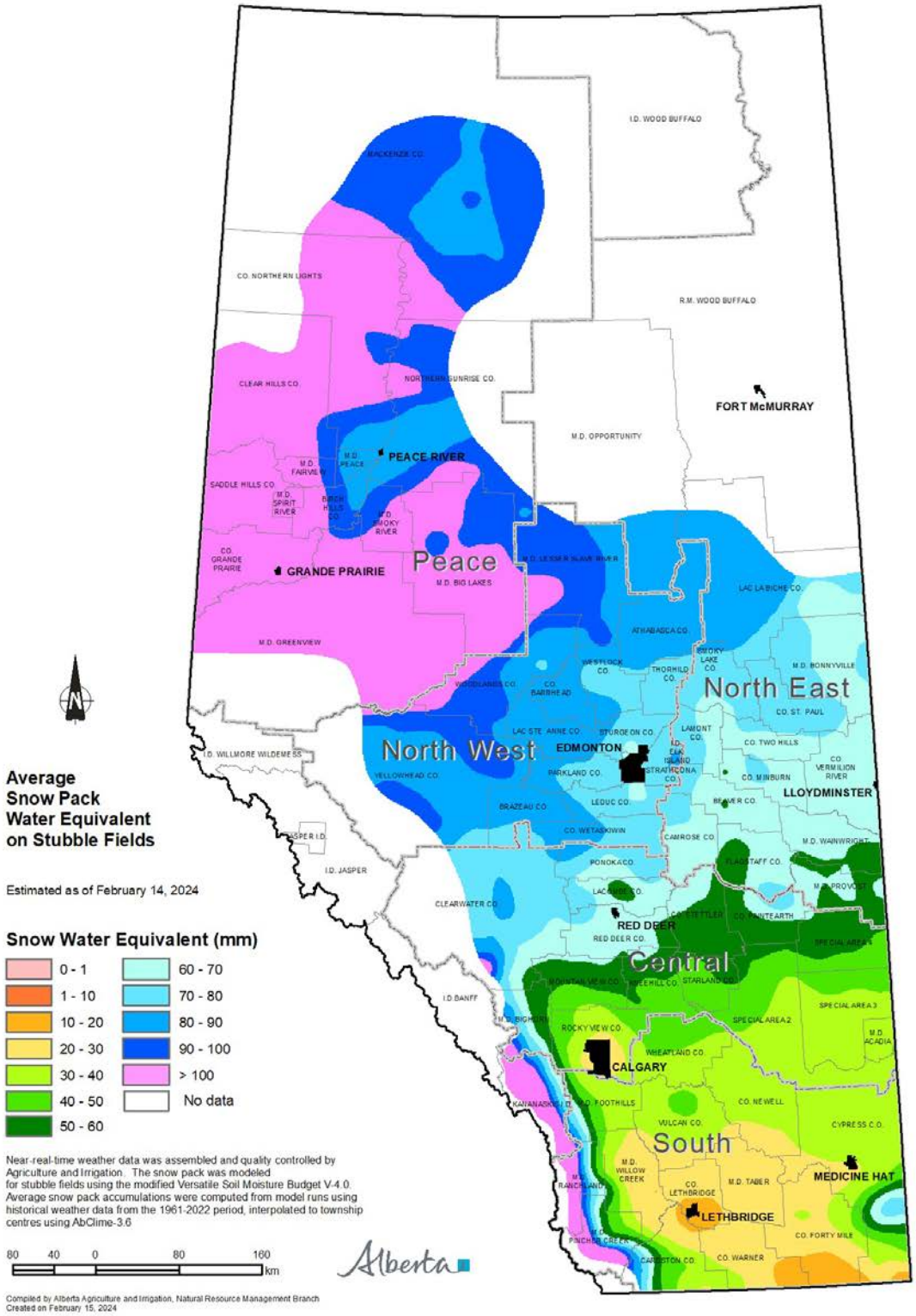
Map 6



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