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Written Testimony Before the Joint Appropriations Education Subcommittee (1/23/13)

I am a graduate of the Montana University System, and have worked in Montana most of the past 35 years. It has been my pleasure to interact with the Montana Bureau of Mines and Geology (MBMG) over much of this time. I have found the MBMG staff to be extremely competent and courteous.

The Bureau is involved with a number of key studies that are important to the health and safety of Montana residents. Some of these studies include:

- ***Earthquake Studies and Monitoring:*** MBMG operates a network of monitoring stations throughout the state. Typically smaller earthquakes precede the larger ones, so it is critical to have such monitoring stations in place. Data from this network are used to detect and report earthquake locations and magnitudes for significant earthquakes within 3 minutes of their occurrence to the National Earthquake Information Center and other State and Federal agencies.

The Bureau is also preparing geologic maps of areas where the largest historic Montana earthquakes have occurred, including here in the Helena valley. This will aid evaluations of future earthquake potential.

- ***Landslides:*** A map is being prepared that shows landslides in the Big Sky area (see Figure 1). This was developed using a combination of field mapping and modern satellite imagery.
- ***Superfund Areas:*** Geological maps are being prepared for the Anaconda area which will aid cleanup efforts including ongoing groundwater assessments. Also, environmental evaluations and studies of the impacts from contaminated groundwater flooding in the Berkley Pit and nearby historic underground mines at Butte have been completed.

The Bureau also produces a number of technical products that are a tremendous asset to industry. Some of these products include:

- ***Coal:*** Montana leads the nation in demonstrated coal reserves, consistently produces about 4 percent of the nation's supply, and ranks 5th in annual coal production. The MBMG has conducted several coal availability studies that more accurately determine the quantity and distribution of coal occurrences, and will help us locate new deposits.

- **Oil and Gas:** The Bureau is working with the Mt. Tech Petroleum Engineering Department to locate sand deposits that could be used for fracking in the Bakken oil fields of northeastern Montana.
- **Hardrock Mining:** The MBMG has accumulated over 11,000 files and maps for historic hardrock metal mines, and is in the process of converting them into digital files. This is an incredible resource for companies looking for gold, silver, and other metallic deposits in Montana.
- Thanks to the Bureau, for the first time ***digital maps*** are available that cover the entire state (see the attached Figure 2). These are used by hydrologists (to determine the location of aquifers), land use planners (for assessing impacts from sewage and septic systems), ground stability engineers (for assessments of earthquake and landslide hazards), local/state/federal agencies, environmental consultants, geologists, and many others. These maps are available for downloads from the MBMG website.

Note that industry is not able to do these types of regional assessments. They either require data that we do not have, or are too broad of a scope.

I have worked with a number of state geological agencies over the years and can assure you that the Montana Bureau of Mines and Geology is one of the best. My contact information is above. I would be happy to discuss this in more detail with anyone that is interested.

Sincerely,



Fess Foster, Ph.D., CPG, QP

Figure 1: MBMG landslide map of the Big Sky area (in progress). The grey background is from LIDAR satellite images, and the yellow and green areas are landslides.

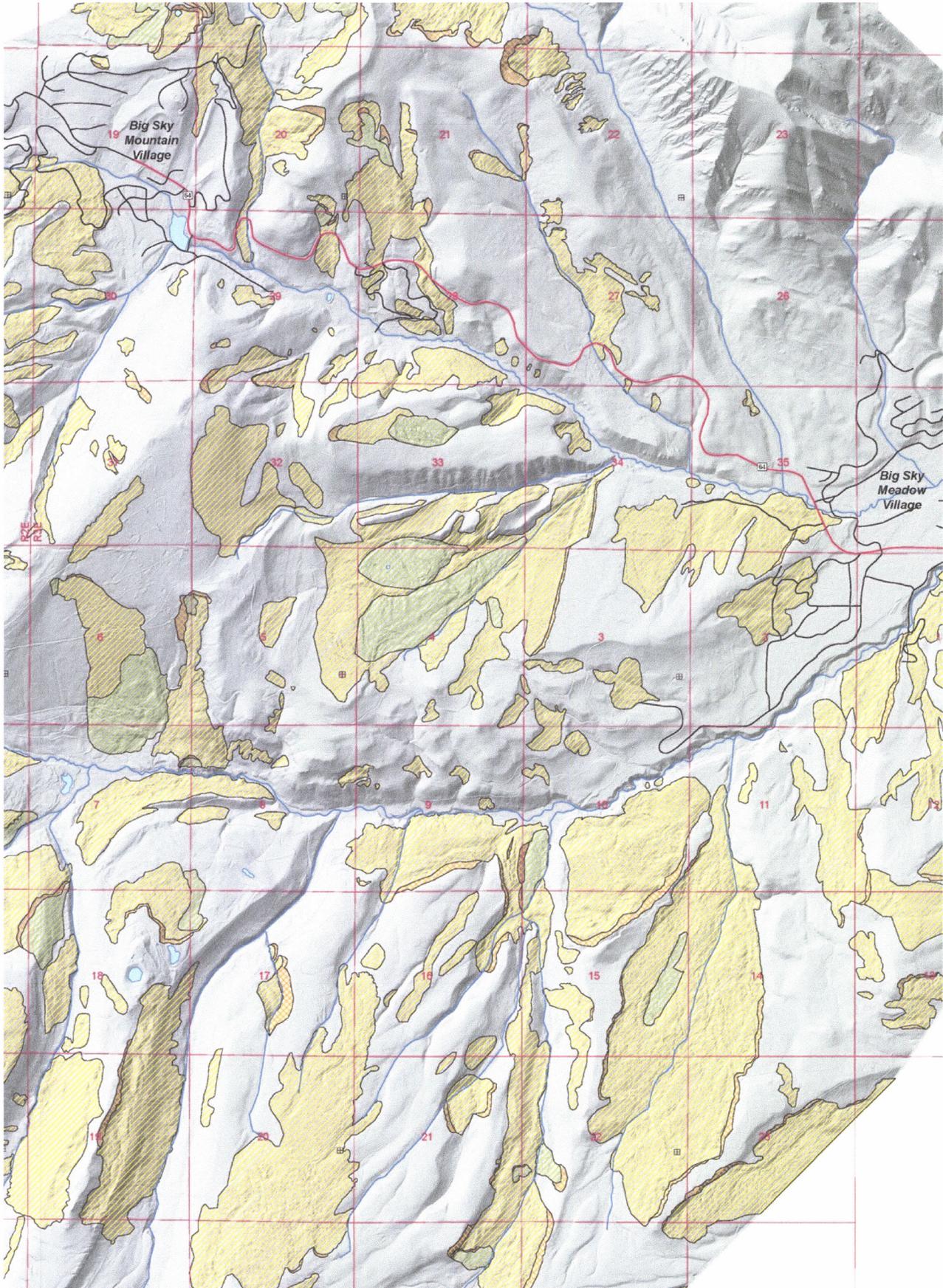


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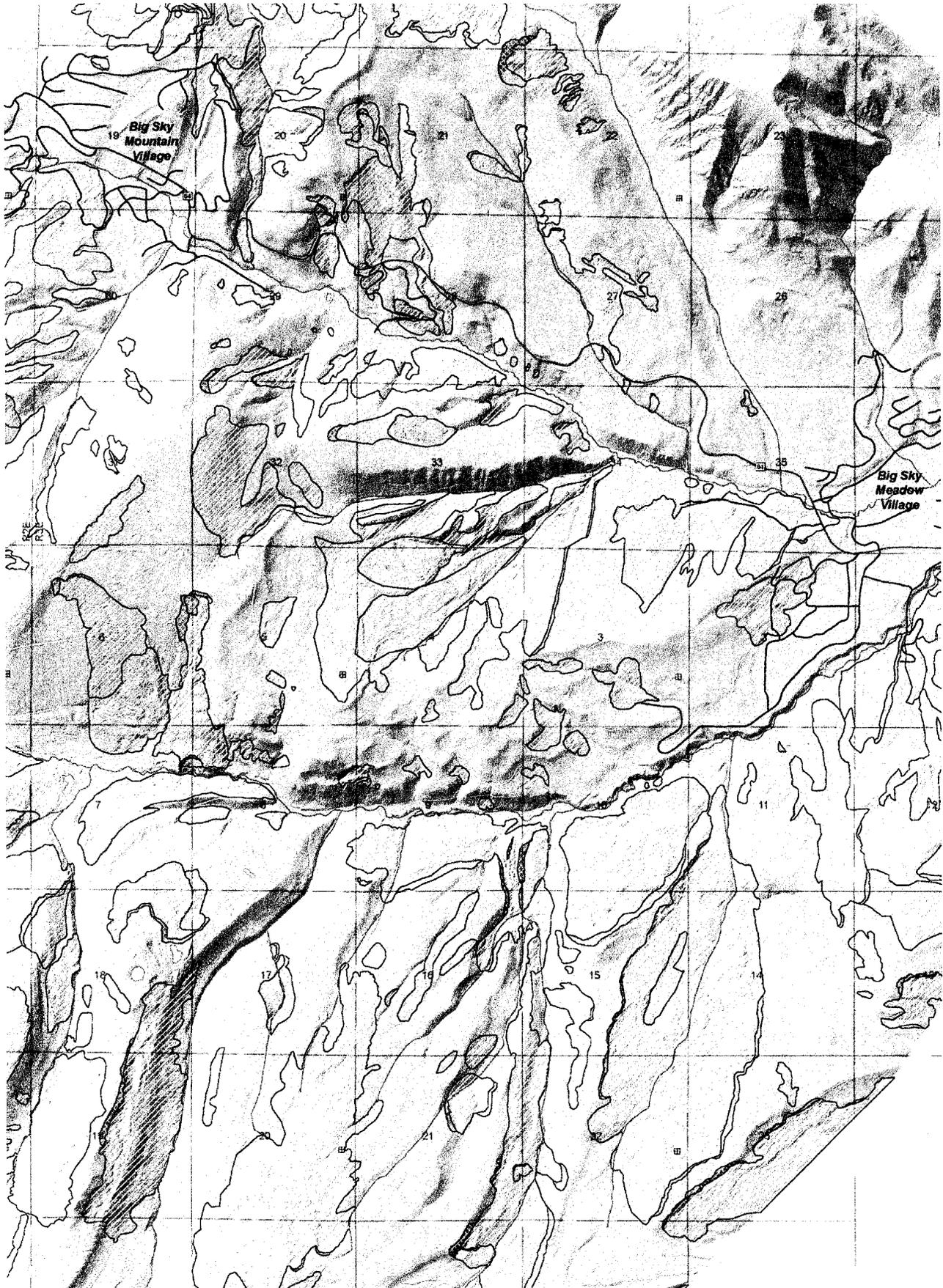
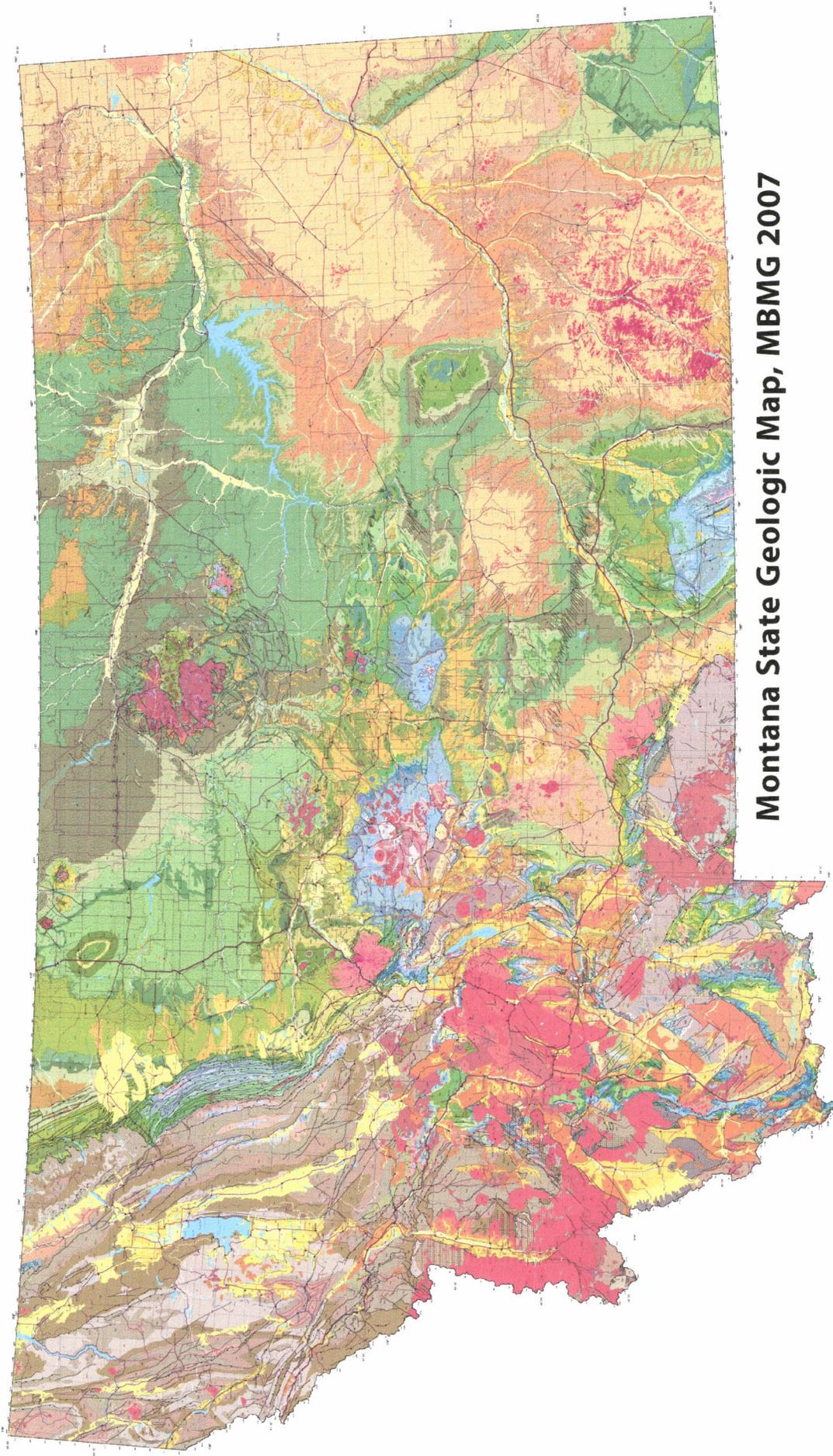
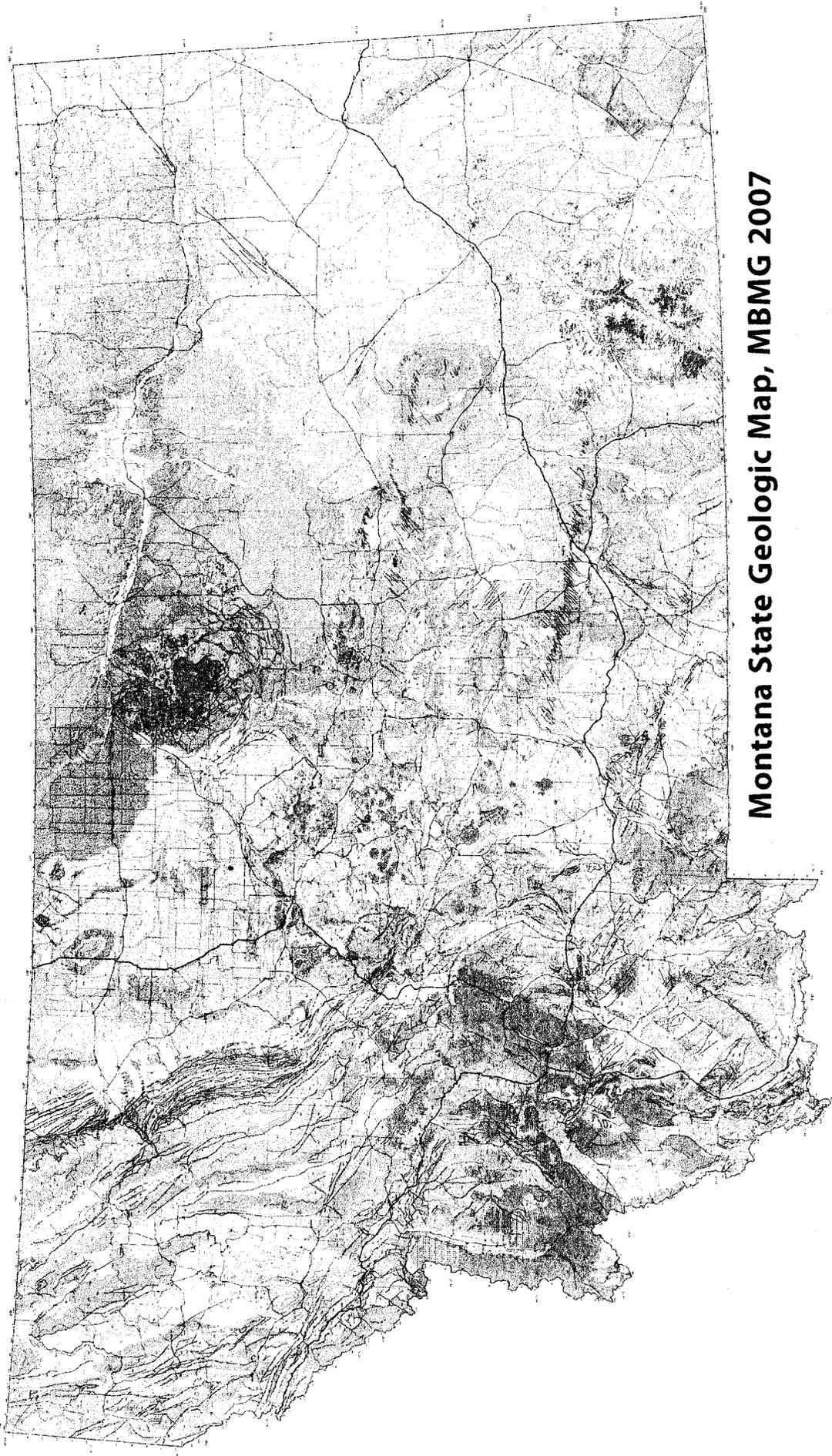


Figure 2: Recent Montana state map created by the MBMG



Montana State Geologic Map, MBMG 2007

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