PRELIMINARY GEOLOGIC MAP OF THE EASTERN PART OF THE RINGLING 30' x 60' QUADRANGLE CENTRAL MONTANA

by

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Montana Bureau of Mines and Geology

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This map has been reviewed for conformity with technical and editorial standards of the Montana Bureau of Mines and Geology.

Partial support has been provided by the STATEMAP component of the National Cooperative Geologic Mapping Program of the U. S. Geological Survey under Contract Number 03HQAG0090.

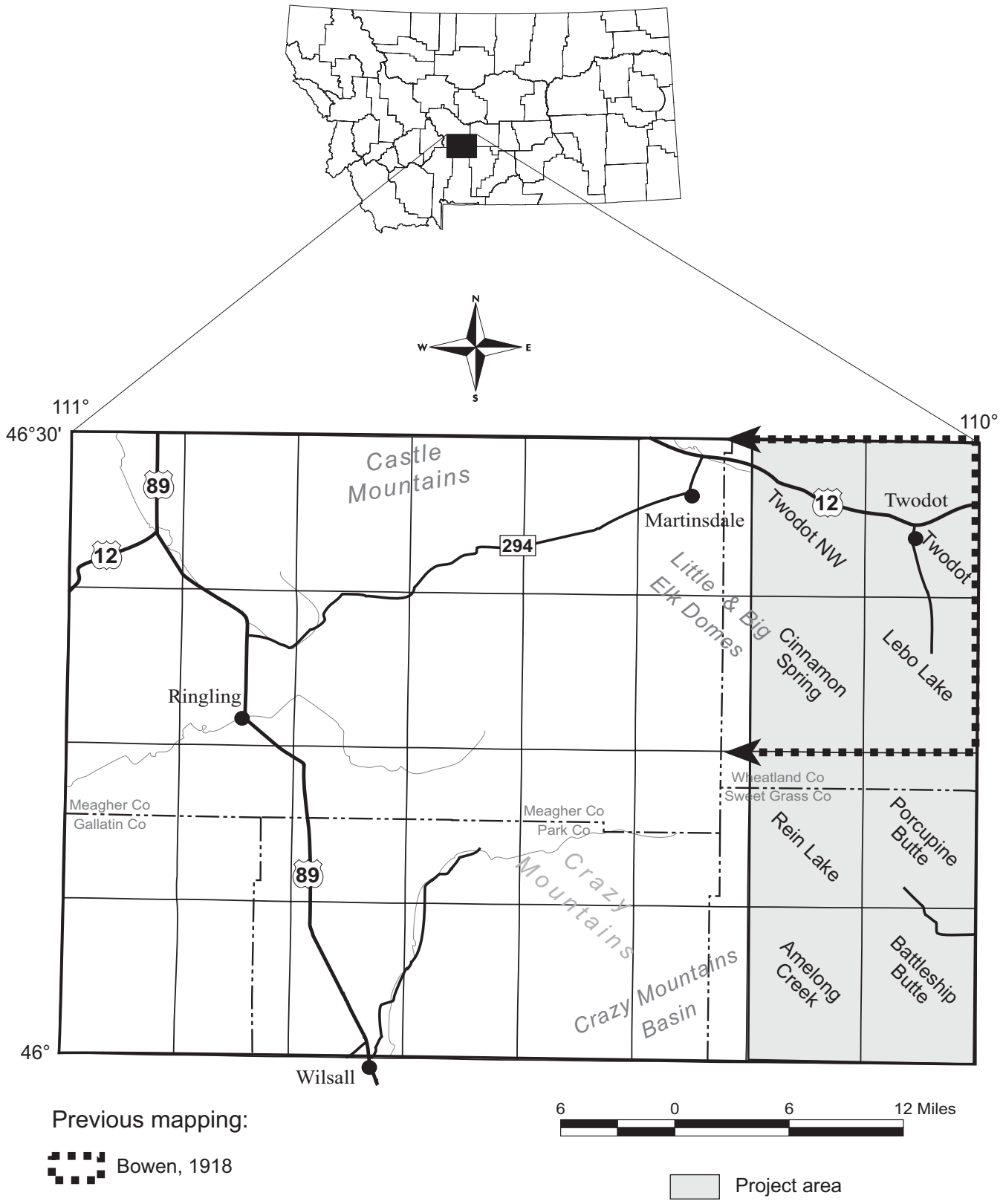
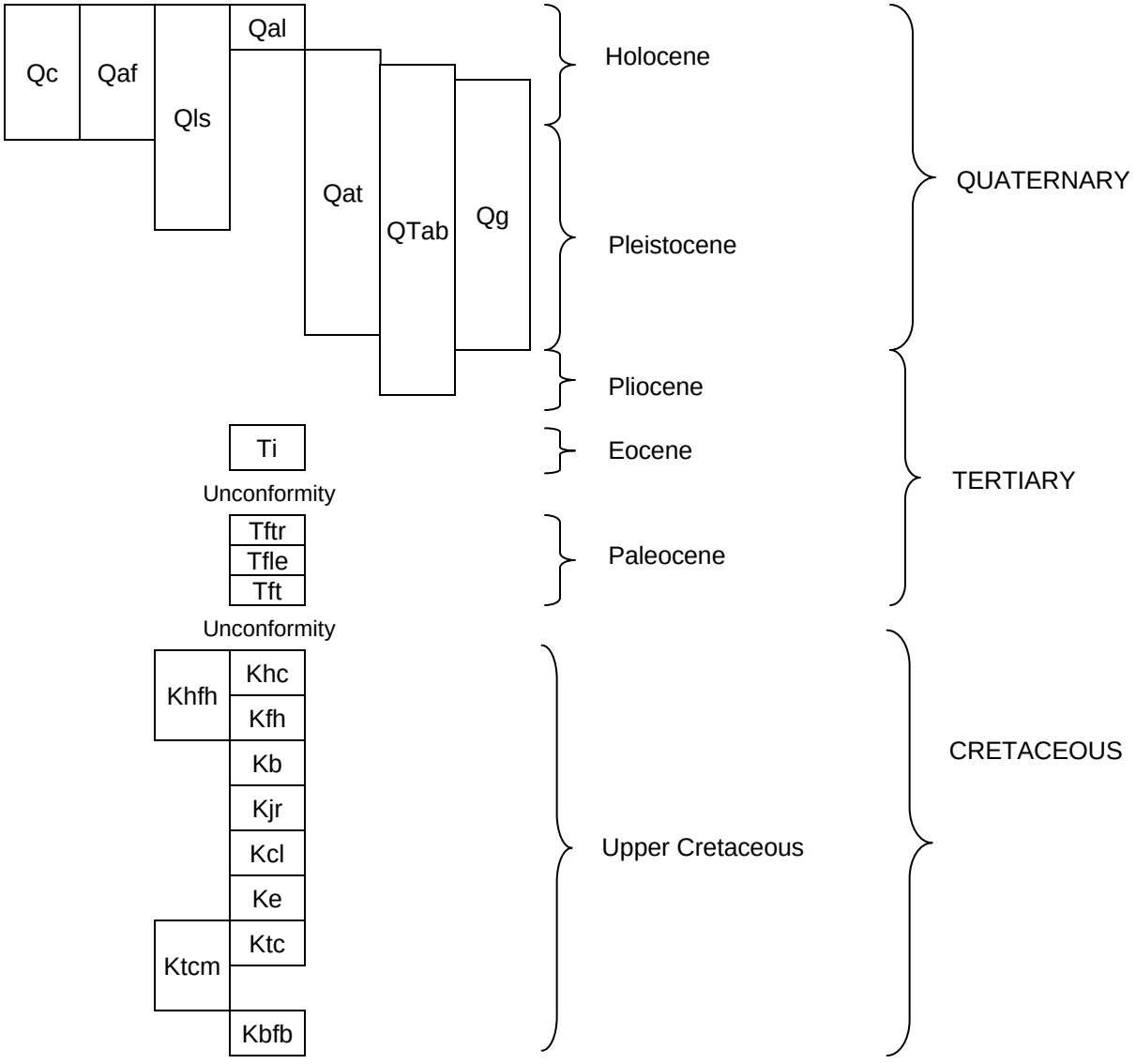


Figure 1. Location map of project area in Ringling 100k quadrangle and area of previous mapping.

CORRELATION OF MAP UNITS
Ringling Quadrangle



DESCRIPTION OF MAP UNITS

Ringling 30’ x 60’Quadrangle

Quaternary

Qal Alluvium of modern stream channels and flood plains (Holocene)
Qat Alluvium on old stream terraces (Holocene and Pleistocene)
Qc Colluvium; slope-wash (Holocene)
Qaf Alluvial fan deposits (Holocene and Pleistocene)
Qls Landslide deposits (Holocene and Pleistocene)
Qg Glacial deposits, undivided (Holocene and Pleistocene)
QTab Deposits of alluvial braid plains and on pediment surfaces, undivided (Holocene-Pliocene)

Tertiary

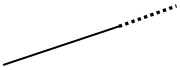
Ti Tertiary intrusive rocks, undivided, dikes and sills (Eocene)

Fort Union Formation (Paleocene)
Tftr Tongue River Member
Tfle Lebo Shale Member
Tft Tullock Member

Upper Cretaceous

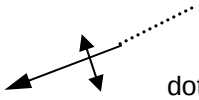
Khc Hell Creek Formation
Kfh Fox Hills Formation
Khfh Hell Creek and Fox Hills Formations, undivided
Kb Bearpaw Shale
Kjr Judith River Formation
Kcl Claggett Shale
Ke Eagle Formation
Ktc Telegraph Creek Formation
Ktcm Telegraph Creek and Marias River Formations, undivided
Kbfb Big Elk Sandstone Member of Belle Fourche Shale

MAP SYMBOLS

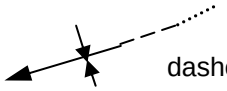


Contact--Dotted where concealed.

Fault--Dashed where approximately located, dotted where concealed, queried where uncertain. Bar and ball on down-thrown side.



Anticline--Showing trace of axial plane and direction of plunge; dotted where concealed.



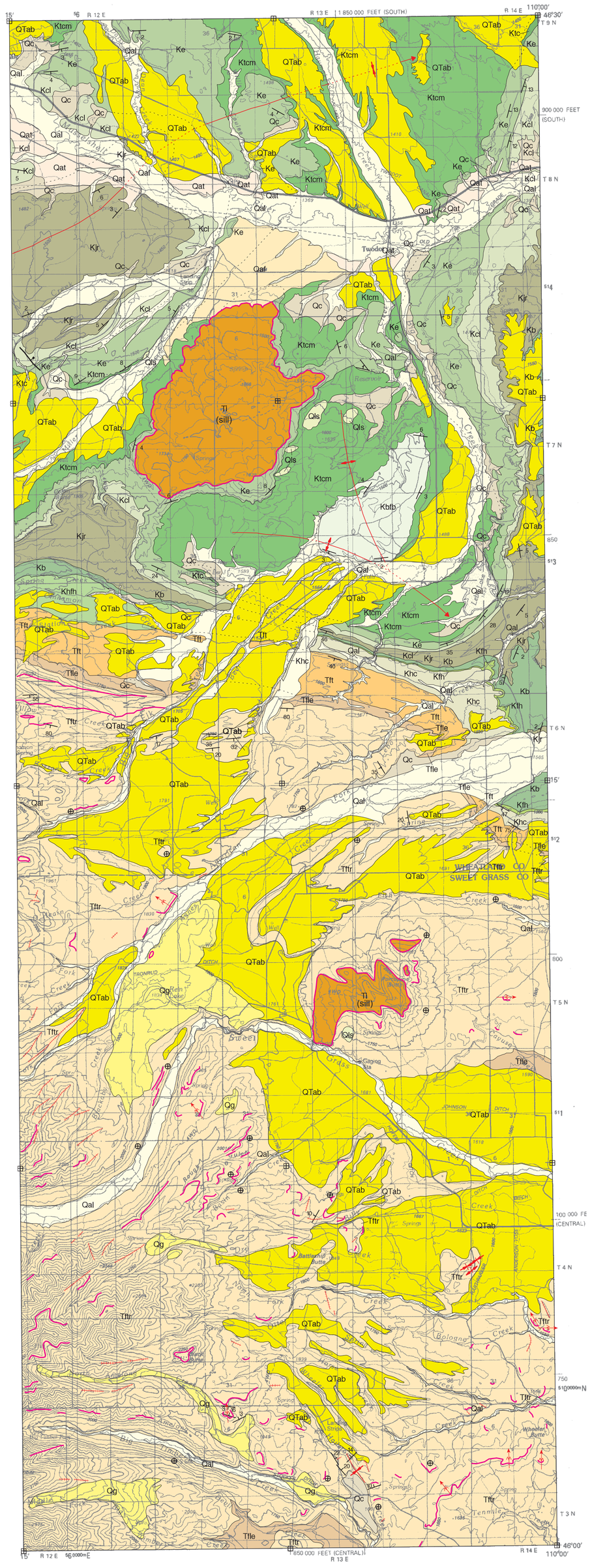
Syncline--Showing trace of axial plane and direction of plunge; dashed where approximately located, dotted where concealed.

Dikes and sills

Strike and Dip of Beds

Sources of Geologic Mapping

Bowen, C. F. 1918, Anticlines in a part of the Musselshell Valley, Musselshell, Meagher, and Sweetgrass Counties, Montana: USGS Bulletin 691-F, p185-209, Map scale 1:125,000 (covers entire north half of map area).



MAP UNITS

Qal	Alluvium of modern channels and flood plains
Qc	Colluvium
Qaf	Alluvial fan deposit
Qls	Landslide deposit
Qat	Alluvium of alluvial terrace deposit
QTab	Alluvium of braid plains
Qg	Glacial deposits, undivided
Ti	Intrusive rocks, undivided
Tftr	Tongue River Member of Fort Union Formation
Tfle	Lebo Member of Fort Union Formation
Tft	Tullock Member of Fort Union Formation
Khc	Hell Creek Formation
Kfh	Fox Hills Formation
Khfh	Hell Creek Formation and Fox Hills Formation, undivided
Kb	Bearpaw Shale
Kjr	Judith River Formation
Kcl	Claggett Shale
Ke	Eagle Formation
Ktc	Telegraph Creek Formation
Ktcm	Telegraph Creek Formation and Marias River Formation, undivided
Kbfb	Big Elk Sandstone Member of Belle Fourche Shale

MAP SYMBOLS

Contact: dotted where concealed

Fault: dashed where approximately located; dotted where concealed, bar and ball on downthrown side

Anticline: showing trace of axial plane and plunge direction where known, dotted where concealed

Syncline: showing trace of axial plane and plunge direction where known, dotted where concealed

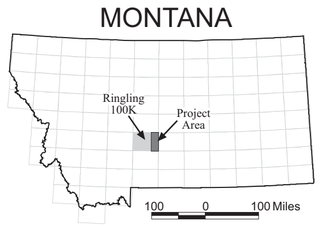
32 **Strike and dip of beds**

Minor fold: showing bearing and plunge

Sills

Dikes

MONTANA



SCALE 1:100 000
1 CENTIMETER ON THE MAP REPRESENTS 1 KILOMETER ON THE GROUND
CONTOUR INTERVAL 50 METERS

KILOMETERS 1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
MILES 1 0 1 2 3 4 5 6 7 8 9 10 11 12 13
1000 0 5000 10 000 15 000 20 000 METERS
5000 0 10 000 20 000 30 000 40 000 50 000 60 000 70 000 FEET

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Preliminary Geologic Map of the Eastern Part of the Ringling 30' x 60' Quadrangle, Central Montana

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GIS production: Ken Sandau and Paul Thale, MBMG. Map layout: Susan Smith, MBMG.

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Maps may be obtained from
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