

**KANSAS GEOLOGICAL SURVEY**  
**OPEN-FILE REPORT 2000-22**

Preliminary Geologic Field Maps for Portions  
of Gray County, Kansas

by

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**KANSAS GEOLOGICAL SURVEY**

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## GRAY COUNTY QUADRANGLE MAPS

The following 18 quadrangle maps are photocopies of field maps that are submitted by the Kansas Geological Survey as part of the STATEMAP Agreement #99HQAG0068 for FY99 (May 1, 1999 to April 30, 2000). The following quadrangles are filed with the Kansas Geological Survey as KGS Open-File Report 2000-22 "Preliminary Geologic Field Maps for portions of Gray County, Kansas.

Quadrangles included in the FY99 Gray County Geologic Mapping Project--

### Complete Quadrangles

**Charleston**  
**Ingals**  
**Copeland NE**  
**Copeland SE**  
**Montezuma**  
**Montezuma NW**  
**Montezuma SE**  
**Haggard**

### Partial Quadrangles

**Pierceville SW**  
**Copeland**  
**Copeland NW**  
**Plains NW**  
**Plains NE**  
**Meade NW**  
**Meade NE**  
**Ensign**  
**Ensign SW**  
**Fowler**

# Stratigraphic Column

## Gray County, Kansas

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### Quaternary System

#### Alluvial deposits

- Qal*      *undifferentiated flood plain alluvium*  
coarse gravel to clay; Holocene age; 0-75 ft
- Qt*      *alluvial terrace deposits of the Arkansas River*  
coarse gravel to clay; late Pleistocene to Holocene ages; 0-96 ft
- Qp*      *upland intermittent lake (playa) deposits*  
silt to clay; late Pleistocene to Holocene ages; 0-30 ft

#### Eolian deposits

- Qs*      *eolian sand*  
fine sand occurring in sheets and dunes; late Pleistocene to Holocene ages;  
0-50ft
- Ql*      *loess*  
fine-grained sediments, dominantly silt-sized; Pleistocene to Holocene  
ages; 0-20 ft

### Tertiary and Quaternary Systems

- T-Qu*      *undifferentiated alluvium*  
coarse gravel to clay; calcareous; Miocene to middle Pleistocene age;  
includes the Miocene Ogallala Formation, early Pleistocene Meade  
Formation, and other Pleistocene alluvial units; 0-200 ft

### Cretaceous System

#### Upper Cretaceous Series

- Kgh*      *Greenhorn limestone (Pfeifer shale and Jetmore chalk mbrs)*  
Chalky shale with thin limestone beds and limestone concretions, and thin  
chalky limestone beds separated by chalky shale; 0-41ft

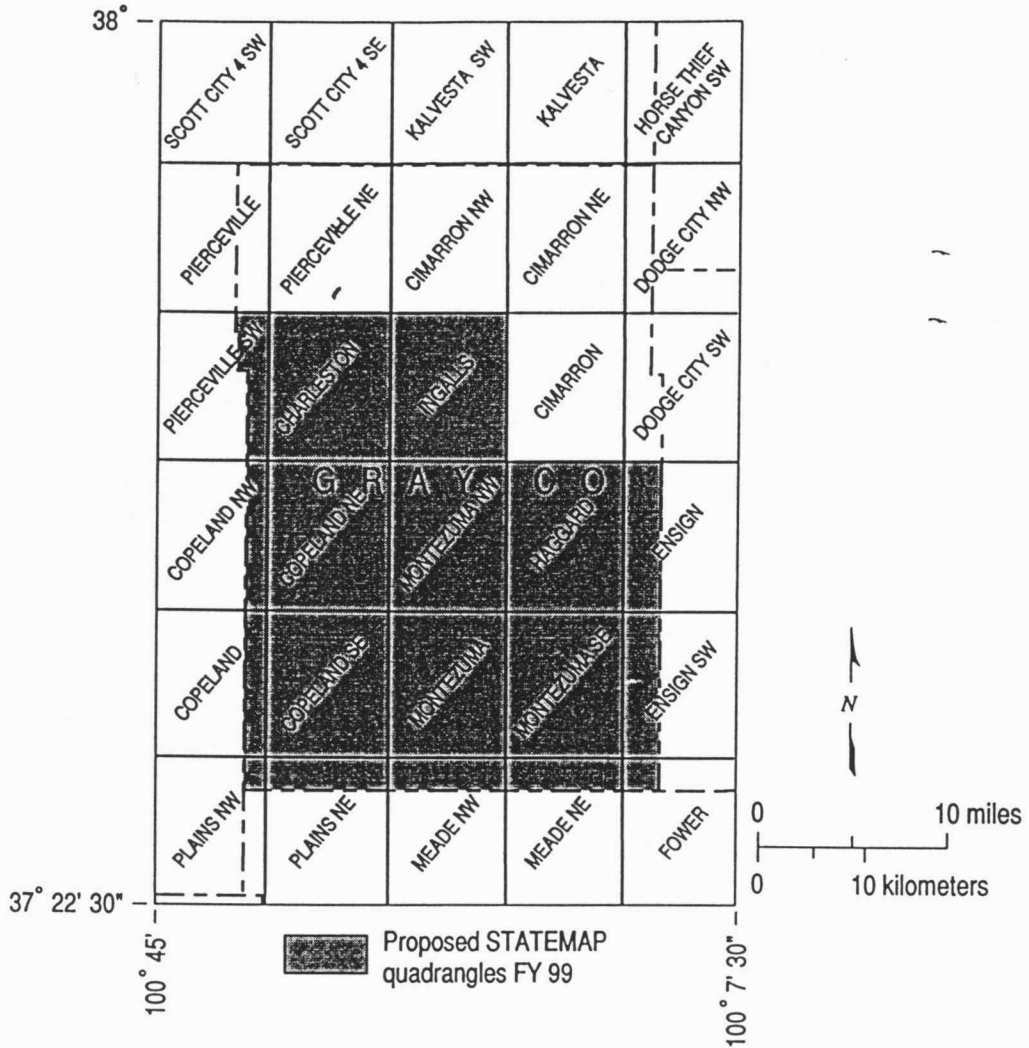


Figure 6--Quadrangle maps covering Gray County, and area of the county proposed for FY99 STATEMAP new mapping effort.

## **GRAY COUNTY & HODGEMAN COUNTY QUADRANGLE MAPS**

The following 11 quadrangle maps are photocopies of field maps that are submitted by the Kansas Geological Survey as part of the STATEMAP Agreement #00HQAG0055 for FY00 (May 1, 2000 to April 30, 2001). Seven quadrangles are added to existing quadrangles from STATEMAP FY99 filed with the Kansas Geological Survey as **KGS Open-File Report 2000-22 "Preliminary Geologic Field Maps for portions of Gray County, Kansas."** This completes the field mapping of Gray County, but as part of this same project, new mapping was started in Hodgeman County, Kansas. Two complete quadrangles and two partial quadrangles were mapped in Hodgeman County. The four quadrangles have been filed at the Kansas Geological Survey as **KGS Open-File Report 2001-15 "Preliminary Geology Field Maps for portions of Hodgeman County, Kansas."**

Quadrangles included in the FY00 Gray--Hodgeman County Geologic Mapping Project include--

### ***GRAY COUNTY***

Complete Quadrangles

**Pierceville NE  
Cimarron NW  
Cimarron NE  
Cimarron**

### ***HODGEMAN COUNTY***

Complete Quadrangles

**Hanston  
Hanston NW**

### ***GRAY COUNTY***

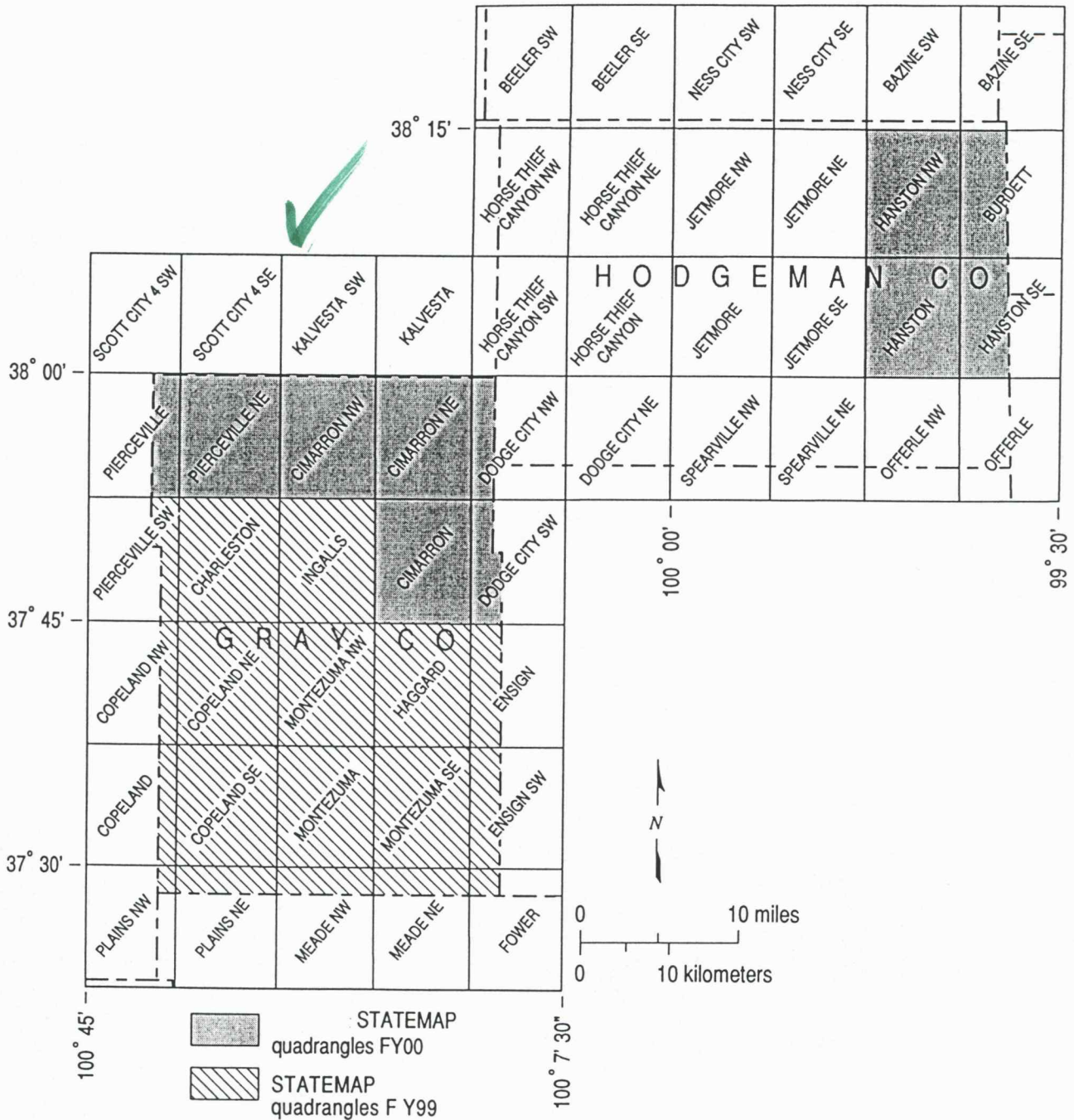
Partial Quadrangles

**Pierceville  
Dodge City NW  
Dodge City SW**

### ***HODGEMAN COUNTY***

Partial Quadrangles

**Burdett  
Hanston SE**



Quadrangle maps covering Gray County and Hodgeman County with area shown that was mapped during FY99, and deliverables of the new mapped areas in Gray and Hodgeman County for FY00.

# Stratigraphic Column

## Gray County, Kansas

*William C. Johnson*  
University of Kansas

### Quaternary System

#### Alluvial deposits

- Qal*      ***undifferentiated flood plain alluvium***  
coarse gravel to clay; Holocene age; 0-75ft
- Qf*      ***alluvial fan deposits of the Arkansas River Valley***  
coarse gravel to clay; late Pleistocene to Holocene ages; 0-45ft
- Qt*      ***alluvial terrace deposits of the Arkansas River Valley***  
coarse gravel to clay; late Pleistocene to Holocene ages; 0-230ft
- Qp*      ***upland intermittent lake (playa) deposits***  
silt to clay; late Pleistocene to Holocene ages; 0-30ft

#### Eolian deposits

- Qs*      ***eolian sand***  
fine sand occurring in sheets and dunes; late Pleistocene to Holocene ages; 0-50ft
- Ql*      ***loess***  
fine-grained sediments, dominantly silt-sized; Pleistocene to Holocene ages; 0-20ft

### Tertiary and Quaternary Systems

- To*      ***undifferentiated alluvium, dominated by the Ogallala Formation***  
coarse gravel to clay; calcareous; Miocene to middle Pleistocene age; includes the Miocene Ogallala Formation, early Pleistocene Meade Formation, and other Pleistocene alluvial units; 0-300ft

### Cretaceous System

#### Upper Cretaceous Series

- Kgh*      ***Greenhorn limestone (Pfeifer shale and Jetmore chalk mbrs)***  
Chalky shale with thin limestone beds and limestone concretions, and thin chalky limestone beds separated by chalky shale; 0-41ft