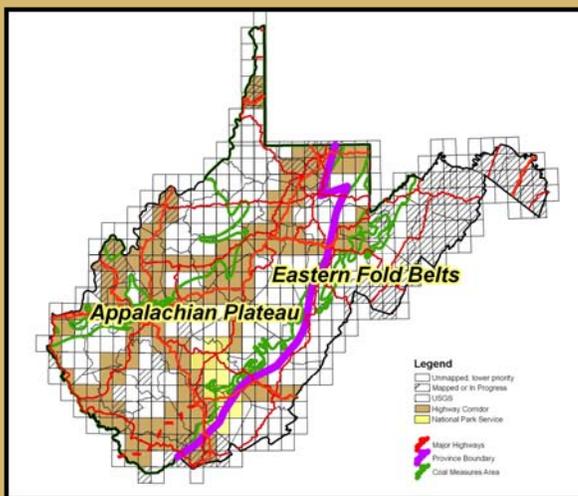




# Plan for Geologic Mapping in West Virginia

October 2009



WEST VIRGINIA

**Cover Photos**

*Top:* **Devil's Backbone, Pocahontas County, West Virginia**  
Photo by Paula Hunt

*Inset:* **Mapping Status and Priorities 2009** (See enclosed figures)

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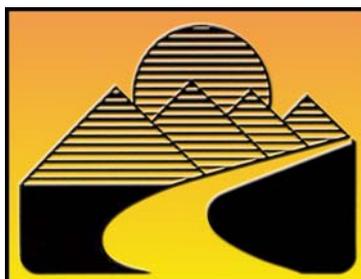
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# TABLE OF CONTENTS

	<u>Page</u>
PURPOSE.....	1
HISTORY.....	1
MAPPING PROGRAMS AT THE WEST VIRGINIA GEOLOGICAL AND ECONOMIC SURVEY.....	2
MAPPING PROGRESS.....	3
THE PLAN.....	4
Long-Term Goal.....	4
Mid-Term Priorities for STATEMAP Projects.....	4
Karst Areas.....	4
Highway Corridors.....	5
Short-Term Priorities.....	5
SUMMARY AND CONCLUSIONS.....	5

## Tables

Table 1	All Geologic Quadrangles Mapped by WVGES
Table 2	STATEMAP Projects Awarded to WVGES
Table 3	Priority Matrix for Evaluating Proposed West Virginia STATEMAP Quadrangles

## Figures

Figure 1	All Quadrangles Mapped by WVGES
Figure 2	STATEMAP Projects Granted to WVGES
Figure 3	Karst Areas in West Virginia
Figure 4	West Virginia Mapping Priorities



# Plan for Geologic Mapping in West Virginia

## PURPOSE

The West Virginia Geological and Economic Survey (WVGES) has been mapping West Virginia for over one hundred years. The entire state was mapped at a scale of 1:62,500 in the early 1900s, and those maps became part of the County Geologic Reports produced by WVGES. The base maps used were produced before the days of photogrammetry and had an unspecified geographic coordinate system. Since that time, many formation names have changed, geologic interpretation has changed, additional roads have been constructed, and base maps have become much more accurate. Therefore, as funding becomes available, WVGES is in the process of remapping the geology of the state at a 1:24,000 scale using United States Geological Survey (USGS) 7½-minute topographic quadrangles and digital elevation models as a base. An effective state mapping plan for West Virginia will accomplish the following:

1. Coordinate all mapping efforts at WVGES;
2. Provide a yardstick for ranking proposals for USGS STATEMAP funding; and
3. Set goals for program expansion as funding and personnel become available.

## HISTORY

In 1992, the West Virginia Geologic Mapping Panel (the Mapping Panel) met to identify USGS 7½-minute quadrangles with significant environmental problems, coal resources, economic development, tourism, and water resources. A panel member created a list of quadrangles of particular environmental concern based on discussions during this meeting. Since that time, the Coal Bed Mapping Program (CBMP) at WVGES was implemented and has created a Geographic Information System (GIS) which, when complete, will include all mineable coal beds in every quadrangle containing coal resources.



In June 2002, the Mapping Panel held a special meeting to update the statewide geologic mapping plan and set a course for future mapping in the state. Areas of the state where karst is a concern were given priority, and quadrangles along major highway corridors were also identified as a priority. In addition, quadrangles in the Eastern Panhandle were given special priority because they contain highways, karst, are undergoing relatively rapid development, and had contiguous geologic mapping already completed.

Geologic mapping priorities were revisited and revised by the Mapping Panel at a special meeting in July 2009. The status of current mapping was discussed along with proposed geologic mapping to be funded by STATEMAP and other sources. The geologic mapping priorities map was updated as a result of this meeting, and a Priority Matrix for ranking specific quadrangles was created. The matrix and updated priorities map are included in this Plan.

## **MAPPING PROGRAMS AT THE WEST VIRGINIA GEOLOGICAL AND ECONOMIC SURVEY**

WVGES has a three-prong approach to geologic mapping in the state: the federally funded STATEMAP program, the state-funded CBMP, and “other funding.” Under the STATEMAP program administered by USGS, WVGES produces bedrock geology maps through a combination of field work and available subsurface data. Surficial deposits are also mapped in certain area. One or more interpretational cross sections are drawn for each quadrangle. The result is a conventional geologic map at a 1:24,000 scale.

Under the state-funded CBMP, geologists use core data and surface exposures of coal beds to create a GIS, which in turn can be queried to produce isopach, outcrop, and structure-contour maps for each coal bed. Useful geologic maps can be created by drawing the intersection of the coal bed elevations with the surface topography. To produce maps compatible with STATEMAP, additional work is required to field check the digitally



produced maps and to field map surficial deposits and non-coal stratigraphic boundaries. Under the STATEMAP program, WVGES has expedited and mapped fifteen coal-area quadrangles identified by the Mapping Panel as high priorities.

In the “other funding” category, WVGES occasionally receives financial support to map particular areas for special projects. One such project starting in 2009 is for mapping the bedrock geology of the fourteen 7½-minute quadrangles containing the Gauley River, New River, and Bluestone River National Park units, and for mapping the surficial geology within the Park boundaries. This three-year project is scheduled to be completed in 2012. The quadrangles to be mapped are shown in Figure 1.

## **MAPPING PROGRESS**

WVGES has already mapped over 120 quadrangles in the state. Geologic quadrangles mapped at a 1:24,000 scale by WVGES since completion of the early County Geological Reports are listed in Table 1 and shown in Figure 1. More than fifty 7½-minute quadrangles have been mapped or digitally converted with funding from the STATEMAP program. STATEMAP projects completed by WVGES to date are listed in Table 2 and shown in Figure 2.

The Eastern Panhandle had been designated as a high-priority area in previous mapping plans for the reasons listed above. Much of the area considered by most West Virginians to comprise the “Eastern Panhandle” has now been mapped by WVGES or USGS. Therefore, the Eastern Panhandle is no longer listed as a separate mapping priority in this latest mapping plan. However, the unmapped eastern portions of the state remain a priority area for mapping.



## THE PLAN

### Long-Term Goal

The long-term goal of the WVGES mapping effort is to map the bedrock geology of the entire state at a 1:24,000 scale using modern base maps. This goal is achievable within the next ten to fifteen years, given the areas completed to date by STATEMAP projects, the GIS being developed under the CBMP, and continued funding of the STATEMAP and CBMP. WVGES' strategy for meeting this goal within the constraints of available funding is to apply STATEMAP funds to quadrangles that, in general, will not be mapped under the CBMP or other funding sources, and to field check those quadrangles for which the CBMP GIS has been completed. This CBMP field checking and any additional non-coal field mapping would be completed with STATEMAP, CBMP, or other available funding sources.

The state was divided into two regions for the purpose of setting broad mapping priorities: the Appalachian Plateau and the Eastern Fold Belts, as shown in Figures 3 and 4. In an effort to help narrow the broad priorities while keeping the mapping plan current and flexible, the Mapping Panel developed a Priority Matrix to help evaluate quadrangles proposed for mapping under STATEMAP. Criteria including urbanization potential, environmental vulnerability, mineral resources, and current issues will be evaluated on a per-quadrangle basis. Proposed quadrangles would then be ranked based on the matrix. A copy of the Priority Matrix is in Table 3.

### Mid-Term Priorities for STATEMAP Projects

A map with priority areas, CBMP boundaries, and quadrangles already complete is shown in Figure 4. The following broad topics have been identified as the focus of geologic mapping in the next five to ten years:

#### *Karst Areas*

Areas of karst occur throughout the eastern tier of counties in the state, including the Eastern Panhandle. In 2001, the Karst Waters Institute recognized contact caves and karst areas in Greenbrier County as one of the top ten endangered karst ecosystems in the world. Karst and potential karst areas exist in the Eastern Fold Belts province, as shown in Figure 3.



### ***Highway Corridors***

The state's highways are corridors of relatively high population growth, economic development, and environmental pressure. In addition, highway construction exposes large rock outcrops and offers tremendous opportunity for geologic mapping not usually available. For these reasons, mapping highway corridors is a high priority for the state. Quadrangles along major highway corridors are shown on the priorities map in Figure 4.

### **Short-Term Priorities**

Each year, the Mapping Panel will meet to examine and update the state mapping plan, if needed, and review specific quadrangles proposed by WVGES geologists for mapping. Use of the Priority Matrix will allow the mapping plan to be flexible and adjust to changing short-term priorities.

## **SUMMARY AND CONCLUSIONS**

This updated Statewide Geologic Mapping Plan incorporates revisions made by the Mapping Panel in July 2009. A Priority Matrix has been added to the Plan to help evaluate and rank quadrangles for funding, and the state was divided into two provinces for the purpose of mapping priorities. The former priority area in the Eastern Panhandle has been incorporated into the Eastern Fold Belts province because most of the quadrangles in the Eastern Panhandle are now mapped. The Eastern Fold Belts province includes geologically complex regions as well as karst and other environmentally sensitive areas. The Appalachian Plateau province includes many of the state's highway corridors, natural gas reserves, and coal reserves. New highway corridors were added to priorities map included in this updated Plan.

The new Priority Matrix allows flexibility in the overall Plan. The result is a dynamic document that allows mapping priorities to adjust to rapidly changing situations in the state.



# TABLES



Table 1  
**All Geologic Quadrangles Mapped by WVGES**  
as of 2009

<b>TOPONAME</b>	<b>Year</b>	<b>Publication No.</b>	<b>Funding</b>	<b>Primary Author(s)</b>	<b>Publication Type</b>
Addison	1982	OF8504A	WVGES	Fonner	WVGES Open File
Antioch	2009	current mapping	STATEMAP & WVGES	Dean	current mapping
Apple Grove	1982	OF8504B	WVGES	Fonner	WVGES Open File
Arlee	1982	OF8504C	WVGES	Fonner	WVGES Open File
Artemas	1997	OF9702	WVGES	Lessing, Kulander, Dean	WVGES Open File
Athens	2000	OF0104	STATEMAP & WVGES	Blake	WVGES Open File
Augusta	1999	OF9905	WVGES	Lessing, Dean, Kulander, et al.	WVGES Open File
Baker	1992	OF9201	WVGES	Lessing, Dean, Kulander, et al.	WVGES Open File
Beckley	1980	OF801N	WVGES	Jane McColloch	WVGES Open File
Beech Hill	1982	OF8504D	WVGES	Fonner	WVGES Open File
Bellegrove	1996	OF9701	WVGES	Lessing, Kulander, Dean	WVGES Open File
Bergton	1992	MAP WV-37	WVGES	Lessing, Dean, Kulander, et al.	WVGES MAP WV-37
Berryville	1990	MAP WV-35	WVGES	Lessing, Kulander, Dean	WVGES MAP WV-35
Bethany	2007	OF0703	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Big Pool	1994	OF9502	STATEMAP & WVGES	Lessing, Kulander, Dean	WVGES Open File
Blackbird Knob	1997	OF9902A	STATEMAP & WVGES	Matchen, et. al.	WVGES Open File
Blackwater Falls	1994	OF9408, OF9408A	STATEMAP & WVGES	Fedorko, Kite, et al.	WVGES Open File
Bluefield	1999	OF801O, OF0003	WVGES	Blake	WVGES Open File
Brandywine	2000	OF0002	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Burlington	2007	OF0704	STATEMAP & WVGES	Kulander, Dean	WVGES Open File
Capon Bridge	1999	OF9903	STATEMAP & WVGES	Kulander, Dean, Lessing	WVGES Open File
Capon Springs	1985	MAP WV-26	WVGES	Lessing, Dean, Kulander, et al.	WVGES MAP WV-26
Charles Town	1990	MAP WV-35	WVGES	Kulander, Dean, Lessing	WVGES MAP WV-35
Cherry Run	1995	OF9505	WVGES	Lessing, Kulander, Dean	WVGES Open File
Cheshire	1982	OF8504E	WVGES	Fonner	WVGES Open File
Chester	1982	OF8504F	WVGES	Fonner	WVGES Open File
Circleville	2002	OF0201	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Cottageville	1982	OF8504G	WVGES	Fonner	WVGES Open File
Cow Knob	2006	OF0603	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Davis	1994	OF9506	STATEMAP & WVGES	Blake, Fedorko, Kite, Matchen, et al.	WVGES Open File
Doe Hill	1998	OF9807	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Elmwood	1982	OF8504H	WVGES	Fonner	WVGES Open File
Fairmont West	1958	OF801L	WVGES	Fonner, Reynolds	WVGES Open File
Fort Seybert	2004	OF0408	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Franklin	2003	OF0303	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Gallipolis	1982	OF8504I	WVGES	Fonner	WVGES Open File
Glengary	1994	OF9501	STATEMAP & WVGES	Lessing, Kulander, Dean	WVGES Open File
Glenwood	1982	OF8504J	WVGES	Fonner	WVGES Open File
Gore	1996	OF9602	WVGES	Lessing, Kulander, Dean	WVGES Open File
Grafton	1976	OF801M	STATEMAP & WVGES	Fonner, Reynolds	WVGES Open File
Grant Town	2005	OF0601	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Great Cacapon	1996	OF9701	STATEMAP & WVGES	Lessing, Kulander, Dean	WVGES Open File
Hancock	1995	OF9503	WVGES	Lessing, Kulander, Dean	WVGES Open File
Hanging Rock	1994	OF9407	WVGES	Lessing, Dean, Kulander, et al.	WVGES Open File
Harpers Ferry	1990	MAP WV-35	WVGES	Kulander, Dean, Lessing	WVGES MAP WV-35
Headsville	2006	OF0604	STATEMAP & WVGES	Kulander, Dean	WVGES Open File
Hedgesville	1987	MAP WV-31	WVGES	Lessing, Kulander, Dean	WVGES MAP WV-31
Hightown	2008	OF0804	STATEMAP & WVGES	McDowell, et al.	WVGES Open File
Hurricane	1982	OF8504K	WVGES	Fonner	WVGES Open File
Inwood	1994	OF9405	WVGES	Lessing, Kulander, Dean	WVGES Open File
Kanawha	1978	OF801G	WVGES	WVGES	WVGES Open File
Keedysville	1987	MAP WV-31	WVGES	Kulander, Dean, Lessing	WVGES MAP WV-31
Keyser	1963	MAP-X10, GM1	WVGES	John Dennison	WVGES MAP-X10, GM-1
Lake Lynn	2002	OF0405	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Largent	1997	OF9801	STATEMAP & WVGES	Lessing, Dean, Kulander, et al.	WVGES Open File

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as of 2009

<b>TOPONAME</b>	<b>Year</b>	<b>Publication No.</b>	<b>Funding</b>	<b>Primary Author(s)</b>	<b>Publication Type</b>
Lerona	2001	OF0205	STATEMAP & WVGES	Blake	WVGES Open File
Levels	1998	OF9802	STATEMAP & WVGES	Lessing, Dean, Kulander, et al.	WVGES Open File
Little Hocking	1978	OF801B	WVGES	WVGES	WVGES Open File
Lost City	1992	MAP WV-37	WVGES	Lessing, Dean, Kulander, et al.	WVGES MAP WV-37
Lost River State Park	1992	MAP WV-37	WVGES	Lessing, Dean, Kulander, et al.	WVGES MAP WV-37
Lubeck	1978	OF801E	WVGES	WVGES	WVGES Open File
Mannington	2007	OF0802	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Marietta	1978	OF801A	WVGES	WVGES	WVGES Open File
Martinsburg	1987	MAP WV-31, X11, GM-2	WVGES	Lessing, Kulander, Dean	WVGES MAP WV-31,X11,GM-2
Matoaka	2001	OF0206	STATEMAP & WVGES	Blake	WVGES Open File
Medley	2008	OF0803	STATEMAP & WVGES	Dean	WVGES Open File
Middleway	1990	MAP WV-35	WVGES	Lessing, Kulander, Dean	WVGES MAP WV-35
Milam	2006	OF0602	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Moatstown	1999	OF9906	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Moorefield	2000	MAP WV-38 & 39	STATEMAP & WVGES	Kulander, Dean, McColloch, et al.	WVGES MAP WV-38,-39
Morgantown North	2004	OF0403	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Morgantown South	2004	OF0404	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Mount Alto	1982	OF8504L	WVGES	Fonner	WVGES Open File
Mount Olive	1982	OF8504M	WVGES	Fonner	WVGES Open File
Mount Storm Lake	1995	OF9604	STATEMAP & WVGES	Matchen, Murphy	WVGES Open File
Mountain Falls	1985	MAP WV-26	WVGES	Lessing, Dean, Kulander, et al.	WVGES MAP WV-26
Mozer	2005	OF0505	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Mustoe	2009	current mapping	STATEMAP & WVGES	McDowell, et al.	current mapping
Needmore	1992	OF9201	WVGES	Lessing, Dean, Kulander, et al.	WVGES Open File
New Haven	1982	OF8504N	WVGES	Fonner	WVGES Open File
Oakvale	2000	OF0105	STATEMAP & WVGES	Blake	WVGES Open File
Old Fields (half)	2002	OF0302	STATEMAP & WVGES	Kulander, Dean	WVGES Open File
Old Fields (half)	2003	OF0302	STATEMAP & WVGES	Kulander, Dean	WVGES Open File
Oldtown	1997	OF9703	WVGES	Lessing, Dean, Kulander, et al.	WVGES Open File
Orkney Springs	1992	MAP WV-37	WVGES	Lessing, Dean, Kulander, et al.	WVGES MAP WV-37
Osage	2004	OF801K, OF0502	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Paddy Knob	2009	current mapping	STATEMAP & WVGES	McDowell, et al.	current mapping
Palo Alto	1997	MAP WV-40	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES MAP WV-40
Parkersburg	1978	OF801C	WVGES	WVGES	WVGES Open File
Patterson Creek	2005	OF0504	STATEMAP & WVGES	Kulander, Dean	WVGES Open File
Paw Paw	1996	OF9702	STATEMAP & WVGES	Lessing, Kulander, Dean	WVGES Open File
Petersburg East	2001	OF0203	STATEMAP & WVGES	Kulander, Dean, McColloch, et al.	WVGES Open File
Pomeroy	1982	OF8504O	WVGES	Fonner	WVGES Open File
Princeton	1999	OF801P, OF0004	STATEMAP & WVGES	Blake	WVGES Open File
Ridge	1996	OF9601	WVGES	Lessing, Kulander, Dean	WVGES Open File
Rig east half	2001	OF0204	STATEMAP & WVGES	Kulander, Dean, McColloch, et al.	WVGES Open File
Rig west half	2002	OF0204	STATEMAP & WVGES	Kulander, Dean	WVGES Open File
Rio	1999	OF9904	STATEMAP & WVGES	Lessing, Dean, Kulander, et al.	WVGES Open File
Rivesville	2005	OF0503	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Robertsburg	1982	OF8504P	WVGES	Fonner	WVGES Open File
Romney east half	2004	OF0402	STATEMAP & WVGES	Kulander, Dean	WVGES Open File
Romney west half	2003	OF0402	STATEMAP & WVGES	Kulander, Dean	WVGES Open File
Round Hill	1990	MAP WV-35	WVGES	Kulander et al.'90, USGS'92	WVGES MAP WV-35,USGS GQ1702
Sector	2000	OF0005	STATEMAP & WVGES	Kulander, Dean, McColloch, et al.	WVGES Open File
Sharp Knob	2008	OF0901	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Shepherdstown	1987	MAP WV-31	WVGES	Kulander, Dean, Lessing	WVGES MAP WV-31
Snowy Mountain	2001	OF0101	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
South Parkersburg	1978	OF801F	WVGES	WVGES	WVGES Open File
Springfield east half	2004	OF0406	STATEMAP & WVGES	Kulander, Dean	WVGES Open File

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as of 2009

<b>TOPONAME</b>	<b>Year</b>	<b>Publication No.</b>	<b>Funding</b>	<b>Primary Author(s)</b>	<b>Publication Type</b>
Springfield west half	2005	OF0406	STATEMAP & WVGES	Kulander, Dean	WVGES Open File
Spruce Knob	2001	OF0102	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Stephenson	1994	OF9405	WVGES	Lessing, Kulander, Dean	WVGES Open File
Stotlers Crossroads	1995	OF9504	WVGES	Lessing, Kulander, Dean	WVGES Open File
Sugar Grove	1998	OF9806	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Sylvester	1989	OF8904	multiple funding sources	Blake	WVGES Open File
Tablers Station	1994	OF9404	WVGES	Lessing, Kulander, Dean	WVGES Open File
Thornwood	2002	OF0202	STATEMAP & WVGES	McDowell, Avary, et al.	WVGES Open File
Tiltonsville	2006	OF0702	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Valley Grove	2007	OF0801	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
Valley Mills	1978	OF801D	WVGES	WVGES	WVGES Open File
Wardensville	1985	MAP WV-26	WVGES	Lessing, Dean, Kulander, et al.	WVGES MAP WV-26
Wheeling	2006	OF0701	STATEMAP & WVGES	McColloch and McColloch	WVGES Open File
White Hall	1994	OF9406	WVGES	Lessing, Kulander, Dean	WVGES Open File
Williamsport	1987	MAP WV-31	WVGES	Kulander, Dean, Lessing	WVGES MAP WV-31
Wolf Gap	1992	OF9201	WVGES	Lessing, Dean, Kulander, et al.	WVGES Open File
Woodstock	1985	MAP WV-26	WVGES	Lessing, Dean, Kulander, et al.	WVGES MAP WV-26
Yellow Spring	1985	MAP WV-26	WVGES	Lessing, Dean, Kulander, et al.	WVGES MAP WV-26

WVGES: West Virginia Geological and Economic Survey  
STATEMAP: A federally funded matching program administered through the United States Geological Survey (USGS)

Table 2  
**STATEMAP Projects Awarded to WVGES**  
as of 2009

<b>Federal Fiscal Year</b>	<b>Quadrangle(s)</b>	<b>Map Type(s)</b>
1993	(Canaan Valley) Blackwater Falls	bedrock mapped by WVGES; surficial mapped through EDMAP with J.S. Kite, his students, and WVGES
1994	(Canaan Valley) Davis	bedrock
1994	Big Pool	bedrock
1994	Glengary	bedrock
1995	(Canaan Valley) Mt. Storm Lake	bedrock
1996	Hagerstown (1:100,000; digitized 1:24,000)	bedrock
1996	Frederick (1:100,000; digitized 1:24,000)	bedrock
1996	Great Cacapon	bedrock
1996	Paw Paw	bedrock
1997	(Canaan Valley) Blackbird Knob	bedrock
1997	Largent	bedrock
1997	Levels	bedrock
1997	Palo Alto	bedrock
1997	Cumberland (1:100,000; digitized 1:24,000)	bedrock
1997	Winchester (part) (1:100,000; digitized 1:24,000)	bedrock
1998	Doe Hill	bedrock
1998	Sugar Grove	bedrock
1998	Winchester (remainder) (1:100,000; digitized 1:24,000)	bedrock
1998	Front Royal	bedrock
1999	Bluefield	bedrock
1999	Princeton	bedrock
1999	Moatstown	bedrock
1999	Capon Bridge	bedrock
1999	Rio	bedrock
2000	Oakvale	bedrock
2000	Athens	bedrock
2000	Sector	bedrock and surficial
2000	Moorefield	bedrock and surficial
2000	Brandywine	bedrock
2001	Petersburg East	bedrock and surficial
2001	eastern Rig	bedrock
2002	western Rig	bedrock
2001	Snowy Mountain	bedrock
2001	Spruce Knob	bedrock
2001	Lerona	bedrock
2001	Matoaka	bedrock
2002	western Old Fields	bedrock and surficial
2003	eastern Old Fields	bedrock and surficial
2002	Lake Lynn	bedrock
2002	Circleville	bedrock
2002	Thornwood	bedrock
2003	Morgantown North	bedrock and surficial
2003	Morgantown South	bedrock and surficial
2003	Franklin	bedrock
2003	western Romney	bedrock and surficial
2004	eastern Romney	bedrock and surficial
2004	Fort Seybert	bedrock
2004	eastern Springfield	bedrock and surficial
2005	western Springfield	bedrock and surficial
2004	Osage	bedrock
2004	Rivesville	bedrock and surficial
2005	Mozer	bedrock
2005	south Patterson Creek	bedrock and surficial
2005	Grant Town	bedrock
2006	Milam	bedrock
2006	Cow Knob	bedrock
2006	Headsville	bedrock and surficial
2006	Wheeling	bedrock
2006	Tiltonsville	bedrock
2006	Bethany (WV)	bedrock
2007	Bethany (PA)	bedrock
2007	Valley Grove	bedrock
2007	Mannington	bedrock
2007	Burlington	bedrock and surficial
2008	Sharp Knob	bedrock
2008	Medley	bedrock and surficial
2008	Hightown	bedrock
2009	Antioch	bedrock and surficial
2009	Paddy Knob	bedrock
2009	Mustoe	bedrock

WVGES: West Virginia Geological and Economic Survey  
STATEMAP: A federally funded matching program administered through the United States Geological Survey

Table 3

**Priority Matrix for Evaluating Proposed West Virginia STATEMAP Quadrangles**

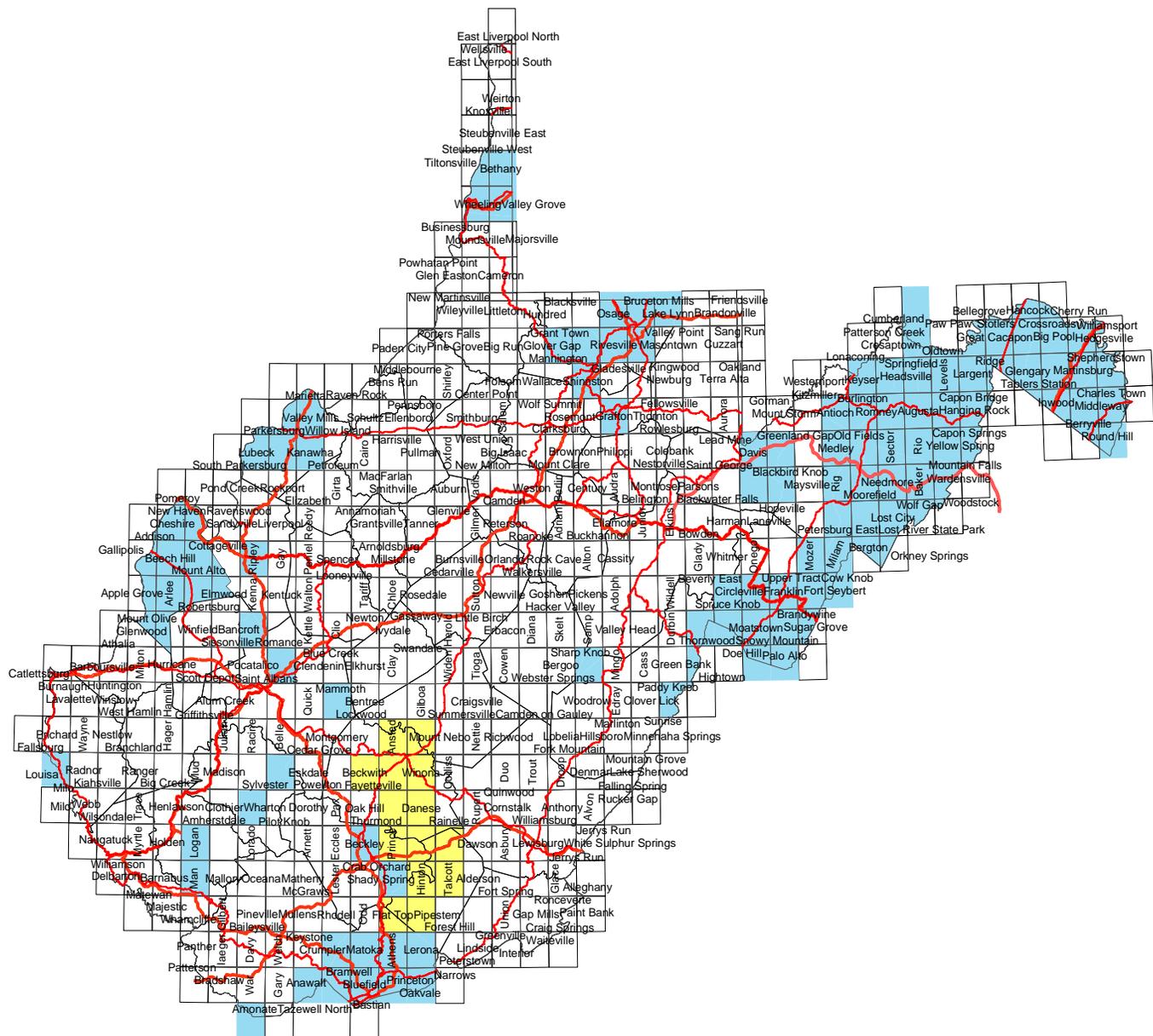
Quadrangle Name	Misc.		Urbanization			Geologic Hazards			Environmental				Geologic Resources				Geologic Merit		Total
	Current Interest*	Lost Opportunity †	Population Expansion, Urban Development	Rural Development	Major Utility/Transportation Corridor	Mining Subsidence, Inactive Mining, Sinkhole Development	Landslide	Karst	Solid Waste Disposal	Liquid Waste Disposal	Biologically Sensitive Areas	Hydrologic Contamination	Groundwater	Surface Water	Industrial Minerals (Limestone, Building Stone, Clay, Sand and Gravel, Road Metal, etc.)	Coal, Oil & Gas	Geologic Features, Uniqueness	Contiguous to Completed Mapping	
rank each criterion on a scale of 1 to 10																			<b>TOTAL</b>
Quad1																			
Quad2																			
Quad3																			

\* The *Current Interest* category could include areas in the news.

† *Lost Opportunity* could include excavation that may be covered over in a relatively short period of time.

# FIGURES

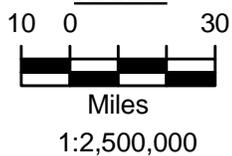




**Legend**

- Mapped by WVGES
- National Park Service (in progress)
- Major Highways

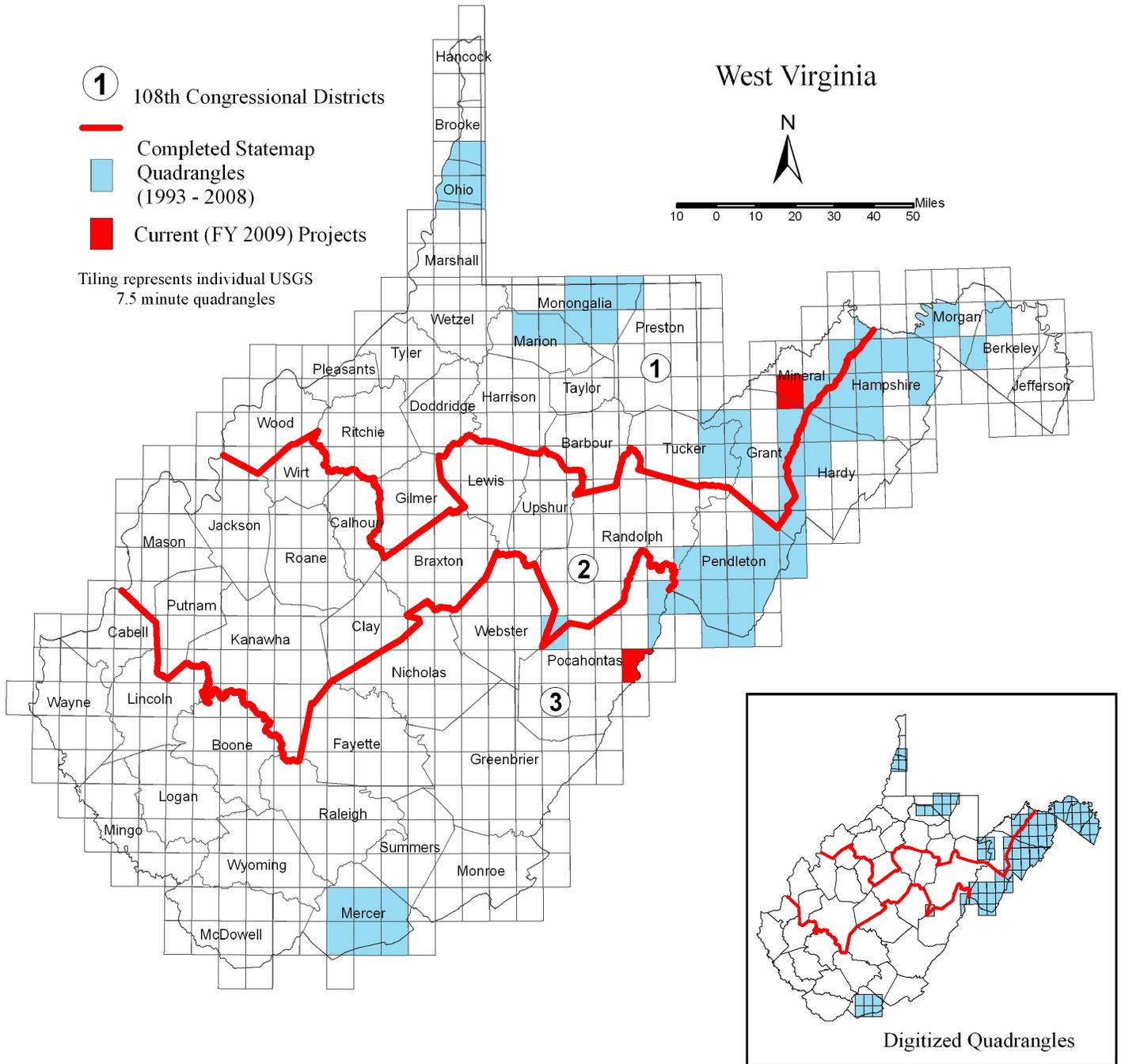
**Scale**



**Figure 1. All Quadrangles Mapped by WVGES (as of September 2009)**

West Virginia Geological and Economic Survey  
 1 Mont Chateau Road  
 Morgantown, WV 26508





**Figure 2. STATEMAP Projects Granted to WVGES**



This Carbonate Outcrop Map  
has been Superseded.

**Scale**

9.5 0 28.5



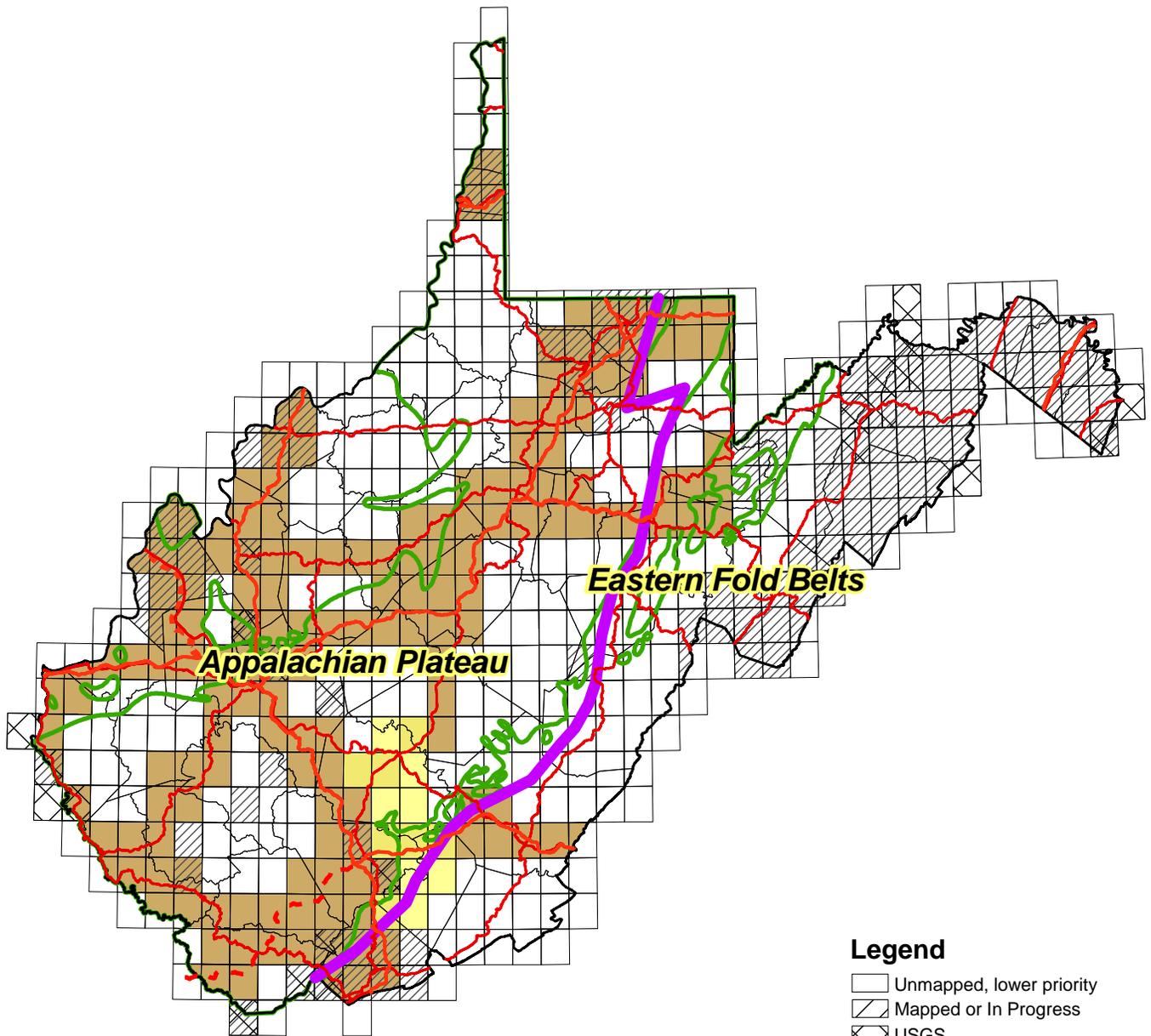
Miles

1:2,500,000

**Figure 3. Karst Areas in West Virginia**

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and Economic Survey  
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Morgantown, WV 26508





**Appalachian Plateau**

**Eastern Fold Belts**

**Legend**

-  Unmapped, lower priority
-  Mapped or In Progress
-  USGS
-  Highway Corridor
-  National Park Service (in progress)
-  Major Highways
-  Province Boundary
-  Coal Measures Area

**Scale**

10 0 30



Miles

1:2,500,000

**Figure 4. West Virginia Mapping Priorities**

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