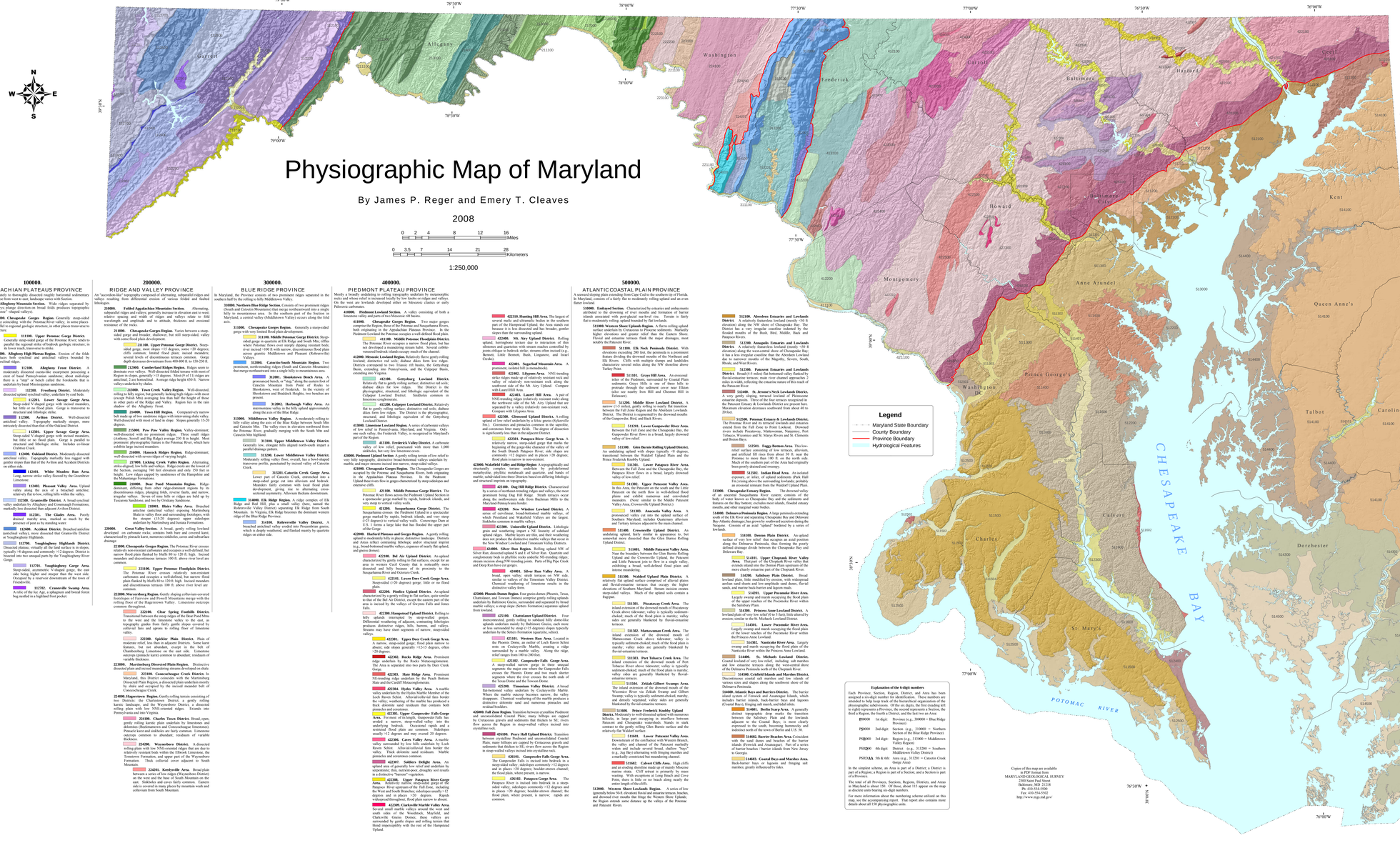

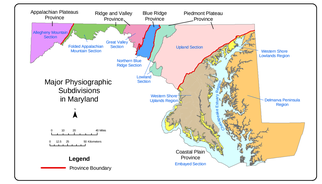

1000000. APPALACHIAN PLATEAUS PROVINCE

Plateau of moderately to thoroughly dissected roughly horizontal sedimentary rock; elevations rise from west to east; landscape varies with Section.

111000. Allegheny Mountain Section. Wide ridges separated by broad valleys; plunge direction on broad folds produces topographic basins ("canoe"-shaped valleys).

111100. Chesapeake Gorges Region. Generally steep-sided gorge coinciding with the Potomac River valley; in some places parallel to regional geologic structure, in other places transverse to structure.

111100. Upper Potomac Gorge District. Generally steep-sided gorge of the Potomac River; tends to be wider and gentler than in the Middle Potomac district to lower reach, transverse to strike.

112000. Allegheny High Plateau Region. Erosion of the folds produces both synclinal and anticlinal valleys bounded by homoclinal ridges.

112100. Allegheny Front District. A moderately dissected cuesta-like escarpment possessing a crest of basal Pennsylvanian sandstone; about mid-slope there is a "step" or bench called the Foreknobs that is underlain by basal Mississippian sandstone.

112200. Frostburg District. Moderately dissected, rolling to hilly region, but generally lacking high ridges--with most (except Polish Mtn) averaging less than half the height of those in other parts of the Ridge and Valley. Region lies in the rain shadow of the Allegheny Front.

114000. Town Hill Region. Competitively narrow belt made up of two sandstone ridges with intervening shale valley. Well-dissected with most of land in slope. Slopes generally 15-20 percent.

115000. Pine Run Valley Region. Valley-dominant, rolling to hilly region, developed on shale and limestone (Anthony, Sorrell and Big Ridge) average 250 ft in height. Most prominent physiographic feature is the Potomac River, which here exhibits large incised meanders.

116000. Hancock Ridges Region. Ridge-dominant, well-dissected with broad ridges of varying height.

117000. Licking Creek Valley Region. Alternating, strike-aligned, low hills and valleys. Ridges even are the lowest of the Section, averaging 700 feet elevation and only 150 feet in height. Valleys underlain by sandstones of the Hampshire and the Mahantango Formations.

118000. Deer Pond Mountains Region. Ridge-dominant, differing from other ridge-dominant regions by its discontinuous ridges, plunging folds, reverse faults, and narrow, irregular valleys. Seven of nine hills or ridges are held up by Tuscarora Sandstone, and two by Oriskany Sandstone.

118001. Dutch Ridge Area. Broached anticline (anticlinal valley) exposing Martinsburg Shale; ridges are held up by Oriskany Sandstone and by the steeper (15/20 degrees) upper sideslopes underlain by Martinsburg and Juniata Formations.

120000. Great Valley Section. A broad, gently rolling lowland developed on carbonate rocks; contains both bare and covered karst, characterized by pinnacle karst, numerous sinkholes, coves and blind/fast drainage.

121000. Chesapeake Gorges Region. The Potomac River crosses relatively non-resistant carbonates and incorporates a wide floodplain; characterized by floodplain forest, high, well-developed meanders and discontinuous terraces 100 ft above river level are common.

121100. Upper Potomac Floodplain District. The Potomac River crosses relatively non-resistant carbonates and occupies a well-defined, but narrow flood plain flanked by bluffs 80 to 120 ft. high. Incised meanders and discontinuous terraces 100 ft. above river level are common.

122000. Mercersburg Region. Gently sloping colluvium-covered footslopes of Fairview and Powell Mountains merge with the rolling floor of the Hagerstown Valley. Limestone outcrops common throughout.

122100. Clear Spring Foothills District. Transitional between the steep ridges of the Blue Pond Mtns to the west and the limestone valley to the east, as Fairview Mtn. merges with the Hagerstown Valley floor; colluvial fans and aprons to rolling floor of limestone valley.

122200. Spickler Plain District. Plain of moderate relief, less than in adjacent Districts. Some karst features, but not abundant, except in the belt of Chambersburg Limestone on the east side. Limestone bedrock (including karst) common in abundance, residuum of variable thickness.

123000. Martinsburg Dissected Plain Region. Distinctive dissected plain and incised meandering streams developed on shale.

123100. Conoocheague Creek District. In Maryland, this District coincides with the Martinsburg Dissected Plain Region, a dissected plain underlain mostly by shale and occupied by the incised meander belt of Conoocheague Creek.

124000. Hagerstown Region. Gently rolling terrain consisting of two Districts: the Charlestown District, a gently rolling lowland developed on limestone, and the Hagerstown rolling plain with low, NNE-oriented ridges. Extends into Pennsylvania and into Virginia.

124100. Charles Town District. Broad, open, gently rolling karstic plain underlain by limestones and dolomites (Beekmantown and Conococheague). Pinnacle karst and sinkholes are fairly common. Limestone outcrops common to abundant; residuum of variable thickness.

124200. Waynesboro District. A dissected rolling plain with low NNE-oriented ridges that are due to relatively resistant beds within the Elbrook Limestone, the Tomstown Formation, and upper part of the Waynesboro Formation. Thick colluvial cover adjacent to South Mountain.

124201. Keedysville Area. Broad plain between a series of low ridges (Waynesboro District) on the west and the base of South Mountain on the east. Sinkholes and caves fairly common. Eastern side is covered in many places by mountain wash and colluvium from South Mountain.

2000000. RIDGE AND VALLEY PROVINCE

An "accordion-like" topography composed of alternating, subparallel ridges and valleys resulting from differential erosion of various folded and faulted lithologies.

210000. Folded Appalachian Mountains Section. Alternating, subparallel ridges and valleys; generally increase in elevation east to west; relative spacing and width of ridges and valleys relate to fold wavelength and amplitude and to attitude, thickness and erosional resistance of the rocks.

211000. Chesapeake Gorges Region. Varies between a steep-sided gorge with very limited flood plain development, but still steep-sided, with a very broad flood plain development.

211100. Upper Potomac Gorge District. Steep-sided gorge, most slopes >15 degrees, some >20 degrees; cliffs common; limited flood plain; incised meanders; several levels of discontinuous terraces and cuesta-like depth decreases downstream from 800-800 ft. to 150-250 ft.

212000. Cumberland Ridges Region. Ridges seem to dominate over valleys. Well-dissected ridge terrane with most of Region in slopes, generally >15 degrees. Most (9 of 11) ridges are strike-controlled and bifurcational. Average ridge height 610 ft. Narrow valleys underlain by shale.

212001. Town Creek Valley Region. Well-dissected, rolling to hilly region, but generally lacking high ridges--with most (except Polish Mtn) averaging less than half the height of those in other parts of the Ridge and Valley. Region lies in the rain shadow of the Allegheny Front.

214000. Town Hill Region. Competitively narrow belt made up of two sandstone ridges with intervening shale valley. Well-dissected with most of land in slope. Slopes generally 15-20 percent.

215000. Pine Run Valley Region. Valley-dominant, rolling to hilly region, developed on shale and limestone (Anthony, Sorrell and Big Ridge) average 250 ft in height. Most prominent physiographic feature is the Potomac River, which here exhibits large incised meanders.

216000. Hancock Ridges Region. Ridge-dominant, well-dissected with broad ridges of varying height.

217000. Licking Creek Valley Region. Alternating, strike-aligned, low hills and valleys. Ridges even are the lowest of the Section, averaging 700 feet elevation and only 150 feet in height. Valleys underlain by sandstones of the Hampshire and the Mahantango Formations.

218000. Deer Pond Mountains Region. Ridge-dominant, differing from other ridge-dominant regions by its discontinuous ridges, plunging folds, reverse faults, and narrow, irregular valleys. Seven of nine hills or ridges are held up by Tuscarora Sandstone, and two by Oriskany Sandstone.

218001. Dutch Ridge Area. Broached anticline (anticlinal valley) exposing Martinsburg Shale; ridges are held up by Oriskany Sandstone and by the steeper (15/20 degrees) upper sideslopes underlain by Martinsburg and Juniata Formations.

220000. Great Valley Section. A broad, gently rolling lowland developed on carbonate rocks; contains both bare and covered karst, characterized by pinnacle karst, numerous sinkholes, coves and blind/fast drainage.

221000. Chesapeake Gorges Region. The Potomac River crosses relatively non-resistant carbonates and incorporates a wide floodplain; characterized by floodplain forest, high, well-developed meanders and discontinuous terraces 100 ft. above river level are common.

221100. Upper Potomac Floodplain District. The Potomac River crosses relatively non-resistant carbonates and occupies a well-defined, but narrow flood plain flanked by bluffs 80 to 120 ft. high. Incised meanders and discontinuous terraces 100 ft. above river level are common.

222000. Mercersburg Region. Gently sloping colluvium-covered footslopes of Fairview and Powell Mountains merge with the rolling floor of the Hagerstown Valley. Limestone outcrops common throughout.

222100. Clear Spring Foothills District. Transitional between the steep ridges of the Bear Pond Mtns to the west and the limestone valley to the east, as Fairview Mtn. merges with the Hagerstown Valley floor; colluvial fans and aprons to rolling floor of limestone valley.

222200. Spickler Plain District. Plain of moderate relief, less than in adjacent Districts. Some karst features, but not abundant, except in the belt of Chambersburg Limestone on the east side. Limestone bedrock (including karst) common in abundance, residuum of variable thickness.

223000. Martinsburg Dissected Plain Region. Distinctive dissected plain and incised meandering streams developed on shale.

223100. Conoocheague Creek District. In Maryland, this District coincides with the Martinsburg Dissected Plain Region, a dissected plain underlain mostly by shale and occupied by the incised meander belt of Conoocheague Creek.

224000. Hagerstown Region. Gently rolling terrain consisting of two Districts: the Charlestown District, a gently rolling lowland developed on limestone, and the Hagerstown rolling plain with low, NNE-oriented ridges. Extends into Pennsylvania and into Virginia.

224100. Charles Town District. Broad, open, gently rolling karstic plain underlain by limestones and dolomites (Beekmantown and Conococheague). Pinnacle karst and sinkholes are fairly common. Limestone outcrops common to abundant; residuum of variable thickness.

224200. Waynesboro District. A dissected rolling plain with low NNE-oriented ridges that are due to relatively resistant beds within the Elbrook Limestone, the Tomstown Formation, and upper part of the Waynesboro Formation. Thick colluvial cover adjacent to South Mountain.

224201. Keedysville Area. Broad plain between a series of low ridges (Waynesboro District) on the west and the base of South Mountain on the east. Sinkholes and caves fairly common. Eastern side is covered in many places by mountain wash and colluvium from South Mountain.

3000000. BLUE RIDGE PROVINCE

In Maryland, the Province consists of two prominent ridges separated in the southern half by the rolling to hilly Middletown Valley.

310000. Northern Blue Ridge Section. Consists of two prominent ridges (South and Catoctin Mountains) that merge northeastward into a single hilly to mountainous area. In the southern part of the Section in Maryland, a central valley (Middletown Valley) occurs along the fold axis.

311000. Chesapeake Gorges Region. Generally a steep-sided gorge with very limited flood plain development.

311100. Middle Potomac Gorge District. Steep-sided gorge in quartzite at Elk Ridge and South Mtn; riffles and rapids common. Flood plain narrow to absent; meanders river incised >100 ft with narrow, discontinuous flood plain across granitic Middletown and Pleasant (Rohrersville) Valleys.

312000. Catoctin-South Mountain Region. Two prominent, north-trending ridges (South and Catoctin Mountains) that merge northeastward into a single hilly to mountainous area.

312001. Shookstown Bench Area. A pronounced bench, or "step," along the eastern foot of South Mountain between Boonsboro and the Shookstown, west of Frederick. In the vicinity of Shookstown and Braddock Heights, two benches are present.

312002. Harbaugh Valley Area. An anteconsequent valley in the hilly upland approximately along the axis of the Blue Ridge.

313000. Middletown Valley Region. A moderately rolling to hilly valley along the axis of the Blue Ridge between South Mts and Catoctin Mts. The valley rises in elevation northward from the Potomac River, gradually merging with the South Mts and Catoctin Mts highland.

313100. Upper Middletown Valley District. Moderately rolling upland with aligned swells that impart a parallel drainage pattern.

313200. Lower Middletown Valley District. Moderately rolling valley floor; overall, has a bowl-shaped transverse profile, punctuated by incised valley of Catoctin Creek.

313201. Catoctin Creek Gorge Area. Lower part of Catoctin Creek, entrenched into a steep-sided gorge cut into alluvium and bedrock. Flood plain discontinuous and limited in development, giving rise to alternating cross-sectional asymmetry. Alluvium thickens downstream.

314000. Elk Ridge Region. A ridge complex of Elk Ridge and Red Hill, plus a small valley (here, named the Rohrersville Valley District) separating Elk Ridge from South Mountain. In Virginia, Elk Ridge becomes the dominant western ridge of the Blue Ridge Province.

314100. Rohrersville Valley District. A broached anticlinal valley eroded into Precambrian gneiss, which is deeply weathered, and flanked mainly by quartzite ridges on either side.

4000000. PIEDMONT PLATEAU PROVINCE

Mostly a broadly undulating to rolling topography underlain by metamorphic rocks and whose relief is increased locally by low knobs or ridges and valleys. On the west are lowlands developed either on Mesozoic clastics or early Paleozoic carbonates.

410000. Piedmont Lowland Section. A valley consisting of both a limestone valley and parts of two Mesozoic rift basins.

411000. Chesapeake Gorges Region. Two major gorges comprise the Region, the Potomac River and Susquehanna River, both originating in the Appalachian Mountain Province. In the Piedmont Province, the Potomac occupies a well-defined flood plain.

411100. Middle Potomac Floodplain District. The Potomac River occupies a narrow flood plain, but has not developed a meandering stream habit. Several cobble-veneered bedrock islands occupy much of the channel.

412000. Mesozoic Lowland Region. Relatively flat to gently rolling lowland; distinctive red soils; diabase dikes form low ridges. Includes Gettysburg Basin, existing in Pennsylvania, and the Culpeper Basin, extending into Virginia.

412100. Gettysburg Lowland District. Relatively flat to gently rolling surface; distinctive red soils; diabase dikes form low ridges. The District is the physiographic, structural, and lithologic equivalent of the Gettysburg Lowland District. Sinkholes common in limestone conglomerate.

412200. Culpeper Lowland District. Relatively flat to gently rolling surface; distinctive red soils; diabase dikes form low ridges. The District is the physiographic, structural, and lithologic equivalent of the Gettysburg Lowland District.

413000. Frederick Lowland Region. A series of carbonate valleys of low relief, punctuated with more than 1,000 sinkholes, but very few limestone caves.

413100. Frederick Valley. The main stream of low relief to very hilly topography, where broad-bottomed valleys underlain by marble, and major streams incised into narrow, steep-sided valleys.

413200. Chesapeake Gorges Region. The Chesapeake Gorges are occupied by the Potomac and Susquehanna Rivers, both originating in the Appalachian Plateaus Province. In the Piedmont Upland these rivers flow in gorges characterized by steep sideslopes and extensive cliffs.

413300. Middle Potomac Gorge District. The Potomac River occupies a gorge that is deeply incised (>300 ft) in a spectacular gorge marked by rapids, bedrock islands, and very steep (>25 degrees) to vertical valley walls. Crowsnings Dam at the head of a large lake that has flooded the upper part of the Gorge.

413400. Harford Plateaus and Gorges Region. A gently rolling upland to moderately hilly in places, distinctive landscape. Districts and Areas reflect contrasting lithologic and/or structural imprint (e.g., broad-bottomed marble valleys, expanses of nearly flat upland, and gneiss domes).

413500. Bel Air Upland District. An upland characterized by gently rolling to flat surfaces, except for an area of hilly terrain in the Bel Air area, and moderately well-drained and fairly because of its proximity to the Susquehanna River and Octoraro Creek.

413501. Lower Deer Creek Gorge Area. Steep-sided (>20 degrees) gorge; little or no flood plain.

413502. Pinilica Upland District. An upland characterized by a gently rolling to flat surface, quite similar to that of the Bel Air District, except the eastern part of the District is incised by the valleys of Gwynns Falls and Jones Falls.

413700. Hampstead Upland District. Rolling to hilly uplands interrupted by steep-walled gorges. Differential weathering of adjacent, contrasting lithologies produces distinctive ridges, hills, barrens, and valleys. Streams may have short segments of narrow, steep-sided valley.

413701. Upper Deer Creek Gorge Area. A narrow, steep-sided gorge; flood plain narrow to absent; side slopes generally >12-15 degrees, often >20 degrees.

413702. Rocks Ridge Area. Prominent ridge underlain by the Rocks Metaconglomerate. Ridge is commonly capped by Cretaceous gravels and sediments.

413703. Slate Ridge Area. Prominent NE-trending ridge underlain by the Peach Bottom Slate and the Cardiff Metaconglomerate.

413704. Valley Area. A marble valley underlain by the Hydes Marble Member of the Loch Raven Schist. Alluvial/colluvial fan border the valley; weathering of the marble has produced a hilly terrane with sinkholes that commonly have springs.

413705. Upper Gunpowder Falls Gorge Area. For most of its length, Gunpowder Falls has eroded a narrow, steep-walled valley into the underlying rocks. The gorge is incised into a restricted flood plain very common. Sideslopes usually >12 degrees and may exceed 20 degrees.

413706. Valley Area. A broad, open, marble valley surrounded by low hills underlain by Loch Raven Schist. Alluvial/colluvial fans border the valley. Thick dolomite sand residuum. Marble pinnacles and extensions common.

413707. Sudders Delight Area. An upland area of generally low relief and underlain by serpentinite; thin, nutrient-poor, droughty soil results in a distinctive vegetation.

413708. Upper Patapsco River Gorge Area. Relatively narrow, steep-sided gorge of the Patapsco River upstream of the Fall Zone, including the West and South Branches; sideslopes usually >12 degrees and may exceed 20 degrees. Flood plain widens and disappears throughout; flood plain narrow to absent.

413709. Clarksville Marble Valley Area. Several small marble valleys around the west and south sides of the Woodstock, Mayfield, and Clarksville Gneiss Domes; these valleys are surrounded by gentle slopes and rolling terrain that blend imperceptibly with the rest of the Hampstead Upland.

413710. Hunting Hill Area. The largest of several mafic and ultramafic bodies in the southern part of the Baltimore Gneiss Dome. The area is unique because it is less dissected and has broader, gentler slopes than the surrounding upland.

421401. Mt. Airy Upland District. Rolling upland; herringbone texture due to interaction of thin siltstones and quartzites with stream reaches controlled by joints oblique to bedrock strike; streams often incised (e.g., Double Pipe Creek).

422401. Sugarloaf Mountain Area. A prominent, isolated hill (a monadnock).

422402. Libpons Area. NNE-trending strike ridges made up of relatively resistant rock and valley of relatively non-resistant rock along the northwest side of the Mt. Airy Upland. Compare with Frederick Valley.

422403. Laurel Hill Area. A pair of NNE-trending ridges (relatively resistant rock) along the northwest side of the Mt. Airy Upland that are separated by a valley (relatively non-resistant rock. Compares with Libpons Area.

422500. Glenwood Upland District. A rolling upland of low relief underlain by a felsic gneiss (Sykesville Fm.). The District is characterized by numerous sinkholes and sometimes litter many fields. The degree of dissection is significantly less than in the adjacent District.

422501. Patapsco River Gorge Area. A relatively narrow, steep-sided gorge that marks the beginning of the gorge-like character of the valley of the South Branch Patapsco River; side slopes are usually steep (>15 degrees) and may exceed >20 degrees. Flood plain is narrow to non-existent.

423000. Wakefield Valley and Ridge Region. A topographically and structurally complex terrane underlain by polydeformed metamorphic, phyllitic metabasalt and quartzite, and bands of marble; subdivided into three Districts based on differing lithologic and structural imprints on topography.

423100. Hap Hill Ridge District. Characterized by a series of northeast-trending ridges and valleys, the most prominent of which is Hap Hill Ridge, a ridge that occurs along the northwestern side from Bachman Mills to the Maryland-Pennsylvania border.

423300. New Windsor Lowland District. A series of curvilinear, broad-bottomed marble valleys, of which Priestland and Wakefield Valleys are the largest. Sinkholes common in marble valleys.

423301. Unionville Upland District. Lithologic grain and weathering impart a NE linearity of subdued topography to the District, but the upland is so subdued as does not produce the distinctive marble valleys that occur in the New Windsor Lowland and Timonium Valley Districts.

424000. Silver Run Region. Rolling upland NW of Silver Run; dissected upland S and E of Silver Run. Quartzite and conglomeratic beds in phyllitic rocks underlie NE-trending ridges; stream incision along NW-trending joints. Parts of Big Pipe Creek and Deep Run have set gorges.

424001. Silver Run Valley Area. A broad, open, marble valley underlain by the Setters Fm. similar to valleys of the Timonium Valley District. Chemical weathering of limestone results in the distinctive valley form.

425000. Phoenix Dome Region. Four gneiss domes (Phoenix, Texas, Chattolanee, and Towson Domes) comprise gently rolling uplands underlain by Baltimore Gneiss, surrounded and separated by broad marble valleys; a steep slope (Setters Formation) separates upland from lowland.

425100. Chattolanee Upland District. Four interconnected, gently rolling to subdued hilly dome-like uplands underlain mainly by Baltimore Gneiss, each more or less surrounded by steep (>15 degrees) slopes typically underlain by the Setters Formation (quartzite, schist).

425101. Towson Run Area. Located in the Phoenix Dome, an outlier of Loch Raven Schist rests on Cockeysville Marble, creating a ridge surrounded by a marble valley. Along the ridge, relief ranges from 100 to 200 feet.

425102. Gunpowder Falls Gorge Area. Gunpowder Falls has eroded a gorge that is quite segmentic the major one where the Gunpowder Falls crosses the Phoenix Dome and two much shorter segments where the river crosses the north ends of the Texas Dome and the Towson Dome.

425200. Timonium Valley District. A broad flat-bottomed valley underlain by Cockeysville Marble; the valley floor is remarkably flat and the valley floor disappears. Chemical weathering of the marble produces a distinctive dolomite sand and numerous pinnacles and residual boulders.

426000. Fall Zone Region. Transition between crystalline Piedmont and unconsolidated Coastal Plain; many hilltops are capped by Cretaceous gravels and sediments that thicken to SE, rivers flow across the Region in steep-walled valleys incised into crystalline rock.

426100. Perry Hall Upland District. Transition between crystalline Piedmont and unconsolidated Coastal Plain, many hilltops are capped by Cretaceous gravels and sediments that thicken to SE; rivers flow across the Region in steep-walled valleys incised into crystalline rock.

426101. Gunpowder Falls Gorge Area. The Gunpowder Falls is incised into bedrock in a steep-sided valley; sideslopes commonly >12 degrees and in places >20 degrees; boulder-strewn channel; the flood plain, where present, is narrow.

426102. Patapsco Gorge Area. The Patapsco River is incised into bedrock in a steep-sided valley; sideslopes commonly >12 degrees and in places >20 degrees; boulder-strewn channel; the flood plain, where present, is narrow; rapids are common.

5000000. ATLANTIC COASTAL PLAIN PROVINCE

A seaward sloping plain extending from Cape Cod to the southern tip of Florida. In Maryland, consists of a flatly to moderately rolling upland and an even flatter lowland.

510000. Embayed Section. Characterized by estuaries and embayments attributed to the drowning of river mouths and formation of barrier islands associated with post-glacial sea-level rise. Terrain is fairly flat to moderately rolling; upland bounded by flat lowlands.

511000. Western Shore Upland Region. A flat to rolling upland that is a very irregular coastline indented by the Bush, Bird, Middle, Back and Patapsco Rivers.

511100. Elk Neck Peninsula District. With elevations exceeding 200 feet, the peninsula is a prominent feature dividing the drowned mouths of the Northeast and Elk Rivers. Cliffs with multiple slumps and landslides common; several miles along the NW shoreline known as Turkey Point.

511101. Grays Hill Area. An erosional relict of the Pocomoke, surrounded by Coastal Plain sediments; Grays Hills is one of three hills in peninsula through the sediment cover near Elkton (also see nearby Iron Hill and Chestnut Hill in Delaware).

511200. Middle River Lowland District. A narrow (1.5 miles), gently rolling to nearly flat interstream area between the Fall Zone Region and the Aberdeen Lowlands District. The District is bounded by the drowned mouths of the Gunpowder River and Back Rivers.

511201. Lower Gunpowder River Area. Between the Fall Zone and the Chesapeake Bay, the Gunpowder River flows in a broad, largely drowned valley of low relief.

511300. Glen Burnie Rolling Upland District. An undulating upland with slopes typically <8 degrees, distinctive landscape. The District is between the Fall Zone and the Prince Frederick Rolling Upland.

511301. Lower Patapsco River Area. In this Area, the Patapsco River flows in a broad, largely drowned valley of low relief.

511302. Upper Patuxent Valley Area. In this Area, the Patuxent River and the Little Patuxent on the north flow in well-defined flood plains and exhibit numerous and convoluted meanders. (Note: similar to the Middle Patuxent Valley Area, Crownsville Upland District.)

511303. Anacostia Valley Area. A submerged valley that is the northeastern part of Southern Maryland which includes Quaternary alluvium and Tertiary terraces adjacent to the main channel.

511400. Crownsville Upland District. A gently undulating upland, fairly similar in appearance to, but somewhat more dissected than the Glen Burnie Rolling Upland District.

511401. Middle Patuxent Valley Area. Near the boundary between the Glen Burnie Rolling Upland and the Crownsville Upland, the Patuxent and Little Patuxent join to flow in a single valley, exhibiting a broad, well-defined flood plain and intense meandering.

511500. Waldorf Upland Plain District. A relatively flat upland surface comprised of alluvial plains and fluvial-estuarine terraces; the terraces are the 25-foot elevations of Southern Maryland. Stream incision creates steep-sided valleys. Much of the upland soils contain a fragipan.

511501. Piscataway Creek Area. The inland extension of the drowned mouth of Piscataway Creek above tidewater, valley is typically sediment-choked; much of the flood plain is marshy; valley sides are generally blanketed by fluvial-estuarine terraces.

511502. Mattawoman Creek Area. The inland extension of the drowned mouth of Mattawoman Creek above tidewater, valley is typically sediment-choked; much of the flood plain is marshy; valley sides are generally blanketed by fluvial-estuarine terraces.

511503. Port Tobacco Creek Area. The inland extension of the drowned mouth of Port Tobacco River above tidewater, valley is typically sediment-choked; much of the flood plain is marshy; valley sides are generally blanketed by fluvial-estuarine terraces.

511504. Zekiah-Gilbert Swamps Area. The inland extension of the drowned mouth of the Wicomico River via Zekiah Swamp and Gilbert Swamp; valley is typically sediment-choked; marshy, and densely vegetated; valley sides are generally blanketed by fluvial-estuarine terraces.

511600. Prince Frederick Knobby Upland District. A relatively flat upland surface with numerous hillocks, in part occupying an interfluve between Patuxent and Chesapeake watersheds. Stands in stark contrast to the gently rolling Glen Burnie surface and the relatively flat Stafford surface.

511601. Lower Patuxent Valley Area. Downstream of the confluence with Western Branch, the Patuxent is the product of the Patuxent markedly wider, and include several broad, shallow "bays" (e.g., Jug Bay) alternating with fringing marshes and a markedly constricted but meandering channel.

511602. Calvert Cliffs Area. High cliffs and an eroding shoreline made up of mainly Miocene marine strata. Cliff retreat is primarily by mass wasting. Cove Point, as well as Long Beach and Drum Point, there is little or no beach along nearly the entire length of the cliffs.

512000. Western Shore Lowlands Region. A series of low (generally below 50-ft elevation) fluvial and estuarine terraces, beaches, and drowned river mouths that fringe the Western Shore Uplands; the Region extends some distance up the valleys of the Potomac and Patuxent Rivers.

512100. Aberdeen Estuaries and Lowlands District. A relatively flatterlow lowland (nearly <50 ft elevation) along the Bush River and Gunpowder River. The District has a very irregular coastline indented by the flooded mouths of the Bush, Bird, Middle, Back and Patapsco Rivers.

512200. Annapolis Estuaries and Lowlands District. A relatively flatterlow lowland (nearly <50 ft elevation) along the west-central shore of Chesapeake Bay and the Severn River. The District has a very irregular coastline due to narrower mouths of the Magothy, Severn, South, Rhode, and West Rivers.

512300. Patuxent Estuaries and Lowlands District. Broad (4-5 miles) flat-bottomed valley flanked by fluvial-estuarine terraces; main river channel approaches 3 miles in width, reflecting the estuarine nature of this reach of the Patuxent River.

512400. St. Jerome's Neck Lowlands District. A very gently rolling to nearly flat lowland that is bounded by steep slopes. Three of the four terraces recognized in the Patuxent Estuary & Lowlands District are present here. Maximum elevation decreases southward from about 40 to 20 feet.

512500. Patuxent Estuary & Lowlands District. The Potomac River and its terraced lowlands and estuaries extend from the Fall Zone to Point Lookout. Drowned rivers include Piscataway, Mattawoman, Nanjemoy, Port Tobacco, Wicomico and St. Marys Rivers and St. Clements and Breton Bays.

512501. Fuggs Bottom Area. This low-relief surface consisting of low terraces, alluvium, and estuarine sediments that are found along the Potomac to more than 100 ft. on the north side. Much of the southern part of the Area had originally been poorly drained and swampy.

512502. Indian Head Area. An isolated exposure, or relict, of upland sediments (Park Hall Fm.) rising above the surrounding lowlands; probably an erosional remnant from the Waldorf Upland Plain.

513000. Chesapeake Estuary Region. The drowned valley of the Chesapeake Bay estuarine system, the body of water known as Chesapeake Bay and the sediments and features on the bay bottom; excludes most islands, flooded estuary mouths, and other marginal water bodies.

514000. Delmarva Peninsula Region. A large peninsula extending south of the Elk River and separating Chesapeake Bay and Delaware Bay-Atlantic drainages; has grown by southward accretion during the Neogene. Consists of an axial "upland" bordered by a series of lowlands.

514100. Denton Plain District. An upland surface of very low relief that occupies an axial position along the Delmarva Peninsula, thus forming the poorly defined drainage divide between the Chesapeake Bay and Delaware Bay.

514101. Upper Choptank River Valley Area. That part of the Choptank River valley that is above tidewater; valley is typically sediment-choked; most clearly-estuarine part of the Choptank River.

514200. Salisbury Plain District. Broad lowland plain, little modified by streams; with widespread aeolian sand sheets and low-amplitude sand dunes, fluvial sands, and marine back-barrier and lagoon muds.

514201. Upper Pocomoke River Area. Largely swamp and marsh occupying the flood plain of the upper reaches of the Pocomoke River within the Salisbury Plain.

514300. Princess Anne Lowland District. A lowland, gently rolling to nearly flat, bounded by steeper, erosion; similar to the St. Michaels Lowland District.

514301. Lower Pocomoke River Area. Largely swamp and marsh occupying the flood plain of the lower reaches of the Pocomoke River within the Princess Anne Lowland.

514302. Nanticoke River Area. Largely swamp and marsh occupying the flood plain of the Nanticoke River within the Princess Anne Lowland.

514400. St. Michaels Lowland District. Coastal lowland of very low relief; including salt marshes and tidal flats, and numerous low, sandy islands typical of the Delmarva Peninsula north of the Choptank River.

514500. Crisfield Islands and Marshes District. Discontinuous coastal salt marshes and low islands of various sizes and shapes along the southwest shore of the Delmarva Peninsula.

514600. Atlantic Bays and Barriers District. The barrier island system of Fenwick and Assateague Islands, which includes barrier islands, back-barrier bays and lagoons and fringing salt marshes; generally unbroached.

514601. Berlin-Scarp Area. A generally distinct topographic drop marks the transition between the Salisbury Plain and the lowlands adjacent to the Coastal Bays, is most clearly expressed on the south, harrowing narrowly, and indistinct north of the town of Berlin and U.S. 50.

514602. Barrier Beaches Area. Coincident with the sand dunes and beaches of the barrier islands; the Area includes most, but not all, islands of barrier beaches / barrier islands from New Jersey to Georgia.

514603. Coastal Bays and Marshes Area. Back-barrier bays or lagoons and fringing salt marshes; greatly influenced by tides.

Explanation of the 6-digit numbers

Each Province, Section, Region, District, and Area has been assigned a six-digit number for identification. These numbers are intended to help keep track of the hierarchical organization of the physiographic subdivisions. Each digit, from left to right (or right to left) represents a Province, the second represents a Section, the third a Region, the fourth a District, and the last two an Area.

P00000	1st digit	Province (e.g., 3000000 = Blue Ridge Province)
PS0000	2nd digit	Section (e.g., 310000 = Northern Section of the Blue Ridge Province)
PSR000	3rd digit	Region (e.g., 311000 = Middletown Valley Region)
PSRD00	4th digit	District (e.g., 311200 = Southern Middletown Valley District)
PSRDAA	5th & 6th	Area (e.g., 311201 = Catoctin Creek Gorge Area)

In the simplest scheme, an Area is part of a District; a District is part of a Region; a Region is part of a Section; and a Section is part of a Province.

The total of all Provinces, Sections, Regions, Districts, and Areas in Maryland is about 150. Of these, about 115 appear on the map as discrete units bearing six-digit numbers.

For more information about the numbering scheme utilized on this map, see the accompanying report. That report also contains more details about all 150 physiographic units.

Copies of this map are available in PDF format from
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The Maryland Geological Survey makes no representation to the accuracy or completeness of the data and may not be held liable for human error or defect. Data are only valid at 1:100,000 scale or smaller.

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Physiographic field mapping was completed in 1999 at a scale of 1:62,500 or, in some cases, 1:24,000. The physiographic map was compiled at 1:100,000 by the lead author and in digital form at 1:250,000 by Catherine Garcia, Jaime Alvarez, and Mary Valentino of Towson University, Center for Geographic Information Sciences. The authors are solely responsible for the map's content.

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