N.C.G.S. OPEN-FILE MAP NO. NCGS 81-4

GEOLOGIC MAP OF REGION H

by
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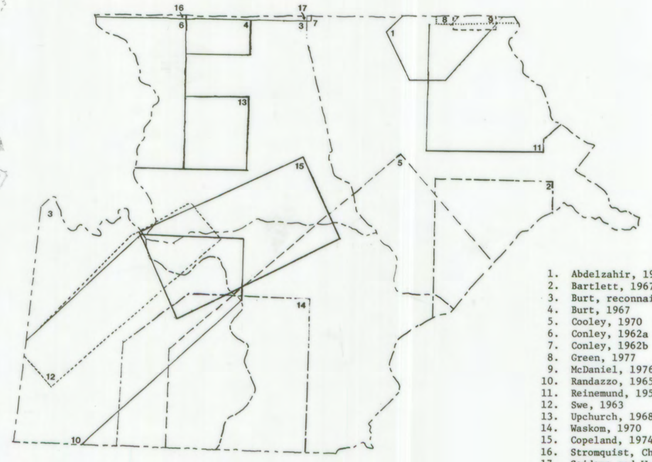
This report is preliminary and has not been edited or reviewed for conformity with North Carolina Geological Survey standards and nomenclature.

Index to Geologic Mapping

This geologic map was compiled from published reports, theses, dissertations, and original mapping conducted as a part of the North Carolina Geological Survey's regional geologic mapping program. The use of previous work is gratefully acknowledged; however, the Geological Survey Section assumes responsibility for any errors, omissions, or revisions.



1. Abdelzahir, 1978
2. Bartlett, 1967
3. Burt, reconnaissance 1974-1980
4. Burt, 1967
5. Cooley, 1970
6. Conley, 1962a
7. Conley, 1962b
8. Green, 1977
9. McDaniel, 1976
10. Randazzo, 1965
11. Reinemund, 1955
12. Swe, 1963
13. Upchurch, 1968
14. Waskom, 1970
15. Copeland, 1974
16. Stromquist, Choquette, and Sundelius, 1971
17. Seiders and Wright, 1977

LEGEND TO ACCOMPANY GEOLOGIC MAP OF REGION H

This geologic map was compiled from published reports, theses, dissertations, and original mapping conducted as a part of the North Carolina Geological Survey's regional geologic mapping program. Some of the previous mapping was used without modification. Other maps were modified to various degrees, partly as a result of reconnaissance mapping and partly for commonality. The use of previous work is gratefully acknowledged; however, the Geological Survey Section assumes responsibility for any errors, omissions, or revisions. For previous work, refer to the Index of Geologic Mapping.

To achieve conformity throughout the map and to make the map more useful to the public, similar rock types were combined into generalized units which could be extended over large areas. However, even though the map was generalized, certain areas may falsely appear more geologically complex than others because of the variety of different scale maps used during compilation.

SEDIMENTARY ROCKS

AL — Floodplain alluvium
Gray, buff to brown, unconsolidated sand, silt, and clay with some gravel beds.

T / T_1 — Terrace Alluvium
Both high and low terraces undivided, unconsolidated, gray, buff to brown gravel, sand, silt, and clay (T). Some terraces are mainly sand, silt, and clay, whereas others are conspicuously gravel rich. The highest terrace deposits (T_1) in the Pee Dee River appears similar to but is not Middendorf Formation.

GL — High-level Gravels
Buff to tan, fluvial, cross-stratified sands with intercalated stringers of gravel. Gravel is mainly quartzite and is distinct from gravel in floodplains, terraces, and Cretaceous deposits. Deposits overlie Middendorf Formation. Several workers have assigned most outcrops to "Citronelle" Formation.

P — Pinehurst Formation
Buff to light brownish red, unconsolidated surficial sands. Primarily medium sand with small amounts of silt and clay. Planar cross bedding and horizontal bedding can be seen in some fresh cuts. Can be confused with soil formed on underlying Middendorf Formation.

E — Eocene undivided
Tan to reddish brown phosphatic sandstone, glauconitic sandstone, fossiliferous sandy opal claystones.

M — Middendorf Formation
Light-gray, buff to light-brown, fluvial, loose to poorly indurated, commonly cross-stratified silty sands with subordinate lenses of clay and pebbles; clay balls common in some sections.

CF

Cape Fear Formation

Light-gray to buff, estuarine, poorly indurated, graded muddy sands and sandy muds.

TU

Triassic undivided

Gray, brown to maroon, non-marine fanglomerate, conglomerate, sandstone, siltstone, claystone, and shale; for the most part in lenticular beds that are not consistently mappable. Commonly conglomeratic near border faults especially in Anson County.

SA

Trassic Sanford Formation

Gray, brown to maroon, non-marine fanglomerate, conglomerate, sandstone, siltstone, claystone, and shale; for the most part in lenticular beds that are not consistently mappable.

CN

Triassic Cumnock Formation

Gray to black, non-marine conglomerate, sandstone, siltstone, claystone, and shale. Contains coal beds and beds of carbonaceous shale.

PK

Triassic Pekin Formation

Gray, brown to maroon, non-marine basal conglomerate and coarse-grained sandstone overlain by conglomerate, sandstone, siltstone, claystone, and shale; for the most part in lenticular beds that are not consistently mappable.

METASEDIMENTARY AND METAVOLCANIC ROCKS

AR

Argillite

Light-gray to bluish gray to brown, in part well bedded, consists mainly of clay and silt size particles with prominent bedding plane or slatly cleavage in most outcrops. Contains primarily quartz, plagioclase, sericite, rock fragments, and chlorite. Also present are beds of mudstone, novaculite, sandstone, conglomerate, and felsic volcanic rock; some portions are tuffaceous. Lithologically similar to but not necessarily correlative with the Floyd Church Member of the Millingport Formation, the Mudstone Member of the Cid Formation, and the Tillery Formation as mapped in the Denton quadrangle.

VE

Volcanoclastic-Epiclastic Rocks

A heterogeneous sequence of complexly interfingering volcanic and sedimentary facies. Major rock types include volcanic graywacke, sandstones, siltstones, felsic sandstones, and tuffs(?). Minor rock types include conglomerates, argillites, felsic crystal tuffs, felsic flow banded rock, felsic crystal flows, phyllites, andesitic tuffs, and lithic tuffs. Grains or crystals in the various rock units include rock fragments (both sedimentary and volcanic), quartz, albite, microcline, sericite, calcite, chlorite, pyrite, epidote, magnetite, and tremolite. Much of this sequence is probably subaqueous in origin, although bedding is not visible in many outcrops.

FV

Felsic Volcanic Rocks

Gray to dark blue-black felsic tuffs, crystal tuffs, lithic tuffs, and flows; minor amounts of epiclastic rocks. Major minerals present are quartz, albite, microcline, and sericite. Minor minerals include chlorite, pyrite, magnetite, and epidote. Most of this sequence is probably of subaerial origin--bedding rare.

IV

Intermediate Volcanic Rocks

Medium- to dark-grayish-green tuffs and lithic and crystal tuffs with rare flows; possibly andesitic in composition. Mapped separately from mafic volcanic rock unit mainly by soil color. Soil is light to medium brown to medium red. Minerals present in major amounts are quartz, albite, epidote, chlorite, and sericite. Other minerals include magnetite, pyrite, calcite, tremolite, biotite, and leucoxene.

MV

Mafic Volcanic Rocks

Medium- to dark-grayish-green tuffs, crystal tuffs, and flows; possibly basaltic in composition. Subordinate lithic tuffs. Soil deep brown to red. Major minerals are tremolite, epidote, chlorite, albite, and quartz. Other minerals include pyrite, leucoxene, sericite, and biotite.

SP

Phyllitic to Schistose Rocks

Fine-grained, light-gray, silver-gray, greenish, and white phyllites and fine-grained schists with well developed cleavage. Includes hornfels in metamorphic zones around intrusions, phyllites associated with pyrophyllite mineralization, sericite phyllite, and phyllites in what may be shear zones. Many small shear (?) zones not mapped at this scale. Principle minerals are sericite and muscovite with subordinate amounts of quartz, chlorite, feldspar, and hematite.

FTA

Felsic Tuffaceous Argillite

Buff to medium-blue, thin bedded, fine-grained felsic rock similar to thin-bedded argillite in texture and appearance but containing more quartz and possibly feldspar. This bedded unit is probably subaqueous in origin.

MG

Mica Gneiss and Schist

Gray, medium- to coarse-grained, well-foliated biotite gneiss and sericite schist.

INTRUSIVE ROCKS

db

Diabase

Dense, dark gray to black, fine- to medium-grained dikes and rare sills composed chiefly of augite, olivine, and plagioclase. Dikes range from 1 foot to 150 feet or more in width. Reinemund (1955) reports sills up to 400 feet thick from borehole data in the Deep River Coal Field, part of which crops out in northeastern Region H.

GB

Gabbro and Metagabbro

Fresh, unmetamorphosed, massive, dark, coarse-grained gabbro composed chiefly of hornblende, pyroxene, olivine, and plagioclase crops out in Anson and Richmond Counties. Older(?) metagabbro sills crop out in Montgomery County. The principle mineral is hornblende. Other minerals include feldspar, sericite, epidote, calcite, pyrite, and leucoxene.

GR

Granite

Post-metamorphic granitic rocks, coarse-grained and porphyritic. The Lilesville Granite is compositionally zoned and consists of quartz monzonite, granodiorite, and quartz diorite. Characterized by porphyritic rapakivi texture with a matrix of plagioclase, quartz, and biotite (Waskom, 1970). The Millstone Lake Granite northeast of Rockingham is porphyritic but has not been studied in detail.

Q

Quartz

Quartz veins

The following sources were used in compiling the geologic map of Region H.

1. Abdelzahir, A.M., 1978, Geology of the Carolina slate belt, northern Moore County, North Carolina [M.S. thesis]: Raleigh, North Carolina State University, 67 p.

2. Bartlett, C.S., Jr., 1967, Geology of the Southern Pines quadrangle, North Carolina [M.S. thesis]: Chapel Hill, University of North Carolina, 101 p.

3. Burt, E.R., III, reconnaissance 1974-1979.

4. Burt, E.R., III, 1967, Geology of the northwest eighth of the Troy, North Carolina quadrangle [M.S. thesis]: Chapel Hill, University of North Carolina, 34 p.

5. Cooley, T.W., Jr., 1970, Post-Cretaceous stratigraphy of the central sandhills region, North and South Carolina [Ph.D. dissertation]: Chapel Hill, University of North Carolina, 137 p.

6. Conley, J.F., 1962, Geology of the Albemarle quadrangle, North Carolina: North Carolina Division of Mineral Resources Bulletin 75, 26 p.

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9. McDaniel, R.D., 1976, Application of a hot spring-fumarole alteration model to the genesis of the pyrophyllite deposits of the Carolina slate belt [M.S. thesis]: Raleigh, North Carolina State University, 75 p.

10. Randazzo, A.F., 1965, Stratigraphy of the Wadesboro Triassic basin in North and South Carolina [M.S. thesis]: Chapel Hill, University of North Carolina, 52 p.

11. Reinemund, J.A., 1955, Geology of the Deep River coal field, North Carolina: United States Geological Survey Professional Paper 246, 159 p.

12. Swe, Win, 1963, Structural and stratigraphic relationships along the northwestern border of the Wadesboro basin of North Carolina [M.S. thesis]: Chapel Hill, University of North Carolina, 64 p.

13. Upchurch, C.N., 1968, Geology of the southwest quarter of the Troy quadrangle, North Carolina [M.S. thesis]: Raleigh, North Carolina State University, 90 p.

14. Waskom, J.D., 1970, Geology and geophysics of the Lilesville granite batholith, North Carolina [Ph.D. dissertation]: Chapel Hill, University of North Carolina, 78 p.

15. Copeland, R.E., 1974, The geology of the northern portion of the Wadesboro Triassic basin, North Carolina [M.S. thesis]: Gainsville, University of Florida.

16. Stromquist, A.A., Choquette, P.W., and Sundelius, H.W., 1971, Geologic map of the Denton quadrangle, central North Carolina: United States Geological Survey Geologic Quadrangle Map 872.

17. Seiders, V.M., and Wright, J.E., 1977, Geology of the Carolina volcanic slate belt in the Asheboro, North Carolina area, in Field Guides for Geological Society of America: Geological Society of America Southeastern Section Meeting, Winston-Salem, North Carolina, p.1-34.