

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

CLAYS AND SHALES OF THE NORTH CAROLINA PIEDMONT

by Eldon P. Allen

LEGEND

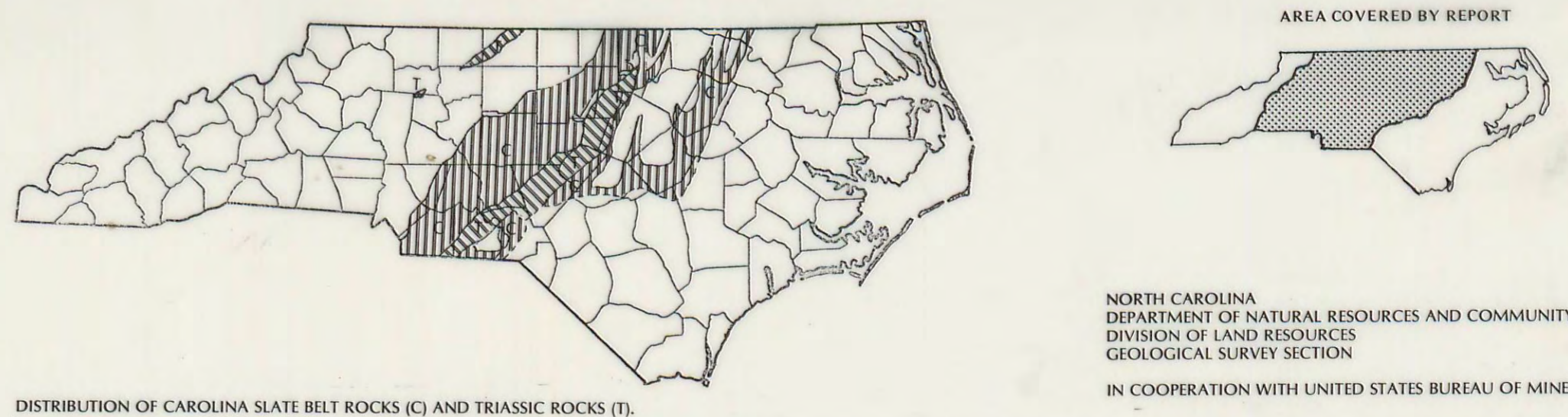
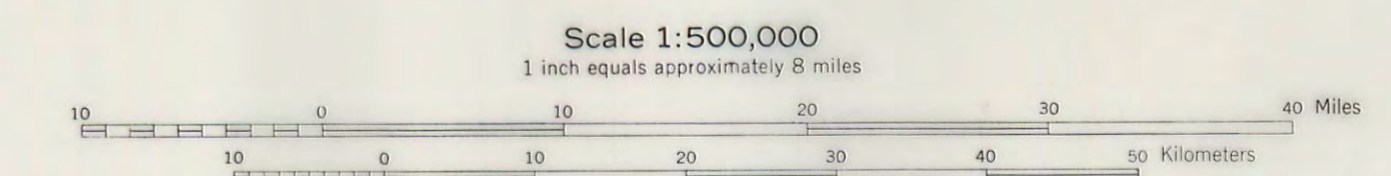
- PRESENTLY BEING USED OR RECENT USE
- POTENTIAL USE INDICATED
- NO POTENTIAL USE INDICATED
- COUNTY CODE NUMBER
- SAMPLE NUMBER
- FAULT
- CONCEALED OR INFERRED FAULT
- GEOLOGIC BOUNDARIES

Solid lines based on detailed or reconnaissance mapping, dashed where uncertain or concealed.

COUNTY CODE	County
1A	Alamance
2A	Alexander
4A	Anson
12B	Burke
13C	Cabarrus
14C	Caldwell
17C	Caswell
18C	Chatham
19C	Chatham
23C	Cleveland
29D	Davidson
30D	Davie
32D	Durham
34F	Forsyth
35F	Franklin
36G	Gaston
39G	Granville
41G	Guilford
42H	Halifax
43H	Harnett
49I	Iredell
51J	Johnston
55L	Lee
55L	Lincoln
56M	McDowell
60M	Mecklenburg
62M	Montgomery
63M	Moore
64N	Nash
66N	Northampton
68O	Orange
73P	Person
75P	Polk
76R	Randolph
77R	Richmond
79R	Rockingham
80R	Roxboro
81R	Rutherford
85S	Stantley
86S	Stokes
90U	Union
91V	Vance
92W	Wake
93W	Warren
97W	Wilkes
98W	Wilson
99Y	Yadkin

Note: Some rock formations mentioned in the text may not appear on this map due to the scale of the original mapping.

Geologic Unit	Description	Age
My	YORKTOWN FORMATION: Duplin marl south of Neuse River. Sandy shell beds in upper part, massive marine clays and interbedded marls in lower part. The western border of this unit consists of sands and clays of uncertain age.	CRETACEOUS
Kbc	BLACK CREEK FORMATION: Black to gray, interbedded sands, clays and marls.	CRETACEOUS
Kt	TUSCALOOSA FORMATION: Tan, red and gray, arkosic sands and interbedded, lenticular clays. The western border of this unit consists of sands and clays of uncertain age.	CRETACEOUS
ru	UNDIFFERENTIATED: Red, brown or purple claystone, siltstone, sandstone and conglomerate; also gray and black claystone, shale and fine-grained sandstone.	TRIASIC
rs	SANFORD FORMATION: Red, brown or purple claystone, siltstone, sandstone, conglomerate and fanglomerate.	TRIASIC
rc	CUMMOCK FORMATION: Gray and black claystone, shale, siltstone, fine-grained sandstone and two beds of coal.	TRIASIC
rp	PEKIN FORMATION: Red, brown or purple claystone, siltstone, sandstone, conglomerate and fanglomerate.	TRIASIC
sh	SHADY DOLOMITE: Black, blue-gray to light-gray and buff colored dolomite. Medium- to thick-bedded with irregular beds and nodules of light to medium gray chert.	CAMBRIAN
Ce	ERWIN FORMATION: Predominantly interbedded, dark green siltstone, sandy silt shale and thin-bedded quartzite.	CAMBRIAN
ch	HAMPTON FORMATION: Predominantly dark green, sandy and silty shale and medium- to coarse-grained, feldspathic quartzite.	CAMBRIAN
u	UNICOI FORMATION: Predominantly sandstone, quartzite and conglomerate with inter-bedded shale and slate.	CAMBRIAN
bu	BREVARD SCHIST: Fine-grained, black and dark schist, with lenses of limestone.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
kmg	KINGS MOUNTAIN GROUP: Quartzite, marble, conglomerate and schist.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
fvh	FLATTOP SCHIST: Gray and black schist, probably altered andesitic rocks.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
imd	LINVILLE METADIABASE: Altered greenish diabase and gabbro.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
ar	BEDDED ARGILLITES (VOLCANIC SLATE): Bedded volcanic s_{+w} containing lenses of acid and basic fragmental and flow material.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
mvs	MAFIC VOLCANICS: Chiefly basic tuffs, breccias and flows, in part of sedimentary origin; also felsic fragmental and flow material and lenses of bedded slate.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
fv	FELSIC VOLCANICS: Chiefly acid tuffs, breccias and flows, in part of sedimentary origin; also mafic fragmental and flow material and lenses of bedded slate; along eastern edge of Piedmont lenses of gneiss, schist and phyllite.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
wg	WHITESIDE GRANITE: Light-gray, muscovite-biotite granite, slightly schistose.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
cm	CHERRYVILLE QUARTZ MONZONITE: Massive to weakly foliated muscovite-biotite-quartz monzonite.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
tqm	TOLUCA QUARTZ MONZONITE: Foliated biotite-quartz monzonite.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
di-gb	DIORITE-GABBRO: Massive to weakly foliated, gray to dark-greenish gray rocks, composed mostly of plagioclase, hornblende and pyroxene. Di where diorite predominates, gb where gabbro predominates.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
mag	MT. AIRY GRANITE: Massive, light-gray to almost white, biotite-quartz monzonite.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
sy	SYENITE: Massive to weakly foliated augite syenite.	PRECAMBRIAN OR LOWER PALEOZOIC (?)
gr	GRANITE: Massive to weakly foliated, even-grained to porphyritic granitic rocks.	PALEOZOIC (?)
du	DUNITE: Peridotite and pyroxenite in part altered to talc, soapstone and serpentine.	PALEOZOIC (?)
brgn	BLOWING ROCK GNEISS: Chiefly dark, coarse porphyritic gneiss.	PALEOZOIC (?)
cgn	CRANBERRY GRANITE GNEISS: Gray, fine-grained to augen granite gneiss containing lenses of hornblende gneiss, mica gneiss and mica schist.	PALEOZOIC (?)
hgg	HENDERSON GRANITE GNEISS: Gray, fine-grained to augen granite gneiss containing lenses of hornblende gneiss, mica gneiss and mica schist.	PALEOZOIC (?)
gnc	GRANITE GNEISS COMPLEX: Contains granite gneiss, mica gneiss, mica schist and hornblende gneiss.	PALEOZOIC (?)
hgn	HORNBLende GNEISS: Chiefly hornblende gneiss and schist with interbeds of mica gneiss and mica schist.	PALEOZOIC (?)
msh	MICA SCHIST: Chiefly mica schist, includes mica gneiss and a wide variety of other gneisses and schists.	PALEOZOIC (?)
mgn	MICA GNEISS: Chiefly mica gneiss, includes mica schist and a wide variety of other gneisses and schists.	PALEOZOIC (?)



NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT DIVISION OF LAND RESOURCES GEOLOGICAL SURVEY SECTION IN COOPERATION WITH UNITED STATES BUREAU OF MINES