

GENERALIZED BEDROCK GEOLOGIC MAP OF NEW HAMPSHIRE

EXPLANATION

IGNEOUS ROCKS

TRIASSIC-CRETACEOUS (245 - 150 Ma*)

White Mountain Plutonic-Volcanic Succession

CARBONIFEROUS-PERMIAN (360 - 245)

Dominantly two-mica granite

DEVONIAN (410 - 360)

New Hampshire Plutonic Succession

- (a) Abundant two-mica granite
- (b) Quartz diorite and granodiorite
- (c) Quartz diorite

SILURIAN (440 - 410)

Granite, tonalite, and granodiorite of the northern and coastal successions

ORDOVICIAN (500 - 440)

Highlandcroft and Oliverian calc-alkalic plutonic successions

METAMORPHIC ROCKS

DEVONIAN (~400)

Slate, phyllite, aluminous schist, local calc-silicate, granofels, and bimodal metavolcanic rocks

SILURIAN (~430)

Aluminous schist, quartzite, calc-silicate granofels, and bimodal metavolcanic rocks

CAMBRIAN-SILURIAN (520 - 430)

Upper, phyllite and calcareous schist; lower, bimodal metavolcanic rocks in the west (w). Calc-silicate and biotite granofels, phyllonite, and local aluminous or carbonaceous phyllite and schist in the east (e)

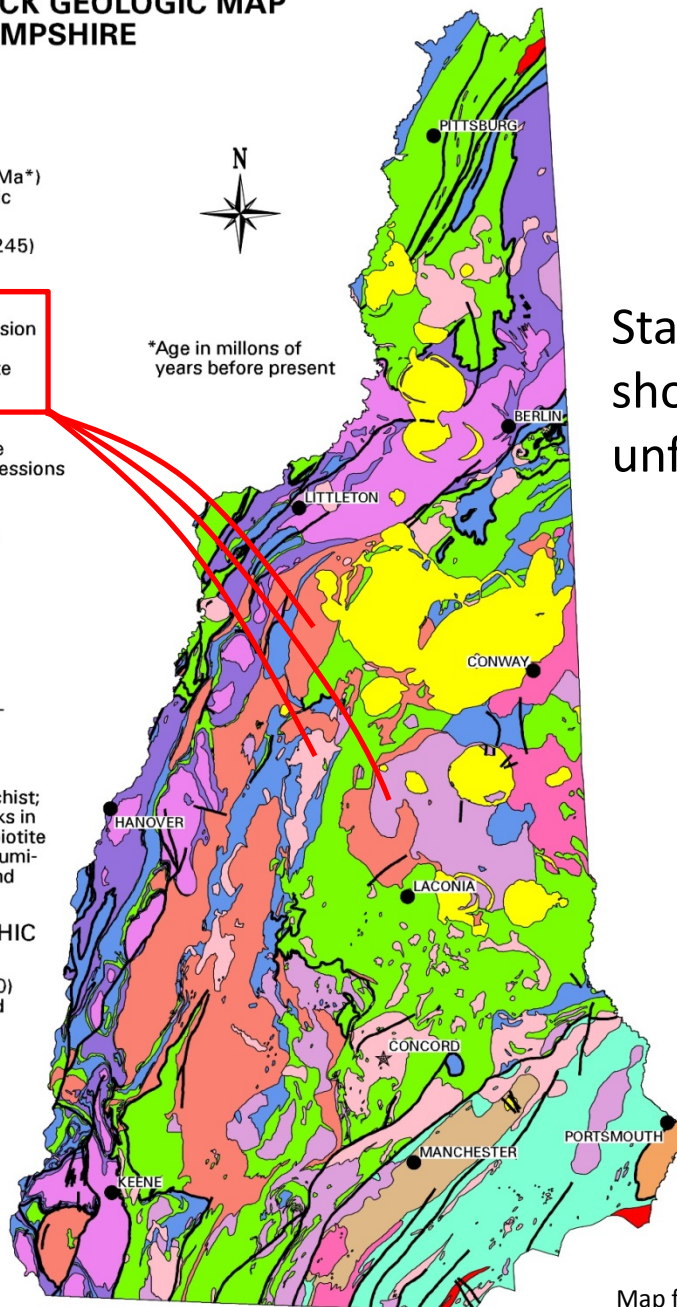
UNDIFFERENTIATED METAMORPHIC AND IGNEOUS ROCKS

PRECAMBRIAN-ORDOVICIAN (>450)

Rocks of the Massabesic (m) and Rye (r) massifs. Migmatite, calc-silicate and biotite granofels, metavolcanic rocks, and phyllite and schist, locally intruded by calc-alkalic granite in (r), the rocks of the latter characteristically cataclastic compared to those of (m)

FAULTS

CONTACTS

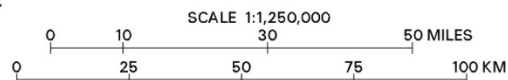


Igneous rocks of the White Mountain Magma Series

State Geologic Map of New Hampshire, showing Devonian plutons in unfortunately hard-to-distinguish shades.

Adapted from Lyons and others, 1997, Bedrock geologic map of New Hampshire: U.S. Geological Survey, Reston, VA, State Geologic Map, 2 sheets, scale 1:250,000 and 1:500,000, by W.A. Bothner and E.L. Boudette.

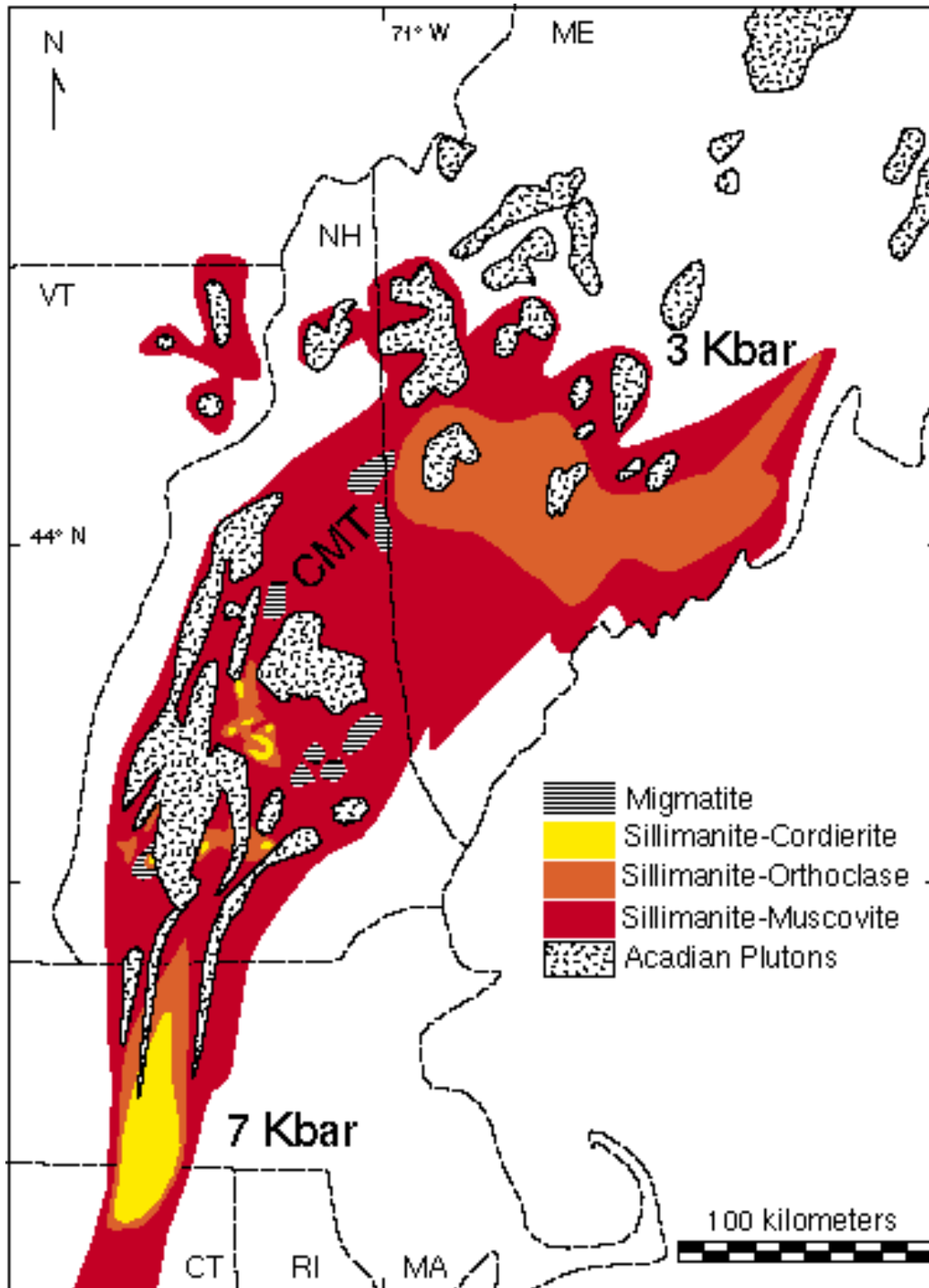
Map from: <http://des.nh.gov/organization/commissioner/pip/publications/geologic/>



Highest grade of metamorphism in central New England

This map is attempting to show that Devonian plutons are associated with the highest grade of regional metamorphism.

Note that the highest grades of metamorphism in Massachusetts and Connecticut is Pennsylvanian, and a lot of it in southern Maine is Permian. The migmatite regions are strange and should be ignored. Source unknown.



Summit of Mt. Cardigan, NH, made of Kinsman granodiorite and pegmatite dikes



Source unknown

Kinsman granite. Note the large microcline porphyroblasts and garnets.



Klamath Mountains, California



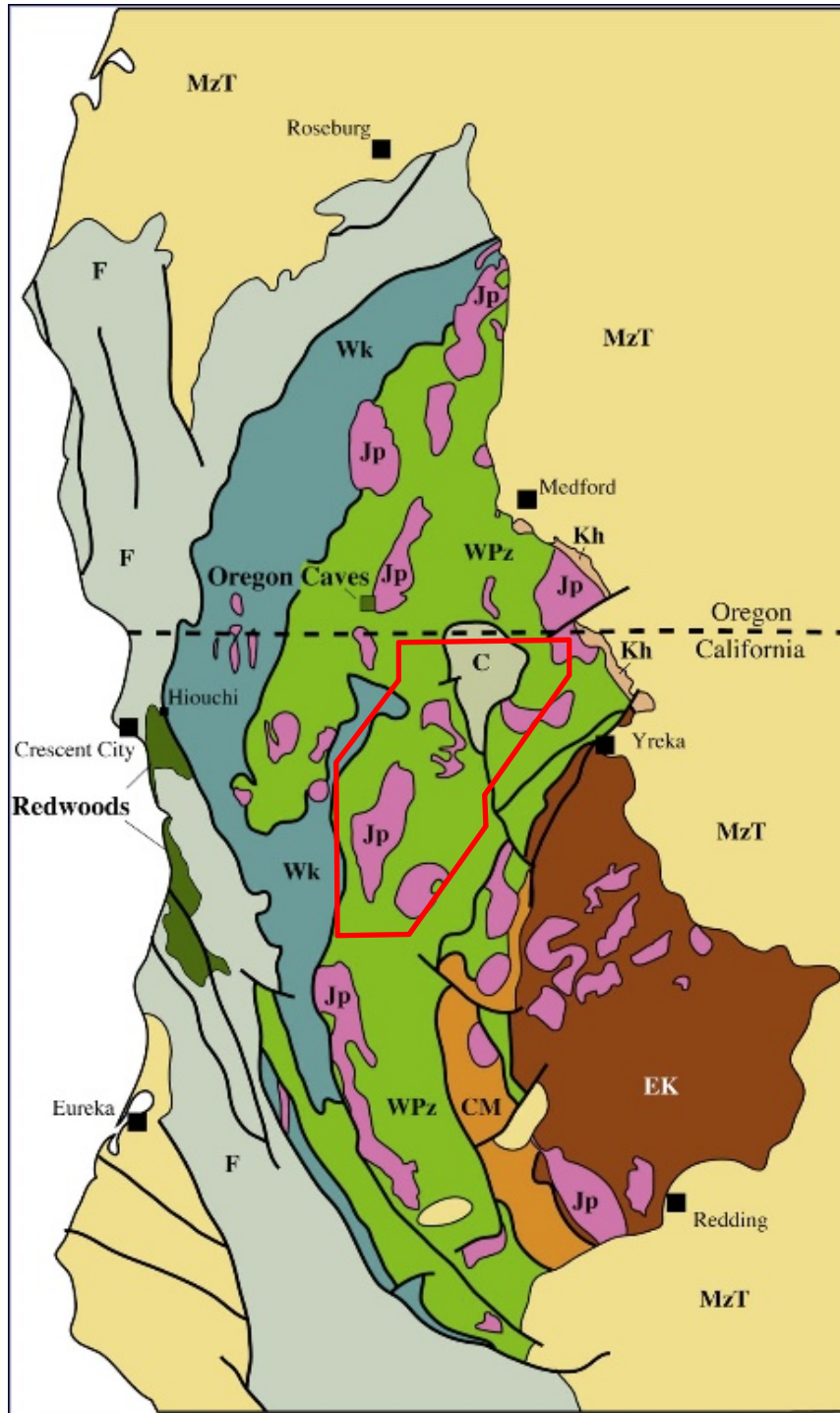
Image USDA Farm Service Agency
© 2013 Google
Image © 2013 DigitalGlobe

Google earth

Imagery Date: 7/7/2012 lat: 41.555939° lon: -123.019116° elev: 1541 m eye alt: 8.30 km

Terrane map of the Klamath Mountains, Oregon and California.

compiled by Marli Bryant Miller, University of Oregon

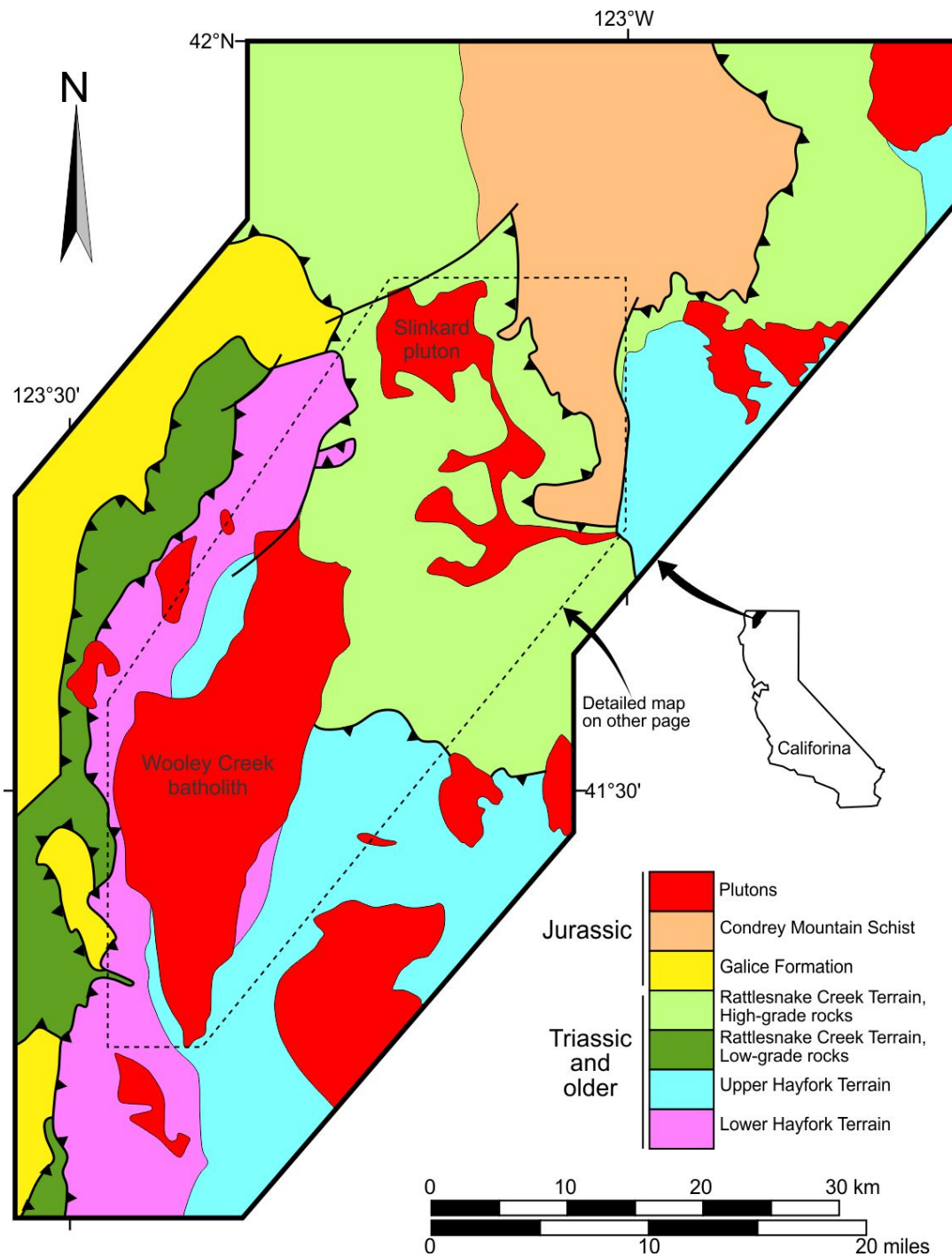


- | | |
|------------|--|
| MzT | Mesozoic and Tertiary sedimentary rock, postdates accretion of Klamath terranes. |
| Kh | Cretaceous Hornbrook Formation. |
| F | Mesozoic rock of Coast Ranges; mostly Franciscan Fm. |
| C | Condrey Mountain Schist, Mesozoic. |
| Wk | Western Klamath Terrane, mostly Jurassic. |
| WPz | Western Paleozoic and Triassic Terrane. |
| CM | Central Metamorphic Terrane (Devonian). |
| EK | Eastern Klamath Terrane (Early Paleozoic to Jurassic). |
| Jp | Jurassic Plutons. |



0 km 50

From Marli Bryant Miller,
<http://www.marlimillerphoto.com/Klamathmap.html>

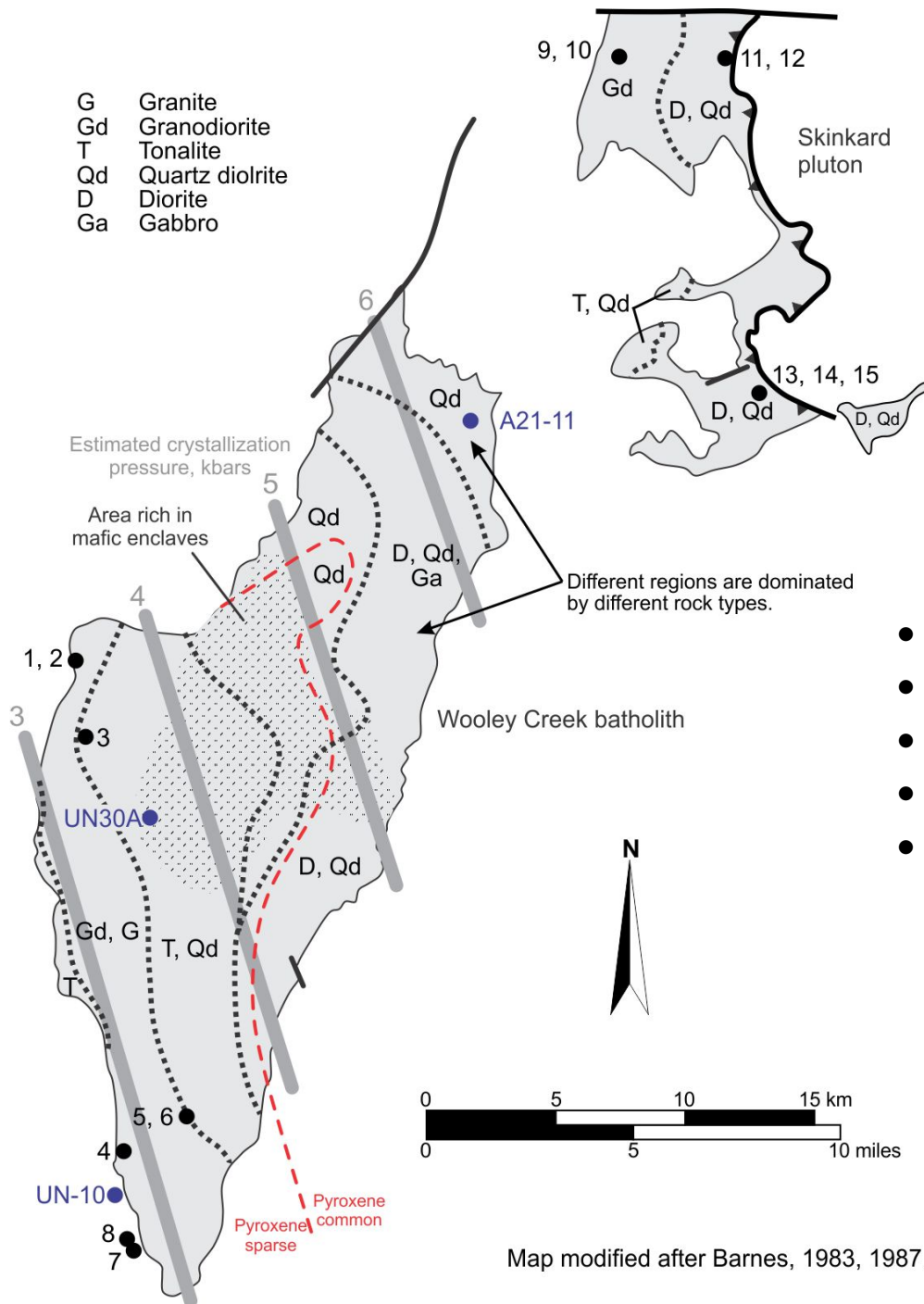


Generalized geologic map of the Wooley Creek Batholith-Slinkard pluton area.

Jurassic continental arc plutons cut mostly Triassic older rocks.

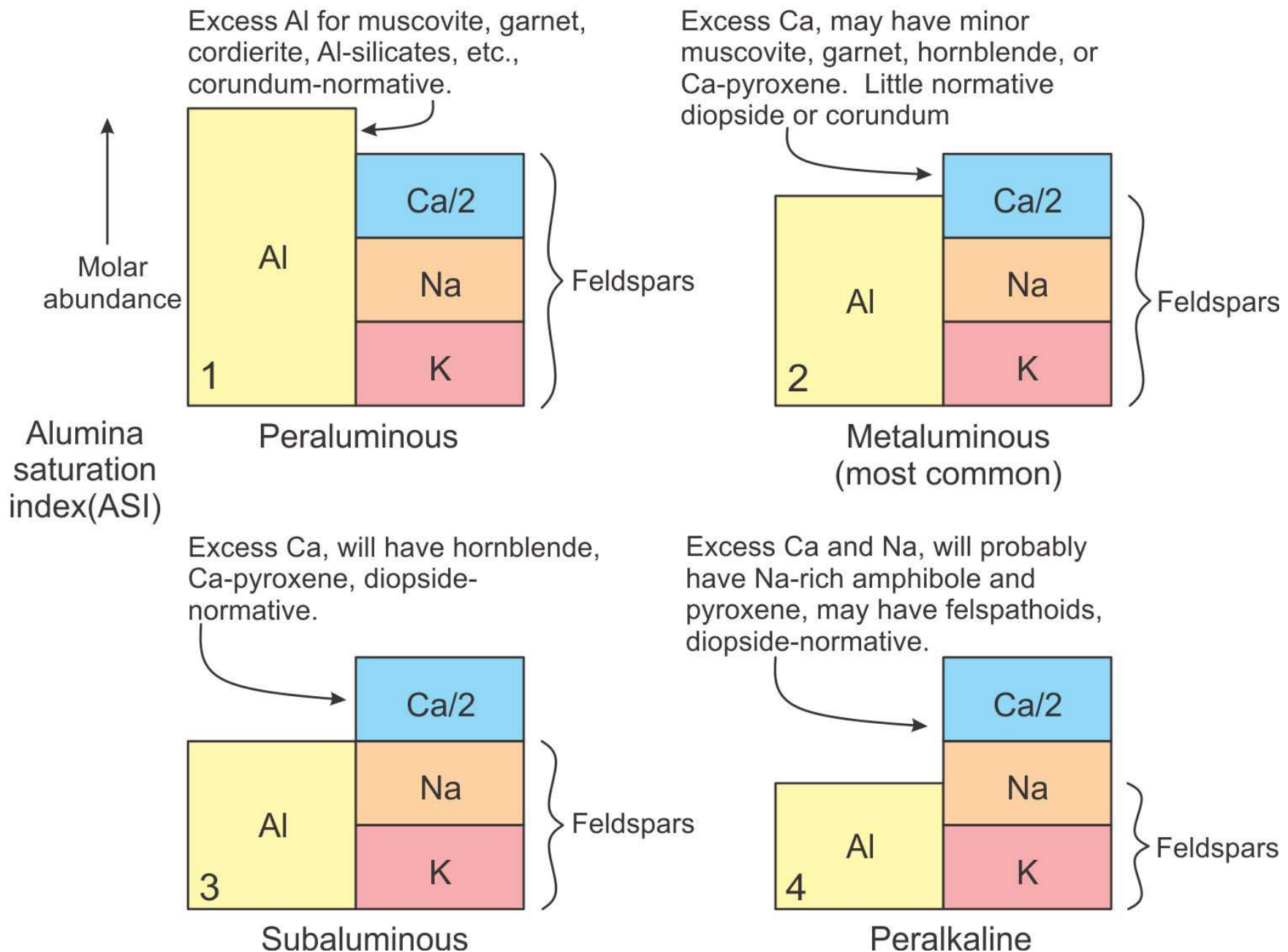
Map after Barnes, 1983.

Detailed map of the Wooley Creek batholith and Slinkard pluton



- Most common rock types
- Pyroxene abundance
- Calculated igneous crystallization pressure
- Enclave abundance
- Sample locations

Map modified after Barnes, 1983, 1987.



Calculating the alumina saturation index: $\text{molar Al}/(\text{Na}+\text{K}+(\text{Ca}-1.67*\text{P})*2)$