

**Qal** ALLUVIUM: recent unconsolidated river deposits of boulders, cobbles, gravel, sand, silt and clay; currently being deposited in river and stream channels; defines the limit of the 1-2 year flood plain.

**Qtm** QUATERNARY MARINE TERRACES: undifferentiated deposits of variable age consisting of poorly consolidated gravels, sand, silt and clay; often with a boulder-lag deposit at the terrace/bedrock interface. Includes recent beach sands.

**Qr** ROHNERVILLE Fm.: non-marine warped terrace deposit of gravel with minor amounts of sand, silt and clay; cross-bedded and lenticular in places; color, orange-brown or yellow-brown; generally poorly consolidated but locally may be cemented.

**QTC** CARLOTTA Fm.: generally non-marine, massive to lenticular deposit of conglomerate, sandstone, siltstone and claystone; lower conglomerate section is framework of boulders, cobbles and pebbles of Yager Fm. and Franciscan rocks; conglomerate interbedded with medium- to coarse-grained friable, buff-brown sandstone; middle and upper conglomerate sections interbedded with blue-gray (carbonaceous) claystone; ash layers occur in some sections.

**Tsb** SCOTIA BLUFFS SANDSTONE: mostly shallow marine, massive, fine-grained grayish sandstone (buff weathering), with local minor siltstone, mudstone and pebbly conglomerate layers; massive sandstones not seen in coastal sections; lower sections with numerous fossils of *Anorthoscutum oregonense*, *Cardium meekianum*, and *Psephida lardi barbarensis*; carbonaceous claystone indicates transition to non-marine deposition.

**Trd** RIO DELL Fm.: massive, dark gray mudstones (upper section), weathering buff to light gray and locally with great concentrations of *Pecten caurinus*, *Securrella stalyi* and *Cardium meekianum*; impure ash beds also occur; middle section of thinly alternating, lenticular, fine-grained sandstone and mudstone or siltstone; diatomaceous mudstones and minor fossiliferous conglomerates occur locally; lower section composed of alternating, fine-grained siltstone and poorly sorted, light gray, friable to slightly compact, very fine-grained sandstone with lower Pico foraminifera.

**Ter** EEL RIVER Fm.: a series of tough, massive, dark gray to black mudstones, siltstones and dark green to black glauconitic, poorly sorted, fine- to medium-grained sandstones with minor conglomerate lenses; 70% of the formation is mudstone and siltstone; ash layers present in some sections; fossils of Repetto forams.

**Tm** TERTIARY MARINE (UNDIFFERENTIATED): generally Pliocene or Miocene sandstone, siltstone, shale and conglomerate; mostly moderately well-consolidated.

**Ty** YAGER Fm.: contains well-indurated, massive, medium- to fine-grained graywacke sandstone, interbedded with conglomerate, siltstone or soft shale, and indurated mudstone and siltstone interbedded with biotitic graywacke and conglomerate. Mudstone, siltstone and shale comprise @ 70% of total unit, sandstone @ 25% and conglomerate @ 5%. Sandstone and siltstone often light- to medium-gray (weathering medium-brown or olive-gray) and shows signs of graded bedding. Fissile shales are dark gray or olive-gray. Some conglomerates with indistinct sandy laminations; often with well-rounded cobbles of red or black chert, volcanic and sedimentary rocks.

**KJf** FRANCISCAN ROCKS: olive-green to gray-green, well-lithified (although locally sheared), generally massively-bedded, unmetamorphosed, quartz-albite-muscovite, pumpellyite, graywacke sandstone and thinly-bedded siltstone and shale, with minor conglomerate. May contain large bodies of red, green or white, well-bedded chert (ch) and occasional boulders of greenstone or other volcanics (v), exotic blueschist and greenschist. Well-defined sandstone areas (ss) may be prominently jointed massive to thin-bedded, medium-grained graywacke intercalated with thin shale bed. Well-defined shale areas (sh) may be grayish, highly fissile, thin-bedded shale with thin sandstone beds. Discrete isolated boulders (x) of variable composition and extent.

**KJf2** FRANCISCAN ROCKS: similar to KJf except the graywacke is lawsonite-bearing and shows megascopic cataclastic evidence of metamorphism; the fine-grained siltstone has a phyllitic sheen. Cataclastic, lawsonite-bearing metagraywacke shows well-developed platy cleavage. Aragonite is the common carbonate. Chert is noticeably sheared; volcanic igneous texture shown only in thin section.

**Jar** AMMON RIDGE PLUTON: diorite with variable mafic or granitic zones; non-schistose, coarse-grained amphibolite where pluton contacts mafic rocks of Jfc or Jr; schists and hornfels where pluton contacts Jg.

**Jfc** FRIDAY CAMP GNEISS: weakly-foliated, hornblende-diorite gneiss; thinly-banded, gray-green, generally fine-grained.

**Jwc** WILLOW CREEK PLUTON: light colored, coarse granite, composed almost entirely of crushed and altered quartz and feldspar; age questionable.

**Jg** GALICE Fm.: interbedded, very fine- to coarse-grained, dark gray to black, phyllitic metagraywacke (weathers silver-gray to tan), mudstone, and conglomerate. Graded bedding common. Finer-grained layers altered to slate and phyllitic slate. Coarse-grained layers are low grade semischist. Dikes and sills of metafelsite (or metamorphosed calcareous mud ?) and gabbro occur.

**Jgs** GALICE Fm.: schists and semischists near major tectonic formational boundaries.

**Jgh** GALICE Fm.: contact metamorphosed hornfels and fine-grained chialstolite-biotite-chlorite schists around plutonic contacts.

**Jgv** GALICE Fm.: interbedded pyroclastic andesite member.

**Qt** QUATERNARY ALLUVIAL TERRACES: older alluvium in a raised position with respect to recent flood plains; semistabilized, unconsolidated gravels, sand, silt and clay.

**Qb** BATTERY Fm.: compact but unconsolidated marine terrace deposit of fine-grained, buff, blue or gray sand (weathers yellow) and blue-gray clay; pebble zone occurs near base and deposit interfingers with (and may include) continental alluvial gravels.

**Qh** HOOKTON Fm.: unconsolidated but locally cemented non-marine to shallow marine, yellow-orange deposit of gravel, sand, silt and clay. North of Eureka, deposit becomes fine-grained and appears to interfinger with QTC.

**QTP** COASTAL PLAIN SEDIMENTS: includes interfingering fluvial gravels, estuarine sands and silts, and beach sands; may comprise more than one stratigraphic unit.

**Tsg** ST. GEORGE Fm.: consolidated, massive, poorly-bedded and lenticular marine siltstone, shale and claystone; with irregular lenses of sand, pebbles and carbonized wood; fresh exposures are dull gray-blue (weathers mottled rust-brown); locally very fossiliferous with bay or lagoon fauna.

**Twu** UNDIFFERENTIATED WILDCAT GROUP: may consist of either massive, marine, fine-grained sandstone, siltstone, claystone or conglomerate; may vary from slightly indurated to very friable; finer-grained rocks often dark-gray (weathering to buff or light gray); mega and microfossils locally abundant; minor amounts of limestone, tuff and lignite.

**TP** PULLEN Fm.: partly diatomaceous mudstone with local basal sandstone members; diatomaceous sediments are brittle and hard, weathering to creamy buff or white, and generally contain abundant diatoms, radiolarians and sponge spicules; associated with the sediments are yellow-orange weathering limestone nodules, thin greenish-brown glauconitic sandstones and thin ash beds; basal sandstone member is light gray, compact, fine-grained, fairly well sorted and thins westward; Mohnian to Repetto forams occur throughout section.

**Qw** WEAVERVILLE Fm.: semiconsolidated, non-marine sandstone, shale and conglomerate.

**Ti** TERTIARY INTRUSIVES: includes shallow hypabyssal plugs and dikes (Eureka Quad.), porphyritic anorthoclase trachyte (Blue Lake Quad.) and a mafic alkaline diatreme (Coyote Peak Quad.).

**i** CENOZOIC (?) INTRUSIVES: light gray metafelsite; hornblende-rich gabbro; or small granite or quartz bodies.

**Km?** UNDIFFERENTIATED CRETACEOUS (?) MARINE: rocks apparently of questionable age, previously considered equivalent to the Coastal Belt (Strand 1962) and Central Belt (Jennings 1977). Sandstones and siltstones (?) near Huestis Rock (NW area of Alderpoint Quad.) are variable in composition (some with a high percentage of serpentine fragments), and their lithologies appear to differ from neighboring rocks of the Coastal Belt, Central Belt and Yager Formation.

**KJfu** UNDIFFERENTIATED FRANCISCAN (CENTRAL BELT): generally well-indurated, massive, dark-gray to green (weathering tan to brown-gray) coarse- to fine-grained graywacke sandstone (occasional graded-bedding), and softer, platy, dark gray shale; with subordinate amounts of red or green chert, conglomerate, pillow basalt and greenstone, and basic to ultrabasic intrusives which have locally converted the sediment/intrusive contact into glaucophane, chlorite and actinolite schist. Includes both "melange" and more competent areas.

**KJf3** MELANGE: highly sheared matrix of massive sandstone (ss) with interbedded siltstone, may also contain volcanic rocks (v), mudstone, conglomerate or thin-bedded chert (ch). Matrix composes 70-99% of the melange; individual rock units only of local extent with little stratal continuity. Isolated blocks (x) in the melange include: graywacke, siltstone, conglomerate, greenstone, pillow basalt, basalt, tuff, agglomerate, quartz keratophyre, chert, several grades of blueschist, greenschist, actinolite schist, talc schist, amphibolite schist, hornblende schist, sheared carbonate rocks, serpentinite and serpentinitized ultrabasic rocks (um). Lack of K-feldspar and metamorphism of clastic sedimentary rocks similar to KJf.

**KJf2** MELANGE: similar to KJfm except the clastic matrix and boulders show megascopic effects of increased metamorphic grade.

**Ji** IRONSIDE MTN. BATHOLITH: medium- to coarse grained quartz diorite, variable in gabbroic composition.

**Jtc** TULE CREEK GRANITE COMPLEX: dominantly soda granite but includes areas of abundant granitic and quartz feldspar porphyry dikes in mafic volcanic rocks and may include soda rhyolite. Texture commonly cataclastic, with mineral grains crushed and strained; rocks generally decomposed and poorly exposed; areas usually of light-colored soil.

**Jdi** BEAR WALLOW DIORITE COMPLEX: medium-grained plutonic rocks ranging in composition chiefly from hornblende diorite to biotite-hornblende-quartz diorite; includes minor gabbro.

**Jpd** GLEN CREEK GABBRO - ULTRAMAFIC COMPLEX: chiefly medium-grained to pegmatitic gabbro or hornblende, with serpentinitized peridotite (pd where divided).

**Ju** UNDIFFERENTIATED JURASSIC ROCKS: rocks that include the Galice Fm. and the Rogue (?) Fm.

**gb** UNDIFFERENTIATED GABBRO: gabbro and dark dioritic rocks; chiefly Mesozoic.

**Jr** ROGUE Fm.: mafic to intermediate, greenish-gray volcanic flows well-banded light gray to tan phyllitic andesite tuffs (which occasionally contain stringers of chert siliceous argillite) massive non-banded metavolcanic clastics with occasional phyllitic limestone pods and lenses. Rocks have been metamorphosed to greenschist facies; highly chloritic and altered to greenstone. Some agglomerates and volcanic conglomerates may be questionably equivalent.

**U** UNDIFFERENTIATED LANDSLIDE DEPOSIT: areas indicative of mass downslope movement; may include landslides, debris slides or earth flows.

**E** EARTH FLOW: areas composed of sheared sandstone and siltstone, with chert, greenstone and exotic schist boulders; currently moving downslope on the order of 1 to 15+ meters per year; some flows appear to be dormant (definition from Kelsey 1975, applies to Van Duzen study area only). Or, soil and colluvial material showing compound movements of slumping, sliding and flowing on the order of less than 10 meters per year; produces hummocky or lobate microtopography (definition from Nolan et. al. 1976, applies to Redwood Creek area only).

**L** LANDSLIDE DEPOSIT: areas consisting of sheared angular debris or intact blocks of underlying unit(s); includes slide category (debris slides and rockfalls) and slumps of Nolan et. al. (1976). Older slides in which the slope morphology suggests deposits are currently stable or inactive are also included here.

**D** DEBRIS SLIDE: areas in which soil debris, vegetative debris, and/or rock debris recently has moved downslope or along steep headwater stream channels in episodic but rapid movements; includes debris avalanches of Nolan et. al. (1976), but not their debris slide unit (see LANDSLIDE DEPOSIT above).

**U** UNSTABLE STREAM BANKS:

**QTg** QUATERNARY/TERTIARY RIVER DEPOSITS: alluvial deposits of indeterminate age; generally conglomerates with some sandstone or shale; some auriferous gravels; includes the Klamath Oldland Gravels of Maxson, and the Older Gravels of Irwin et. al. (1974).

**Tf** FALOR Fm.: marine and non-marine sandstones, conglomerates and clays; generally poorly consolidated; lower marine member contains offshore and foreshore facies of fine-grained, buff-to-gray, arkosic sands, with clays and conglomerates; separated from fluvial, upper red-bed deposit by a disconformity.

**Tw** WIMER Fm.: predominantly clayey siltstone; intergrades between claystone, medium- to fine-grained sandstone and pebble conglomerate; clayey siltstones generally in lower sections, conglomerates in upper part; overall, unit is dull white, grading to dull yellow, red or brown; exposures generally with hard, brittle exteriors and loosely consolidated interiors.

**TKc** UNDIFFERENTIATED COASTAL BELT: generally massively-bedded, medium-grained graywacke with some interbedded siltstone, shale, conglomerates and volcanics; brown to dark gray argillites and thinly-bedded, fine-grained argillaceous sandstones; thickly-bedded pinkish-white limestone occurs rarely near volcanics; unit considered to be devoid of greenstone, metamorphics and serpentine, although minor amounts of volcanics, chert, glaucophane schist and ultrabasics do occur; included by some in the Franciscan Complex, although rocks appear to be slightly younger.

**TKc** SHEAR ZONES (COASTAL BELT): broken and separated tectonic "clasts" of sandstone, pulverized pelitic material, lenses of greenstone, chert and limestone in a "matrix" of sheared siltstone and sandstone fragments.

**KI** GREAT VALLEY SEQUENCE: lower Cretaceous, well-bedded and firmly consolidated sandstone, conglomerate and mudstone; detrital grains include K-feldspar; shaly upper parts contain thin nodular calcareous interbeds; freshwater bivalves in lower part, marine fossils in upper part.

**KJf3** FRANCISCAN SCHIST: includes slightly metamorphosed sediments (largely phyllites, slates and semischists) and well-foliated and intensely crumpled, fine-grained, quartz-albite-muscovite-chlorite schists and semischists (formed from completely recrystallized metagraywacke and low grade metamorphism of KJf); schists usually weather silver-gray and show well-developed segregation banding and abundant quartz lenses; lawsonite is coarse-grained (relative to KJf2), and carbonates are scarce; locally with blueschist and greenschist knockers; greenish mafic metavolcanics and highly quartzitic gneissic rocks occur in some portions of belt; includes South Fork Mountain Schist (Irwin et. al. 1974, Young 1978, and others) and Kerr Ranch Schist (Manning and Ogle 1950); locally includes the Chinquapin Metabasalt Member (mb) as discontinuous lenses of light green to greenish-brown, fine-grained, well-banded, albite-actinolite-epidote gneiss with crossite-rich layers; light blue metachert is occasionally found near KJf3/mb contact.

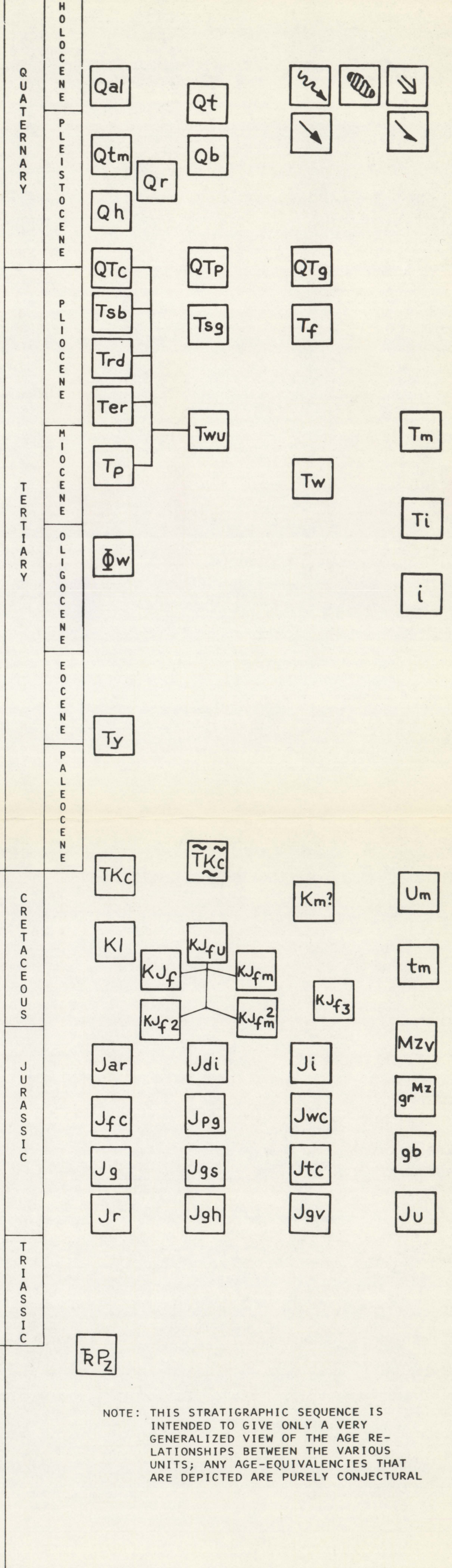
**Um** ULTRAMAFIC ROCKS: large continuous bodies or sporadic sheared lenses; larger bodies often coarse-grained, bastitic peridotite that grades into sheared serpentinite near its margins; some light green to gray-green quartz keratophyre or coarse, basic pegmatites; sporadic lenses usually serpentinitized peridotite or serpentinite; locally may include tectonic(?) blocks of metasomatized gabbro, diorite, meta-greenstone or metachert.

**tm** TECTONIC MIXED ZONE: foliated greenstone, metagraywacke, serpentinite lenses and diorite intermingled in the Coast Range Thrust.

**Mz** UNDIFFERENTIATED MESOZOIC INTRUSIVES: granite, quartz monzonite, quartz diorite or granodiorite.

**Mzv** UNDIFFERENTIATED MESOZOIC VOLCANIC AND METAVOLCANIC ROCKS: andesite and rhyolite flow rocks, greenstone, volcanic breccia and other pyroclastic rocks; in part strongly metamorphosed.

**RP2** WESTERN PALEOZOIC/TRIASSIC BELT: metasedimentary and metavolcanic rocks; eugeosynclinal assemblage of fine- to medium-grained phyllitic graywacke and slates; with lenses of thinly-bedded chert, siliceous argillite, conglomerate and recrystallized limestone; fine-grained mafic to intermediate volcanic rocks include greenstone (some resemble gneiss), pillow lava, agglomerate and tuff; also lenses of serpentinite and highly weathered, small, basic to intermediate intrusives; generally highly sheared, dislocated and lacking continuity (dismembered ophiolite suite-see Irwin et. al. 1974, Rattlesnake Creek Terrane).



NOTE: THIS STRATIGRAPHIC SEQUENCE IS INTENDED TO GIVE ONLY A VERY GENERALIZED VIEW OF THE AGE RELATIONSHIPS BETWEEN THE VARIOUS UNITS; ANY AGE-EQUIVALENCIES THAT ARE DEPICTED ARE PURELY CONJECTURAL