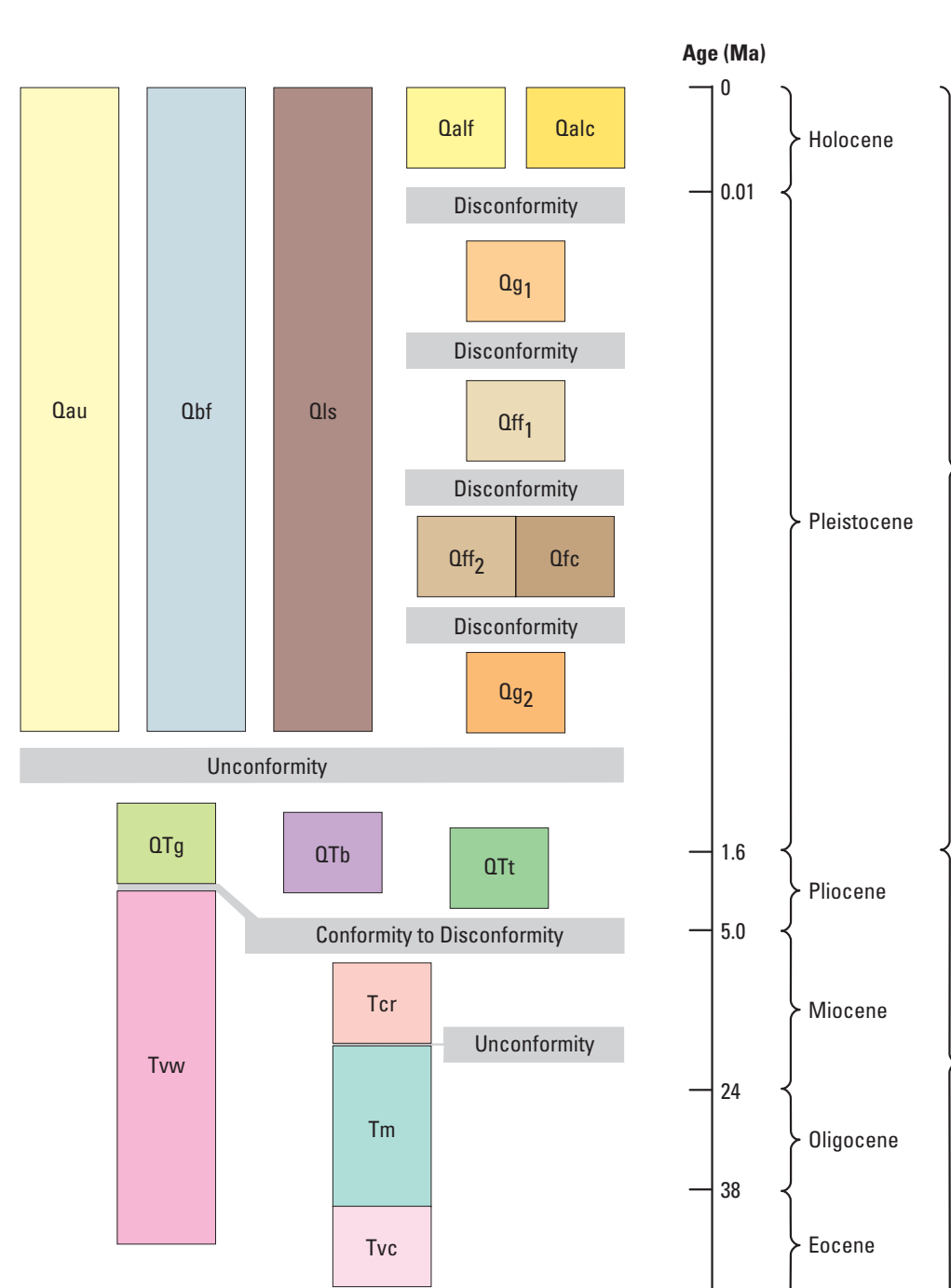


DESCRIPTION OF MAPPING UNIT

- | | |
|-----|--|
| Qaf | <p>Altivation of smaller channels (Holocene and upper Pleistocene)—Unconsolidated clay, silt, sand, and minor gravel deposited in floodplains and active channels of smaller streams and rivers. Variable surface morphology. Thickness not known. Probably less than 12 m. Differentiated from units Q9f and Q9u where clearly younger than the Missoula Flood deposits. Mostly younger than the Willamette River.</p> |
| | <p>Floodplain deposits of the Klamath River and major tributaries (Holocene and upper Pleistocene)—Unconsolidated clay, silt, sand, and minor gravel deposited in floodplains and active channels of medium floodplain systems. Meander-cutoff topography with surface at high to 15 meters above summer stage. Drifted gravel. Thickness not known. Differentiated from units Q9f and Q9u where clearly younger than the Missoula Flood deposits, and stratigraphic relations within the Willamette Valley indicate that these deposits are mostly younger than Q9f.</p> |
| Q9f | <p>Sand and gravel that postdates Missoula Floods (upper Pleistocene)—Alluvial sand and gravel deposited on broad bread plains within Willamette Valley and traced exposure as alluvial fans in the Cascade Range tributary valleys. Forms a major regional aquifer. Thickness not known. Differentiated from units Q9f and Q9u where clearly younger than the Missoula Flood deposits. Placer to slightly undulating topography 0 to 15 meters above the modern floodplain. Drifted gravel and stratigraphic exposures are not known. Thickness not known. Differentiated from units Q9f and Q9u where clearly younger than the Missoula Flood from about 12 k.a., although some areas mapped as Q9f in the Eugene-Springfield area and within the Cascade Range may be substantially older.</p> |

CORRELATION OF MAP UNITS









- [illegible]

UPLAND UNITS (Primarily compiled from previous workers)

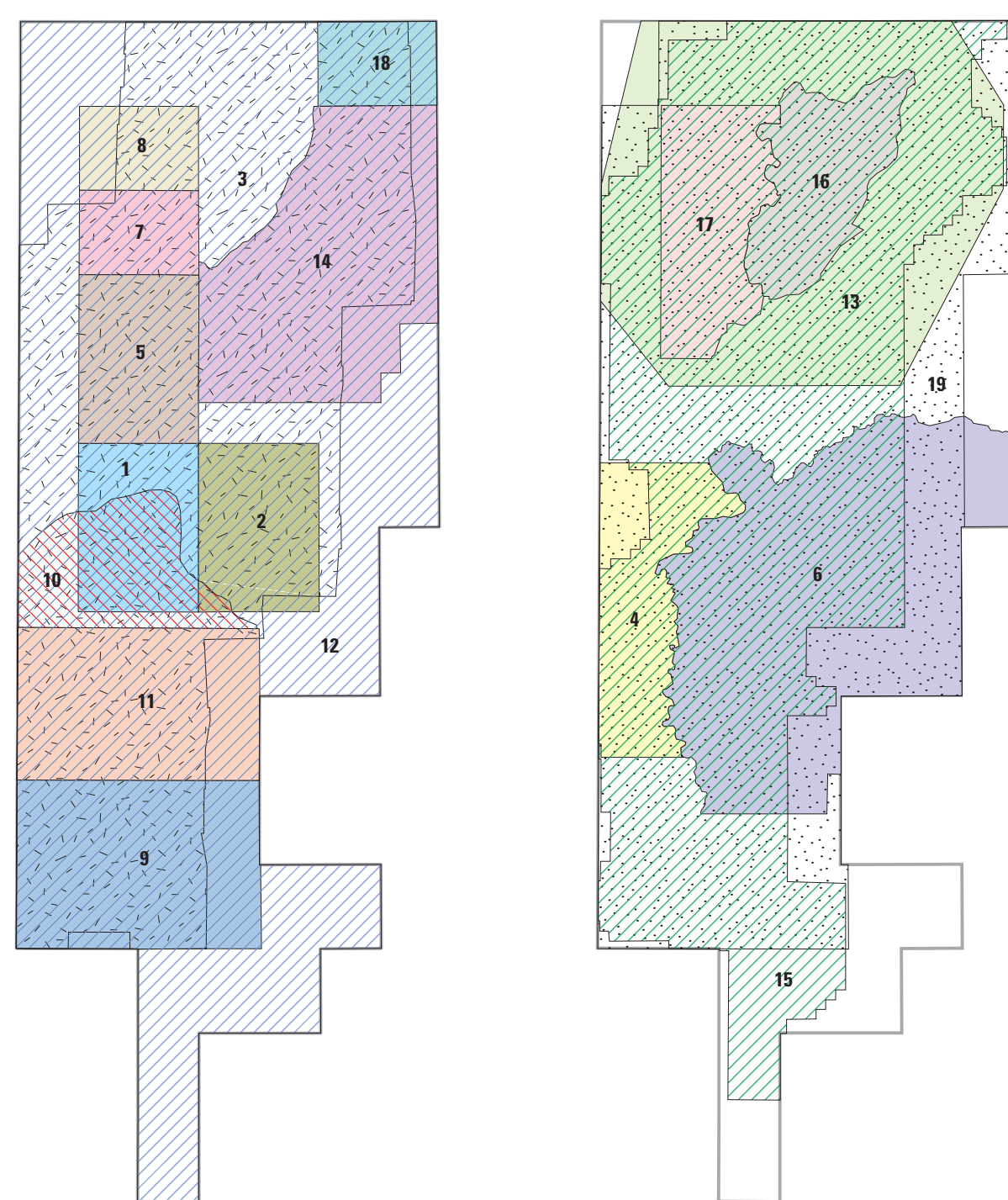
- | | | |
|-----|--|---|
| | | Boring Lava (Pine and Hampton) —Gray to light-gray, open-textured celled basaltic lava flows. Only mapped in the northern part of map area after Hampton (1973). Up to 60 meters thick. Ten radiometric ages on separate flows near Oregon City from 0.27 ± 0.28 Ma to 3.15 ± 0.62 Ma (Madin, 1994). |
| Qta | | Troudfelt Formation (Basaltic Sandstone) —Sand, gray, sandstone; conglomerate, siltsandstone, and mudstone. Occurs in the northern part of map area after Hampton (1972) where it is up to 150 meters thick. May be locally equivalent to the weathered trace rocks (Qtg) near Malheur. Overlain by Boring Lava near Oregon City. |
| Two | | Volcanic and volcanoclastic rocks of the western Cascade Range, undivided (upper Eocene to Tertiary) —Lava flows, tuff, breccia, and volcanoclastics deposited of variable composition. Includes interflows with marine sedimentary rocks (Tsm) and volcanic breccias (Vb) at several localities. Includes the Saddle Mountain Breccia north of the town of Seaside. The Saddle Formation as compiled by Gammert & Caldwell (1983). Youngest rocks are ridge-scaping basaltic flows in Santiam River drainage with reported ages (younger than 2.80 ± 0.15 Ma (Verplanken, 1983; cited in Walker and Duncan, 1989)). |
| Tir | | Columbia River Basalt Group (Myocene) —Lava flows of dark gray to black, locally porphyritic basalt. Locally developed weathers. Mostly between 16 and 15 Ma in northern Willamette Valley (M.J. Rose, Portland State University, written communication, 1998). Also includes small areas of alluvium, colluvium, bsses, and landslide debris. Distribution after Gammert & Caldwell (1983). |
| | | Marine sedimentary rocks (lower Miocene to Eocene) —Marine sandstone, siltstone, shale, and claystone, with lesser amounts of locally developed calcareous sandstones and shales, and small areas of alluvium, colluvium, bsses, and landslide debris. Distribution after Gammert & Caldwell (1983). |
| | | Volcanic rocks of the Coast Range (Eocene) —Basaltic pillow lava, tuff breccia, subaerial basaltic lava flows, and sills, with interbeds of basaltic sandstone, siltstone, and conglomerate. Includes small areas of alluvium, colluvium, bsses, and landslide debris. Distribution after Gammert & Caldwell (1983). |

Note: "Ma" refers to millions of years before present, and in this report is used to indicate radiometric and fission track age on volcanic rocks. "ka" refers to kiloyears, indicating thousands of radiocarbon years before present.




















EXPLANATION

-  Water
- Contact
-  Trace of generalized geologic sections shown on figure 2 of the report
-  Study area boundary
-  River mile location—From US Geological Survey 1:24,000-scale topographic quadrangles
-  Valley kilometer—Measured from Columbia River confluence along axis of Holocene floodplain of the Willamette River
-  Site location—Stratigraphic section or sample site described in accompanying text. Note: "S&G" = Sand and Gravel

SOURCES OF GEOLOGIC MAPPING



Source map number and authors—Full reference citation

- | | |
|---|-----------------------------------|
|  | 1 Allison (1953) |
|  | 2 Allison and Fells (1956) |
|  | 3 Balster and Parsons (1968) |
|  | 4 Bela (1979) |
|  | 5 Bela (1981) |
|  | 6 Beaulieu and others (1974) |
|  | 7 Brownfield and Schilder (1981a) |
|  | 8 Brownfield and Schilder (1981b) |
|  | 9 Frank (1973) |
|  | 10 Frank (1974) |
|  | 11 Frank (1976) |
|  | 12 Gunnett and Caldwell (1998) |
|  | 13 Glem (1965) |
|  | 14 Hampton (1972) |
|  | 15 Piper (1942) |
|  | 16 Price (1967a) |
|  | 17 Price (1967b) |
|  | 18 Trimble (1963) |
|  | 19 Yeats and others (1996) |

Not shown are the Geologic Map of Oregon (Walker and MacLeod, 1991), and the Soil Conservation Service (now Natural Resources Conservation Service) soil surveys for each of the counties within the map area (Williams, 1972; Otte and others, 1974; Knezevich, 1975, 1982; Gerig, 1985; Langridge, 1987; Patching, 1987).

LOCATION MAP



INDEX MAP



Base compiled from U.S. Geological Survey digital base, includes:
 U.S. Geological Survey Digital Line Graphs published at 1:100,000, 1987;
 U.S. Bureau of the Census TIGER/Line® files, published at 1:100,000, 1990;
 U.S. Geological Survey Digital Line Graphs published at 1:100,000, 1988
 and modified by the State of Oregon, 1994;
 U.S. Geological Survey quadrangle topographic maps published at 1:24,000
 as digitized by Oregon Department of Transportation
 Projection: Universal Transverse Mercator projection, Zone 10, 1927 North American Datum

GEOLOGIC MAP OF QUATERNARY UNITS IN THE WILLAMETTE VALLEY, OREGON

By
Jim E. O'Connor, Andrei Sarna-Wojcicki, Karl C. Wozniak, Danial J. Polette, and Robert J. Fleck
2001

Geologic unit linework was compiled and digitized at a scale of 1:24,000, but the accuracy of the contacts varies depending on location and geologic unit.