

INTRODUCTION

# Time-Rock Chart and Correlation of Map Units for the Oregon Cascade Range

2025

### **DOGAMI Digital Data Series**

## Oregon Geologic Data Compilation, Release 8 (OGDC-8)

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PLATE 4

### (arranged alphabetically by Compilation Unit Label)

LW Crho LW Csar LW Ctff LW Cvlc LW Cvlc LW Cvol LBVbri LBVhps LBVhps LBVmeh LBVmeh LBVmrc LBVmtt LBVrxy LBVscr LBVska LBVtff LBVtff LBVtyr LBVvol LBVwsn MIThbk MYRrid  NSRsim NSRun NSRun NSRun NSRun NSRun STZsrv  SNOero TYE  UPGbsh UPGcam UPGcam UPGrmf UPGwtr WKTrog WKTrvt WGhsb WGsrm	ive rocks of late Western Cascade Volcanics Rhododendron Formation Sardine Formation ffs of late Western Cascade Volcanics clastic rocks of late Western Cascade Volcanics as of late Western Cascade Volcanics  Breitenbush Tuff Heppsie Formation trusive rocks of Little Butte Volcanics Mehama Formation Mollala Formation Mohawk River caldera basalt of Mount Tom Roxy Formation rolcanic rocks of Scorpion Mountain Skamania Volcanics tuff of Bond Creek tuffs of Little Butte Volcanics aniclastic rocks of Little Butte Volcanics lavas of Little Butte Volcanics Udsasson Formation	late Western Cascade Volcanics  Little Butte Volcanics	in Region (%) 10.7 27.2
LW Crho LW Csar LW Ctff LW Cvlc LW Cvlc LW Cvol LW Cvol LB Vbri LBVhps LBVhps LBVint LBVmeh LBVmrc LBVmrt LBVxy LBVscr LBVska LBVtbc LBVtff LBVtyr LBVvol LBVwsn  MIThbk MYRrid  NSRsim NSRun NSRun  NEVgbk NEVun PSRpcf QVbas QVnby SXMgbm STZsrv SNOcro TYE  UPGbsh UPGcam UPGtmf UPGwtr WKTrog WKTrvt  WKTrog WKTrvt  WGhsb WGsrm WGer WGdrt WGun  WVFbdy	Rhododendron Formation Sardine Formation ffs of late Western Cascade Volcanics clastic rocks of late Western Cascade Volcanics vas of late Western Cascade Volcanics  Breitenbush Tuff Heppsie Formation trusive rocks of Little Butte Volcanics Mehama Formation Mollala Formation Mohawk River caldera basalt of Mount Tom Roxy Formation volcanic rocks of Scorpion Mountain Skamania Volcanics tuff of Bond Creek tuffs of Little Butte Volcanics aniclastic rocks of Little Butte Volcanics lavas of Little Butte Volcanics	Western Cascade Volcanics	
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LBVtyr LBVvlc LBVvlc LBVvol LBVwsn  MIThbk  MYRrid  NSRsim NSRun  NEVgbk NEVun  PSRpcf  QVbas QVnby  SXIMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	tuff of Yellow Rocks aniclastic rocks of Little Butte Volcanics lavas of Little Butte Volcanics		
LBVVIC LBVVIC LBVVIC LBVVIC LBVVIC LBVWSN  MIThbk  MYRrid  NSRSim NSRUN  NEVgbk NEVUN  PSRpcf  QVbas QVnby  SXMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	aniclastic rocks of Little Butte Volcanics lavas of Little Butte Volcanics		
LBVvol LBVwsn  MIThbk  MYRrid  NSRsim NSRun  NEVgbk NEVun  PSRpcf  QVbas QVnby  SXIMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	lavas of Little Butte Volcanics		
LBVwsn  MIThbk  MYRrid  NSRsim NSRun  NEVgbk NEVun  PSRpcf  QVbas QVnby  SXMgbm  STZsrv  SNocro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy			
MIThbk  MYRrid  NSRsim NSRun  NEVgbk NEVun  PSRpcf  QVbas QVnby  SXMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	Wasson Formation		
MYRrid  NSRsim NSRun  NEVgbk NEVun  PSRpcf  QVbas QVnby  SXMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy			
NSRsim NSRun NEVgbk NEVun  PSRpcf  QVbas QVnby  SXIMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter ter WGtrt WGun  WVFbdy	Hornbrook Formation	Mitchell package	< 0.1
NSRun Neog  NEVgbk NEVun  PSRpcf  QVbas QVnby  SXMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter te WGtrt WGun  WVFbdy	Riddle Formation	Myrtle Group	< 0.1
NEVgbk NEVun  PSRpcf  QVbas QVnby  SXMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	Simtustus Formation	Neogene	
PSRpcf  QVbas QVnby  SXMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter ter WGtrt WGun	ene sedimentary rocks, undifferentiated	sedimentary rocks	0.9
PSRpcf  QVbas QVnby  SXMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter ter WGtrt WGun	Grayback plutons	Nevadan intrusions	< 0.1
QVbas QVnby  SXMgbm  STZsrv  SNocro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	levadan intrusions, undifferentiated	Nevauan intrusions	V 0.1
QVnby  SXMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	Payne Cliffs Formation	Paleogene sedimentary rocks	< 0.1
SXMgbm  STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	Quaternary basalt	Quaternary	0.5
STZsrv  SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	Newberry Volcano	volcanics	
SNOcro  TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	Greenback melange*	Sexton Mountain terrane	< 0.1
TYE  UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	Siletz River Volcanics	Siletz terrane	< 0.1
UPGbsh UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter te WGtrt WGun	Coast Range ophiolite <sup>©</sup>	Snow Camp terrane	<0.1
UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter te WGtrt WGun  WVFbdy	Tyee Formation	Tyee package	< 0.1
UPGcam UPGtmf UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	Bushnell Rock Formation		
UPGwtr  WKTrog WKTrvt  WGhsb WGsrm WGter WGtrt WGun  WVFbdy	Camas Valley Formation	Umpqua Group	
WKTrog WKTrvt  WGhsb WGsrm WGter te WGtrt WGun  WVFbdy	Tenmile Formation	Onipqua di oup	< 0.1
WKTrvt  WGhsb WGsrm WGter te WGtrt WGun  WVFbdy	White Tail Ridge Formation		
WGhsb WGsrm WGter te WGtrt WGun WVFbdy	Rogue Formation	western Klamath	
WGsrm WGter te WGtrt WGun  WVFbdy	Rogue Valley subterrane, undivided	terrane	< 0.1
W Gter te W Gtrt W Gun WVFbdy	Hillsboro Formation		
WGtrt WGun WVFbdy	Sandy River Mudstone		
W Gun W VFbdy	rrace deposits of Willamette package	Willamette package	1.6
WVFbdy	Troutdale Formation	package	
	Willamette package, undivided		
\A/\/Echy	Boundary Butte volcano		
VV V FSDV	Soloman Butte volcano	Winama	
		Winema volcanic field	1.5
WVFvoll low	imentary rocks of Winema Volcanic Field		
WVFvolu upp	imentary rocks of Winema Volcanic Field er volcanic rocks of Winema volcanic field		
ÝPBêug ÝPBscm		Yaquina-Pittsburg Bluff package	0.4
YTPwh	er volcanic rocks of Winema volcanic field	Yachats-Tillamook package	< 0.1
YOLdth	er volcanic rocks of Winema volcanic field er volcanic rocks of Winema volcanic field Eugene Formation		< 0.1

(arranged alphabetically by Compilation Unit Label)

Terrane/Group

High Cascade

**Unit Name** 

Brush Mountain volcano

Bunker Hill volcano

Brown Mountain volcano

basalt of Post Canyon

Buck Peak volcano

Broken Top volcano

basalt of Ruthton Point

volcanic rocks of Blue Ridge

Mount Bailey volcano Cox Butte volcano

volcanic rocks of Chicken Hills

Clover Butte volcano

lavas of Cascade platform

Cherry Peak volcano Castle Point volcano

County Line volcano

Daley Prairie volcano

Devils Peak volcano

volcanic rocks of Fir Mountain Grouse Butte volcano Goose Egg volcano Mount Harriman volcano

Horse Creek volcano High Knob volcano Hamaker Mountain volcano

Hayden Mountain volcano Mount Hood volcano

Mount Jefferson volcano Johnson Prairie volcano Kent Peak volcano Klamath Point volcano Keno Road volcano volcanic rocks of Lajeunesse Creek

ittle Chinquapin Mountain volcano Lost Creek Cinder Pit volcano volcanic rocks of Lone Hill Lost Peak volcano Luther Peak volcano

Lenz Butte Volcanics Maude Mountain volcano

Mount McLoughlin volcano

Mud Spring Mountain volcano Muddy Spring volcano Mazama volcano Old Baldy volcano

lahar of Oak Grove

Pelican Butte volcano

sedimentary rocks of Parkette Creek Parker Mountain volcano Pearce Point volcano

> Robinson Butte volcano Rainbow Creek volcano

Roma Hill volcano Pothole Butte volcano

Rye Spur volcano

Rocktop Butte volcano

Scoria Cone volcano Spencer Creek volcano

Seldom Creek volcano Sisters Volcanic Center

Snow Peak volcano

Snowshoe Butte volcano

Sheepy Creek volcano tuffs of late High Cascade Volcanics Three Fingered Jack volcano Mount Thielsen volcano volcanic rocks of Tomahawk ski area Union Peak volcano lavas of late High Cascade Volcanics Mount Washington volcano volcanic rocks of Whiteface Peak volcanic rocks of Woodpecker Lake Wahtum Lake volcano

ive rocks of late High Cascade Volcanics

LHCbpc

LHCbrk

LHCbrv

LHCchk

LHCchq

LHCcmv

LHCcpv

LHCcty

LHCdpr

LHCdpv

LHCfir

LHChcv

LHChkv

LHChoo

LHCmav LHCmbv

LHCogl

LHCpbv

LHCpkt

LHCrbv

LHCrom

LHCrpb

LHCrsv

LHCscn

LHCsel

LHCspe

**Bedrock Areal Coverage** 

in Region (%)

Unit Label	Unit Name	Terrane/Group	in Region (%)
LWCint	intrusive rocks of late Western Cascade Volcanics		
LW Crho	Rhododendron Formation	loto	
LW Csar	Sardine Formation	late Western Cascade	10.7
LW Ctff	tuffs of late Western Cascade Volcanics	Volcanics	10.7
LW Cvlc	volcaniclastic rocks of late Western Cascade Volcanics		
LW Cvol	lavas of late Western Cascade Volcanics		
LVV CVOI	lavas of fate western Cascade volcanics		
LBVbri	Breitenbush Tuff		
LBVhps	Heppsie Formation		
LBVint	intrusive rocks of Little Butte Volcanics		
LBVmeh	Mehama Formation		
LBVmll	Mollala Formation		
LBVmrc	Mohawk River caldera		
LBVmtt	basalt of Mount Tom		
		Little Butte	
LBVrxy	Roxy Formation	Volcanics	27.2
LBVscr	volcanic rocks of Scorpion Mountain		
LBVska	Skamania Volcanics		
LBVtbc	tuff of Bond Creek		
LBVtff	tuffs of Little Butte Volcanics		
LBVtyr	tuff of Yellow Rocks		
LBVvlc	volcaniclastic rocks of Little Butte Volcanics		
LBVvol	lavas of Little Butte Volcanics		
LBVwsn	Wasson Formation		
LD V W311	w asson formation		
MIThbk	Hornbrook Formation	Mitchell package	< 0.1
MYRrid	Riddle Formation	Myrtle Group	< 0.1
NSRsim	Simtustus Formation	Neogene	
NSRun	Neogene sedimentary rocks, undifferentiated	sedimentary rocks	0.9
NEVgbk	Grayback plutons	Nevadan intrusions	< 0.1
NEVun	Nevadan intrusions, undifferentiated	The vacuum micrusions	
PSRpcf	Payne Cliffs Formation	Paleogene sedimentary rocks	< 0.1
QVbas	Quaternary basalt	Onatannany	
QVnby	Newberry Volcano	Quaternary volcanics	0.5
SXMgbm	Greenback melange*	Sexton Mountain terrane	< 0.1
STZsrv	Siletz River Volcanics	Siletz terrane	< 0.1
SNOcro	CoastRange ophiolite®	Snow Camp terrane	<0.1
TYE	Tyee Formation	Tyee package	< 0.1
UPGbsh	Bushnell Rock Formation		
UPGcam	Camas Valley Formation		
UPGtmf	Tenmile Formation	Umpqua Group	< 0.1
UPGwtr	White Tail Ridge Formation		
Ji GWU			
WKTrog	Rogue Formation	western Klamath	< 0.1
W KTrvt	Rogue Valley subterrane, undivided	terrane	. 0.1
WGhsb	Hillsboro Formation		
WGsrm	Sandy River Mudstone		
WGter	terrace deposits of Willamette package	Willamette	1.6
WGtrt	Troutdale Formation	package	1.0
WGun	Willamette package, undivided		
Juli	" manette paerage, anarvidea		
W VFbdy	Boundary Butte volcano		
	Soloman Butte volcano		
WVFsbv	sedimentary rocks of Winema Volcanic Field	Winema volcanic field	1.5
WVFsbv WVFsrt	Scullicitus viocks of vincina volcame i icia		
	lower volcanic rocks of Winema volcanic field		
WVFsrt			
W VFsrt W VFvoll W VFvolu YPBeug	lower volcanic rocks of Winema volcanic field upper volcanic rocks of Winema volcanic field  Eugene Formation	Yaquina-Pittsburg Bluff package	0.4
W VFsrt W VFvoll W VFvolu	lower volcanic rocks of Winema volcanic field upper volcanic rocks of Winema volcanic field  Eugene Formation  Scotts Mills Formation	Yaquina-Pittsburg Bluff package Yachats-Tillamook package	0.4
WVFsrt WVFvoll WVFvolu YPBeug YPBscm	lower volcanic rocks of Winema volcanic field upper volcanic rocks of Winema volcanic field  Eugene Formation	Bluff package	< 0.1

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### This time-rock chart illustrates the absolute ages, relative stratigraphic relations, and names of eruptive centers. Some informal names used here have wide currency and a correlations of significant bedrock geologic map units found at the surface and in the form (geographic name combined with rank or descriptive term) reserved for formal subsurface in the Cascades region of the state of Oregon. As defined here, the Cascades names; their informal status is denoted by a lowercase rank or descriptive term

Geologic map units are derived from the statewide Oregon Geologic Data Compilation the chart, map units are arranged vertically by their age of deposition or emplacement, (OGDC-8) and include formally recognized geologic groups, formations, and members, and horizontally from west to east within the Cascades region; because many units as well as some informal rock units. Each unit in OGDC-8 is assigned a unique extend laterally over significant portions of the region, their horizontal positions in the "Compilation Unit Name" and abbreviated "Compilation Unit Label" that combines its chart are relative approximations. Although spatial and lateral stratigraphic relations higher-order "Terrane/Group" classification (in uppercase letters) with its lower-order among units are not easily represented in this format, the main purpose of this chart is formation classification (in lowercase letters). The terms used here for Compilation to illustrate the absolute age spans and temporal relations among various map units in Unit Name and Terrane/Group are a mixture of formal stratigraphic names, informal the Oregon Cascade Range.

on the east, the California state border on the south, the western edge of Cascades

stratigraphic names, and—especially for many young volcanic units—geographic

Willamette Valley/

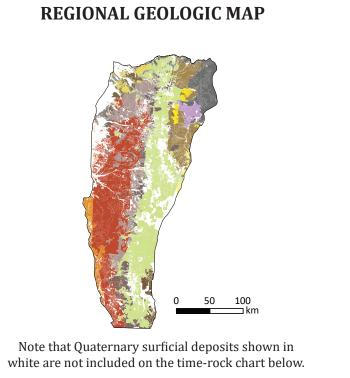
Interstate 5 Corridor

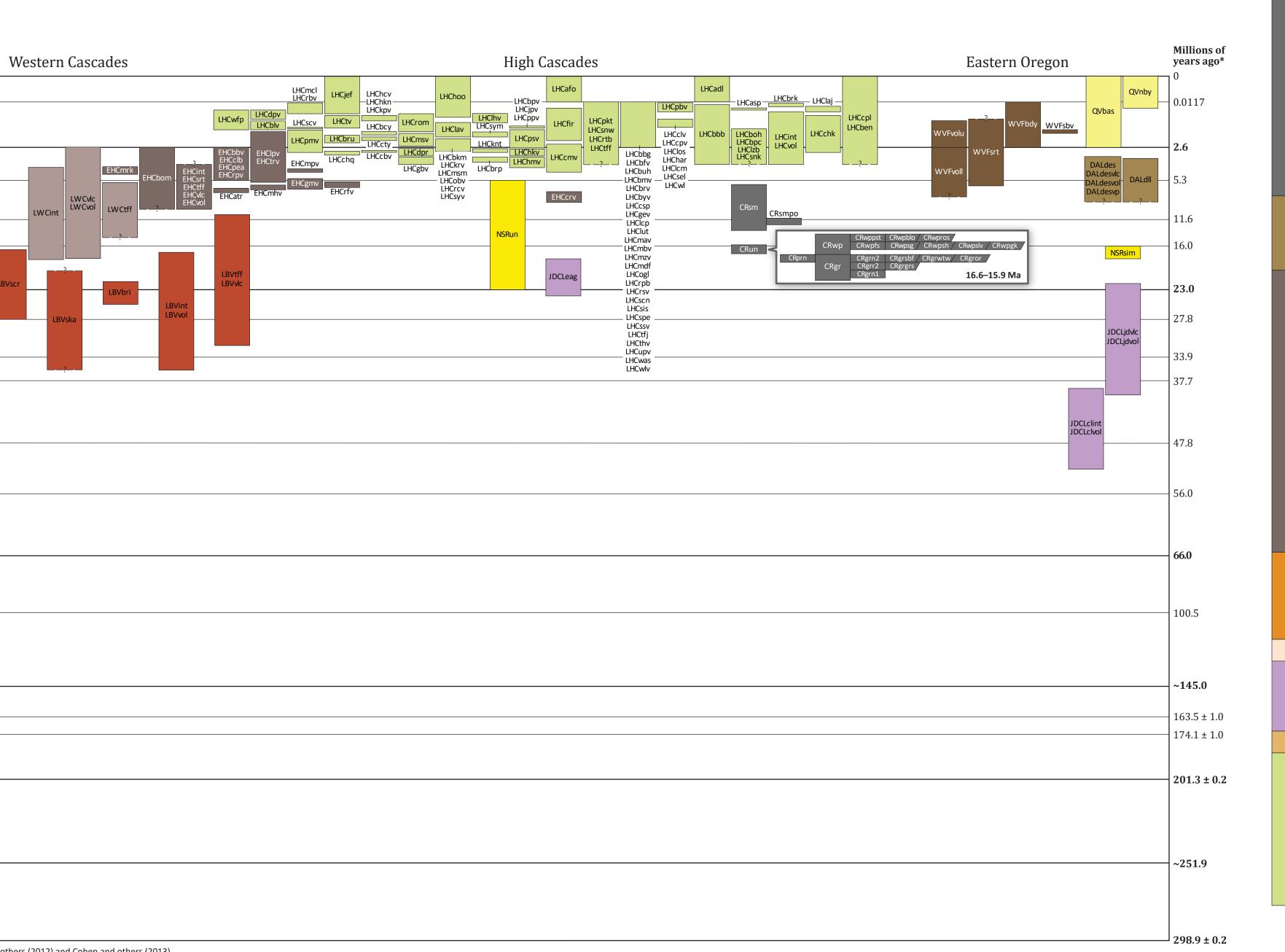
volcanic arc rocks on the southwest, and Interstate 5 on the west and northwest.

region includes the area bounded by the Columbia River on the north, U.S. Highway 97 followed by an asterisk, e.g., Ortley member\*.

In the legend, map units are arranged alphabetically by their Compilation Unit Label for ease of reference with the chart. Colors correspond with each unit's Terrane/Group. On







it Label	Unit Name	Terrane/Group	in Region (%)
APGmcs	May Creek Schist	Applegate Group	< 0.1
3VFnwc	northwest Cascade volcanoes		
BVFpdb	Portland Basin volcanoes	Boring volcanic field	1.3
CDcon	Changa Farmation	Coaledo-Cowliz package	< 0.1
CCPspn	Spencer Formation	Coaleuo-Cowiiz package	< 0.1
Clun	Coastal intrusions*, undifferentiated	Coastal intrusions*	< 0.1
CRgr	Grande Ronde Basalt		
Rgrgrs	Grouse Creek member*		
CRgrn1	N1 subunit of Grande Ronde Basalt		
CRgrn2	N2 subunit of Grande Ronde Basalt		
CRgror CRgrr2	Ortley member* R2 subunit of Grande Ronde Basalt		
CRgrsbf	Sentinel Bluffs Member		
CRgrwtw	Winter Water Member		
CRprn	Prineville Basalt	Columbia River	
CRsm	Saddle Mountains Basalt	Basalt Group	8.7
CRsmpo CRun	Pomona Member Columbia River Basalt Group, undivided		
CRwpblo	basalt of Lolo		
CRwpfs	Frenchman Springs Member		
CRwpgk	basalt of Ginkgo		
CRwppst	Priest Rapids Member		
CRwpr	Roza Member		
CRwpros CRwpsg	basalt of Rosalia basalt of Sentinel Gap		
CRwpsh	basalt of Sand Hollow		
CRwpslv	basalt of Silver Falls		
	Dasabutas Pauratian		
DALdes DALdesvlc	Deschutes Formation volcaniclastic rocks of Deschutes Formation		
DALdesvol	volcanic rocks of Deschutes Formation	Dalles package	8.5
DALdesvp	vents of Deschutes Formation		
DALdll	Dalles Formation		
HCatr	andesite of Table Rock		
HCbbv	Bieberstadt Butte volcano		
HCbom	volcanic rocks of Olson Mountain		
HCclb	Close Butte volcano		
EHCcrv	Castle Rock volcano		
HCgmv	Grizzly Mountain volcano		
HCint	intrusive rocks of early High Cascade Volcanics		
HClpv	Long Prairie volcano		
HCmhv	Mule Hill volcano	early High Cascade	6.3
EHCmpv EHCmrk	Moon Prairie volcano basalt of Marks Ridge	Volcanics	0.5
НСреа	Pearson Butte Volcano		
::::::::::::::::::::::::::::::::::::::	Rye Flat volcano		
HCrpv	Rustler Peak volcano		
HCsrt	sedimentary rocks of early High Cascade Volcanics		
HCtff	tuffs of early High Cascade Volcanics		
HCtrv	Toms Reservoir volcano		
HCvlc	volcaniclastic rocks of early High Cascade Volanics		
EHCvol	lavas of early High Cascade Volcanics		
EW Ccst	Colestin Formation		
EW Costi	intrusive rocks of Colestin Formation		
WCint	intrusive rocks of early Western Cascade Volcanics	early Western	2.7
WCtom	tuff of Mosser Mountain	Cascade Volcanics	2.7
EW Cvlc	volcaniclastic rocks of early Western Cascade Volcanics	1	
EW Cvol	lavas of early Western Cascade Volcanics		
YPyhl	Yamhill Formation	Elkton-Yamhill package	< 0.1
DCLclint	intrusive rocks of Clarno Formation		
DCLclvol	volcanic rocks of Clarno Formation		
DCLeag	Eagle Creek Formation	John Day/ Clarno package	1.8
DCLjdvlc	volcaniclastic rocks of John Day Formation	F	
DCLjdvol	volcanic rocks of John Day Formation		
KAPksy	Keasey Formation	Keasey-Alsea package	< 0.1
.HCadl	Andesite of Davis Lake		
.HCafo	Andesite of Four-in-One		
.HCasp	Aspen Butte volcano		
.HCbbb	Burton Butte volcano	1	
.HCbbg	Big Bunchgrass volcano	late High Cascade	27.7
.HCbcy .HCben	volcanic rocks of Blue Canyon Lake tuffs of Bend	Volcanics	
.HCbfv	Bareface Butte volcano		
.HCbkm	Buck Mountain volcano		
.HCboh	volcanic rocks of Booth Hill		
.HCblv	volcanic rocks of Buck Lake		

(arranged alphabetically by Compilation Unit Label)

**Unit Name** 

**Bedrock Areal Coverage** 

in Region (%)

Terrane/Group

*In	ternational Ch	Chronostratigraphic Chart, International Stratigraphic Commission, v.2022/02, Time scale after Gradstein and others (2012) and Cohen and others (2013).
htt	ps://stratigra	raphy.org/ICSchart/ChronostratChart2022-02.pdf

Cohen, K. M., Finney, S. C., Gibbard, P.L. and Fan, J.-X, 2013, The ICS International Conostratigraphic Chart:

Gradstein, F.M., Ogg, J.G., Schmitz, M.D., and Ogg, G.M., eds., 2012, The Geologic Time Scale 2012: Boston,