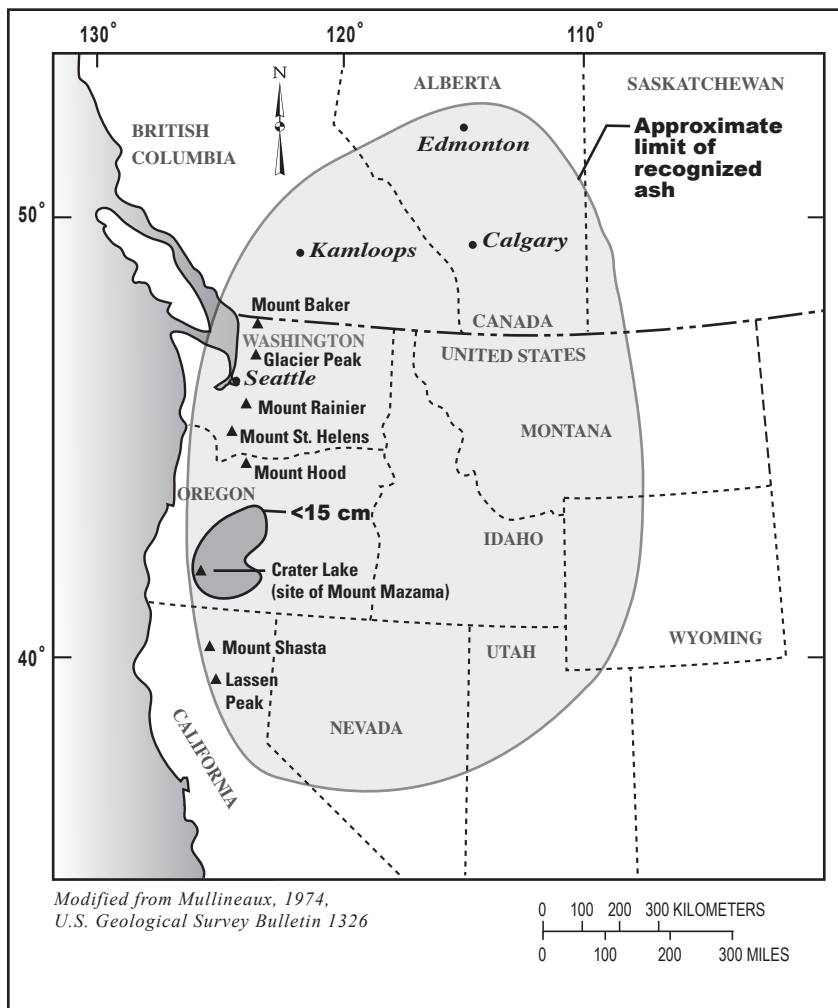




## Exploring Tephra Layers at Mount Rainier



Wind Direction: \_\_\_\_\_

Source Volcano: \_\_\_\_\_

### **Tephra O:**

**Wind Direction:** *From Southwest*

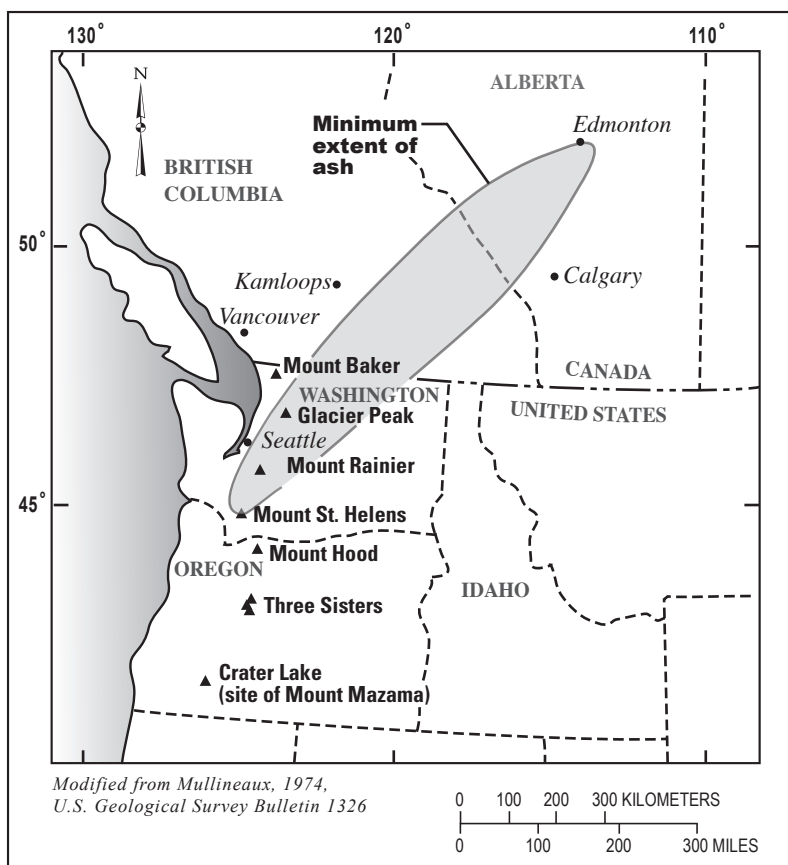
**Source Volcano:** *Mount Mazama (Crater Lake)*

**Age:** *7,700 years ago*

**Description:** Tephra layer O originated from Mount Mazama about 400 kilometers (250 miles) south of Mount Rainier, during a cataclysmic eruption that geologists recognize as the largest known eruption in the Cascades during the past 10,000 years. The eruption emptied the magma chamber, which caused collapse of the summit crater and formed a deep depression that filled with water to become Crater Lake. Wind transported the tephra over much of the northern U.S. and southwest Canada. At Mount Rainier, tephra layer O is generally about five centimeters thick (two inches). Layer O is recognizable in road and trail cuts by its flourlike texture and commonly yellow-orange color.



## Exploring Tephra Layers at Mount Rainier



Wind Direction: \_\_\_\_\_

Source Volcano: \_\_\_\_\_

### Tephra Yn:

**Wind Direction:** *From Southwest*

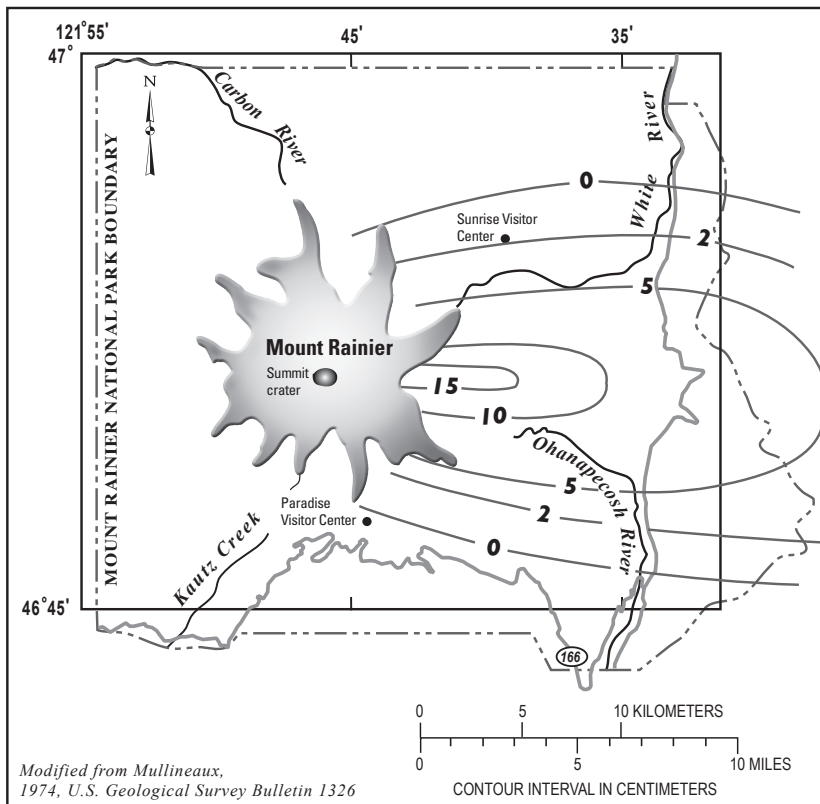
**Source Volcano:** *Mount St. Helens*

**Age:** *3,700-3,800 years ago*

**Description:** Between 3,700 and 3,800 years ago, an enormous eruption at Mount St. Helens, about 80 kilometers (50 miles) southwest of Mount Rainier, erupted the tephra that formed layer Yn. This eruption was many times larger than the well known eruption of May 18, 1980. Layer Yn varies in thickness from 0 to 46 centimeters (18 inches) at Mount Rainier National Park. Layer Yn is recognizable by its grainy texture and light-yellow to brown color.



## Exploring Tephra Layers at Mount Rainier



Wind Direction: \_\_\_\_\_

Source Volcano: \_\_\_\_\_

### Tephra D:

**Wind Direction:** *From West*

**Source Volcano:** *Mount Rainier*

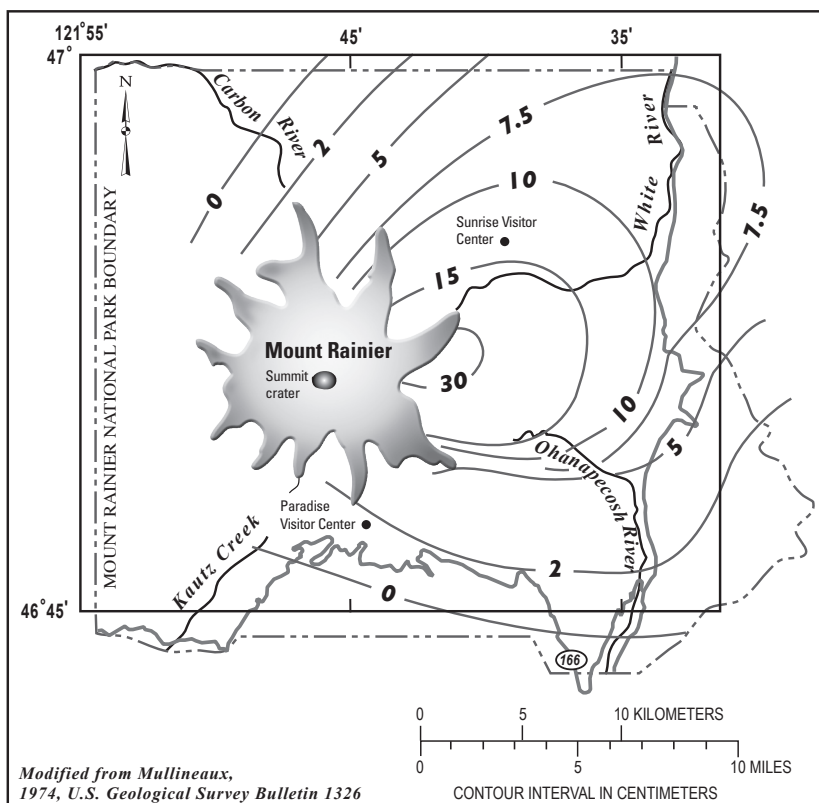
**Age:** *6,600-7,400 years ago*

**Description:** Tephra layer D consists of pumice, scoria and volcanic bombs erupted from Mount Rainier between 6,600 and 7,400 years ago. Wind blew this material to the eastern slopes of the volcano, where it exists to a maximum thickness of 15 centimeters (6 inches). Tephra layer D is recognizable by its coarse texture and yellow to red-brown color. This eruption, one of many in this eruptive period, might have been large enough to form lahars in nearby river valleys.





## Exploring Tephra Layers at Mount Rainier



Wind Direction: \_\_\_\_\_

Source Volcano: \_\_\_\_\_

### Tephra C:

**Wind Direction:** *From West/Southwest*

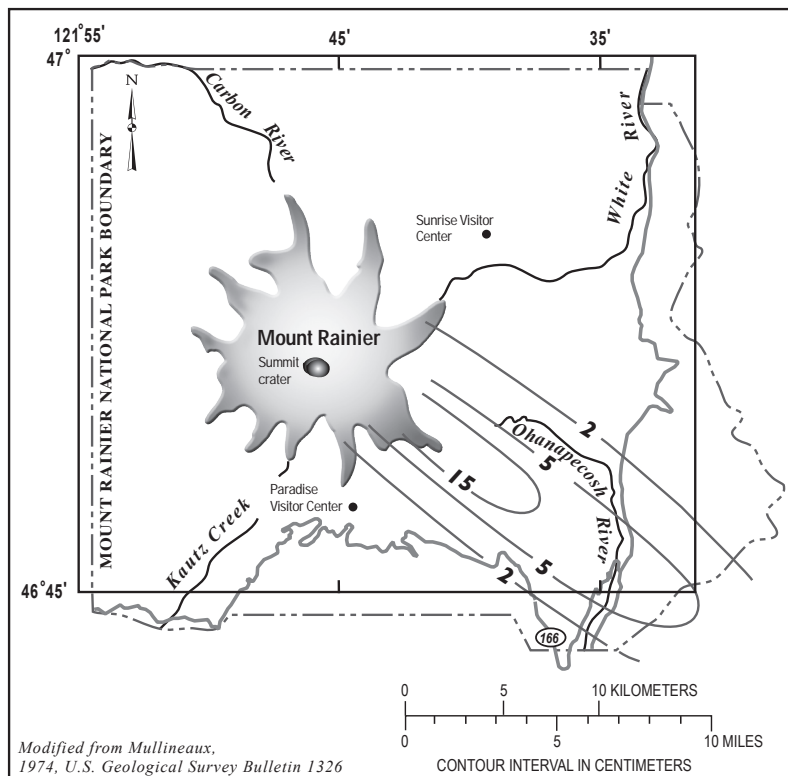
**Source Volcano:** *Mount Rainier*

**Age:** *2,200 years ago*

**Description:** Tephra layer C is the thickest and most widespread tephra layer of Mount Rainier origin within the park. The tephra fell on mountain's southern, eastern and northern flanks to a maximum thickness of 30 centimeters (12 inches) near the summit on the eastern flank. Tephra C exists over a broad area, possibly because wind direction fluctuated while the volcano was erupting. The eruption tossed some melon-sized rocks into the air. Winds deposited them 10 km (6 miles) from the volcano! Tephra layer C is coarse-grained and varies in color from nearly-white pumice to dark brown scoria and gray rock fragments. It is coarse grained. Pieces of Tephra C, that are walnut to fist-sized, cover the ground in the vicinity of Sunrise Visitor facilities. The eruption that produced layer C was large enough to form lahars in nearby river valleys.



## Exploring Tephra Layers at Mount Rainier



Wind Direction: \_\_\_\_\_

Source Volcano: \_\_\_\_\_

### Tephra L:

**Wind Direction:** *From Northwest*

**Source Volcano:** *Mount Rainier*

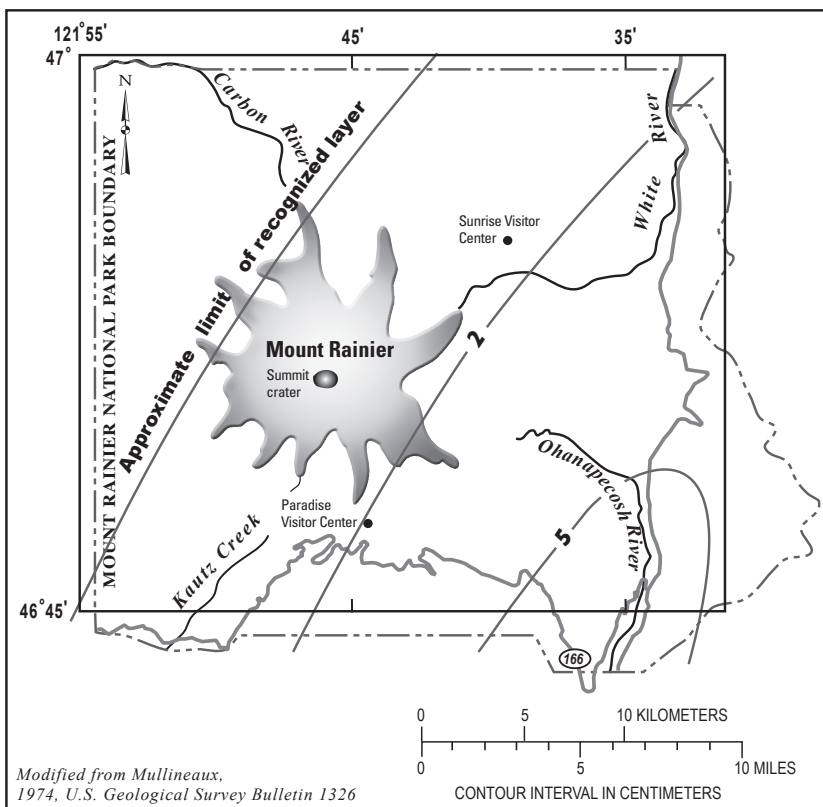
**Age:** *7,200 years ago*

**Description:** Tephra layer L erupted from Mount Rainier and covered much of the eastern and southeastern slopes of the mountain. The narrow band of layer L to the southeast indicates that the wind was strong and blew consistently in this direction during the eruption. Tephra layer L is yellowish-brown in color. It contains pumice, ash and volcanic bombs.





## Exploring Tephra Layers at Mount Rainier



Wind Direction: \_\_\_\_\_

Source Volcano: \_\_\_\_\_

### Tephra W:

**Wind Direction:** *From Southwest*

**Source Volcano:** *Mount St. Helens*

**Age:** *Approximately 500 years ago*

**Description:** Tephra layer W was erupted from Mount St. Helens around A.D. 1480 and transported towards the northeast by winds. On the slopes of Mount Rainier, 500 kilometers (310 miles) to the north, tephra layer W appears gray-white in color and has a coarse texture. This eruption also formed small lava flows and pyroclastic flows on the slopes of Mount St. Helens. Scientists know that this tephra is from Mount St. Helens and NOT Mount Adams, because they followed the tephra trail back to the slopes of Mount St. Helens.