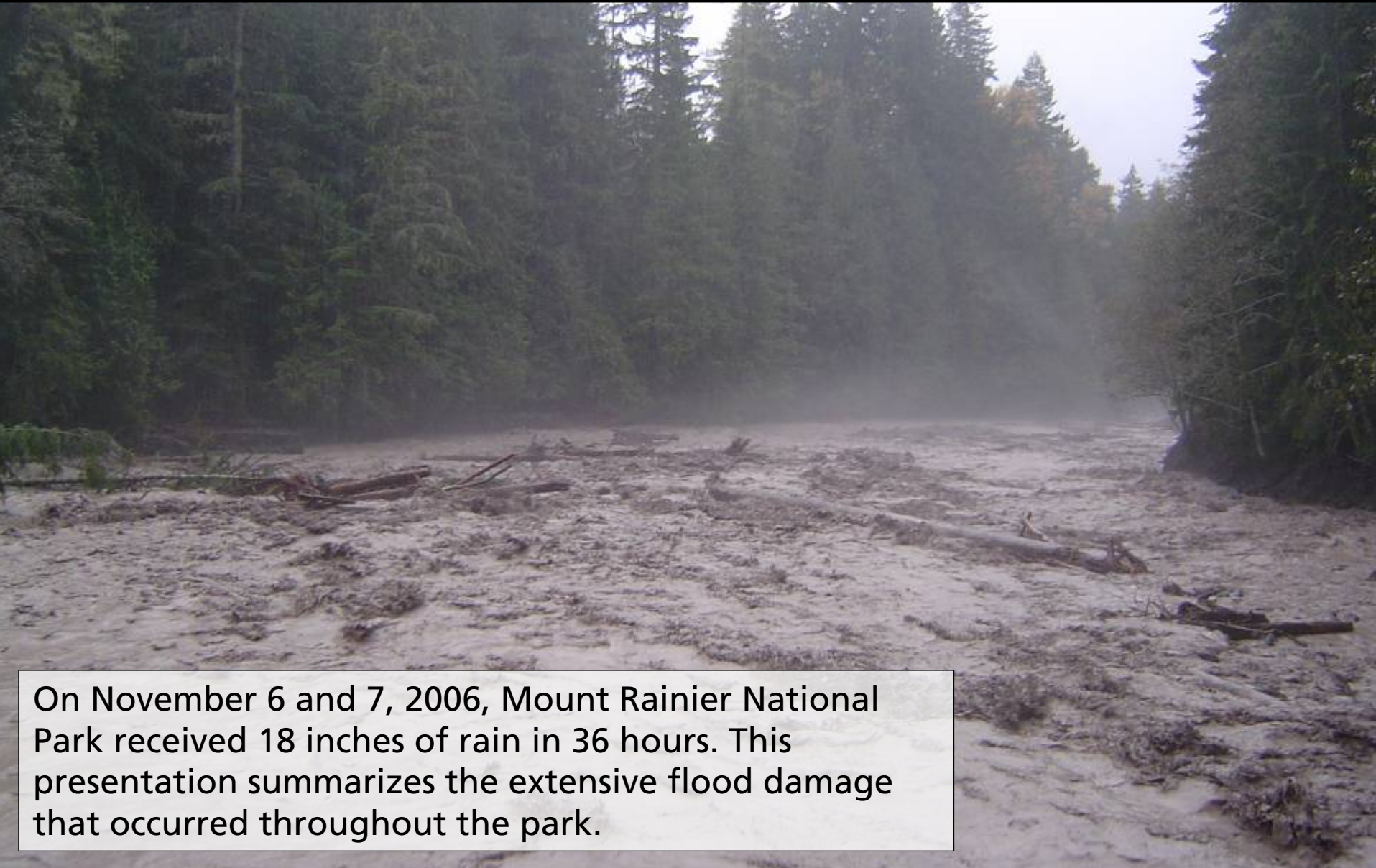


# Mount Rainier National Park

## November 2006 Flood Damage



On November 6 and 7, 2006, Mount Rainier National Park received 18 inches of rain in 36 hours. This presentation summarizes the extensive flood damage that occurred throughout the park.



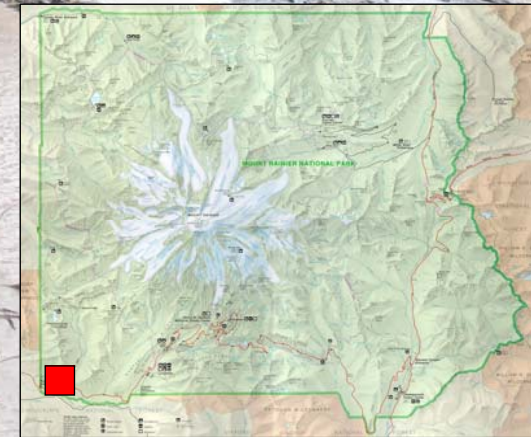
# Mount Rainier National Park

## November 2006 Flood Damage



### Sunshine Point

- The section of dike which protected Sunshine point is destroyed. Only a small section of the campground remains. The rest is now river bed.
- The Nisqually Road is washed out for 200 yards.
- The main power line (serving Longmire and Paradise) was severed where it crossed Sunshine Point.





# Mount Rainier National Park

## November 2006 Flood Damage



The Nisqually Road and site of the former Sunshine Point Campground



# Mount Rainier National Park

## November 2006 Flood Damage



Water flowing through the remains of the Sunshine Point Campground



# Mount Rainier National Park

## November 2006 Flood Damage



The major washout on the Nisqually Road



# Mount Rainier National Park

## November 2006 Flood Damage

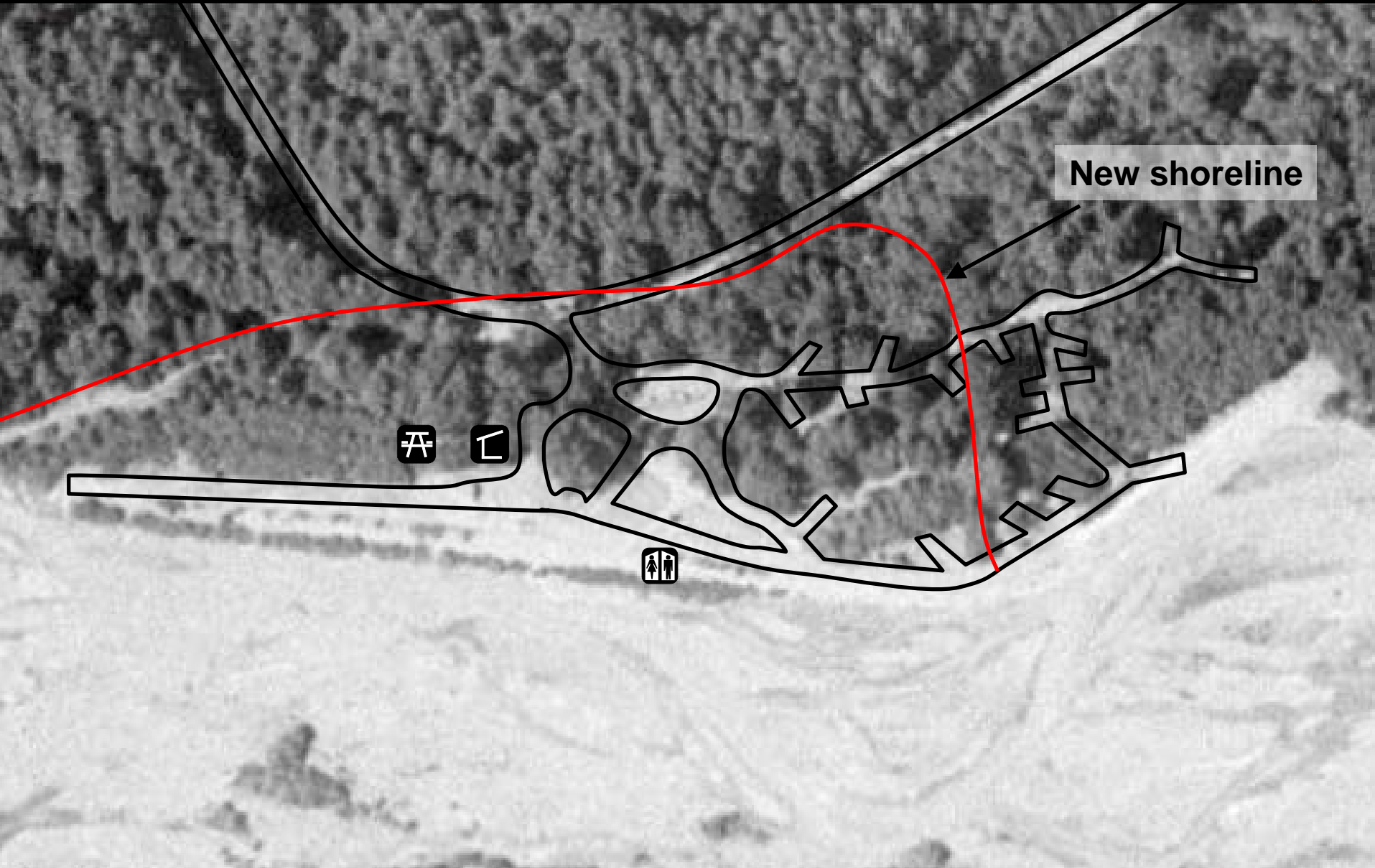


Former shoreline

An aerial view of the former Sunshine Point Campground

# Mount Rainier National Park

November 2006 Flood Damage



New shoreline

Satellite image of the Sunshine Point Campground, showing new shoreline



# Mount Rainier National Park

## November 2006 Flood Damage



**Former shoreline**

**New and former shoreline at Sunshine Point Campground**



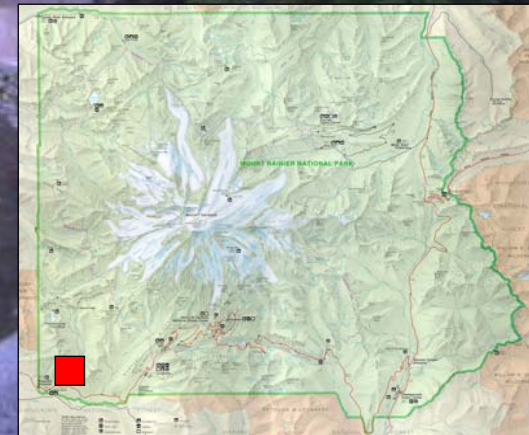
# Mount Rainier National Park

## November 2006 Flood Damage



### Westside Road

- Water is crossing the road at the junction with the Nisqually Road, and part of the road edge is washed away.
- Part of a lane has collapsed near the gate at Dry Creek, and the roadway is significantly damaged upstream.





# Mount Rainier National Park

November 2006 Flood Damage



Washout at the beginning of the Westside Road



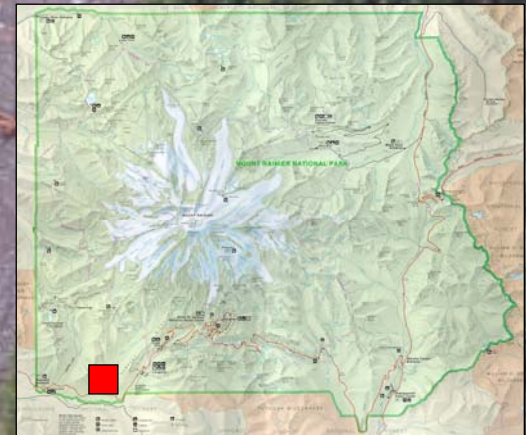
# Mount Rainier National Park

## November 2006 Flood Damage



### **Kautz Creek**

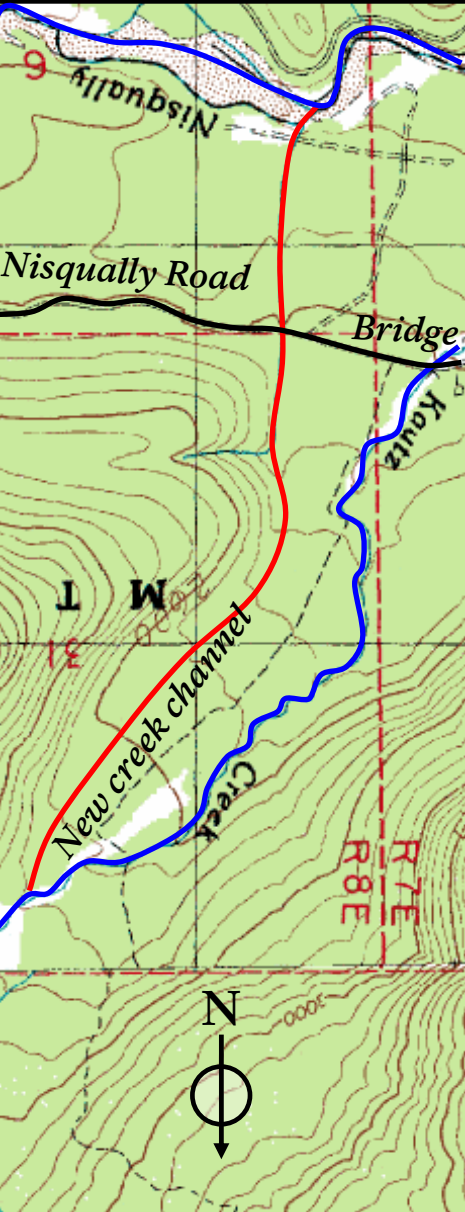
- Kautz Creek has changed its channel a mile above the road bridge, and is now flowing over and undermining the Nisqually Road for a distance of 50 yards.
- The Kautz Helibase sustained major erosion damage from the redirected water flow.





# Mount Rainier National Park

## November 2006 Flood Damage



New channel

Kautz Bridge,  
1 mile downstream

Old Kautz Creek  
channel

Kautz Creek changed its channel a mile above the road bridge



# Mount Rainier National Park

## November 2006 Flood Damage



Kautz Creek flowing across the park road east of the bridge



# Mount Rainier National Park

## November 2006 Flood Damage



Washout at the Kautz Helibase



# Mount Rainier National Park

## November 2006 Flood Damage



### Longmire

- Approximately 200 feet of main sewer line was destroyed. The system now empties into the river.
- A corner of the Emergency Operations Center was undercut by the river. Its parking lot was destroyed.
- The power lines across the river to the Community Building were knocked out.
- The access road to the Community Building and back gate was eroded down to one lane in several places.
- Excessive sediment collected in all system filters. The Edith Creek Basin water supply at Paradise is filled with rocks and dirt.





# Mount Rainier National Park

## November 2006 Flood Damage



The Emergency Operations Center at Longmire, during the flood



# Mount Rainier National Park

November 2006 Flood Damage



The Emergency Operations Center at Longmire, after the flood



# Mount Rainier National Park

## November 2006 Flood Damage



Aerial view of Longmire and the Nisqually River



# Mount Rainier National Park

November 2006 Flood Damage



NOV 9 2006

The road to the Community Building and back gate at Longmire



# Mount Rainier National Park

## November 2006 Flood Damage



Washout in front of the Community Building at Longmire



# Mount Rainier National Park

## November 2006 Flood Damage

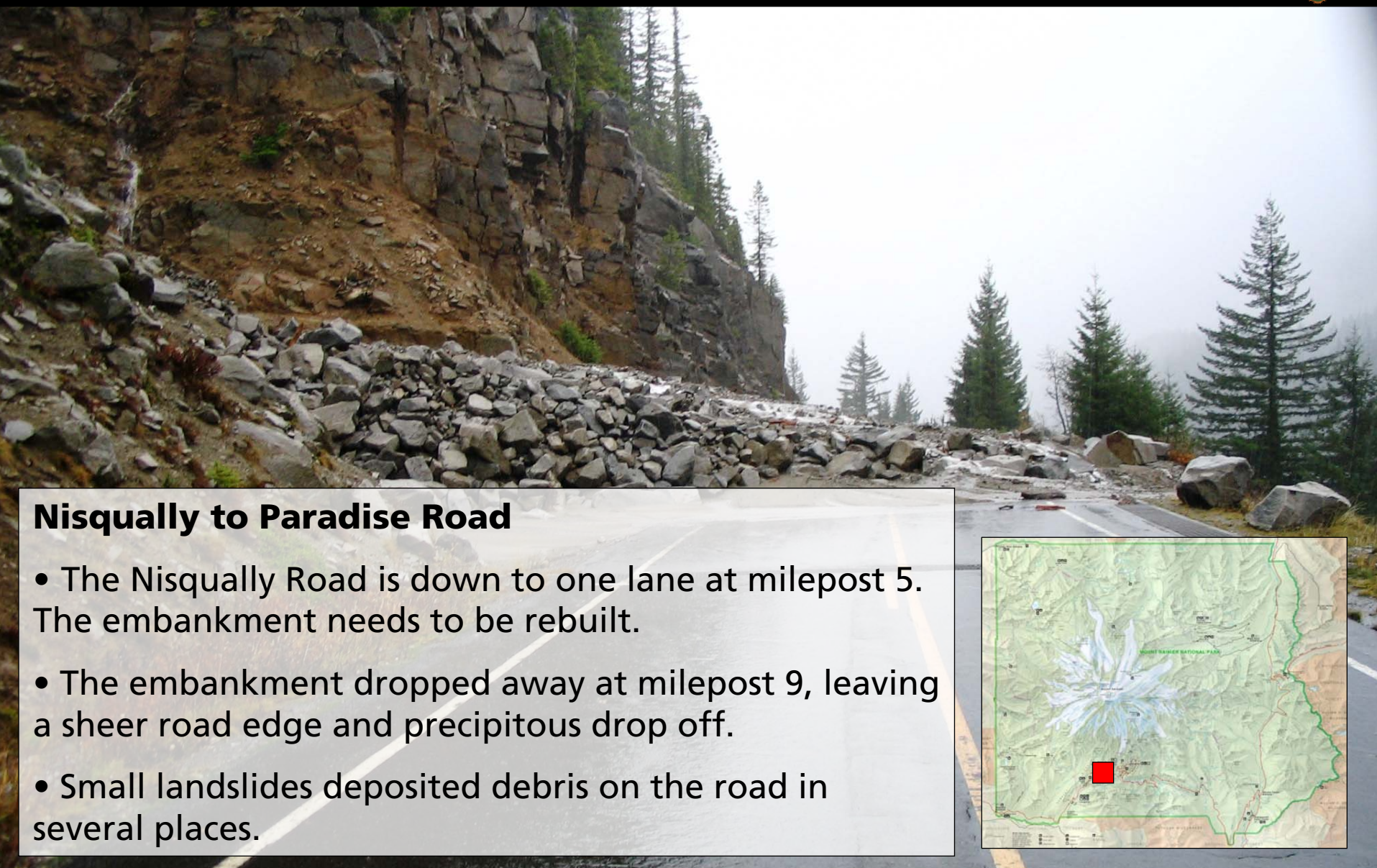


Road through the old Longmire Campground to the back gate



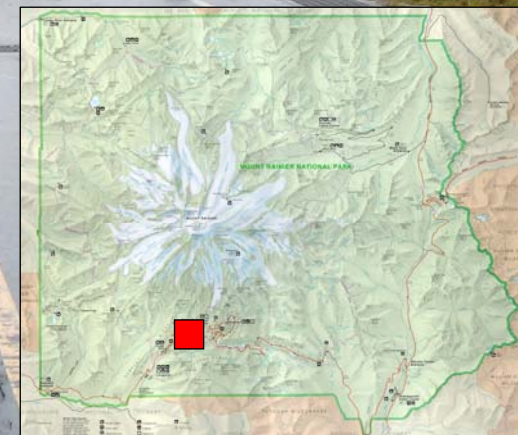
# Mount Rainier National Park

November 2006 Flood Damage



## Nisqually to Paradise Road

- The Nisqually Road is down to one lane at milepost 5. The embankment needs to be rebuilt.
- The embankment dropped away at milepost 9, leaving a sheer road edge and precipitous drop off.
- Small landslides deposited debris on the road in several places.





# Mount Rainier National Park

## November 2006 Flood Damage



Landslide above Glacier Bridge on the Paradise Road



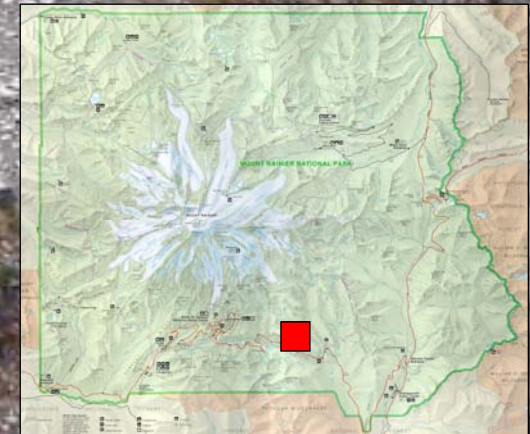
# Mount Rainier National Park

## November 2006 Flood Damage



### Stevens Canyon Road

- Major slides have blocked the road at mileposts 5.5 and 7.
- A large slide above the Ohanapecosh Campground damaged the Stevens Canyon Road above it in two places.





# Mount Rainier National Park

November 2006 Flood Damage



Landslide below Stevens Ridge in Stevens Canyon



# Mount Rainier National Park

## November 2006 Flood Damage



### **The Grove of the Patriarchs**

- The suspension bridge accessing the Grove is heavily damaged.
- The Grove itself sustained heavy silt damage.
- The boardwalk trail was displaced and damaged in numerous places.





# Mount Rainier National Park

## November 2006 Flood Damage



Damaged suspension bridge and three feet of mud at the Grove of the Patriarchs



# Mount Rainier National Park

## November 2006 Flood Damage



Damage to the boardwalk in the Grove of the Patriarchs



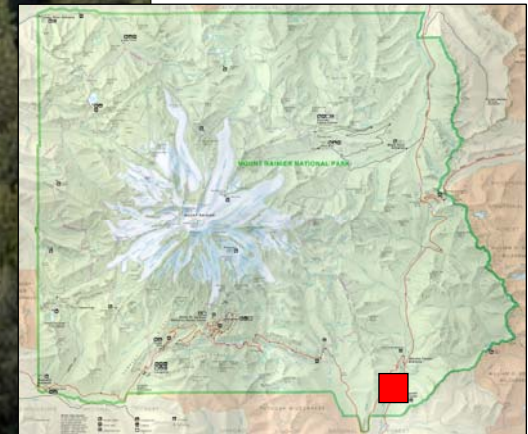
# Mount Rainier National Park

November 2006 Flood Damage



## Ohanapecosh Campground

- A 5000 foot long landslide below Stevens Canyon Road is visible across the river from C loop. Debris has created a major logjam downstream.
- Erosion destroyed several campsites and damaged the road in C loop.
- The Ohanapecosh Visitor Center sustained water damage from minor flooding.





# Mount Rainier National Park

## November 2006 Flood Damage



Landslide stretching 5,000 feet between Stevens Canyon Road and Ohanapecosh



# Mount Rainier National Park

## November 2006 Flood Damage



Along the edge of C loop in the Ohanapecosh Campground



# Mount Rainier National Park

## November 2006 Flood Damage



The bottom of the landslide across from the Ohanapecosh Campground



# Mount Rainier National Park

November 2006 Flood Damage



Picnic table, for scale

Logjam below Ohanapecosh Campground



# Mount Rainier National Park

November 2006 Flood Damage



Destroyed picnic table at site C-18



# Mount Rainier National Park

November 2006 Flood Damage



## Highway 123

- A large washout occurred near Panther Creek.
- A debris flow crossed the road near milepost 11.
- A major washout cut a channel 60 feet wide and up to 80 feet deep across both lanes at milepost 11.5.
- A portion of the road is washed out just below Cayuse Pass.





# Mount Rainier National Park

November 2006 Flood Damage



8 4:21 PM

Washout on Highway 123 near Panther Creek



# Mount Rainier National Park

## November 2006 Flood Damage



Milepost 10.5 on Highway 123



# Mount Rainier National Park

## November 2006 Flood Damage



Washout at milepost 11.5 on Highway 123



# Mount Rainier National Park

## November 2006 Flood Damage



Washout about 80 feet deep at milepost 11.5 on Highway 123



# Mount Rainier National Park

November 2006 Flood Damage



## Highway 410 and White River Campground

- The White River flooded the highway for several miles both inside and outside the park boundary. Park facilities were not significantly damaged.
- Small sections of the downhill lane sloughed off going into White River Campground. Some sites in A loop were damaged.





# Mount Rainier National Park

## November 2006 Flood Damage



Flooding and fallen trees on Highway 410 near the park entrance



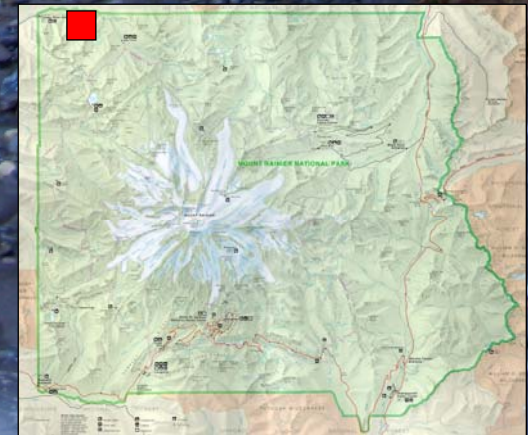
# Mount Rainier National Park

November 2006 Flood Damage



## Carbon River and Ipsut Creek Campground

- More than two miles of road are lost. There are washed out sections in at least four places, and the Carbon River is now flowing down the road for half a mile.
- The Ipsut Creek Campground was inundated. The full extent of its damage is unknown.
- A deep erosion gully has undermined the Ipsut Cabin.





# Mount Rainier National Park

## November 2006 Flood Damage



The Carbon River, flowing down the Carbon River Road



# Mount Rainier National Park

## November 2006 Flood Damage



The historic Ipsut Creek Cabin



# Mount Rainier National Park

## November 2006 Flood Damage



End of the road at Ipsut Creek Campground



# Mount Rainier National Park

November 2006 Flood Damage



## Parkwide Trail Damage

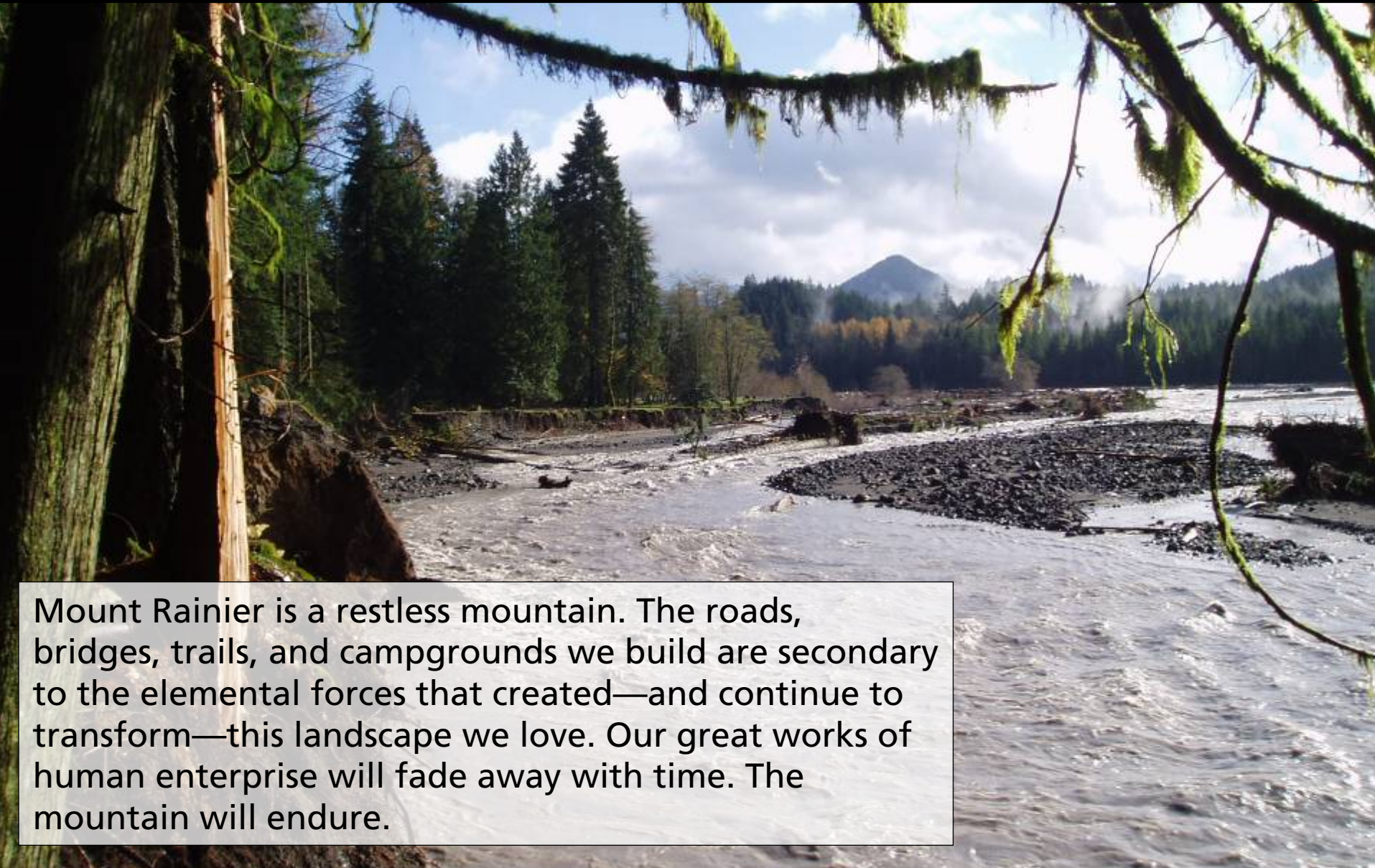
- Backcountry bridges and trails sustained extensive damage. Sections of the Wonderland Trail will likely be unusable next summer.
- At least 10 log bridges are out.
- At least 450 yards of river bar trail are gone.
- A new graded trail is needed in four places, including a half mile to be cut from bedrock between Lake James and Cataract Creek and a 750 foot reroute in Stevens Canyon.
- The full extent of damage will not be known until trails melt out next summer.





# Mount Rainier National Park

November 2006 Flood Damage



Mount Rainier is a restless mountain. The roads, bridges, trails, and campgrounds we build are secondary to the elemental forces that created—and continue to transform—this landscape we love. Our great works of human enterprise will fade away with time. The mountain will endure.