



## Death Valley Updates—Flood Recovery 2015

Update for Tuesday, November 17:

- Since Saturday, Nov. 14, major work has included:
  - ⇒ *South of Badwater area*: Crews have progressed along Harry Wade Road, seven miles south of the intersection of Badwater Road and State Route 178 clearing approximately eight miles of road since Saturday.
  - ⇒ *Scotty's Castle area*: Crews continue to remove debris from the around the Cookhouse and mud and silt from the tunnels. Cleaning and repair work is taking place on the culverts, and removal of downed cottonwood trees continues. The trail to Scotty's grave has been repaired.
- Crews are removing an estimated 400,000 tons of debris from park roads, the equivalent of the weight of five Washington Monuments.



*The crew from Yosemite National Park removed debris and repaired the trail leading to Death Valley Scotty's grave on Monday. NPS photo by Danie Dawson.*

### Areas closed to the public until further notice due to flood damage include:

- ⇒ *Scotty's Castle Road/Bonnie Claire Road*
- ⇒ *Badwater Road* south of MM 17
- ⇒ *Twenty Mule Team Canyon Road*
- ⇒ *Hole in the Wall Road*
- ⇒ *Harry Wade Road*
- ⇒ *West Side Road*
- ⇒ *Lower Wildrose Road*
- ⇒ *Saratoga Springs Road*
- ⇒ *Hole in the Wall Road*
- ⇒ *Mesquite Springs Road and Campground*

**Background:** On Sunday, Oct. 18, 2015, a torrential storm dropped over three inches of rain in five hours on the northeast section of Death Valley National Park. That night, rangers evacuated Mesquite Springs Campground and sheltered overnight with 20 visitors in their vehicles at Ubehebe Crater. Floodwaters destroyed the road to Scotty's Castle through Grapevine Canyon. The Grapevine housing area was evacuated due to lack of power and water systems. With road access gone, park staff hiked three miles to Scotty's Castle the next day to find the castle structure intact with the grounds and many other buildings buried in a thick layer of mud and rocks. This flood was one of several October flash floods. Cumulative damage has most severely affected the Scotty's Castle and Badwater areas.

In October, 1.3 inches of precipitation fell at Furnace Creek, making it the wettest October on record. Scotty's Castle received over 2.7 inches of rain after the October 18 storm, while a 3.5 inches of rain fell a half-mile; these areas on average receive about four inches of rain per year. The resulting flood through Grapevine Canyon may have flowed at a rate of about 93,000 cubic feet per second—10 times that of a "100-year" flood.



More improvement at Scotty's Castle, as hand crews have completed the removal of two feet of mud and silt the exterior of the visitor center. NPS photos by Danie Dawson.

### Damage to Scotty's Castle Area

Fortunately, the main house sustained only minor damage due to roof leaks. The HVAC system is not operational due to compromised utilities. Currently, historic furniture, archives, and other museum collections are threatened by mold, rodents, dust, lack of a fire suppression system and access, etc. Nearly every building within the Death Valley Scotty's Historic District, has been impacted. In addition:

- *Visitor Center and Hacienda office buildings:* Several feet of water flowed through these buildings, leaving behind 1-4 feet of mud. A structural wall in the visitor center (historic garage) was displaced due to the force of floodwater. All carpets, drywall, exhibits, utilities, and office equipment has been removed and will need to be replaced. The inventory and fixtures of the bookstore has been lost. Walls will require inspection for structural integrity.
- *Historic Longshed and Bunkhouse:* building was surrounded by up to five feet of mud with up to three feet of mud inside.
- *Historic Bridge:* The bridge moved slightly but is structurally sound.
- *Historic Pool:* The pool is filled with water/mud.
- *Grounds:* Several feet of mud, boulders, and debris are being removed from building exteriors. The watercourse feature is damaged. Courtyard areas are being dug out from several feet of mud; pipelines are exposed in areas gouged by floodwater. Miles of historic fenceline were washed out.

- *Water system:* Flooding destroyed a water treatment facility, reservoir, spring box, and water line.
- *Electricity:* Twenty-four power poles were destroyed.
- *Propane:* The propane line is broken.

### Medium- and Long-Term Impacts

- Ranger tours through Scotty's Castle generate about \$550,000 in fees annually and approximately 120,000 people per year visit the site. Scotty's Castle is likely to be closed for the foreseeable future.
- Damage assessments are ongoing but will be in the tens of millions of dollars.
- An El Niño weather pattern predicted for this winter brings the possibility of increased precipitation and additional flooding.
- If winter rains continue, the park can expect a spectacular spring wildflower event, which would draw high visitation during 2016—the Centennial anniversary year of the National Park Service.

### More Information

[www.nps.gov/deva](http://www.nps.gov/deva)

[www.facebook.com/DeathValleyNP](https://www.facebook.com/DeathValleyNP)

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