

# **Arapaho & Roosevelt National Forests**

## **2013 Flood: Long-term Recovery in a Changed Landscape**

Spring 2014

The flood of September 2013 changed the landscape of the Boulder and Canyon Lakes Ranger Districts. The greatest impacts occurred over 230,000 acres of NFS lands.

- Initial assessment findings: at least 232 roads (382 miles), 70 trails (236 miles), 4 bridges and 42 facilities were damaged or destroyed
- Initial assessment did not include an evaluation of resource damage
- Additional damage being discovered
- Further damage may occur during spring run-off



Above: Forest road impassible and in need of redesigned stream crossing to accommodate higher water volume

# Access

- Restrictions-
  - Many roads and trails remain closed for public safety, as well as natural resource concerns.
  - Closures will continue to change while assessments, design and repair work is completed.
  - Forest access may not be reestablished for a variety of reasons.



- Recreational opportunities remain on the Forest, but in some cases may have changed.

# Changed Landscape- Dams



Idylwilde Dam was damaged. Through coordination with FERC, City of Loveland, Army Corps of Engineers and the USFS, it was removed and CDOT is using material for Highway 34 fill. Work continues in this location.



# Changed Landscape- Roads and Bridges

Roads throughout the flood area provide access not just for recreation, but also for private residences and emergency response.



Above: CR43 provides access to Forest Road 128, now reopened by Larimer County

Below: Gillespie Gulch Road's new elevation is 4 feet below old elevation (Road is under permit and repaired with FS permission by private landowners for emergency access to their homes above Jamestown.)



## Changed Landscape – Recreation & Roads

Below: Damage to roads, like the Bunce School Road, impacts not only our forest visitors but also outfitters and guides who utilize these for their business.



Right: Old Flowers Road was scheduled to be repaired from High Park Fire damage when the floods hit. Damage increased during the flood.



Photo courtesy of Lou Liley, resident of Stove Prairie

# Changed Landscape – Canyon Lakes Trails



Left Top and Bottom: Lion Gulch Trail, located off Highway 36, is a very popular trail that sustained extensive damage, including the loss of several bridges.

Below: Prior to the flood, Young Gulch Trail in the Poudre Canyon had just been reopened following work done by volunteers who repaired damage from the 2012 High Park Fire.



## Changed Landscape – Boulder Trails



Several trails were extensively damaged, with issues ranging from minor rutting/erosion to slope failures and total washouts.

Left: Person in this photo of the Dry Saint Vrain Trail is pointing in the direction of the trail alignment.

Right: The Ceran Saint Vrain Trail is visible in the middle of this photo, continuing beyond a debris slide.



# Changed Landscape – Recreation Facilities



Left: Three picnic areas off of County Road 43 were washed away, with removal of damaged infrastructure needed. Little of these sites remain due to the changed river channel.

Right: Picnic areas and fishing access pullouts along Highway 7 were heavily impacted. Some areas were buried under debris, while others were scoured to bedrock.



# Changed Landscape – Recreation Facilities

Big Thompson Accessible Fishing Pier, along Highway 34, was damaged. Forest Service worked with CDOT for removal for public safety.



## Changed Landscape – Lefthand OHV



The entrance road into the Lefthand Canyon OHV Area, popular for both OHV travel and recreational shooting, became deeply eroded. There were also impacts beyond the entrance road, including the stream and stream bank instability.

## Changed Landscape - Debris Flows



This debris flow begins on the east face of Twin Sisters. Nearly 4 miles in length and 2,500 feet fall, it is the largest slide crossing Forest Service lands.



Countless other debris flows occurred during the flood. In the North Saint Vrain drainage, over 250 slides were identified.

# Changed Landscape- Debris Dams

Debris dams have formed in many streams and pose concern for future damage by diverting water out of stream channels.

Keeping some of these in place benefits stream health and recovery, slowing water's velocity, and providing organic material and structure to stream courses.



## **Actions to Date:**

- Initial assessment of infrastructure and facilities
- Closures for safety and resource concerns – constantly evolving as work is completed or new hazards are identified
- Established ARP Flood Recovery Team
- Repaired 27 miles of road
- Completed prep work to secure Federal Highway Administration Emergency funding for 18 miles of roads and bridges
- Power line reconstruction permitted for utility companies



## Actions to Date (con't):

- Reconfigured fire response assets to include a helicopter and crew
- Continue to workd with Larimer and Boulder counties on debris flow stabilization
- Assisted the City of Loveland with decommissioning of Idylwilde Dam
- Crosier Borrow Pit opened for fill material for County Road 43
- Fishing Pier removed for safety
- Consulted with Rocky Mountain Research Station (RMRS) on the science of debris flows and other local flood related topics



# Long-term Recovery in a Changed Landscape: *Safety, Ecosystem Restoration, Public Service*

Focus of our actions in the flood area is:

- addressing public and employee **safety** issues;
- prioritizing work needed to stabilize, repair, relocate or decommission facilities and infrastructure, and **restoring** dynamic **ecosystems** that are sustainable and appropriate within the limits and opportunities of this landscape;
- providing **public service** through working with communities, partners and volunteers to resolve issues, leverage funds, and expand our recovery efforts.





## Focus for 2014:

Established a flood recovery team to:

- Integrate assessment information and new findings
- Refine priorities based on field findings and conditions post snowmelt - considering the dynamic landscape, users and uses of the Forest
- Repair:
  - ~ 52 miles of trail,
  - ~14 miles of road with an additional 18 miles of road with Federal Highway Administration emergency funding



## Focus of 2014 (con't):

- Work on 8 damaged or destroyed facilities/sites - demolition and removal, designing rebuilds or repairing some damage.
- Conduct community meetings and provide public information
- Continue work with RMRS on flood recovery
- Adapt our action to best meet the needs of both the land and the public



## For more information:

**Visit** [www.fs.usda.gov/goto/arp/floodrecovery](http://www.fs.usda.gov/goto/arp/floodrecovery)

- Public meeting information will be posted here when scheduled.

**Email:** [arpflood@fs.fed.us](mailto:arpflood@fs.fed.us)