

Fall 2015 Review of Selected Boulder County Properties Affected by 2013 Floods

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In late August and early September 2014, Laura Backus and Susan Sherrod conducted ecological surveys of Boulder County properties with portions of St. Vrain, Left Hand and Boulder Creeks to document vegetation and stream conditions and compare these conditions to those of the 2008 survey conducted by Biohabitats. To document vegetation changes following the 2015 growing season, Laura Backus and Brett Pirie conducted a repeat survey of selected Boulder County properties. Because the survey was brief and took place in early November 2015, two months later in the year than the 2014 survey, less information was collected at a reconnaissance level.

For the most part, we did not observe a dramatic change in riparian conditions between the survey conducted in 2014, one growing season post-flood, and the survey of 2015, two growing seasons post-flood. In general, we noted an increase in vegetation cover by grasses, non-native reed canarygrass, and weedy forbs as well as high attrition of native woody volunteers. As in 2014, the areas with water at or near the surface showed the most vigorous plant growth. Because leaves had dropped from many of the volunteer woody seedlings, it was not possible to observe whether non-native tree species have begun to colonize barren riparian areas.

Volunteer rabbitbrush and Woods rose are beginning growth in some of the dry cobble areas. Seeding of these species, and possibly other native shrubs, could jump start revegetation in these very difficult areas of rocky deposition.

Little work has been done to document the post-flood revegetation process. We recommend repeat surveys to document revegetation, both natural and in projects conducted by Boulder County.

The sections that follow are photographic documentation of conditions in the Ramey and Peschel properties along St. Vrain Creek, the Brewbaker-Sorensen property along Left Hand Creek, and the Alexander Dawson Property west of US 287 along Boulder Creek.

Saint Vrain Creek - Ramey Property, upstream to downstream

View downstream from North 63rd St. Bridge:



August 29, 2014: Note flow path along river left bank



November 10, 2015: The water course change is now more up against right bank leaving an exposed cobble bar on river left.

View to south west of new side channels cut into the former meadow area on river right:



August 29, 2014: Note that weedy vegetation is beginning to develop in the foreground overflow channel. This area was upland pasture prior to 2013 floods: shrubs along the new channel in the background likely were washed in when the reservoir to the west breached.



November 10, 2015: Note more weedy development in the foreground channel, increased wetland fringe along the channel in the background, and continued survival of shrubs.

View to west of new side channel cut to east of old farm buildings on east side of North 61st St.:



August 29, 2014: Note beginning development of cattail and other wetland vegetation along flow path, very sparse vegetation cobble deposits in center left of photograph.



November 10, 2015: Note continued development of wetland vegetation along the flow path and slight development of vegetation in cobble deposits in center left of photograph.

View upstream from downstream property boundary:



August 29, 2014: Note main channel of river is up against the bank on river right. Minor development of vegetation in cobble deposits.



November 10, 2015: Main channel of river now flows further to the east and a large unvegetated cobble bar is exposed. Note vegetation developing in areas of slow flows.

St. Vrain Creek - Peschel Property, selected areas

Flow channel prior to 2013 flood, view to west of channel just east of avulsion:



September 3, 2014: Note that banks are almost completely devoid of vegetation. Flows are to west.



November 10, 2015: Note development of bank vegetation especially adjacent to the channel. Flows are to west.

Flow channel prior to 2013 flood, views to east of traverse from west to east:



November 10, 2015: Note wetland vegetation filling much of the former flow channel.



November 10, 2015: Note transition of channel bed to very sparsely vegetated cobble.



November 10, 2015: Note transition of channel back to carrying flows.



November 10, 2015: Note ponded area at right angle bend where flows transition to the south.

Flow channel prior to 2013 flood, views to south just upstream of lower property boundary:



September 3, 2014: Note presence of flowing water with algae, vegetation development adjacent to flows and sparse vegetation on cobble deposits.



November 10, 2015: Note that channel does not have visible flows and that wetland vegetation has greatly increased.

Cobble deposits in new flood channel below stream avulsion, view to west:



September 3, 2014: Note prevalence of woody volunteers, mainly cottonwood.



November 10, 2015: Note high mortality of woody volunteers.

Left Hand Creek - Brewbaker-Sorensen Property, upstream to downstream

View downstream from western property boundary:



August 22, 2014: Note washed in vegetation growing on river right cobble bar.



November 5, 2015: Note very little vegetation in cobbles.

View downstream from approximately 200 feet below western property boundary:



August 22, 2014: Note exposure of shale bedrock, vegetation developing only in sand deposits.



November 5, 2015: Note areas of shale bedrock still lack vegetation, broken pipe in foreground.

View downstream of flood channel cut into upland pasture, north side near west end of property:



August 22, 2014: Note development of wetlands with variety of vegetation.



November 5, 2015: Note increased development of diverse wetland vegetation.

View to north across the stream channel toward restoration planting area:



August 25, 2014: Note survival of tree plantings, development of weedy upland vegetation in cobble deposits.



November 5, 2015: Note development of vegetation in cobble deposit area.

Lower channel, view to west:



August 25, 2014: Note washed-in crack willow rooting in channel downcut by floods, many areas of bare sand deposits, flows visible near upper left side of photograph.



November 5, 2015: Note that flows are now along river left and willows are developing on the sand and cobble deposits.

Boulder Creek - Alexander Dawson Property, West of US 287, upstream to downstream

View upstream of minor side channel:



August 26, 2014: Note arrowhead growing at left of photograph.



November 5, 2015: Note continued development of wetland vegetation, especially reed canarygrass. Water levels were high, probably due to recent rain.

Created meander to north, similar locations:



August 26, 2014, view upstream: Note occasional willow survival, little vegetation on cobble banks.



November 5, 2015, view downstream: Note low willow survival, increased vegetation on low bank.

River right cobble deposits, approximately 500 feet west of US 287, view to east southeast:



August 26, 2014: Note large pieces of drifted wood, no vegetation development.



November 5, 2015: Note extensive leaf litter, some vegetation development.

View downstream from breach to river right:



August 26, 2014: Note surviving willows and low vegetation development on cobble area between flow paths, very little vegetation on river right bank in middle ground.



November 5, 2015: Note increased vegetation on cobble area and on river right bank, root clump moved downstream.

View upstream from US 287 bridge:



August 26, 2014: Note flood flow path at left side of photograph.



November 5, 2015: Note only minor changes in vegetation, increased cover in river right flood channel and lower right corner.