

Cottonwood Reservoir repair overview—Sibert Ranch

The Sibert Ranch property was acquired by the current landowner late 2010 and is located about 6 miles west of Mountain View, Wyoming. The landowner's goals when acquiring the property were to keep the land economically viable while continuing agriculture and maximizing conservation benefits for wildlife. The property is an extremely important mule deer wintering area and receives sage grouse nesting and brood-rearing use, besides the wetland-dependent wildlife that use the reservoir and created wetlands.

In 2011 the landowner and FWS-Partners developed a plan to develop about 16 acres of wetlands and try to enroll a large piece of the property in the Wetlands Reserve Program easement. The planned second phase was to repair Cottonwood Reservoir, an approximately 50 acre irrigation storage reservoir used heavily by waterfowl. The wetland construction was funded by FWS-Partners and WY Wildlife and Natural Resource Trust and completed in fall 2012. The land was enrolled in a WRP easement in late-winter 2012. Cottonwood Reservoir was not enrolled in the WRP easement.

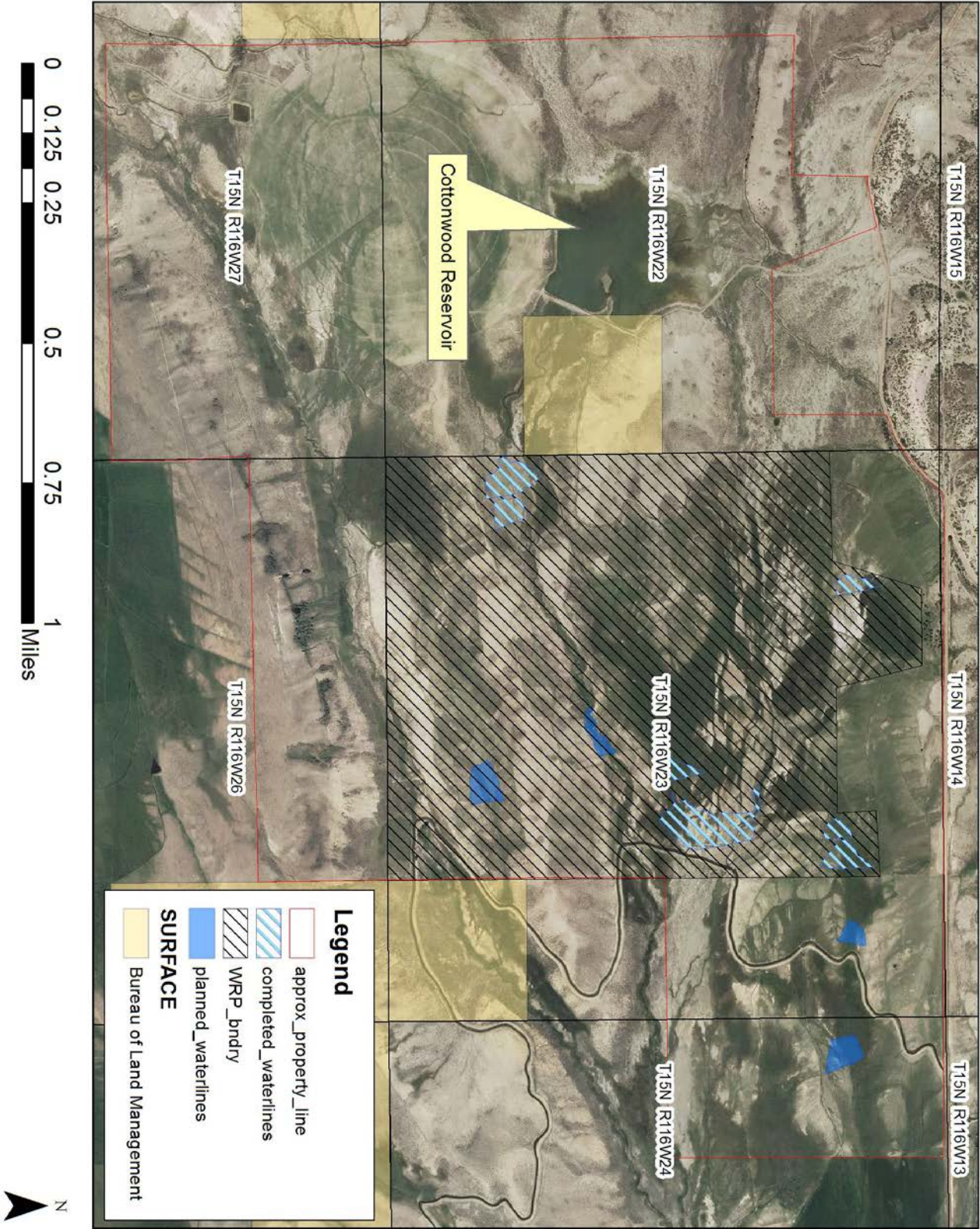
Beginning in 2013, the landowner is also participating in a 5 year habitat lease on non-WRP acres funded by the Wyoming Landscape Conservation Initiative (WLCI) that allows him to graze cattle at about 50% of the NRCS recommended capacity.

We are now fully into the second phase of the project, design and fundraising for the Cottonwood Reservoir repair. FWS has obtained \$50,000 from WLCI for design and construction of the reservoir repair. (We have also identified at least 4 small additional wetland creation sites we hope to complete, pending funding.)

Cash match secured for wetland projects on the Sibert Ranch, not including the NRCS easement:

| Source | Amount |
|---|--|
| FWS-Partners for Fish & Wildlife | \$40,000 (spent on wetland construction) |
| WY Wildlife and Natural Resource Trust | \$20,000 (spent on wetland construction) |
| Wyoming Landscape Conservation Initiative | \$50,000 (for reservoir project) |
| TOTAL | \$110,000 |

Property overview



Cottonwood Reservoir repair details

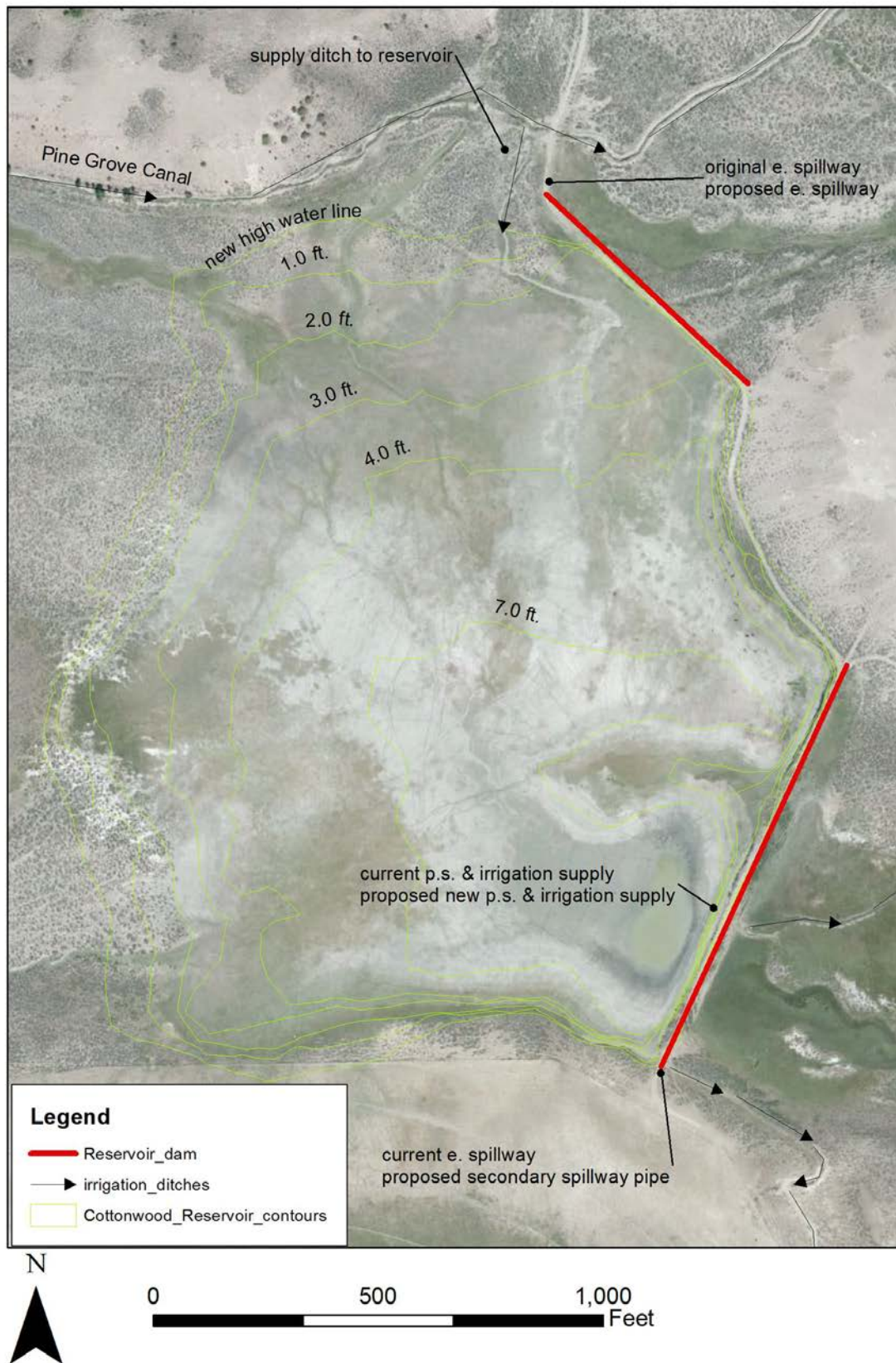
Cottonwood Reservoir is an irrigation supply reservoir constructed in 1902. Currently the reservoir typically goes dry in mid to late summer. In the high snow year of 2011, the reservoir dam overtopped in at least one location in the spring. The landowner was able to prevent the dam from breaching at the time of crisis with some backhoe work. Sometime since the construction of the reservoir in 1902, the original wide, flat emergency spillway has been abandoned and a 5-10' wide ditch-like spillway was cut on the other side of the reservoir. This narrow spillway can drift in with snow and also erodes down every year. In addition, the only principal spillway is 10" diameter PVC pipe. This principal spillway also serves as the irrigation supply pipe. As a result the "emergency spillway" is not just for emergencies. It typically flows every year, but doesn't have the capacity to handle the true flood events. Lastly, the freeboard on the dam has been reduced over the last 100+ years such that the low spots on the dam are only 1.8' above the existing excavated "spillway" and about 1.2' below the original emergency spillway from the 1902 construction.

We propose to basically restore the reservoir to its original construction, which will greatly increase the surface area and storage capacity. Assuming a restored dam freeboard of 3' above the original emergency spillway, approximately 4 feet of fill will need to be added to the dam. The rough estimate by PFW is that this repair of about 1600' of dam would be approximately 20,000 yds³, assuming 3:1 slopes built up from below the downstream toe of the dam. This is probably an underestimation of fill. We propose to replace the existing irrigation supply pipe in its approximate current location and install a new, larger capacity principal spillway in the current ditch serving as an emergency spillway. Both of these new pipes would have control valves/boards to regulate water levels.

The Wyoming State Engineer's Office permitted capacity of Cottonwood Reservoir is 92.5 acre-feet. Interestingly, the 1902 engineering plans for the reservoir claim a capacity of 671 acre-feet and 76.26 surface acres. The current situation is somewhere between the extremes. Preliminary surveying by the PFW Biologist gives us an estimate of about 131 acre-feet, with a 46.4 acre surface area. Our proposed repair described above would increase the maximum surface area to about 58 acres and the storage to about 230 acre-feet. A reservoir enlargement will need to be filed with the Wyoming State Engineers Office, and this enlargement must be accompanied by professional engineer's plans since we will have to comply with State Dam Safety. The maximum current fill on the dam is about 17 to 18', so we will exceed 20' with the repair. The 1902 plan shows an original maximum fill height of about 23'. The State Engineers Office has indicated to the landowner that he should have no problem being granted this additional permitted storage.

In the grant application to obtain the WLCI funds, the landowner agreed to repair the reservoir to maintain a minimum pool for wildlife of at least 20% of the capacity of the reservoir. With the above tentative repair, this minimum pool would be about 23 acres. The new irrigation supply pipe would be installed at an elevation to prevent draining the reservoir below this level. Pending the final design and funding arrangements, the landowner would consider an even larger minimum pool. The reservoir receives lots of migratory waterfowl use, and this would be greatly enhanced with a minimum pool that would create water in August and September when usually there is none. The reservoir also receives summer waterfowl and shorebird nesting use. The brood-rearing habitat will be greatly enhanced with greater storage to begin the season and a minimum pool.

Conceptual proposed repair



16262

THE STATE OF WYOMING

CERTIFICATE OF APPROPRIATION OF WATER CERTIFICATE RECORD No. 40 PAGE 659

WHEREAS, Erny Swanson has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Seasonwood and Tuna Mile Creeks tributary of Green River through the Seasonwood Reservoir Ditch under Permit No. 360 Res. for irrigation of the lands herein described, lying and being in Hota County, Wyoming.

Now Know Ye, That the Board of Control, under the provisions of Chapter 61, Compiled Statutes of Wyoming, 1910, has, by an order duly made and entered on the 12th day of April, A. D. 1919, in Order Record No. 5, Page 562, determined and established the priority and amount of such appropriation as follows:

Name of Appropriator Erny Swanson; Postoffice Address Hota, Wyoming;

Amount of Appropriation 92.5 Ac. Ft.; Date of Appropriation Aug. 2, 1902; Description of land to be irrigated and for which this appropriation is determined and established; Total Acreage

Reservoir is located in SE 1/4, SW 1/4, NW 1/4, NE 1/4, Sec. 22, T. 15 N. R. 116 W.

The right to water hereby confirmed and established is limited to irrigation and the use is restricted to the place where acquired and to the purpose for which acquired; rights for irrigation not to exceed one cubic foot per second for each seventy acres of land for which appropriation is herein determined and established.

In Testimony WHEREOF, I, John A. B. Tine, President of the State Board of Control, have hereunto set my hand this 26th day of May, A. D. 1919, and caused the seal of said Board to be hereunto affixed.

ATTEST: John A. B. Tine, Secretary. John A. B. Tine, President.

[illegible]

Cottonwood Reservoir drawn down in August 2011



Cottonwood Reservoir overview in March 2012



Migratory waterfowl use on reservoir in March 2012



August 2013 breeding waterfowl and shorebird use on nearby created wetlands on property



Migratory waterfowl use on Cottonwood Reservoir, November 2013

