

Discovering Mono Lake's north basin wetlands

Water diversions from Mill Creek harmful to bottomlands and marsh

by Morgan Lindsay

To walk along Mono Lake's enigmatic northwestern shore from County Park to Black Point is to discover two vital havens for wildlife, the Mill Creek bottomlands and the Black Point marsh. Unfortunately, ongoing water diversions from Mill Creek have degraded the bottomlands and the marsh, and continue to threaten both wetlands today.

Mono Lake Committee staff recently explored this fascinating corner of the Mono Basin on a field trip with Dr. Scott Stine, the dedicated geomorphologist who has studied the Mono Basin's varied landforms for the past 30 years. Dr. Stine's State Water Board testimony was crucial to the

struggle to protect Mono Lake, and his unique research is the foundation for ongoing efforts to restore the streams and wetlands described below.

Where does the water flow?

Mill Creek is Mono Lake's third-largest tributary after Rush and Lee Vining creeks. Mill was never diverted south to Los Angeles but instead, used within the Mono Basin—initially for irrigation and later also for hydropower. Mill Creek originates in Lundy Canyon as clear Sierra snowmelt that tumbles down Lundy Falls and through a series of beaver dams before collecting in Lundy Lake Reservoir. The majority of Mill Creek's flow, up to 70 cubic feet per second, is then diverted from the lake to the Lundy Powerhouse operated by Southern California Edison (SCE). Once it goes through the hydroelectric generators, Mill Creek's water comes to a fork where it either returns to Mill Creek or is further diverted to create the headwaters of a long-established irrigation system called Wilson Creek. Wilson Creek arcs northeast before bending south to enter Mono Lake adjacent to the Black Point marsh, just some 500 feet east of Mill Creek—to the detriment of the bottomlands and the marsh.

Full of fish and fowl

Together the Mill Creek bottomlands and the Black Point marsh form an extended wetland complex that provides safe refuge and abundant food for a variety of wildlife. Mill Creek itself offers habitat for brown and rainbow trout and the riparian woodland of the bottomlands is favored by songbirds including Yellow Warblers. According to monitoring conducted in 2008, more than half of all waterfowl observed at Mono Lake were found at the north basin wetlands—a total of over 19,000 birds. This area is also important for nesting waterfowl; 25 percent of Mono Lake's Mallard and Gadwall brooding pairs nested at the wetlands in 2008. With wetland and riparian woodland habitat a naturally scarce resource in the Mono Basin, the Mill Creek bottomlands and the Black Point marsh are of significant importance to the region. How have they come to be threatened?

The bottomlands hit bottom

Stretching two and a half miles north from Mono Lake's shore, the Mill Creek bottomlands refer to a series of low-lying wetlands adjacent to the creek. In the early 1800s before Mill Creek was diverted, the bottomlands were characterized by a wide valley floor with multiple braided stream channels, a high water table, and a dense forest of cottonwoods and willows.

Then beginning in the late 1800s, heavy water diversions

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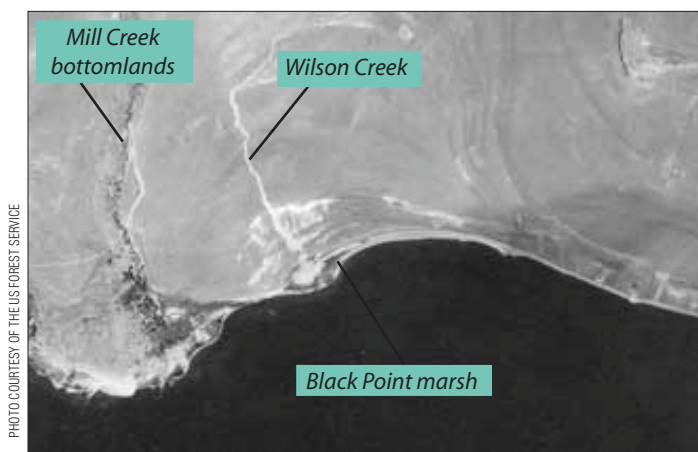
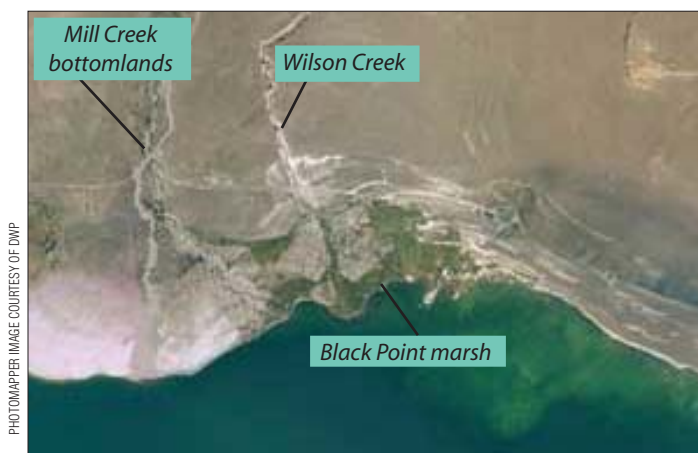


PHOTO COURTESY OF THE US FOREST SERVICE

A 1940 aerial shows the newly formed Wilson Creek beginning to deposit sediment over the Black Point marsh. The dark areas surrounding Mill Creek show the remaining bottomland forest. Lake level: 6417.



PHOTOMAPPER IMAGE COURTESY OF DWP

A 2000 aerial shows the deep erosion of the Wilson Creek "grand canyon" and the resulting downstream fan of extensive gravel deposits on the Black Point marsh. The Mill Creek bottomlands continue to diminish. Lake level: 6383.7.



Looking upstream at Mill Creek.



Wilson Creek's "grand canyon".

from Mill Creek for irrigation caused the Mill Creek bottomlands to dry up frequently. By 1929, when the first aerial photos of Mono Lake were taken, natural Mill Creek was already greatly diminished. A once expansive bottomland forest could now be counted only in linear feet along the stream rather than in acres, as evidenced by the many dead trees visible where the forest had once flourished.

The bottomlands were also affected by Los Angeles' water diversions from the south Mono Basin streams. As Mono Lake dropped—45 vertical feet by the 1980s—Mill Creek adjusted to the lower lake level by deeply incising its banks. The resulting trench forced Mill Creek to abandon its historic floodplain, isolating the creek from its vital system of multiple channels. But even as a century's worth of dewatering and incision damaged the Mill Creek bottomlands, the Black Point marsh was suffering the opposite fate.

A spring-fed marsh

To understand the origin of the Black Point marsh, it is necessary to travel back in time to the 1850s when Mono Lake first appears in the written record. A. W. von Schmitt was the first to map the Black Point marsh in his 1857 survey of the Mono Basin. Von Schmitt showed the marsh as a large wetland area with abundant tufa between the Mill Creek delta and Black Point. But mysteriously, in his otherwise incredibly detailed notes, von Schmitt gave no sign of any creek present where Wilson Creek flows into Mono Lake today. But how could the marsh have existed without the water from Wilson Creek?

The answer to this riddle is that Wilson Creek has only flowed in its present course for less than a hundred years, while the Black Point marsh has flourished for nearly one thousand years with water from many groundwater-fed freshwater springs. Dr. Stine was able to determine a minimum age for the marsh by radiocarbon dating wood found encased in Black Point marsh tufa towers; the results proved the marsh to be at least nine hundred years old. In fact, the creation of Wilson Creek's present route as a way to channel excess irrigation water to Mono Lake does more harm than good for this crucial marsh.

Between a lake and a hard place

Since the early 20th century, over 70 percent of Mill Creek's average flow has been diverted into Wilson Creek, carving deeply eroded canyons on its way to Mono Lake. As a result, Wilson Creek is actively destroying the Black Point marsh by eroding thick layers of rocks and gravel from the Wilson Creek streambed and depositing that debris onto the low-lying marsh.

Beginning in the 1930s and continuing today, many tons of sediment from the deep, wide chasm of the Wilson Creek arroyo or "grand canyon," have been washed down the steep slope of the artificial streambed and dumped on top of the marsh. The coarse gravel cannot hold water well and is quickly colonized by drought-tolerant shrubs.

Since the 1940s, approximately half of the marsh has been buried, and Wilson Creek continues to deposit more sediment on the marsh every year. If no changes are made, over time the Black Point marsh will be irretrievably lost.

Restoration in sight

However, the future of the wetlands in the north Mono Basin is beginning to look brighter. A settlement agreement over the relicensing of the upstream Lundy hydroelectric project, a Committee project for many years, holds the potential to allow the full legal water allotment to be returned to Mill Creek. This currently diverted water, enough to double Mill Creek's current average flow, will make it possible to reopen abandoned channels and restore the degraded Mill Creek bottomlands. As for the Black Point marsh, less Mill Creek water in Wilson Creek will reduce erosion and help keep the marsh free from tons more debris.

We need not look further than the vigorous recovery of Rush and Lee Vining creeks for proof that there is still time to preserve and restore the threatened wetlands of the north Mono Basin. But this opportunity to repair a century's worth of damage will not last forever. Now is the time to give the Mill Creek bottomlands and the Black Point marsh a chance to heal. ❖

Morgan Lindsay is a Committee Project Specialist. This winter she was delighted to help monitor Mono's icy creeks on snowshoes and cross-country skis.