

A Cutthroat We Should Respect

By Lorne Fitch, P. Biol.



Why *Oncorhynchus clarkii lewisi* is called a “cutthroat”

PHOTO: © S. PETRY

Consider Alberta’s poor westslope cutthroat trout. First, it exists on the Eastern Slopes of the Rocky Mountains, confusing the uninitiated with an apparent geographic oxymoron. Second, the adjective “cutthroat” conjures up images of violent piscine criminals who behave ruthlessly. Lastly, most of these fish slipped from our grasp over an indeterminate period of not more than 70 years. So few are left that a weighty group of experts uses the term

“threatened” to express their impaired status in Alberta. Maybe we should add the word “extinguished” to the list of terms in an act of honesty and clarity. When the population in much of the Bow River watershed is down to about 5 percent of its former range it would seem the answer would be both intuitive and obvious.

The trout is called a “cutthroat,” not for its personality or behaviour, but rather for the brilliant vermillion/orange slashes

on the underside of its jaw. “Westslope,” a descriptor of the species of cutthroat, is from the geographic location where the fish was first found and described. The westslope cutthroat trout is one of several branches of the cutthroat genealogical tree.

The westslope cutthroat trout crossed the continental divide into Alberta over 10,000 years ago during the period of glacial retreat. The eastward migration had to wait for the Cordilleran ice

sheet, covering the mountains, and the Laurentide one, covering the plains, to begin to melt. Cutthroat trout probably swam across the low points, like the Crowstest Pass, during times when glacial lakes formed on the east side of the continental divide and brought water levels up so the flow pattern was to the west. Glacial refuges for fish existed in the Columbia watershed and in the Missouri/Mississippi watershed. The cutthroat's passage to Alberta is an epic journey in its own right. Cutthroat trout made a home in the Bow and Oldman watersheds along the Eastern Slopes of southwestern Alberta.

Westslope cutthroat trout were probably first noted by Lewis and Clark, the intrepid American explorers, based on fish caught (and eaten) on June 13, 1805 at what would later become Great Falls, Montana. The Latin designation for westslope cutthroat trout honours both explorers with its name - *Oncorhynchus clarkii lewisi* - despite the fact they ate the first specimens they caught. That's what people did with cutthroat trout – ate them, lots of them

In June 1876, amidst the dust and confusion swirling over the Little Bighorn battlefield, George Armstrong Custer undoubtedly had a few final thoughts. Fishing for cutthroat trout

probably was not among them. But, you couldn't have blamed him for wishing he was fishing with his commander, General George Crook, in the Tongue River watershed not far south of the Little Bighorn. There Custer could have been on the delivering end of a "massacre." Crook and his few troops bivouacked for about a week there and caught at least 10,000, perhaps closer to 30,000, cutthroat trout.

From the treasure trove that is the photography archives of the Glenbow Museum comes a grainy black and white image of three anglers near the mouth of Willow Creek, near Fort McLeod, taken in 1902. They look pleased with themselves, as they should, burdened down with a stringer of cutthroat trout that must have weighed over 20 kilograms. This photo gives us a window on not only cutthroat abundance but also on their wide distribution far into the plains. Unfortunately, no one has seen, or remembers, a cutthroat in the lower reaches of Willow Creek for decades.

A breezy little article from the *Calgary Herald* in 1903 reported that two anglers caught 400 cutthroat trout from Fish Creek in a day. Maybe that's how Fish Creek got its name. Today the stream barely warrants its name.

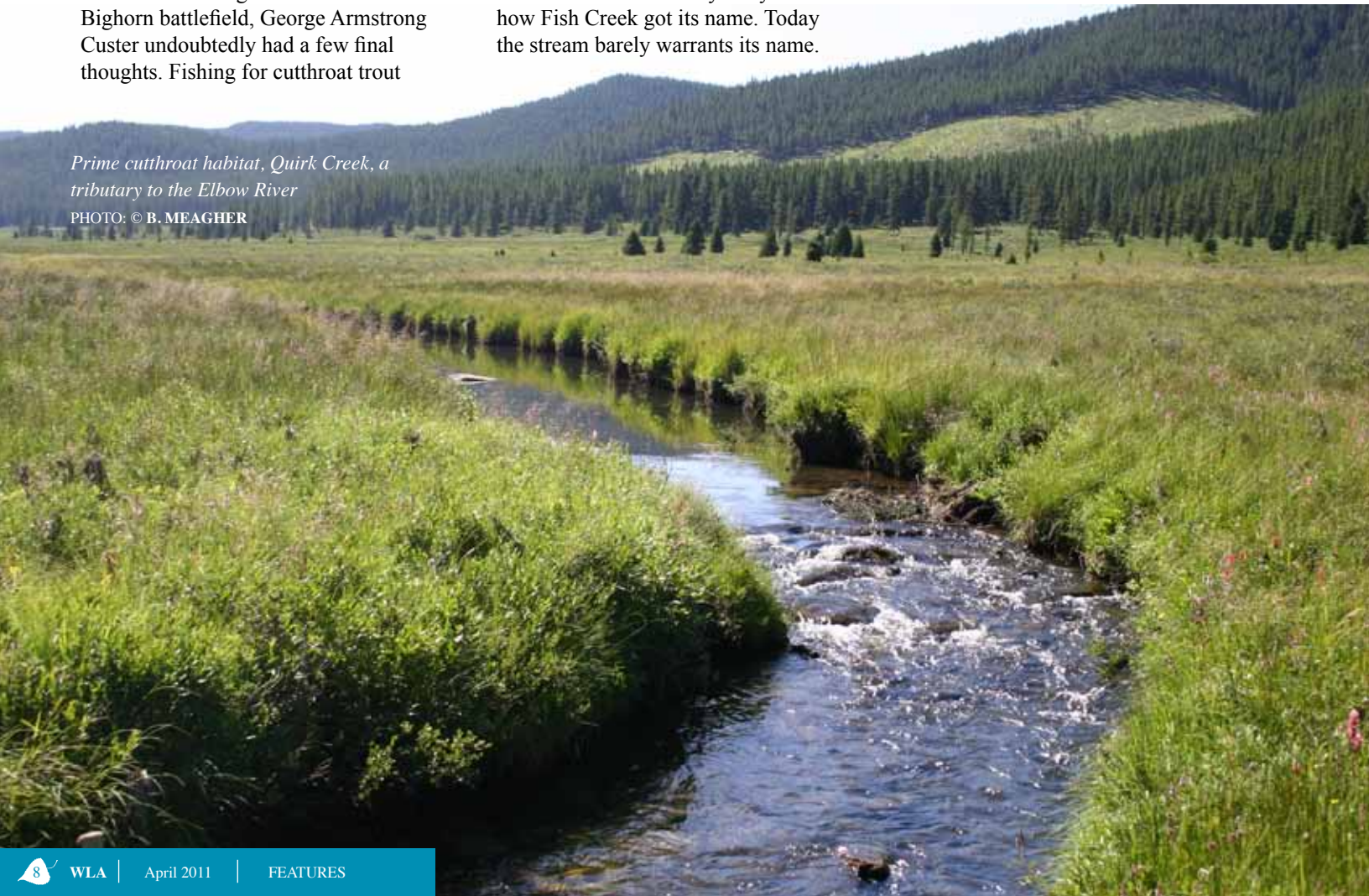
Nose Creek, the channelized drain that parallels Highway 2 and runs through Airdrie, was once a trout stream. Today, as it intermittently flows through a tangle of industrial and residential lands people are surprised to learn it is a stream.

In fairness we might apply the term "massacre" to what has happened to Alberta's westslope cutthroat trout and to the landscape that produced them. This massacre though has played out over decades. The additive weight of ignorance, apathy, greed and time took decades to produce this devastating result. As humans our memories are somewhat imperfect, not only related to birthdays and anniversaries, but also to change. One day we step in front of the bathroom mirror and we're old. When did the change happen we wonder? It happens slowly, insidiously and cumulatively and so it is as well for landscapes and fish habitat. Given time and multiple events cutthroat have disappeared from many streams and, sadly, from our consciousness.

Fishing wasn't the only activity occurring on the landscape that would become Alberta. Logging, as a major landuse was

Prime cutthroat habitat, Quirk Creek, a tributary to the Elbow River

PHOTO: © B. MEAGHER



established by the late 1880s. Rivers were used to transport raw logs to sawmills, one being the Eau Claire Mill, now site of the upscale Eau Claire Market, on the banks of the Bow in Calgary. Dams for power production were built on the Bow River and several key tributaries after the dawn of the 20th Century. Alberta's fame as an energy producer took hold with the development of the Turner Valley field in the 1920s. As resource extraction increased, so did access to the land. Access opportunities, coincident with more expendable income, more time and more gasoline powered conveyances changed the landscape. All of these land uses, and more, led to noticeable declines in all native fish populations and concerns mounted over future fish production.

There was a cry to "reseed" depleted streams. Unfortunately, there was an inability to connect the dots between over-fishing, habitat loss and declines in trout populations. Neither did early fishophiles appreciate the innate capacity of native trout to refill streams if allowed to do so. Although misguided, one marvels at the enthusiasm for a fix, which was simply to add more fish. Native trout, especially cutthroat, were ridiculously easy to catch, so much so it would seem they weren't deemed "sporting" enough for anglers. Add a negative bias against native species, couple it with a desire for more species and what developed was an expanded and exuberant fish culture and stocking program. We had the power to defy the geography that kept rainbow and cutthroat trout apart. We introduced rainbows to cutthroat streams and subsequent interbreeding has produced a hybrid species. The marriage we arranged, courtesy of fish hatcheries, has bludgeoned natural aquatic diversity.

We forget, as we fiddle with the thermostat and wonder whether dinner will be Chinese food or pizza that a cutthroat lives (or dies) within the immediacy of its habitat. There's no take out number on a cutthroat's speed dial. What cutthroat have done is rolled the storms, the floods, the droughts, the changes in water temperature, the good and the bad – the natural variability of their world – into their genetic material as a mechanism for survival. Unlike us they are finely tuned to the intricacies of their world and are on intimate terms with all its nuances. Cutthroats are superbly adapted to their chosen

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world. Introducing rainbow trout whose genetics have been tinkered with in fish hatcheries over generations may not be a long-term survival strategy. Once mixed it is unclear how long the mixture might persist. Jim Stelfox, a provincial fisheries biologist with a keen interest in native species, observed: "Getting the rainbow trout out of the cutthroat is like trying to extract the cream from your morning coffee after it's been stirred."

We can't reset Alberta's clock backwards to recreate the slippery hordes of fish of Alberta's past, but we can take stock and commit to maintaining existing populations and supporting modest recovery efforts. To accomplish this will require us to take our eyes off the fish momentarily. We need to raise our sights and view the watershed, to remind ourselves that trout and water quality rely on what we do to the land. And, that within the larger watershed, even the tiny tributaries are important. If we raise our sights and begin to "see" the watershed the things that affect trout become apparent.

The unfortunate status for cutthroat trout today is the culmination of a series of seemingly innocuous compromises made over the health of the watersheds trout rely on and their habitats. Each decision that led to a bigger cutblock, a cutline or trail with no erosion checks, or a culvert crossing instead of a bridge represented a compromise that affected cutthroat trout. Compromise is a smooth, benign sounding term that conceals its dangers in a cloak of apparent reasonableness. "Surely", some might say, "we can do all these things, maintain our economic activity and still keep biodiversity." If indeed that were possible we would have already demonstrated that feat somewhere. The compromise was always weighted to the disadvantage of the cutthroat. Future resource management decisions will need to be driven instead by the needs of the cutthroat, rather than by the political and economic imperatives that have made the species "threatened." The compromises have already been made, someone profited from those decisions, but that

party must end.

Current maps of cutthroat distribution resemble a series of unconnected dots. You might think these are cutthroat forts set in a great hinterland. Unfortunately the forts have no lifelines between them and are not secure themselves. That is worrisome for a species that lives in a dynamic system subject to natural disasters, let alone the human-induced ones. Cutthroat trout prospered in this risky situation with a reliance on connectivity to other populations that could re-seed an area when some natural perturbation wiped out a segment of the population.

Can these native fish be saved? Call me crazy but I think we can undertake a rescue mission. All we have to do is have a vision of native westslope cutthroat trout being an integral part of the watersheds of the Eastern Slopes. In principle the plan shouldn't be difficult. Cutthroats need just a few basic things to allow them to survive and thrive:

- Cool, clear, unpolluted water.
- Streambed gravels that are clean, in a watershed with little sediment.
- A flood regime that matches the life cycle of the trout.
- Enough water in low flow periods to allow all life stages to survive.
- Accessible habitat to provide food and cover from predators.
- Enlightened fisheries management that protects them from overharvest.
- Enlightened land use practices that consider the cumulative effects on watersheds of all our human activities.
- Connectivity between existing populations.
- Removal of and /or isolation from non-native fish competitors.
- Recognition from us that cutthroat have some substantial "mojo" that has allowed them to survive for at least the last 10,000 years, following the melting of continental and alpine glaciers.

Gorge Creek is one creek where the Westslope Cutthroat Recovery Team has discovered high densities of cutthroat trout

PHOTO: © J. EARLE



While we think big about our developments we are small thinkers about the one attribute – “big space” – that maintains many species. All in their own way, grizzlies, woodland caribou, sage-grouse and cutthroat trout need space where our footprint is minimal. Landscape integrity is an important element if we are to sustain cutthroat trout. We have to think about connectivity, the requirement for critters to move easily and safely between habitats, especially for cutthroat trout, isolated as many populations now are from each other. The simple answer to cutthroat trout maintenance is: keep the pieces; keep the connectors; and connect the pieces.

History tells us the hardest one for us to grasp is that there are limits and thresholds. The reality is there is a minimum viable population and habitat size for species, cutthroat included; that rule is immutable. This is the weak link – we know that cutthroat have disappeared but not the point of disappearance. Dave Mayhood, an independent fish researcher, points out “there are not many more than a handful of genetically pure populations of cutthroat left in Alberta.” These are the metaphoric crown jewels of westslope cutthroat trout. Unlike the dazzling array of rubies and diamonds guarded by a phalanx of protective mechanisms, the last bastions of cutthroat trout have little protection. Prudent management of a

species entrusted to our care and one that is teetering on the brink no less implies we know enough to at least cause no more harm.

By the very nature of the term “unintended consequence”, too often our development choices have tended to dismiss the effects on fish and wildlife as “inconsequential.” That was the past. In the future we need to think of “intended effect” to ensure what we do in a watershed (and how we do it) adds up to a positive benefit for cutthroat. We are not playing the children’s game of snakes and ladders where a lucky throw of the dice can whisk you out of danger. Instead we need to carefully and consciously develop population maintenance and restoration strategies. Otherwise, the remnant populations and the last few, small, best places for them will inevitably wink out, one by one. A fish Meriwether Lewis called a “very fine trout” will be relegated to a few shriveled specimens preserved in ethanol stored on some museum shelf. We can do better.

Should we save these trout? Can we acknowledge they deserve a place in the Alberta landscape? The answer is simple; the world is a better place for having some westslope cutthroat trout in it. It could be a richer world if we had some intact, connected watersheds where we have minimized the roads, cutblocks, wellsites, mines and haven’t drowned the valleys with dams. If we can accomplish

these things, to protect some places for the cutthroat, the intended effects just might benefit grizzly bears and their aquatic analogues, bull trout. It may well be that our own species will recognize that we need these healthy watersheds too.

Nostalgia is not the driving force behind the sentiment to preserve populations of cutthroat trout. It is rather an expression and an acknowledgement of a species very well-fit for life in some of Alberta’s waters, tested as cutthroat have been in the crucible of their habitats for at least 10,000 years. Westslope cutthroat trout evolved to fit a particular environmental context. Their beauty is derived from that fitness. Seeing the flash of a cutthroat in a crystal clear stream, a splash of liquid sunshine, is to experience a natural work of art. That scene, with all of the intricacy and mystery of an interconnected system, is as valuable as a Renoir or a Picasso and as irreplaceable.

Saving the westslope cutthroat trout is a test to be taken by all levels of government (provincial, federal and municipal), industry, academia and the conservation community (including anglers). If we pass, one benefit might be we get to keep other species and their habitats from winking out on us. We have to hope all the parties with a duty to save cutthroat trout will work together with a unified intent. 🐟