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Following Silver City:

Westslope cutthroat trout in Canada

By Dave Mayhood

Drawn by the current of our electrofisher, trout swarmed toward us with every push of the button. Trout shot out from under cutbanks, from riffles, from the bottoms of pools. Trout banged our ankles in their rush to the electrode. Yet we were getting chilled, despite all the frantic lunging after slickery fish.

It was not the subalpine dusk of a crisp October that made us shiver, it was our flagging hopes. For these were brook trout, and brook trout didn't belong here. Here, in the embryonic Bow River, scant feet below the divide marking its source in Banff's Rocky Mountains, we had expected – we had hoped – to find westslope cutthroat trout, the native trout of this river. If native stream populations still existed anywhere, this was the kind of place they would be. Up high. In the headwaters. Above falls or cascades. In the little places that fish-stockers forgot.

But there were no cutthroats here any more. Just brook trout: involuntary interlopers from the East.

Banff National Park biologist John Paczkowski and I spent five days that October of 1993 survey fishing the Bow, from Bow Falls upstream more than 60 miles to this tiny meadow-brook of a river, looking for any last remaining pockets of native cutthroats. Once, when the brookies were still back home in Ontario, the entire drainage below barrier falls held cutthroat trout. On this trip we found 19 cutts, all of them in the 20-mile headwater reach of the mainstem between Bow Lake and Lake Louise, all of them in exceedingly swift, turbulent places where brook trout were absent. Nineteen cutthroats – but nearly 90 brook trout, and the brookies came from the entire length of the river.

The conservation status of native cutthroats is sometimes better in other drainages within the native Canadian range. In others, it is even worse. Here is a brief summary.

Alberta

Explorers and surveyors of the late 1800s wrote that trout "of two kinds" abounded "in all the streams from the Bow River to the Boundary Line" [Montana border] in Alberta. The fish are recognizable in written descriptions from that time as bull trout and cutthroat trout. The cutthroats we now know as westslope cutthroat trout, the same variety described in 1805 by Meriwether Lewis from the upper Missouri River in Montana.

Alberta's Bow River drainage marks the northern limit of the westslope cutthroat trout's native range. This subspecies once occupied all of the river mainstem and its accessible tributaries from its source above Bow Lake in Banff National Park downstream far into the plains below the city of Calgary. In the Bow's sister drainage to the south, the Oldman, westslope cutthroats used the mainstem and all of its major tributaries from the Rockies far out onto the plains, perhaps as far downstream as the Grand Forks of the South Saskatchewan below the city of Lethbridge. Westslope cutthroats used something like 400 water miles of mainstem river habitat in these two drainages combined, and thousands of miles of flowing-water habitat in total. These are conservative estimates. We are still mapping the detailed original distribution of this fish in the province.

Southern Alberta was settled quickly after the Canadian Pacific Railway arrived in 1883. The trout were immediately exploited by every available means, including netting, trapping, snagging, shooting, spearing, blasting, snaring, liming and, not occasionally, by angling. By the 1890s police reported widespread overfishing and fishkills from sawmill pollution. By 1910 a federal fisheries commission received many complaints of trout losses in irrigation diversions, from dam blockages and from flagrantly wasteful overfishing. Wagonloads of trout were regularly hauled from many cutthroat streams as recently as the 1920s and 30s.

Demands were made for trout stocking to replace the losses. The first brook trout were introduced into Banff National Park in the 1880s. A brand-new hatchery in Banff allowed local, and later exotic, trout to be distributed widely throughout the Bow River watershed after 1913. Another hatchery was built in Waterton Lakes National Park in 1928, serving as a source of exotics for the Oldman Basin. Trout of many species were deposited into nearly every watershed on the eastern slopes of the Canadian Rockies right up to the present day, often in enormous numbers until the 1970s, far out of proportion to any realistic estimate of the carrying capacity of these unproductive waters.

The combined effects of nearly 100 years of abuse has been catastrophic for westslope cutthroats in their native habitats in Alberta. Today this fish occupies less than five percent of its historical range in the Bow River drainage, where it is confined to the headwaters of a few of the major tributaries and a short reach of the upper mainstem. With just one exception, all remaining stream populations that have been examined to date in this basin show evidence of genetic introgression with introduced rainbow trout, Yellowstone cutthroat trout, or both. Seven genetically-pure stocks that conceivably are native occur in small mountain lakes. Six of these are in Banff National Park. Two other Banff lakes hold genetically-pure fish that have been translocated from elsewhere. One of these, a genetically-depauperate stock originating from a now-extinct population, is the source of all cutthroats for introduction to high mountain lakes throughout the province. Approximately two dozen of these "new" cutthroat lakes are in the Bow drainage.

The status of native cutthroats in the Oldman River drainage appears to be not much better. Cutthroats are the only black-spotted trout in the upper Oldman-Livingstone sub-basin within the Rockies, but have been lost from most of the mainstem and its tributaries beyond the mountain front. They are also gone from the mainstems and lower tributaries of all of the major Oldman sub-basins, including the Crownsnest, Belly and St. Mary rivers. The Castle River alone among the principal Oldman tributaries remains well-populated with cutthroats. Unfortunately (with just one exception), all of approximately three dozen populations examined from the Oldman system show evidence of introgressive hybridization with non-native black-spotted trouts.

We are continuing to look for any more remaining native westslope cutthroat trout populations in Alberta, especially in streams. We can realistically expect to find a few more, but the total of genetically-uncontaminated native stocks in their native habitats is unlikely to reach beyond the low teens in all of the province.

British Columbia

The stronghold of westslope cutthroat trout in Canada lies westward, beyond the Great Divide in southeastern British Columbia. There the subspecies originally occupied the upper Kootenai (Kootenay in Canada) River and its tributaries below waterfall barriers. A few small disjunct populations, those remote and isolated from the contiguous range of the subspecies, were found in the upper Columbia, lower Kootenay and parts of the Thompson River headwaters, mostly above barrier waterfalls.

Today, vigorous populations of known and apparently-pure native cutthroats dominate the Elk River and its tributaries, and can still be found in some other Kootenay River tributary drainages: the Bull, Goat, Moyie and St. Mary's rivers, and Skookumchuck Creek. Connor Lake, the longtime source of cutthroats for the regional stocking program, also holds a pure westslope stock.

But British Columbia can properly be described as a "stronghold" for westslope cutthroats only in comparison to Alberta, with its pitiful remnant stocks. We think that westslope cutthroats were native to a Columbia River tributary, the Kicking Horse River above Wapta Falls in Yoho National Park, gaining access there by headwater transfer from the Kootenay River over a swampy low divide. Most of these stocks have disappeared. The status of the other disjunct populations is unknown.

Obvious hybrids of westslope cutthroats and introduced black-spotted trouts are common throughout the upper Kootenay River and many of its tributaries, at least as far downstream as the White River, and including that large drainage. Indeed, hybrids of rainbows and cutthroat

trout were deliberately produced for many years at the Cranbrook hatchery for introduction throughout southeastern BC. All but a very few cutthroat populations in the Kootenay drainage are ultimately accessible to potentially introgressive non-native rainbow trout if the many introduced populations spread. Brook trout, the nemesis of many other cutthroat populations, now occupy much former and present westslope cutthroat habitat in Yoho and Kootenay national parks, and threaten to spread downstream in both the Kootenay and upper Columbia River drainages. Translocated stocks are common in some drainages above waterfall barriers, but we do not know whether these are introgressed fish or not.

Silver City

Beneath Castle Mountain in Banff National Park, my mountain homeland, lies a flat grassy meadow. I have passed this place hundreds of times, and can picture the few modern artifacts: a radio mast, a shed, a roadside pullout. Here also is Silver City, a mining town of 2,000 inhabitants. You can't see Silver City. It vanished, almost overnight and practically unnoticed, in 1885. Not a trace of the settlement is left; not a log, not a chimney, not a mark on the ground.

Scant yards to the west the Bow River slides through a flat and glassy snye. Only a few modern artifacts can be seen: brook trout spawn here. The river's once-common native black-spotted inhabitants are gone. They followed Silver City, leaving so furtively that nobody missed them. Just when the westslope cutthroats disappeared, and why, is a mystery. Like the burghers of the nearby ghost town, they quietly slipped away.

Westslope cutthroats are slipping away throughout their range in Canada, but thanks to a few conservationists, they are no longer going quietly. I for one look to the south for ideas for solving their problems. In the U.S. I see cutthroat stocks as severely at risk as ours. But I also see two specific reasons for optimism. I see the needed scientific research being done to understand the technical issues, and I see the necessary legislation, an effective Endangered Species Act, in place to protect and restore the fish.

Canadians can do the necessary research to deal with the technical issues. Whether we will enact and enforce the necessary endangered species legislation in time to retain wild westslope cutthroats, and many other species at risk in Canada, remains very much an open question. Looking at our recent history I must confess that, realistically, the prospects are dismal.

But of course, conserving any endangered species is a fight against dismal odds. Fighting the odds is what conservation is all about.

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Working together for all that is wild!