

# Species at Risk:

## Athabasca Rainbow Trout

By Joanna Skrajny



**R**ainbow Trout? Endangered? But that's impossible – I see hundreds of them in the Bow River!”

Did you know that the large majority of Alberta's rainbow trout (including the ones found in the Bow River) have actually been introduced from a stock originating from California? You would be forgiven for not knowing that we have rainbow trout that are native to Alberta, found in the headwaters of the Athabasca River system in elevations ranging from 900-1500m above sea level. Geographically speaking, this only covers an area from Jasper National Park to just east of Whitecourt.

The current theory as to how these rainbow trout came to be is that ten thousand years ago, at the end of the last ice age, some fish managed to “transfer” over to the Athabasca from the upper Fraser River. While they aren't technically a separate subspecies, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has identified Athabasca rainbow trout as a “designatable subunit” due to their unique traits.

Specially adapted to the cold head-

waters of the Athabasca, these rainbow trout are small, grow more slowly, and spawn later (in late May-early June) than introduced species. Athabasca rainbow trout can take on one of two appearances, both of which look different from other types of rainbow trout. Stream-resident Athabasca rainbows have dark dorsal fins with yellow-silver sides and small black spots on the body and often keep their “pari” marks - large ovalish blue spots found across the centre of juvenile rainbow trout – throughout their adult life. It's thought that they keep their juvenile colouring in order to better hide from predators in the small, clear, cobble-filled streams where they live. River migrant Athabasca rainbow trout, on the other hand, have a more silver appearance and weak or nonexistent colours and spots.

In 2014, COSEWIC assessed Athabasca rainbows as Endangered: “Quantitative sampling over the last two decades demonstrates that the majority of sites are declining in abundance with an estimate of >90% decline over three generations (15 years).” An endangered listing means that the species is “facing imminent extirpation or extinction.”

Unfortunately, that sense of urgency did not translate over to our elected officials. Despite the fact that the *Species at Risk Act* states that species should be listed within nine months of being assessed by COSEWIC, Athabasca rainbow trout had to wait five years for an Endangered listing. But, listed they finally were, in August 2019.

*“It is our responsibility to manage Alberta wildlands to ensure the long-term persistence of native trout. Placing these fish on a species-at-risk list is not enough. The future for Athabasca Rainbow Trout and Bull Trout is uncertain unless we enact strong measures to protect the habitats on which they depend.”*

*- Dr. John Post, chair of the COSEWIC Freshwater Fishes Committee*

This summer, the federal government released a draft version of a Recovery Strategy for Athabasca rainbow trout. The document identified habitat disturbance from industrial activities as the primary threat to the species and was quite comprehensive in identifying the specific activities that were to blame. For example, the strategy points to a study conducted in the Tri-Creeks area in the McLeod River watershed south of Hinton where after logging, they observed “increases in mean annual water temperature and summer maximum temperatures up to near lethal (23°C) levels.” In addition, there are seven coal mines within Athabasca rainbow trout range which “have caused the loss of nearly 15 km of Athabasca Rainbow Trout spawning and early rearing habitat in the Embarras, Erith, upper McLeod and Gregg River watersheds.” These mines also have loaded selenium into these waterways, causing documented embryonic deformities.

There was also the 2013 disaster at

### Quick Facts:

Athabasca rainbow trout  
(*Oncorhynchus mykiss*)

Federal Status: *Endangered* (2019)

Provincial Status: *Threatened* (2009)

Habitat: *headwaters and tributaries of the Athabasca River*



Stream resident Athabasca rainbow trout PHOTO: © J. SKRAJNY

the Obed Mountain Mine, when a catastrophic failure of an earthen berm resulted in the release of 670 million litres of coal sludge and waste water, causing significant harm to Apetowun and Plante Creeks and then flowing into the Athabasca River.

Disappointingly, despite these clear threats to the future of Athabasca rainbow trout, the Recovery Strategy does not demand the necessary level of legal habitat protection required to save the species. Instead, it hedges any habitat protection into a “bounding box” approach where only certain sections of a creek will be protected and then, only if you can prove those sections have certain “functions, attributes, and features” that Athabasca rainbow trout are known to rely on. Due to the lack of available on-the-ground data, it is easy to imagine a hypothetical situation where someone destroys critical habitat, only to claim that those critical habitat features didn’t exist in the first place. As many Athabasca rainbow trout are migratory and rely

on different habitats through their lifecycle, it is also harmful to believe that only certain portions of a stream with certain attributes need to be protected.

Another major threat to Athabasca rainbows are introduced rainbow trout. These introduced trout hybridize with native Athabasca rainbow trout, threatening the loss of the Athabasca’s unique genetic traits. As retired fisheries scientist Jim Stelfox has so aptly explained on many occasions, genetic hybridization is like putting creamer in coffee: it’s so easy to put the cream in, but much, much harder to take out. The draft recovery strategy notes that hybridization has occurred in the main stem of the Athabasca river, but that pure populations exist in smaller creeks and streams in contributing watersheds. The draft strategy has committed to studying exactly to what extent Athabasca rainbow trout have hybridized with introduced species. In the meantime, however, AWA believes the federal and Alberta governments should immediately implement habitat actions to benefit Athabasca rain-

bow trout, regardless of genetic purity, such as protecting and restoring the watersheds where they live.

AWA believes habitat protection shouldn’t just be limited to some pockets of creeks. Instead, it should be expanded to include the floodplains and upland watersheds that are responsible for delivering the cool, clear waters that Athabasca rainbow trout rely on. Protecting the broader landscape would also have other benefits: it would help to protect other native fish species such as western Arctic bull trout and Arctic grayling; it would benefit terrestrial species such as SARA-listed woodland caribou, boreal songbirds and valued fur-bearing animals. It also would help protect the upper Athabasca watershed, by reducing the severity of flood and drought events and supporting a clean drinking water supply for municipalities downstream. ♣