

# Burbot (*Lota lota*)

## Conservation Status Rank Summary

April 22, 2024

For details on assessment and ranking methodology, see: [Conservation Status Assessment Definitions, Process, Rank Factors, and Calculation of State Ranks for Montana Species](#)

### Rarity and Trends

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Rarity</b>					
Range Extent	2024-04-22	Y: 94209.8 km <sup>2</sup>	3.930	MTNHP Range Maps	None
Area of Occupancy	2010-04-08		3.440	MTNHP Species Rank Data Table, Methodology: NS (2003)   Original Score: F	605 square kilometers based on Heritage Range Maps and occupancy of 1% of landscape by streams and occupancy of 80% of stream reaches and/or tributaries.
Number of Occurrences	2024-04-22		4.130	MTNHP	Over 100 occurrences in MTNHP database
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition	2024-04-22		3.300	Expert Opinion	Most populations of the species occur in altered systems or in proximity to agriculture. Generally they are in good condition, but some may be degraded due to these factors
% of Area Occupied in Good Condition			-		Factor not used in ranking.
Environmental Specificity			-		Factor not used in ranking.
Rarity is calculated by averaging weighted factor scores: $( (3.93 \times 1) + (3.44 \times 2) + (4.13 \times 1) + (3.30 \times 2) ) / 6 = 3.59$					
<b>Trends</b>					
Short-term Trend	2024-04-22	[-80.0, 120.0%]	[-0.310, 0.070]		None
Long-term Trend	2010-04-08		0.140	MTNHP Species Rank Data Table	Long term trend has been for an increase in numbers of fish and area of occupancy as a result of dams that have created cold water habitats that were not present prior to European arrival. These changes to habitat have likely resulted in an increase of g   Methodology: NS (2003)   Original Score: F

Trends score is calculated by summing weighted short and long-term trend scores:  
 $([-0.31, 0.07] \times 2) + (0.14 \times 1) = [-0.48, 0.28]$

## Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Threats</b>					
<b>Overall Threat Impact</b>		Low/No Threats	5.500		Climate change, drought, agricultural dewatering, and high winter flows below Libby dam on the Kootenai River all represent threats to the species in Montana.
<b>Intrinsic Vulnerability</b>			-		Factor not used in ranking.
Threat score is calculated from Overall Threat Impact when available or Intrinsic Vulnerability if not: <b>( 5.50 ) = 5.50</b>					

### Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
No individual threats data used in this rank						

## Conservation Status Rank Calculation

### Raw score

Rarity:  $(3.59 \times 70\%)$  + Threats:  $(5.50 \times 30\%)$  + Trends:  $([-0.48, 0.28])$  =  $[3.68, 4.44]$

Calculated Rank: S4

<b>Accepted Rank</b>	S4
<b>Date Approved</b>	2025-02-03
<b>Approval Authority</b>	Montana Natural Heritage Program Staff
<b>Rank Justification</b>	Species is generally stable with declines and increases within some populations. Threats from alteration of the hydrology of occupied systems and entrapment within canals and ditches used for agriculture are the primary threats, but these appear to be low and unlikely to drive significant changes in these populations.

## Supplementary Information

Montana Natural Heritage Program. 2021. Conservation Status Assessment Definitions, Process, Rank Factors, and Calculation of State Ranks for Montana Species. 18 p.

[https://mtnhp.mt.gov/docs/Montana\\_State\\_Rank\\_Criteria\\_20211201.pdf](https://mtnhp.mt.gov/docs/Montana_State_Rank_Criteria_20211201.pdf)

Montana Field Guide Species Account:

<https://fieldguide.mt.gov/speciesDetail.aspx?elcode=AFCMA01010>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=AFCMA01010>

## Additional Threat Details

The table below contains the complete threats assessment for this species. While the Conservation Status Rank Calculation is based on cumulative, broadly categorized (Level 1) threats data, threats are assessed and tracked for more specifically categorized (Level 2) threats when available.

Threat Category	Date Assessed	Assessed By	Data Source	Scope	Severity	Immediacy	Comments
Agriculture & Aquaculture - 2.3 - Livestock Farming & Ranching	2024-04-22	Chris Clancy	Expert Opinion Chris Clancy	Restricted	Unknown	High	Entrapment in Diversion Ditches
Natural System Modifications - 7.2 - Dams & Water Management/Use	2024-04-22	Chris Clancy	Expert Opinion Chris Clancy	Restricted	Unknown	High	Altered hydrology of dammed systems. Dams impede migration but Burbot also adapt to reservoirs. More research needed
No threats data available for this species							