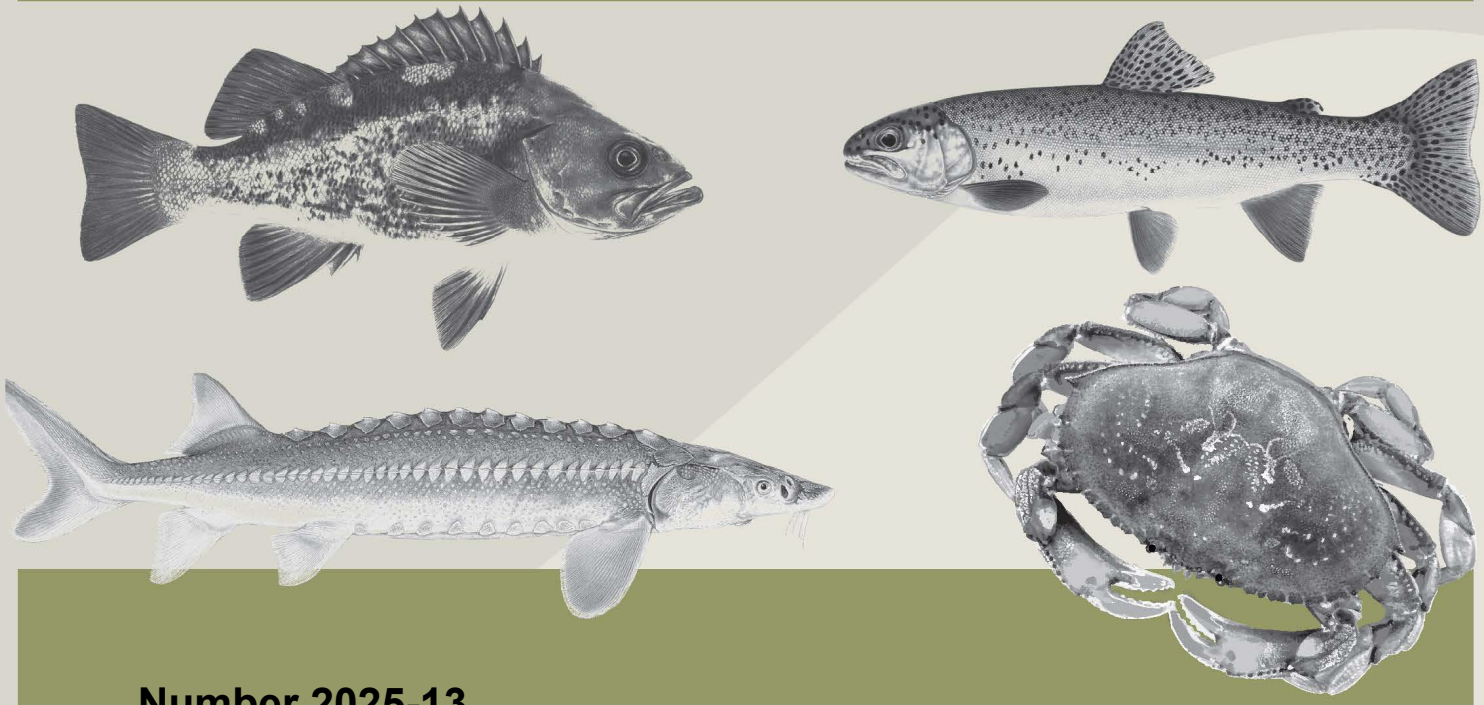
Attachment 2

Science Bulletin

Oregon Department of Fish and Wildlife



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Miller Lake Lamprey 2025 Progress Report

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Miller Lake Lamprey 2025 Progress Report

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CONTENTS

ABSTRACT

Miller Lake is home to the Miller Lake Lamprey *Entosphenus minimus*, a native species that occurs only in the upper Klamath Basin in Oregon. The smallest predatory species of lamprey in the world, Miller Lake Lamprey average 76 to 152 mm (3 – 6 inches) in body length. In the 1940s and 1950s, Miller Lake Lamprey were observed parasitizing brook trout *Salvelinus fontinalis* and Rainbow Trout *Oncorhynchus mykiss* and Tui Chub *Siphateles bicolor* in Miller Lake. The trout were introduced and the Tui Chub were likely introduced. The Oregon Game Commission (Commission) was therefore concerned that Miller Lake Lamprey compromised trout fisheries in the lake. In 1949, the Commission installed log dams and screens on tributaries to Miller Lake to prevent Miller Lake Lamprey from spawning. In 1958 the Commission applied the chemical toxaphene to the lake and tributaries to eradicate this species. In 1959, the Commission constructed a barrier in Miller Creek approximately 0.8 km (0.5 miles) downstream of the lake outflow to prevent lamprey from moving back into the lake. Miller Lake Lamprey was believed to have been eradicated entirely until it was rediscovered in the Miller Creek, upper Williamson, and Sycan river drainages in the 1990s. From this point forward the Oregon Department of Fish and Wildlife focused on conservation of the Miller Lake Lamprey. In 2005, the Miller Lake Lamprey Conservation Plan was adopted (OAR 635-500-3885), and the Miller Lake Lamprey Technical Management Team (TMT) removed the barrier in Miller Creek. Since 2010, the two primary goals of the TMT have been to reintroduce Miller Lake Lamprey back into Miller Lake and its tributaries, and to monitor the success of these reintroductions. Reintroductions have been successful, with evidence of persistence and successful reproduction, and as of 2021 – 2024, reports from anglers of lamprey wounds on and/or lamprey attached to introduced Brown Trout *Salmo trutta*. This includes several observations by one of the TMT members who is an avid angler. Thus, 62 years after the Miller Lake Lamprey was believed to have been extirpated from Miller Lake, it is now back in the lake and showing evidence of completing its life cycle in the upper Miller Lake Basin. Translocation efforts have been effective in successfully reintroducing a self-sustaining population of Miller Lake Lamprey in the upper Miller Lake basin. Additional research and monitoring will contribute to future status assessments and conservation efforts for Miller Lake Lamprey. As of 2023, the Miller Lake Lamprey is a recognized "Native Migratory Fish", with associated passage requirements. This species is also on the State of Oregon's Sensitive Species List and it is also a "Strategy Species" for the State Wildlife Action Plan, previously known as the Oregon Conservation Strategy.

INTRODUCTION

This progress report presents the most up-to-date information on Miller Lake Lamprey *Entosphenus minimus*, including management context, survey data, and conclusions[1]. Miller

[1]*This report includes minor edits to tables from previous reports (Clemens et al. 2017, 2018, 2020). In addition, this report refers to lamprey with eyes as "transformed" or "transformers" to indicate that they could be either juveniles or adults (earlier reports called these fish "adults"). "Juveniles" are eyed individuals observed to be*

Lake (Figure 1) is home to the Miller Lake Lamprey (Figure 2), a native species that occurs only in the Klamath Basin and was first discovered in Miller Lake (Bond and Kan 1973). Miller Lake is also known for its trophy Brown Trout *Salmo trutta* fishery, in addition to Rainbow Trout *Oncorhynchus mykiss* and kokanee *O. nerka* fisheries. The resident Miller Lake Lamprey is the smallest predatory species of lamprey in the world, averaging 76 to 152 mm (3 to 6 inches) in total body length (Bond and Kan 1973; Lorion et al. 2000). In the 1940s and 1950s, Miller Lake Lamprey were observed parasitizing introduced brook trout *Salvelinus fontinalis* and Rainbow Trout *Oncorhynchus mykiss* and likely introduced Tui Chub *Siphateles bicolor* in Miller Lake. The Oregon Game Commission (Commission) was therefore concerned that Miller Lake Lamprey compromised trout fisheries in the lake. In 1949, the Commission installed log dams and screens on tributaries to Miller Lake to prevent Miller Lake Lamprey from spawning. In 1958 the Commission applied the chemical toxaphene to the lake and tributaries flowing into Miller Lake to eradicate them (Gerlach and Borovicka 1964). The toxaphene application eradicated Miller Lake Lamprey in the lake and its inflow tributaries. In 1959, the Commission constructed a barrier in Miller Creek approximately 0.8 km (0.5 miles) downstream of the lake outflow (Figure 3) to prevent lamprey from moving back into the lake. The barrier was composed of rock and concrete with a steel plate which created an overhanging ledge. This barrier was removed in 2005. However, in 2023, the Miller Lake Lamprey Technical Management Team (TMT) noticed that the barrier foundation remained and was being undercut by stream action. This observation initiated coordination between ODFW and the U.S. Forest Service to begin the process of fulfilling the necessary permits and actions to remove these remnants.

Figure 1. Miller Lake is a deep, coldwater lake in the Cascade Range north of Crater Lake (Klamath County, west of the town of Chemult).

actively feeding (attached to a host), and "adults" are eyed individuals observed in the process of constructing nests, spawning, or post-spawn. "Larvae" are individuals that do not have eyes and have not yet transformed (Clemens 2019).

The Miller Lake Lamprey was believed to be extinct from 1959 until their rediscovery in the 1990s and re-description to science shortly thereafter (Lorion et al. 2000; Figure 4). At this time, the Oregon Department of Fish and Wildlife (ODFW) focused on conservation. As of 2023, the Miller Lake Lamprey is a recognized "Native Migratory Fish", with associated passage requirements. The Miller Lake Lamprey is now on the State of Oregon's Sensitive Species List and it is also a "Strategy Species" for the State Wildlife Action Plan, previously known as the Oregon Conservation Strategy. The ODFW, recognizing that Miller Lake Lamprey is native to Oregon and does not exist outside of Miller Creek and the upper Williamson and Sycan river drainages, created the Miller Lake Lamprey Conservation Plan (OAR 635-500-3885; ODFW 2005). This plan formed the basis of ongoing management for Miller Lake Lamprey, and this progress report fulfills requirements to periodically report the status of Miller Lake Lamprey and the effectiveness of management actions to the public.

Figure 2. Transformed Miller Lake Lamprey *Entosphenus minimus*.

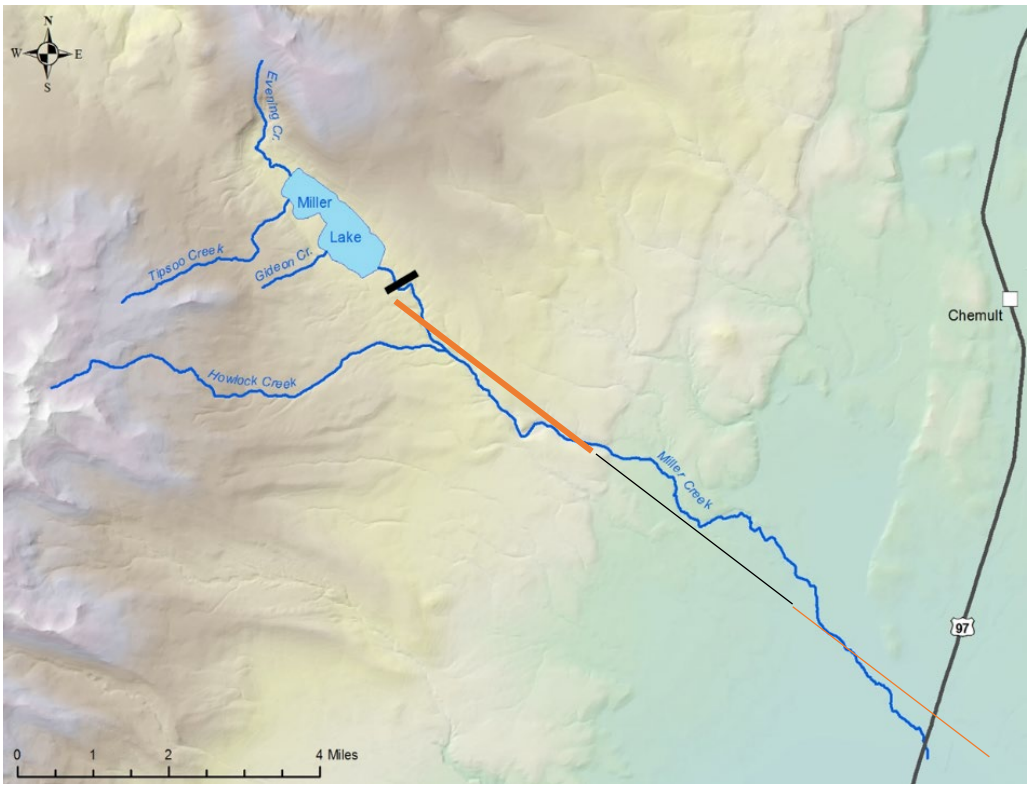

Figure 3. Map of Miller Lake, showing tributaries flowing into the lake from the north and west, and the outflow tributary, Miller Creek. The barrier installed by the Commission in 1959 is shown; this barrier was removed in 2005 (Figure 4).

MANAGEMENT

The Miller Lake Lamprey Conservation Plan called for the reconnection of habitats in Miller Lake and Miller Creek through the removal of the human-made barrier in Miller Creek that was installed by the Commission in 1959 (Figures 3 – 4). Other long-term strategies in the conservation plan include management of other species — not stocking hatchery trout into streams that Miller Lake Lamprey inhabit to prevent predation on the lamprey and maintaining or providing more opportunities for habitat access and sufficient water quantity. The plan further identified re-establishment of Miller Lake Lamprey into Miller Lake and upper Miller Creek, above the original barrier and large cascade. The conservation plan for Miller Lake Lamprey also called for scientific studies to fill information gaps, and periodic surveys to assess and evaluate population status. The plan identified a desired status for the Miller Lake Lamprey "*…to be distributed widely throughout its historic range, with populations robust enough to withstand stochastic environmental events, and with both the populations and their habitat secure from anthropogenic threats.*" The plan identified the formation of the TMT to monitor Miller Lake Lamprey and manage attempts to reintroduce them back into the lake. This team currently includes the authors of this report. Figure 4 provides a high-level summary of years

when management and survey actions were conducted and when scientific information was published.

METHODS

Following removal of the barrier in Miller Creek in 2005 (Figures 3 – 4), various locations of the Miller Lake drainage above the old barrier site were surveyed for the presence/absence of Miller Lake Lamprey. Survey results informed subsequent decisions by biologists in the TMT for translocation numbers and destinations. The goals were to establish several self-sustaining populations at different translocation sites to increase the likelihood of recolonizing habitats in and around Miller Lake. The TMT monitored the possible volitional upstream movement of lamprey once the barrier was removed. This was done via surveys to detect lamprey upstream of the barrier. In 2010, given no evidence of colonization upstream of the barrier, the TMT decided to actively translocate lamprey from lower Miller Creek to above the site of the former barrier and into Miller Lake and its tributaries (Figure 5). Translocated life stages included both larvae and tranformers[1].

Backpack electrofishers (ABP-2, Engineering Technical Services, Madison, Wisconsin) were used to survey for lamprey in wadeable areas, following a single-pass, rapid assessment protocol like Reid and Goodman (2015), with shocker settings per Schultz et al. (2014). Voltage was 125 – 300 V and adjusted as necessary. Small larvae (≤ 50 mm or ≤ 2 inches) found above the old barrier site that were smaller than the original populations of translocated lamprey were considered to have been locally produced, and evidence of successful reproduction.

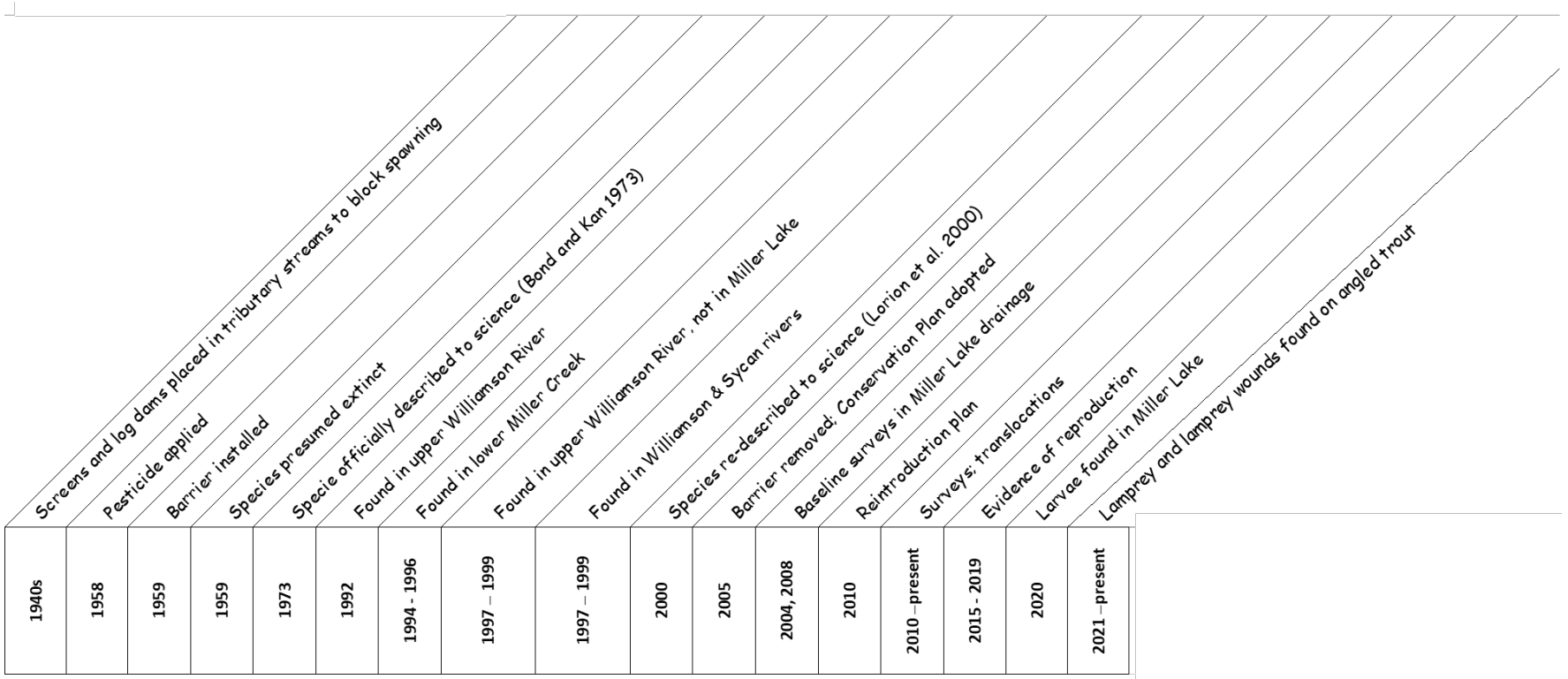

Figure 4. Timeline of management actions and scientific results for Miller Lake Lamprey. The species was recognized by science in 1973. Baseline surveys in 2004 and 2008 found no lamprey in Miller Lake, its inflow tributaries or the uppermost portion of the outflow tributary, Miller Creek, in the vicinity of the former barrier site (Figure 3). However, from 2015 onward, evidence of successful reproduction and feeding (i.e., parasitic) juveniles have been documented and are presented in this report.

RESULTS AND DISCUSSION

The Miller Lake Lamprey Conservation Plan calls for Miller Lake Lamprey to be widely distributed with robust populations able to withstand environmental variability. To achieve this, the TMT has conducted surveys since 2004 and translocations of lamprey from lower Miller Creek to the upper drainage since 2010. We now have 20 years of data available (2004 – 2021; 2023 – 2024) including pre-translocation, to assess distribution, relative abundance, and size class data for lamprey (Table 1). Table 2 reports information on translocations of lamprey to re-establish them in Miller Lake, tributaries flowing into the lake, and the tributary flowing out of the lake (upper Miller Creek). Results from these reintroduction efforts have been positive. Lamprey have generally persisted in the tributaries in which they have been reintroduced and reproduction (i.e., presence of small larvae) is evident. Furthermore, feeding stage (i.e., juvenile) Miller Lake Lamprey have been reported since 2021, and lamprey-induced wounds since 2022. This all suggests that the species is expressing its entire life cycle for the first time in 62 years (i.e., 1959 – 2021) in the upper Miller Lake basin. Thus, translocation efforts have been effective in successfully reintroducing a self-sustaining population of Miller Lake Lamprey in the upper Miller Lake basin. The following information provides more details on these findings.

Lamprey translocated into the upper Miller Lake drainage (upper Miller, Tipsoo, and Evening creeks) during 2010 – 2020 (Tables 1 and 2; Figure 5) survived. Likewise, lamprey translocated to Gideon Creek have survived. Larvae found in the vicinity of the upper Miller Creek translocation area tend to be large and relatively few. However, smaller larvae have also been found at this location, providing indirect evidence of successful reproduction. Evidence of successful reproduction from these translocations was found in upper Miller Creek during 2016 – 2018, 2020, 2023, and 2024. Evidence of successful reproduction was found in Evening Creek since 2019, including a range of sizes and relatively high abundance (Table 1), which is why the TMT has not translocated to this creek since 2015, the same year in which a spawned out female Miller Lake Lamprey was found (Table 1). Larvae found in Tipsoo Creek in 2021 and 2023 were larger than those translocated in 2020; therefore, we have not yet found clear evidence of successful reproduction of lamprey in that creek. However, larvae were found in two locations between Gideon and Tipsoo creeks where lamprey had *not* been translocated in the past, indicating some natural recolonization and reproduction (Table 1). In 2023 – 2024, the relative abundance and differences in age classes (using body size as a proxy) were sufficiently high that the TMT elected to not translocate lamprey from lower Miller Creek during these years.

Table 1. Survey results and observations for Miller Lake Lamprey. Some of this information has been updated from earlier reports. General survey locations are shown in Figure 5. No surveys were done in 2022. ML = Miller Lake; MC = Miller Cr; LMC = lower Miller Cr; UMC = upper Miller Cr; Evening Cr = EC; Tipsoo Cr = TC; Gideon Cr = GC. Counts do not reflect all observations (i.e., many larvae escaped capture).

Year	Survey locations	No. lamprey	Notes
2004	ML down to LMC	~266	Lamprey in 4 sites of LMC. None in ML or UMC.
2008	MC	29	No lamprey found in UMC.
2010	LMC	700	over 0.4 km, included 2 transformers; *collected for translocations — see Table 2*
2011	LMC	632	*Collected for translocations — see Table 2*
	EC	Present	Likely from 2010 translocation; ~100 mm size class common.
2012	LMC	626	Most ~50 – 100 mm; included few transformers; *Collected for translocations — see Table 2*
	UMC	1 [b]	~10 mm; below Miller Lake Rd (National Forest Service Road 9772)
	ML	1	
	EC	7	
2013	LMC	~600	*Collected for translocations — see Table 2*
	UMC	Present	~100 – 120 mm
	TC	1	Small larvae (29 mm)
	EC	Present	~60 – 120 mm
2014	Miller Lake	0 [a]	Set gill nets to sample condition of stocked trout (no lamprey wounds or scars were found on trout). Anglers reported seeing lamprey, but no one noticed wounds or scars on the fish they caught. Lamprey presence in the lake has not been corroborated by other means.
2015	LMC	415	All > 30 mm. *Collected for translocations — see Table 2*
	UMC	Present [b]	
	TC	0 [a]	
	EC	Present	~50 – 120 mm; also found spawned out female (6 July). No lamprey found at creek outlet into the lake.
2016	UMC	Present [b]	One young-of-year larva (< 20 mm) found above culvert in UMC, larger larvae found below culvert.
	TC	0 [a]	
	EC	Present	Low abundance, larger size classes of larvae (~110 – 140 mm)
2017	LMC	610	High density observed; 20 – 130 mm; including 3 transformers. *Collected for translocations — see Table 2*
	UMC	4 [b]	3 young-of-the year larvae (20-30 mm — indication of successful spawning) above and below culvert), plus 1 larger larvae (~95 mm).
	EC	33	Larvae found at confluence of EC and ML. The larvae were large (90 – 184 mm) and were likely from past translocations.
2018	Miller Lake	0 [a]	Set gill nets for Brown Trout to collect gametes (no lamprey wounds or scars were found on trout). Anglers reported seeing wounds or scars on the fish they caught (but this has not been corroborated).
	LMC	401	High density; largest number of transformed lamprey (~66) observed to date at this location. Sizes ~40 – 110 mm. Observed juvenile predation on Brown Trout and Brook Trout. *Collected for translocations — see Table 2*
	UMC	> 35 [b]	Larvae present just above former dam site (~50 – 120 mm); also below lake outlet above and below road culvert (73 – 160 mm; 2 large larvae ~180 mm).

	EC	17	Large larvae (101 – 179 mm). Two larvae observed in Miller Lake, off mouth of Evening Creek.
2019	LMC	615	Low number of transformed lamprey (6). *Collected for translocations — see Table 2*
	UMC	22 [b]	Low relative densities (no transformed lamprey) between the former barrier site and Miller Lake. Present from the barrier upstream. All larvae of large body sizes (80 – 175 mm).
	ML	15	Larvae (48 – 90 mm) found up to 70 ft. away from mouth of Evening Creek.
	EC	36	Wide range of body sizes (42 – 185 mm) suggests multiple age classes, including from recent reproduction.
2020	LMC	300	≥ 50 mm, including 6 transformers. *Collected for translocations — see Table 2*
	UMC	Present [b]	50 – 140 mm, including 6 transformers
	ML	15	Larvae (48 – 90 mm) found up to 178 ft. away from mouth of Evening Creek.
	EC	36	50 – 180 mm
2021	LMC	330	~50 – 120 mm. Included 2 transformers. *Collected for translocations — see Table 2*
	UMC	Present	120 – 140 mm
	TC	Present	50 – 100 mm; most ~80 mm
	GC	0 [a]	
	ML	Present	
	EC	Abundant	< 20 – 173 mm
2023	UMC	51 [b]	Includes 39 larvae that were 30 – 185 mm and 12 transformers that were 150 – 190 mm
	GC	6	All larvae at 80 – 110 mm
	Un-named creek[c, d]	3	All larvae at 80 – 140 mm
	Un-named cove[d], [e]	2	All larvae at 130 – 190 mm
	TC	5	All larvae at 70 – 115 mm
	EC	43	All larvae at 45 – 170 mm
2024	UMC	53	Includes 48 larvae at 65 – 190 mm and five transformers at 155 – 280 mm
	Un-named creek[e]	2	Both larvae at ~170 mm
	TC	9	Includes larvae at 90 – 40 mm
	EC	27	Includes larvae at 50 – 150 mm near the lake confluence and delta

[a] Finding no lamprey implies that none occurred. However, lamprey may have escaped detection due to very low population density or by existing in locations that were not surveyed. In addition, detection efficiency may have been low.

[b] Number of larvae found in intermittent sampling between the culvert and Miller Lake.

[c] First bridge on trail to Evening Creek, between Gideon and Tipsoo creeks (Figure 5).

[d] Lamprey had not been released into either of these locations in the past.

[e] Second bridge on trail to Evening Creek, between Gideon and Tipsoo creeks (Figure 5).

Table 2. Reintroduction efforts (translocations) by the Miller Lake Lamprey TMT to re-establish Miller Lake Lamprey in Miller Lake. Some of this information has been updated from earlier reports. All translocated lamprey were taken from lower Miller Creek. Locations referenced can be viewed in Figure 5. Translocated lamprey were primarily larvae but ranged from young-of-the-year to transformed individuals[1]. See Table 1 for abbreviations.

Year	Dates	Number of lamprey	Lamprey translocated to	Notes
2010	3, 4 Aug	700	ML (300), EC (300), UMC (100)	Included 2 transformed lamprey
2011	16, 17 Aug	632	ML (200), EC (232), UMC (200)	
2012	25 Sep	627	ML (208), EC (208), UMC (211)	
2013	28, 29 Aug	~600	ML (~200), EC (~200), UMC (~200)	
2014	7, 8 Oct	-	No translocation	
2015	26 Oct	415	EC (~207) and UMC (~208) by National Forest Service Road 9772 culvert	
2016	-	-	No translocation	
2017	30, 31 Aug	610	ML at outlet into UMC	Included 3 transformed lamprey
2018	13, 14 Sep	401	UMC	Including ~66 transformed lamprey
2019	11,12, 13 Sep	615	UMC	Including 2 transformed lamprey
2020	13, 14 Oct	300	TC	Including 6 transformers
2021	9, 10 Aug	330	GC	

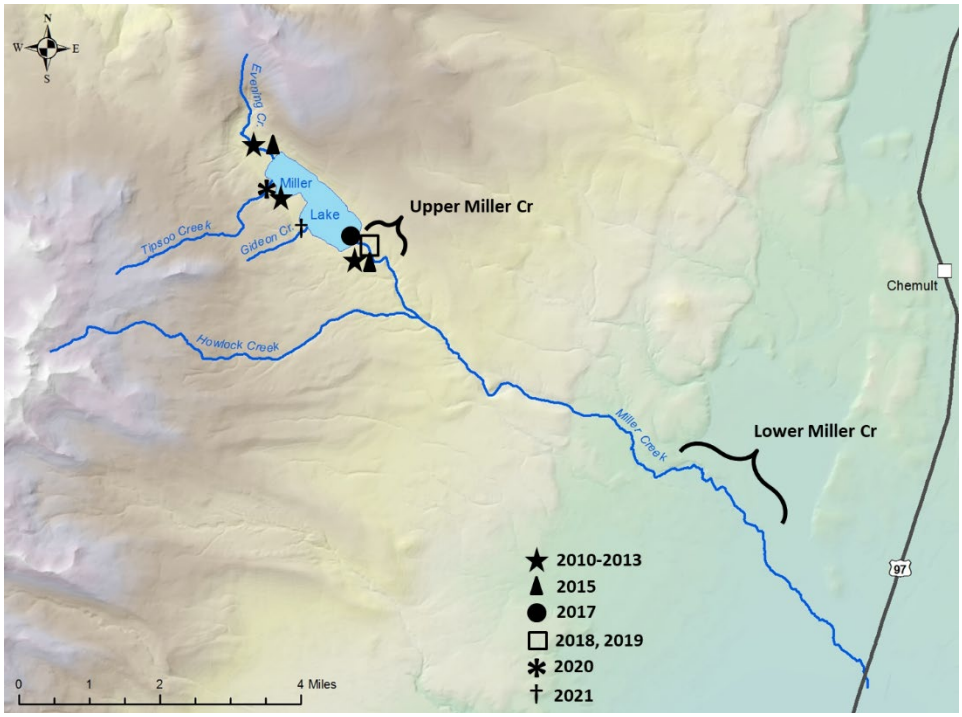

Figure 5. Map of Miller Lake drainage. Lower Miller Creek has been used as the source for all translocations of Miller Lake Lamprey (Table 2). Symbols indicate release sites and years.

Limited lake sampling revealed larval lamprey near the mouth of Evening Creek during 2017 – 2024. This led us to conclude that the larvae are using the lake habitat, particularly in the vicinity of the tributary mouth (Clemens et al. 2021). However, electrofishing surveys along the lake shoreline by the confluence of upper Miller Creek and between the day use area and the boat dock did not reveal any lamprey. Observations of lamprey parasitism were reported to have occurred on trout in Miller Lake in 2018 that could not be confirmed at the time (Clemens 2018). However, Miller Lake lamprey parasitism (Figure 6) and wounds (Figure 7) have since been documented beginning in the summer of 2021 (Table 3). In summary, the foregoing information suggests that Miller Lake Lamprey is expressing its entire life cycle for the first time in 62 years (i.e., 1959 – 2021) in the upper Miller Lake basin. Thus, translocation efforts have successfully reintroduced a self-sustaining population of Miller Lake Lamprey in the upper Miller Lake basin, which was a goal of the Miller Lake Lamprey Conservation Plan.

Figure 6. Image of a Miller Lake Lamprey that was inadvertently captured by an angler that was targeting Brown Trout in Miller Lake during July of 2021. This lamprey was attached to a Brown Trout that was caught by them. The angler reached out to one of us (BJC) after ODFW's press release on finding Miller Lake Lamprey back in Miller Lake for the first time since the 1950s.

Table 3. Qualitative assessment of the relative abundance of lamprey marks (fresh wounds or scars) on Brown Trout (*Salmo trutta*), as determined by one of us (Jordan Ortega) during angling.

Years	Proportion of Brown Trout with lamprey marks	Notes
2022	28.6% (6 out of 21)	
2023	58.1% (18 out of 31)	Two juvenile Miller Lake Lamprey were found attached to trout; one of these was measured at 198 mm total length
2024	80.0% (4 out of 5)	

A qualitative assessment of the available evidence (Table 4) allows us to make some conclusions about the status of the source population of Miller Lake Lamprey in lower Miller Creek and the translocated populations in the upper drainage (Table 5). Our surveys suggest that the source population of lamprey in lower Miller Creek is "Common to prevalent", and the recipient populations range from "Rare" in Gideon and Tipsoo creeks (which had each received translocated lamprey in just one year; Table 2) to "Common to prevalent" in upper Miller Creek, Evening Creek, and Miller Lake (Table 6). This indicates a persistent "Common to prevalent" status for Miller Lake Lamprey in Evening Creek, and an improvement from the "Limited" status of the species in upper Miller Creek and Miller Lake from 2021 (Clemens et al. 2021). However we do not know the extent to which historical populations moved between these locations for reproduction, larval rearing or parasitism or whether they functioned as isolated populations. Further, it is not clear what the historical holding capacity of the inflow and outflow tributaries to the lake was and is; thus, it is not clear what the target status should be in Gideon and Tipsoo creeks. For example, Kan and Bond (1981) indicated, "[Miller Lake Lamprey] *apparently had reduced the migration considerably; all spawners in the OS* [Oregon State University] *collection were collected along the lake shore. Few ammocoetes* [larvae] *were collected from the cold tributary streams, but ammocetes were common in deposits of organic detritus along the lake shore. Presumably ammocoetes were present in organic deposits in deeper water, but we have no collections from deeper than about 1 m*".

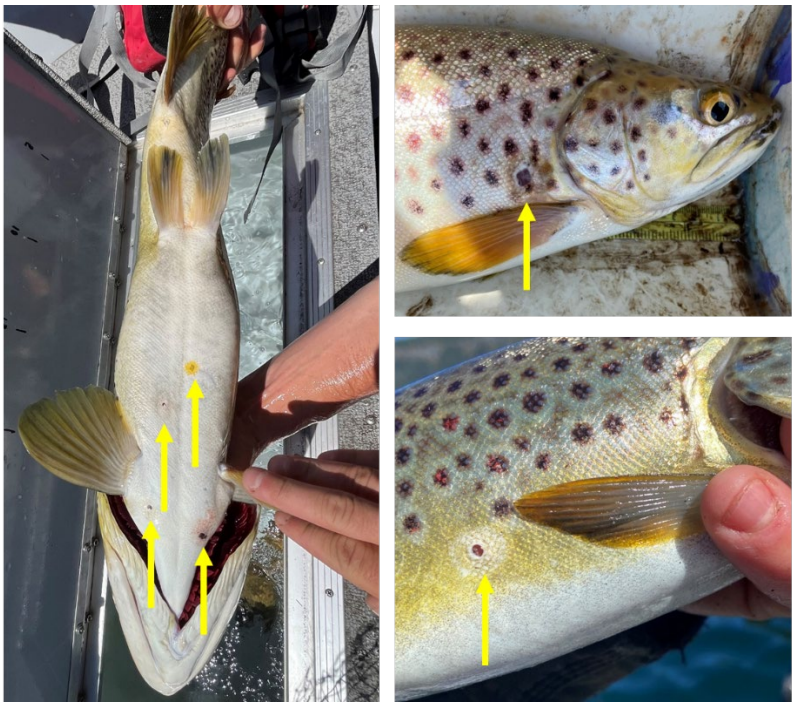

Figure 7. Brown Trout showing evidence of wounds (shown by yellow arrows) from Miller Lake Lamprey in Miller Lake. Photographs by Jordan Ortega and Alex Carnevale.

Table 4. Indicators of successful persistence and/or reintroduction of Miller Lake Lamprey and associated scores.

	Indicator	Survey type	Notes	Reliability [a]	Score
1.	Continued presence	Electrofishing	Indicator of resilience and *potential* for reproduction	Very reliable	4
2.	Observations of adults spawning	Walking surveys	Surveys lacking	Not reliable	1
3.	Repeated presence of small larvae (smaller than the source population)	Electrofishing	Indicator of successful reproduction; small larvae can be difficult to detect	Reliable	3
4.	Relatively abundant	Electrofishing	Indicator of self-sustaining population; subjectively determined by the ease with which lamprey are detected relative to survey effort	Reliable	3
5.	Presence of lamprey wounds on trout	Gill net surveys; evidence from anglers	Indication of full expression of life cycle; can be difficult to detect	Reliable	3
	Combined evidence, #1 – 5		–	–	14

[a] Based on "Notes" column: "Very reliable", "reliable", "not reliable".

Table 5. Scores and associated status. The status description indicates the relative contribution of indicators of successful persistence and/or reintroduction and associated scores (from Table 4).

Score	Current status	Status description
8 – 14	**Common – Prevalent**	Multiple indicators
6 – 7	**Limited**	Few indicators
≤ 5	**Rare – Absent**	Indicators lacking

The Miller Lake Lamprey plan calls for periodic evaluations of the status of Miller Lake Lamprey and the success of implemented management strategies for the species. The increased distribution of lamprey vis-à-vis translocations is indicative of an improvement in status from that of four years ago (Clemens et al. 2021).

Table 6. Distribution and translocation history of Miller Lake Lamprey in the Miller Lake drainage, along with the sum of scores (Table 4), and associated status (Table 5) of source and reintroduced populations.

	Lower Miller Creek	Upper Miller Creek	Gideon Creek	Tipsoo Creek	Evening Creek	Miller Lake [a]
Lamprey present 1959 – 2005?	Yes	No [b]	No [b]	No [b]	No [b]	No [b]
Lamprey present in 2008?	Yes	No [b]	No [b]	No [b]	No [b]	No [b]
Translocations	–	2010 – 2013, 2015, 2018 – 2019	2021	2020	2010 – 2013, 2015	2010 – 2013, 2017
Lamprey present in 2021?	Yes	Yes	No [b]	Yes	Yes	Yes
Lamprey present in 2023-2024?	Yes	Yes	Yes	Yes	Yes	Yes
Indicators of success [c]	1, 3, 4, 5	1, 3, 4	1	1	1, 2, 3, 4	1, 3, 5
Status score [d]	13	10	4	4	11	10
Current status	**Common – Prevalent**	**Common – Prevalent**	**Rare**	**Rare**	**Common – Prevalent**	**Common – Prevalent**
Desired status	**Common – Prevalent**	**Unclear** [e]				**Common – Prevalent**

[a] Emphasis on surveys off Evening Creek confluence.

[b] Finding no lamprey implies that none occurred. However, lamprey may have escaped detection due to very low population density or by existing in locations that were not surveyed. In addition, detection efficiency may have been low.

[c] From left-most column in Table 4.

[d] Sum of indicator scores from the right-most column in Table 4.

[e] The historical holding capacity of the habitats in these locations and the frequency and extent to which lamprey used them (i.e., intermittently or continually) for spawning, larval rearing or juvenile feeding is not well known.

ACKNOWLEDGMENTS

This report would not have been possible without the collaborative and committed efforts of the core TMT members (authors of this report), as well as the many volunteers that have assisted over the years. During the early years (early 2000s) work was done by Stewart Reid, Roger Smith, Terry Smith, Bill Tinniswood, and past TMT members such as Mike Harrington, Doug Markle, and Stephanie Gunckel. In the last few years, assistance was provided by Jane Spangler, Alex Carnevale, Loretta Havel, Ryan Bart, and Jeremy Webster, and others. In addition to the Oregon Department of Fish and Wildlife, staff from organizations that have contributed to this work include: Western Fishes, the U.S. Forest Service, Oregon State University, U.S. Fish and Wildlife Service, and the Klamath Tribes.

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