Oldman Watershed Council Ecosystem Service Calculator

DATA SOURCE DOCUMENT

MARCH 2026

Summary

		Average Annual Ecosystem Service Value (2023 CAD$/ha)					
	Ecosystem Service Type	Forest	Wetland	Grassland	Open Water	Riparian	Shrubland
Regulating & Maintenance	Air Filtration	950	20	10	Not applicable	896	720
	Global Climate Regulation	1,260	2,046	531	Not applicable	Weighted average based on the landcover types within the riparian area	531
	Soil and Sediment Regulation	425	1,119	72	20	48,772	6
	Water Purification (Water Quality Regulation)	475	32,638	46	39,400	22,013	46
	Water Flow Regulation	1,340	55,241	869	11,141	Weighted average based on the landcover types within the riparian area	1,727
	Flood Control	3,893	43,320	7	20	21,353	Insufficient data*
	Nursery Population and Habitat Maintenance	1,612	4,230	1,573	15	Weighted average based on the landcover types within the riparian area	Insufficient data*
Cultural	Visual Amenity	1,144	4,631	704	618	2,706	Insufficient data*
	Recreation-related	2,158	2,912	69	7,856	21,929	664
Provision	Water Supply	1,141	6,216	Insufficient data*	4,629	960	Insufficient data*

*: For ecosystem services where insufficient data exists, no service value is calculated.

Data Sources

Data Sources for Forest

Forest – Air Filtration

Value (2023 CAD$)	Country	Valuation Technique	Source
$647	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$687	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$12	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$877	Canada	Area-based benefit transfer	Dupras & Alam (2015)
$1366	Canada	Benefit Transfer	Troy & Bagstad (2009)
$1366	Canada	Benefit Transfer	Troy & Bagstad (2009)
$1366	Canada	Benefit Transfer	Troy & Bagstad (2009)
$1366	Canada	Benefit Transfer	Troy & Bagstad (2009)
$861	Canada	Benefit Transfer	Anielski & Wilson (2009)

Note: Numbers rounded to the neared dollar

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$950	9	$12	$1366

Forest – Global Climate Regulation

Landcover Type	Sequestration Rate (t C ha-1 year-1)	2025 SCC, converted to Carbon [2023CAD$]	Unit Value of Carbon (2023 CAD$ per hectare per year)	Source
Forest	2.12	$1,105.26	$2,343.14	Lu et al. (2015)
Forest	1.85	$1,105.26	$2,044.72	Lu et al. (2015)
Forest	1.54	$1,105.26	$1,702.09	Lu et al. (2015)
Forest	1.27	$1,105.26	$1,403.67	Lu et al. (2015)
Forest	1.2	$1,105.26	$1,326.31	Sun et al. (2016)
Forest	1.1	$1,105.26	$1,215.78	Lu et al. (2015)
Forest	1.07	$1,105.26	$1,182.62	Lu et al. (2015)
Forest	1	$1,105.26	$1,105.26	Lu et al. (2015)
Forest	0.77	$1,105.26	$851.05	Lu et al. (2015)
Forest	0.6	$1,105.26	$663.15	Sun et al. (2016)
Forest	0.6	$1,105.26	$663.15	Lu et al. (2015)
Forest	0.52	$1,105.26	$574.73	Lu et al. (2015)
Forest	0.4	$1,105.26	$442.10	Bruce et al. (1999)
Forest	2.12	$1,105.26	$2,343.14	Lu et al. (2015)
Forest	1.85	$1,105.26	$2,044.72	Lu et al. (2015)

Landcover Type	Sequestration Rate (t C ha-1 year-1)	2025 SCC, converted to Carbon [2023CAD$]	Unit Value of Carbon (2023 CAD$ per hectare per year)	Source
Forest	1.54	$1,105.26	$1,702.09	Lu et al. (2015)
Forest	1.27	$1,105.26	$1,403.67	Lu et al. (2015)
Forest	1.2	$1,105.26	$1,326.31	Sun et al. (2016)
Forest	1.1	$1,105.26	$1,215.78	Lu et al. (2015)
Forest	1.07	$1,105.26	$1,182.62	Lu et al. (2015)
Forest	1	$1,105.26	$1,105.26	Lu et al. (2015)
Forest	0.77	$1,105.26	$851.05	Lu et al. (2015)
Forest	0.6	$1,105.26	$663.15	Sun et al. (2016)
Forest	0.6	$1,105.26	$663.15	Lu et al. (2015)
Forest	0.52	$1,105.26	$574.73	Lu et al. (2015)
Forest	0.4	$1,105.26	$442.10	Bruce et al. (1999)
Forest	2.12	$1,105.26	$2,343.14	Lu et al. (2015)
Forest	1.85	$1,105.26	$2,044.72	Lu et al. (2015)
Forest	1.54	$1,105.26	$1,702.09	Lu et al. (2015)
Forest	1.27	$1,105.26	$1,403.67	Lu et al. (2015)
Forest	1.2	$1,105.26	$1,326.31	Sun et al. (2016)
Forest	1.1	$1,105.26	$1,215.78	Lu et al. (2015)
Forest	1.07	$1,105.26	$1,182.62	Lu et al. (2015)
Forest	1	$1,105.26	$1,105.26	Lu et al. (2015)
Forest	0.77	$1,105.26	$851.05	Lu et al. (2015)
Forest	0.6	$1,105.26	$663.15	Sun et al. (2016)
Forest	0.6	$1,105.26	$663.15	Lu et al. (2015)
Forest	0.52	$1,105.26	$574.73	Lu et al. (2015)
Forest	0.114	$1,105.26	$126.00	Foote & Grogan (2009)
Forest	0.103	$1,105.26	$113.84	Foote & Grogan (2009)
Forest	0.085	$1,105.26	$93.95	Foote & Grogan (2009)
Forest	2.5944444	$1,105.26	$2,867.52	Every Tree Counts (2013)
Forest	2.0277778	$1,105.26	$2,241.21	Every Tree Counts (2013)
Forest	1.81	$1,105.26	$2,000.51	Wotherspoon et. al. (2013)
Forest	1.36	$1,105.26	$1,503.15	Wotherspoon et. al. (2013)
Forest	0.4	$1,105.26	$442.10	Bruce et al. (1999)
Forest	2.12	$1,105.26	$2,343.14	Lu et al. (2015)
Forest	1.85	$1,105.26	$2,044.72	Lu et al. (2015)
Forest	1.54	$1,105.26	$1,702.09	Lu et al. (2015)
Forest	1.27	$1,105.26	$1,403.67	Lu et al. (2015)
Forest	1.2	$1,105.26	$1,326.31	Sun et al. (2016)
Forest	1.1	$1,105.26	$1,215.78	Lu et al. (2015)

Landcover Type	Sequestration Rate (t C ha-1 year-1)	2025 SCC, converted to Carbon [2023CAD$]	Unit Value of Carbon (2023 CAD$ per hectare per year)	Source
Forest	1.07	$1,105.26	$1,182.62	Lu et al. (2015)
Forest	1	$1,105.26	$1,105.26	Lu et al. (2015)
Forest	0.77	$1,105.26	$851.05	Lu et al. (2015)
Forest	0.6	$1,105.26	$663.15	Sun et al. (2016)
Forest	0.6	$1,105.26	$663.15	Lu et al. (2015)
Forest	0.52	$1,105.26	$574.73	Lu et al. (2015)
Forest	0.114	$1,105.26	$126.00	Foote & Grogan (2009)
Forest	0.103	$1,105.26	$113.84	Foote & Grogan (2009)
Forest	0.085	$1,105.26	$93.95	Foote & Grogan (2009)
Forest	3.205	$1,105.26	$3,542.34	Winans et al. (2015)
Forest	2.5944444	$1,105.26	$2,867.52	Every Tree Counts (2013)
Forest	2.12	$1,105.26	$2,343.14	Wotherspoon et. al. (2013)
Forest	2.0277778	$1,105.26	$2,241.21	Every Tree Counts (2013)
Forest	1.895	$1,105.26	$2,094.46	Winans et al. (2015)
Forest	1.7	$1,105.26	$1,878.93	Thevathasaan & Gordon (2004)
Forest	1.65	$1,105.26	$1,823.67	Thevathasaan & Gordon (2004)
Forest	1.58	$1,105.26	$1,746.30	Wotherspoon et. al. (2013)
Forest	0.84	$1,105.26	$928.41	Wotherspoon et. al. (2013)
Forest	0.4	$1,105.26	$442.10	Bruce et al. (1999)
Forest	2.12	$1,105.26	$2,343.14	Lu et al. (2015)
Forest	1.85	$1,105.26	$2,044.72	Lu et al. (2015)
Forest	1.54	$1,105.26	$1,702.09	Lu et al. (2015)
Forest	1.27	$1,105.26	$1,403.67	Lu et al. (2015)
Forest	1.2	$1,105.26	$1,326.31	Sun et al. (2016)
Forest	1.1	$1,105.26	$1,215.78	Lu et al. (2015)
Forest	1.07	$1,105.26	$1,182.62	Lu et al. (2015)
Forest	1	$1,105.26	$1,105.26	Lu et al. (2015)
Forest	0.77	$1,105.26	$851.05	Lu et al. (2015)
Forest	0.6	$1,105.26	$663.15	Sun et al. (2016)
Forest	0.6	$1,105.26	$663.15	Lu et al. (2015)
Forest	0.52	$1,105.26	$574.73	Lu et al. (2015)
Forest	0.114	$1,105.26	$126.00	Foote & Grogan (2009)
Forest	0.103	$1,105.26	$113.84	Foote & Grogan (2009)
Forest	0.085	$1,105.26	$93.95	Foote & Grogan (2009)

Landcover Type	Sequestration Rate (t C ha-1 year-1)	2025 SCC, converted to Carbon [2023CAD$]	Unit Value of Carbon (2023 CAD$ per hectare per year)	Source
Forest	2.5944444	$1,105.26	$2,867.52	Every Tree Counts (2013)
Forest	2.0277778	$1,105.26	$2,241.21	Every Tree Counts (2013)
Forest	1.464	$1,105.26	$1,618.09	Akala & Lal (2000)
Forest	0.4	$1,105.26	$442.10	Bruce et al. (1999)

	Average Unit Value of Carbon (2023 CAD$ per hectare per year)	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
Forest	$2045.8	$93.95	$3,542.34

Forest – Soil and Sediment Regulation

Value (2023 CAD$)	Country	Valuation Technique	Source
$792.77	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$261.83	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$170.01	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$491.58	United States	Avoided cost; Hedonic pricing	Yoo et al. (2014)
$1072.58	Canada	Benefit Transfer	Troy & Bagstad (2009)
$137.74	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$491.40	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$1.24	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$665.13	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$170.01	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$425.4	10	$1.24	$1072.58

Forest – Water Purification (Water Quality Regulation)

Value (2023 CAD$)	Country	Valuation Technique	Source
$539.25	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$173.73	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$394.61	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$179.35	Canada	Area-based benefit transfer	Dupras & Alam (2015)
$706.33	Canada	Benefit Transfer	Troy & Bagstad (2009)
$855.03	Canada	Benefit Transfer	Troy & Bagstad (2009)
$32.26	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$1000.18	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$394.61	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$475.0	9	$32.26	$1000.18

Forest – Water Flow Regulation

Value (2023 CAD$)	Country	Valuation Technique	Source
$1479.57	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$3881.86	Canada	Benefit Transfer	Fiera Biological Consulting and Nichols Applied Management Inc. (2020)
$0.16	Canada	Benefit Transfer	Anielski & Wilson (2009)
$0.09	Canada	Benefit Transfer	Anielski & Wilson (2009)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$1340.4	4	$0.09	$3881.86

Forest – Flood Control

Value (2023 CAD$)	Country	Valuation Technique	Source
$536.13	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$6241.81	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$203.78	Canada	Benefit Transfer	Troy & Bagstad (2009)
$6173.56	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$6310.06	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value	Maximum Value
$3893.1	5	$203.78	$6310.06

Forest – Nursery Population and Habitat Maintenance

Value (2023 CAD$)	Country	Valuation Technique	Source
$3330.62	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$2711.40	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$1192.07	Canada	Area-based benefit transfer	Dupras & Alam (2015)
$8884.59	United States	Contingent valuation	Loomis & Ekstrand (1998)
$2.79	Canada	Production function	Knowler et al. (2003)
$0.06	United States	Choice experiment	Roesch-McNally & Rabotyagov (2016)
$3.15	United States	Choice experiment	Roesch-McNally & Rabotyagov (2016)
$0.09	United States	Choice experiment	Roesch-McNally & Rabotyagov (2016)
$8.45	United States	Choice experiment	Roesch-McNally & Rabotyagov (2016)
$155.87	United States	Contingent valuation	Walsh et al. (1984)
$1.86	Canada	Actual expenditure/market price of output	Hauer & Boutin (2018)
$4.85	Canada	Actual expenditure/market price of output	Hauer & Boutin (2018)
$3343.02	Canada	Benefit Transfer	Troy & Bagstad (2009)
$183.12	Canada	Benefit Transfer	Troy & Bagstad (2009)
$38.13	Canada	Benefit Transfer	Anielski & Wilson (2009)
$0.92	Canada	Benefit Transfer	Anielski & Wilson (2009)
$0.92	Canada	Benefit Transfer	Anielski & Wilson (2009)
$25.79	Canada	Willingness to pay; Compensating variation	Harper (2012)
$37.58	Canada	Willingness to pay; Compensating variation	Harper (2012)
$3.85	Canada	Benefit Transfer	Haener & Adamowicz (2000)
$26.53	Canada	Benefit Transfer	Haener & Adamowicz (2000)
$15.18	Canada	Benefit Transfer	Haener & Adamowicz (2000)
$1438.46	Canada	Contingent valuation - dichotomous choice	Macnab & Brusnyk (1993)
$1390.73	Canada	Contingent valuation - dichotomous choice	Macnab & Brusnyk (1993)
$2157.71	Canada	Contingent valuation - dichotomous choice	Macnab & Brusnyk (1993)
$1607.24	Canada	Contingent valuation - dichotomous choice	Macnab & Brusnyk (1993)
$2876.92	Canada	Contingent valuation - dichotomous choice	Macnab & Brusnyk (1993)
$1827.93	Canada	Contingent valuation - dichotomous choice	Macnab & Brusnyk (1993)
$3596.17	Canada	Contingent valuation - dichotomous choice	Macnab & Brusnyk (1993)
$2046.55	Canada	Contingent valuation - dichotomous choice	Macnab & Brusnyk (1993)

Value (2023 CAD$)	Country	Valuation Technique	Source
$550.97	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$8884.96	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$0.12	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$14083.16	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$3952.32	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$5.88	Canada	CVM - open-ended	Tanguay et al. (1995)
$14.16	Canada	CVM - dichotomous choice	Tanguay et al. (1995)
$17.16	Canada	CVM - dichotomous choice	Tanguay et al. (1995)
$23.30	Canada	Stated preference methods	Harper (2012)
$33.40	Canada	Stated preference methods	Harper (2012)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$1611.9	40	$0.06	$14083.16

Forest – Visual Amenity

Value (2023 CAD$)	Country	Valuation Technique
1143.962	Canada	Area-based benefit transfer

Average of Value (2023 CAD$)	Count of Studies
$1144.0	1

Forest – Recreation-related

Value (2023 CAD$)	Country	Valuation Technique	Source
$817.71	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$93.07	Canada	Market price	L'Ecuyer-Sauvageau et al. (2021)
$2056.46	Canada	Market price	Dupras & Alam (2015)
$663.59	Canada	Benefit Transfer	Fiera Biological Consulting and Nichols Applied Management Inc. (2020)
$371.75	Canada	Benefit Transfer	Troy & Bagstad (2009)
$20519.38	Canada	Benefit Transfer	Troy & Bagstad (2009)
$15659.06	Canada	Benefit Transfer	Troy & Bagstad (2009)
$769.67	Canada	Benefit Transfer	Troy & Bagstad (2009)
$27.21	Canada	Benefit Transfer	Anielski & Wilson (2010)
$0.07	Canada	Benefit Transfer	Haener & Adamowicz (2000)
$0.25	Canada	Benefit Transfer	Haener & Adamowicz (2000)
$0.16	Canada	Benefit Transfer	Haener & Adamowicz (2000)
$0.14	Canada	Benefit Transfer	Haener & Adamowicz (2000)
$0.69	Canada	Benefit Transfer	Haener & Adamowicz (2000)

Value (2023 CAD$)	Country	Valuation Technique	Source
$0.41	Canada	Benefit Transfer	Haener & Adamowicz (2000)
$0.05	Canada	Benefit Transfer	Haener & Adamowicz (2000)
$21.43	Canada	Benefit Transfer	Anielski & Wilson (2009)
$7.77	Canada	Contingent Valuation Method (CVM); expenditure-based analysis	Phillips et al. (1989)
$0.76	Canada	Aggregate Travel Cost Model	Boxall et al. (1996)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$2158.4	19	$0.05	$20519.38

Forest – Water Supply

Value (2023 CAD$)	Country	Valuation Technique	Source
$790.70	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$420.67	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$1041.13	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$945.30	Canada	Avoided cost	Dupras & Alam (2015)
$2270.45	Canada	Benefit Transfer	Troy & Bagstad (2009)
$1817.46	Canada	Benefit Transfer	Troy & Bagstad (2009)
$251.91	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$755.72	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$420.67	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$152.63	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$3788.52	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)
$1041.13	Canada	Benefit Transfer	L'Ecuyer-Sauvageau et al. (2021)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$1141.4	12	$152.63	$2270.45

Data Sources for Wetland

Wetland – Air Filtration

Value (2023 CAD$)	Country	Valuation Technique	Source
$19.74	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$19.28	Canada	Benefit Transfer	Troy & Bagstad (2009)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$19.5	2	$19.28	$19.74

Wetland – Global Climate Regulation

Landcover Type	Sequestration Rate (t C ha-1 year-1)	2025 SCC, converted to Carbon [2023CAD$]	Unit Value of Carbon (2023 CAD$ per hectare per year)	Source
Wetland	2.55	$1,105.26	$2,818.40	Bernal & Mitsch (2012)
Wetland	2.2	$1,105.26	$2,431.56	Mitsch et al. (2011)
Wetland	2.1	$1,105.26	$2,321.04	Bernal & Mitsch (2012)
Wetland	2.07	$1,105.26	$2,287.88	Mitsch et al. (2011)
Wetland	1.929	$1,105.26	$2,132.04	Anderson & Mitsch (2006)
Wetland	1.809	$1,105.26	$1,999.41	Anderson & Mitsch (2006)
Wetland	0.86	$1,105.26	$950.52	Mitsch et al. (2011)
Wetland	0.97	$1,105.26	$1,072.10	Ian et al. (2015)
Wetland	0.97	$1,105.26	$1,072.10	Chu et al. 2015)
Wetland	0.43	$1,105.26	$475.26	Chu et al. 2015)
Wetland	2.67	$1,105.26	$2,951.03	Bernal & Mitsch (2012)
Wetland	1.6	$1,105.26	$1,768.41	Bernal & Mitsch (2012)
Wetland	2.12	$1,105.26	$2,343.14	Bernal & Mitsch (2012)
Wetland	1.12	$1,105.26	$1,237.89	Bernal & Mitsch (2012)
Wetland	2.12	$1,105.26	$2,343.14	Bernal & Mitsch (2012)
Wetland	1.05	$1,105.26	$1,160.52	Bernal & Mitsch (2012)
Wetland	4.73	$1,105.26	$5,227.86	Bernal & Mitsch (2012)
Wetland	2.02	$1,105.26	$2,232.62	Bernal & Mitsch (2012)

	Average Unit Value of Carbon (2023 CAD$ per hectare per year)	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
Wetland	$2045.8	$475.26	$5,227.86

Wetland – Soil and Sediment Regulation

Value (2023 CAD$)	Country	Valuation Technique	Source
$2238.31	United States	Benefit Transfer	Jenkins et al. (2010)
$0	United States	Market price	Jenkins et al. (2010)
$1119.16	United States	Market price	Jenkins et al. (2010)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$1119.2	3	$0	$2238.31

Wetland – Water Purification (Water Quality Regulation)

Value (2023 CAD$)	Country	Valuation Technique	Source
$3167.98	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$19721.88	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$350.61	Canada	Area-based benefit transfer	Dupras & Alam (2015)
$31.74	Canada	Contingent valuation	van Kooten & Schmitz (1992)
$447.80	United States	Replacement cost	Ko et al. (2004)
$52650.43	United States	Replacement cost	Gupta & Foster (1975)
$1982.31	United States	Replacement cost	Cardoch et al. (2000)
$580.64	United States	Replacement cost	Breaux et al. (1995)
$5769.75	United States	Replacement cost	Breaux et al. (1995)
$30754.06	United States	Replacement cost	Breaux et al. (1995)
$22929.52	Canada	Avoided Cost: constructed treatment wetlands	Wang et al. (2011)
$37876.95	Canada	Avoided Cost: constructed treatment wetlands	Wang et al. (2011)
$185596.80	Canada	Avoided Cost: constructed treatment wetlands	Wang et al. (2011)
$3826.30	Canada	Benefit Transfer	Troy & Bagstad (2009)
$4361.90	Canada	Benefit Transfer	Troy & Bagstad (2009)
$3662.45	Canada	Benefit Transfer	Troy & Bagstad (2009)
$37876.95	Canada	Replacement cost; Constructed wetland cost	Wang et al. (2011)
$185596.80	Canada	Replacement cost;Constructed wetland cost	Wang et al. (2011)
$22929.52	Canada	Restoration cost	Wang et al. (2011)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$32637.6	19	$31.74	$185596.80

Wetland – Flow Regulation

Value (2023 CAD$)	Country	Valuation Technique	Source
$43114.18	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$67368.5	Canada	Benefit Transfer	Troy & Bagstad (2009)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$55241.3	2	$43114.18	$67368.5

Wetland – Flood Control

Value (2023 CAD$)	Country	Valuation Technique	Source
$8446.20	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$25768.87	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$633.79	Canada	Area-based benefit transfer	Dupras & Alam (2015)
$4934.15	United States	Replacement cost	Leschine et al. (1997)
$14949.38	United States	Replacement cost	Leschine et al. (1997)
$17347.61	United States	Replacement cost	Leschine et al. (1997)
$45.83	United States	Market price	Hovde & Leitch (1994)
$1437.35	United States	Market price	Gupta & Foster (1975)
$22929.52	Canada	Restoration	Wang et al. (2011)
$136747.2	Canada	Benefit Transfer	Troy & Bagstad (2009)
$1453.89	Canada	Benefit Transfer	Anielski & Wilson (2009)
$18676.12	Canada	Benefit Transfer	Anielski & Wilson (2009)
$330185.2	Canada	Replacement cost; Constructed wetland cost	Troy & Bagstad (2009)
$22929.52	Canada	Restoration cost	Troy & Bagstad (2009)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$43320.3	14	$45.83	$330185.2

Wetland – Nursery Population and Habitat Maintenance

Value (2023 CAD$)	Country	Valuation Technique	Source
$26631.30	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$699.87	Canada	Area-based benefit transfer	Dupras & Alam (2015)
$222.60	Canada	Contingent valuation	Phillips et al. (1993)
$1823.00	United States	Contingent valuation	Poor (1999)
$103.26	Canada	Benefit Transfer	Troy & Bagstad (2009)
$31.42	Canada	CVM	Dina (2003)
$98.03	Canada	CVM	Dina (2003)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$4230.0	7	$31.42	$26631.30

Wetland – Visual Amenity

Value (2023 CAD$)	Country	Valuation Technique	Source
$4639.23	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$891.36	Canada	Area-based benefit transfer	Dupras & Alam (2015)
$2.81	United States	Contingent valuation	Bauer et al. (2004)
$1970.60	United States	Market price	Joworski (1980)
$52.38	United States	Market price	Hovde & Leitch (1994)
$5077.01	United States	Market price	Gupta & Foster (1975)
$16840.29	United States	Hedonic pricing	Doss & Taff (1996)
$8875.26	Canada	Benefit Transfer	Troy & Bagstad (2009)
$177.62	Canada	Benefit Transfer	Troy & Bagstad (2009)
$3479.33	Canada	Benefit Transfer	Troy & Bagstad (2009)
$8931.15	Canada	Hedonic pricing	Wang et al. (2011)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$4630.6	11	$2.81	$8931.15

Wetland – Recreation-related

Value (2023 CAD$)	Country	Valuation Technique	Source
$4444.93	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$93.07	Canada	Market price	L'Ecuyer-Sauvageau et al. (2021)
$2056.46	Canada	Market price	Dupras & Alam (2015)
$28.70	United States	Benefit Transfer	Jenkins et al. (2010)
$26.90	United States	Market price	Jenkins et al. (2010)
$8805.49	United States	Production function	Bell (1997)
$663.59	Canada	Benefit Transfer	Fiera Biological Consulting and Nichols Applied Management Inc. (2020)
$663.59	Canada	Benefit Transfer	Fiera Biological Consulting and Nichols Applied Management Inc. (2020)
$2347.84	Canada	Travel cost	Wang et al. (2011)
$4889.24	Canada	Benefit Transfer	Troy & Bagstad (2009)
$13577.24	Canada	Benefit Transfer	Troy & Bagstad (2009)
$812.35	Canada	Benefit Transfer	Troy & Bagstad (2009)

Value (2023 CAD$)	Country	Valuation Technique	Source
$9.43	Canada	Benefit Transfer	Withey & van Kooten (2011)
$2353.12	Canada	Travel cost method	Wang et al. (2011)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$2912.3	14	$9.43	$13577.24

Wetland – Water Supply

Value (2023 CAD$)	Country	Valuation Technique	Source
$23289.66	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$38.47	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$1523.80	Canada	Area-based benefit transfer	Dupras & Alam (2015)
$9.91	United States	Replacement cost	Farber (1996)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$6215.5	4	$9.91	$23289.66

Data Sources for Grassland

Grassland – Air Filtration

Value (2023 CAD$)	Country	Valuation Technique	Source
$22.86	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$1.65	United States	Damage cost	Gopalakrishnan et al. (2018)
$0.91	United States	Damage cost	Gopalakrishnan et al. (2018)
$0.01	United States	Damage cost	Gopalakrishnan et al. (2018)
$0.03	United States	Damage cost	Gopalakrishnan et al. (2018)
$26.16	Canada	Benefit Transfer	Troy & Bagstad (2009)
$15.49	Canada	Benefit Transfer	Anielski & Wilson (2010)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$9.59	7	$0.01	$22.86

Grassland - Global Climate Regulation

Landcover Type	Sequestration Rate (t C ha-1 year-1)	2025 SCC, converted to Carbon [2023CAD$]	Unit Value of Carbon (2023 CAD$ per hectare per year)	Source
Grassland	0.1	$1,105.26	$110.53	Sun J. et al. (2016)
Grassland	0.8	$1,105.26	$884.20	Bruce et al. (1999)
Grassland	0.6	$1,105.26	$663.15	Bruce et al. (1999)
Grassland	0.5	$1,105.26	$552.63	Smith et al. (2001)
Grassland	0.4	$1,105.26	$442.10	Sala & Paruelo (1997)

	Average Unit Value of Carbon (2023 CAD$ per hectare per year)	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
Grassland	$530.5	$110.53	$884.20

Grassland - Soil and Sediment Regulation

Value (2023 CAD$)	Country	Valuation Technique	Source
$28.05	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$135.26	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$47.20	Canada	Area-based benefit transfer	Dupras & Alam (2015)
$75.53	Canada	Avoided cost	Fox & Dickson (1990)
$90.15	United States	Replacement cost	Pimentel et al. (1995)
$239.70	United States	Replacement cost	Pimentel et al. (1995)
$5.51	Canada	Benefit Transfer	Troy & Bagstad (2009)
$64.19	Canada	Benefit Transfer	Anielski & Wilson (2010)
$0.30	Canada	Benefit Transfer	Kosinski (2012)
$37.43	Canada	Benefit Transfer	Kosinski (2012)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$72.3	10	$0.30	$239.70

Grassland - Water Purification (Water Quality Regulation)

Value (2023 CAD$)	Country	Valuation Technique	Source
$35.33	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$37.75	Canada	Benefit Transfer	Fiera Biological Consulting and Nichols Applied Management Inc. (2020)
$34.42	Canada	Benefit Transfer	Troy & Bagstad (2009)
$6.64	Canada	Benefit Transfer	Anielski & Wilson (2010)
$192.59	Canada	Benefit Transfer	Anielski & Wilson (2010)

Value (2023 CAD$)	Country	Valuation Technique	Source
$1.73	Canada	Benefit Transfer	Kosinski (2012)
$12.06	Canada	Benefit Transfer	Kosinski (2012)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$45.8	7	$1.73	$192.59

Grassland - Water Flow Regulation

Value (2023 CAD$)	Canada	Valuation Technique	Source
$10.39	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$1727.37	Canada	Benefit Transfer	Fiera Biological Consulting and Nichols Applied Management Inc. (2020)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$868.9	2	$10.39	$1727.37

Grassland - Flood Control

Value (2023 CAD$)	Country	Valuation Technique	Source
$6.88	Canada	Benefit Transfer	Troy & Bagstad (2009)

Average of Value (2023 CAD$)	Count of Studies
$6.9	1

Grassland - Nursery Population and Habitat Maintenance

Value (2023 CAD$)	Country	Valuation Technique	Source
$3061.34	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$3048.95	Canada	Area-based benefit transfer	Dupras & Alam (2015)
$130.80	Canada	Benefit Transfer	Troy & Bagstad (2009)
$50.92	Canada	Benefit Transfer	Anielski & Wilson (2010)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$1573.0	4	$50.92	$3061.34

Grassland - Visual Amenity

Value (2023 CAD$)	Country	Valuation Technique	Source
$1798.55	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$103.00	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$210.37	Canada	Area-based benefit transfer	Dupras & Alam (2015)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$704.0	3	$103.00	$1798.55

Grassland - Recreation-related

Value (2023 CAD$)	Country	Valuation Technique	Source
$73.77	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
493.07	Canada	Market price	L'Ecuyer-Sauvageau et al. (2021)
$663.59	Canada	Benefit Transfer	Fiera Biological Consulting and Nichols Applied Management Inc. (2020)
$72.97	Canada	Benefit Transfer	Troy & Bagstad (2009)
$4.43	Canada	Benefit Transfer	Anielski & Wilson (2010)
$2.69	Canada	Benefit Transfer	Kosinski (2012)
$8.33	Canada	Benefit Transfer	Kosinski (2012)
$6.92	Canada	Benefit Transfer	Kosinski (2012)
$24.67	Canada	Benefit Transfer	Kosinski (2012)
$0.72	Canada	Benefit Transfer	Kosinski (2012)
$2.89	Canada	Benefit Transfer	Kosinski (2012)
$9.56	Canada	Benefit Transfer	Kosinski (2012)
$0.89	Canada	Benefit Transfer	Kosinski (2012)
$11.37	Canada	Benefit Transfer	Kosinski (2012)
$62.53	Canada	Benefit Transfer	Kosinski (2012)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$69.2	15	$0.72	$663.59

Data Sources for Open Water

Open Water - Water Purification (Water Quality Regulation)

Value (2023 CAD$)	Country	Valuation Technique	Source
$21059.92	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$59.56	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$292892.4	United States	Replacement cost	Gosselink et al. (1974)
$46683.9	Canada	Benefit Transfer	Troy & Bagstad (2009)
$63016.24	Canada	Benefit Transfer	Troy & Bagstad (2009)
$842.64	Canada	Benefit Transfer	Troy & Bagstad (2009)
$74.35	Canada	Benefit Transfer	Troy & Bagstad (2009)
$2250.71	Canada	CVM	Mingle (2017)
$2674.54	Canada	CVM	Mingle (2017)
$1776.76	Canada	CVM	Mingle (2017)
$2063.48	Canada	CVM	Mingle (2017)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$39399.5	11	$74.35	$292892.4

Open Water - Water Flow Regulation

Value (2023 CAD$)	Country	Valuation Technique	Source
$2305.59	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$17840.01	Canada	Benefit Transfer	Troy & Bagstad (2009)
$24356.7	Canada	Benefit Transfer	Troy & Bagstad (2009)
$61.96	Canada	Benefit Transfer	Troy & Bagstad (2009)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$11141.1	4	$61.96	$17840.01

Open Water - Flood Control

Value (2023 CAD$)	Country	Valuation Technique	Source
$20.43	United States	Replacement cost	Shultz & Leitch (2001)

Average of Value (2023 CAD$)	Count of Studies
$20.4	1

Open Water - Nursery Population and Habitat Maintenance

Value (2023 CAD$)	Country	Valuation Technique	Source
$12.41	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$13.77	Canada	Benefit Transfer	Troy & Bagstad (2009)
$17.90	Canada	Benefit Transfer	Troy & Bagstad (2009)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$14.7	3	$12.41	$17.90

Open Water - Visual Amenity

Value (2023 CAD$)	Country	Valuation Technique	Source
$935.12	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$4.96	Canada	Area-based benefit transfer	L'Ecuyer-Sauvageau et al. (2021)
$130.49	United States	Contingent valuation	Roberts & Leitch (1997)
$333.20	Canada	Benefit Transfer	Troy & Bagstad (2009)
$816.48	Canada	Benefit Transfer	Troy & Bagstad (2009)
$330.45	Canada	Benefit Transfer	Troy & Bagstad (2009)
$1774.78	Canada	Benefit Transfer	Troy & Bagstad (2009)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$617.9	7	$4.96	$1774.78

Open Water - Recreation-related

Value (2023 CAD$)	Country	Valuation Technique	Source
$33849.23	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$93.07	Canada	Market price	L'Ecuyer-Sauvageau et al. (2021)
$663.59	Canada	Benefit Transfer	Fiera Biological Consulting and Nichols Applied Management Inc. (2020)
$11916.74	Canada	Benefit Transfer	Troy & Bagstad (2009)
$5259.61	Canada	Benefit Transfer	Troy & Bagstad (2009)
$762.78	Canada	Benefit Transfer	Troy & Bagstad (2009)
$620.96	Canada	Benefit Transfer	Troy & Bagstad (2009)
$392.14	Canada	Travel cost	Bewer (2012)
$549.96	Canada	Travel cost	Bewer (2012)
$288.17	Canada	Travel cost method - random utility model (RUM)	Peters et al. (1995)
$274.44	Canada	Travel cost method - RUM-5 Model	Peters et al. (1995)

Value (2023 CAD$)	Country	Valuation Technique	Source
$1009.34	Canada	Travel cost method - AWARE Model	Peters et al. (1995)
$2009.46	Canada	Travel cost method - random utility model (RUM)	Peters et al. (1995)
$1582.45	Canada	Travel cost method - RUM-5 Model	Peters et al. (1995)
$502.36	Canada	Travel cost method - AWARE Model	Peters et al. (1995)
$9066.17	Canada	Travel cost method - random utility model (RUM)	Peters et al. (1995)
$8912.53	Canada	Travel cost method - RUM-5 Model	Peters et al. (1995)
$1997.64	Canada	Travel cost method - AWARE Model	Peters et al. (1995)
$2259.33	Canada	CVM	Mingle (2017)
$2552.32	Canada	CVM	Mingle (2017)
$69877.34	Canada	Travel Cost Methods and CVM	Kulshreshtha (1991)
$28.29	Canada	Travel Cost Methods and CVM	Kulshreshtha (1991)
$123.95	Canada	Travel Cost Methods and CVM	Kulshreshtha (1991)
$49.53	Canada	Travel Cost Methods and CVM	Kulshreshtha (1991)
$548.17	Canada	Travel Cost Methods and CVM	Kulshreshtha (1991)
$46.58	Canada	Travel Cost Methods and CVM	Kulshreshtha (1991)
$5.32	Canada	Travel Cost Methods and CVM	Kulshreshtha (1991)
$15.25	Canada	Travel Cost Methods and CVM	Kulshreshtha (1991)
$993.62	Canada	Travel Cost Methods and CVM	Kulshreshtha (1991)
$304.00	Canada	Travel Cost Methods and CVM	Kulshreshtha (1991)
$14.03	Canada	Contingent Valuation Method (CVM)	McNaughton (1995)
$31299.42	Canada	Travel Cost Method	Bewer (2012)
$38336.4	Canada	Travel Cost Method	Bewer (2012)
$40883.52	Canada	Travel Cost Method	Bewer (2012)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$7855.5	34	$5.32	$69877.34

Open Water - Water Supply

Value (2023 CAD$)	Country	Valuation Technique	Source
$7316.79	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)
$3090.52	Canada	CVM	Mingle (2017)
$3479.09	Canada	CVM	Mingle (2017)

Average of Value (2023 CAD$)	Count of Studies	Minimum Value (2023 CAD$)	Maximum Value (2023 CAD$)
$4628.8	3	$3090.52	$7316.79

Data Sources for Riparian

Riparian - Air Filtration

Value (2023 CAD$)	Source
$896.2	FEMA (2022)

Riparian - Soil and Sediment Regulation

Value (2023 CAD$)	Source
$48771.9	FEMA (2022)

Riparian - Water Purification (Water Quality Regulation)

Value (2023 CAD$)	Source
$22013.2	FEMA (2022)

Riparian - Flood Control

Value (2023 CAD$)	Source
$21353.4	FEMA (2022)

Riparian - Visual Amenity

Value (2023 CAD$)	Source
$48771.9	FEMA (2022)

Riparian - Recreation-related

Value (2023 CAD$)	Source
$6343.0	FEMA (2022)

Riparian - Water Supply

Value (2023 CAD$)	Source
$959.7	FEMA (2022)

Data Sources for Shrubland

Shrubland - Air Filtration

Value (2023 CAD$)	Country	Valuation Technique	Source
$720.04	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)

Average of Value (2023 CAD$)	Count of Studies
720.0	1

Shrubland - Global Climate Regulation

Same as **Grassland**

Shrubland - Soil and Sediment Regulation

Value (2023 CAD$)	Country	Valuation Technique	Source
$6.23	Canada	Area-based benefit transfer	Deloyde & Mabee (2023)

Average of Value (2023 CAD$)	Count of Studies
$6.2	1

Shrubland - Water Purification (Water Quality Regulation)

Same as grassland

Shrubland - Water Flow Regulation

Value (2023 CAD$)	Country	Valuation Technique	Source
$1727.43	Canada	Benefit Transfer	Fiera Biological Consulting and Nichols Applied Management Inc. (2020)

Average of Value (2023 CAD$)	Count of Studies
$1727.4	1

Shrubland - Recreation-related

Value (2023 CAD$)	Country	Valuation Technique	Source
$663.59	Canada	Benefit Transfer	Fiera Biological Consulting and Nichols Applied Management Inc. (2020)

Average of Value (2023 CAD$)	Count of Studies
$663.6	1