

Appendix 15A. Habitat Equivalency Analysis of Risk Consequences: Summary of Results

Section 1 Offsetting Restoration for One Organism

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Risk Category	Probability of Successful Invasion	Percent Outcomes	<---Offsetting Restoration for One Organism--->	
			Slow Invasion (River-Miles)	Fast Invasion (River-Miles)
Very Low	1.00E-09	87.0%	0.0000000805	0.000000470
Low	1.00E-06	7.6%	0.0000805	0.000470
Moderate	1.00E-03	3.7%	0.0805	0.470
High	1.00E-02	1.7%	0.805	4.70
Very High	1.00E+00	0.0%	80.5	470
Weighted Average (a)			0.02	0.10

Section 1.2 Lake Winnipeg - Jump Dispersal

Risk Category	Probability of Successful Invasion	Percent Outcomes	<---Offsetting Restoration for One Organism--->	
			Slow Invasion (Acres)	Fast Invasion (Acres)
Very Low	1.00E-09	87.0%	0.00173	0.00708
Low	1.00E-06	7.6%	1.73	7.08
Moderate	1.00E-03	3.7%	1,730	7,080
High	1.00E-02	1.7%	17,300	70,800
Very High	1.00E+00	0.0%	1,730,000	7,080,000
Weighted Average (a)			358.24	1,466.10

Section 1.3 Lake Winnipeg - Progressive Dispersal

Risk Category	Probability of Successful Invasion	Percent Outcomes	<---Offsetting Restoration for One Organism--->	
			Slow Invasion (Acres)	Fast Invasion (Acres)
Very Low	1.00E-09	87.0%	0.000000291	0.00301
Low	1.00E-06	7.6%	0.000291	3.01
Moderate	1.00E-03	3.7%	0.291	3,010
High	1.00E-02	1.7%	2.91	30,100
Very High	1.00E+00	0.0%	291	3,010,000
Weighted Average (a)			0.06	623.30

Section 2 Offsetting Restoration for 31 Biota

Section 2.1 Slow Invasion

<----Offsetting Restoration for 31 Biota (b)---->

Dispersal Scenario for Lake Winnipeg	Red River (River-Miles)	Lake Winnipeg (Acres)
0 Jump - 31 Progressive	0.6	1.9
1 Jump - 30 Progressive	0.6	360.0
10 Jump - 21 Progressive	0.6	3,583.7

Section 2.2 Fast Invasion

<----Offsetting Restoration for 31 Biota (b)---->

Dispersal Scenario for Lake Winnipeg	Red River (River-Miles)	Lake Winnipeg (Acres)
0 Jump - 31 Progressive	3.1	19,322.3
1 Jump - 30 Progressive	3.1	20,165.1
10 Jump - 21 Progressive	3.1	27,750.3

Section 3 Notes

(a) Weighted by the percent outcomes of respective risk categories

(b) Multiples of the weighted averages of the respective offsetting restoration levels for one organism, combined according to the dispersal scenarios for Lake Winnipeg

**Appendix 15B. Habitat Equivalency Analysis of Risk Consequences:
Slow Invasion - Very Low Risk (One Organism)**

Probability of successful invasion: 1.00E-09
 Annual discount rate: 3.0%
 Present year: 0

Section 1 Quantification of Expected Lost Services

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Affected habitat (river-miles): 455.40

Year	<------(Percentage)----->		<------(River-Mile Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.0000000000%	0.0000000000	0.0000000000
1	0.34%	0.0000000034%	0.0000000155	0.0000000150
2	0.68%	0.0000000068%	0.0000000310	0.0000000292
3	1.02%	0.0000000102%	0.0000000465	0.0000000425
4	1.36%	0.0000000136%	0.0000000620	0.0000000550
5	1.70%	0.0000000170%	0.0000000774	0.0000000668
6	2.04%	0.0000000204%	0.0000000929	0.0000000778
7	2.38%	0.0000000238%	0.0000001084	0.0000000882
8	2.72%	0.0000000272%	0.0000001239	0.0000000978
9	3.06%	0.0000000306%	0.0000001394	0.0000001068
10	3.40%	0.0000000340%	0.0000001549	0.0000001153
11	3.74%	0.0000000374%	0.0000001704	0.0000001231
12	4.08%	0.0000000408%	0.0000001859	0.0000001304
13	4.42%	0.0000000442%	0.0000002014	0.0000001371
14	4.76%	0.0000000476%	0.0000002169	0.0000001434
15	5.10%	0.0000000510%	0.0000002323	0.0000001491
16	5.44%	0.0000000544%	0.0000002478	0.0000001544
17	5.78%	0.0000000578%	0.0000002633	0.0000001593
18	6.12%	0.0000000612%	0.0000002788	0.0000001638
19	6.46%	0.0000000646%	0.0000002943	0.0000001678
20	6.80%	0.0000000680%	0.0000003098	0.0000001715
21	7.14%	0.0000000714%	0.0000003253	0.0000001749
22	7.48%	0.0000000748%	0.0000003408	0.0000001778
23	7.82%	0.0000000782%	0.0000003563	0.0000001805
24	8.16%	0.0000000816%	0.0000003718	0.0000001829
25	8.50%	0.0000000850%	0.0000003872	0.0000001850
26	8.84%	0.0000000884%	0.0000004027	0.0000001867
27	9.18%	0.0000000918%	0.0000004182	0.0000001883
28	9.52%	0.0000000952%	0.0000004337	0.0000001896
29	9.86%	0.0000000986%	0.0000004492	0.0000001906

30	10.20%	0.00000001020%	0.00000004647	0.00000001914
31	10.54%	0.00000001054%	0.00000004802	0.00000001921
32	10.88%	0.00000001088%	0.00000004957	0.00000001925
33	11.22%	0.00000001122%	0.00000005112	0.00000001927
34	11.56%	0.00000001156%	0.00000005267	0.00000001928
35	11.90%	0.00000001190%	0.00000005421	0.00000001927
36	12.24%	0.00000001224%	0.00000005576	0.00000001924
37	12.59%	0.00000001259%	0.00000005731	0.00000001920
38	12.93%	0.00000001293%	0.00000005886	0.00000001914
39	13.27%	0.00000001327%	0.00000006041	0.00000001907
40	13.61%	0.00000001361%	0.00000006196	0.00000001899
41	13.95%	0.00000001395%	0.00000006351	0.00000001890
42	14.29%	0.00000001429%	0.00000006506	0.00000001880
43	14.63%	0.00000001463%	0.00000006661	0.00000001869
44	14.97%	0.00000001497%	0.00000006816	0.00000001856
45	15.31%	0.00000001531%	0.00000006970	0.00000001843
46	15.65%	0.00000001565%	0.00000007125	0.00000001829
47	15.99%	0.00000001599%	0.00000007280	0.00000001815
48	16.33%	0.00000001633%	0.00000007435	0.00000001799
49	16.67%	0.00000001667%	0.00000007590	0.00000001783
50	17.01%	0.00000001701%	0.00000007745	0.00000001767
51	17.35%	0.00000001735%	0.00000007900	0.00000001750
52	17.69%	0.00000001769%	0.00000008055	0.00000001732
53	18.03%	0.00000001803%	0.00000008210	0.00000001714
54	18.37%	0.00000001837%	0.00000008364	0.00000001695
55	18.71%	0.00000001871%	0.00000008519	0.00000001676
56	19.05%	0.00000001905%	0.00000008674	0.00000001657
57	19.39%	0.00000001939%	0.00000008829	0.00000001638
58	19.73%	0.00000001973%	0.00000008984	0.00000001618
59	20.07%	0.00000002007%	0.00000009139	0.00000001598
60	20.41%	0.00000002041%	0.00000009294	0.00000001577
61	20.75%	0.00000002075%	0.00000009449	0.00000001557
62	21.09%	0.00000002109%	0.00000009604	0.00000001536
63	21.43%	0.00000002143%	0.00000009759	0.00000001516
64	21.77%	0.00000002177%	0.00000009913	0.00000001495
65	22.11%	0.00000002211%	0.00000010068	0.00000001474
66	22.45%	0.00000002245%	0.00000010223	0.00000001453
67	22.79%	0.00000002279%	0.00000010378	0.00000001432
68	23.13%	0.00000002313%	0.00000010533	0.00000001411
69	23.47%	0.00000002347%	0.00000010688	0.00000001390
70	23.81%	0.00000002381%	0.00000010843	0.00000001369
71	24.15%	0.00000002415%	0.00000010998	0.00000001349
72	24.49%	0.00000002449%	0.00000011153	0.00000001328
73	24.83%	0.00000002483%	0.00000011308	0.00000001307
74	25.17%	0.00000002517%	0.00000011462	0.00000001286
75	25.51%	0.00000002551%	0.00000011617	0.00000001266
76	25.85%	0.00000002585%	0.00000011772	0.00000001245
77	26.19%	0.00000002619%	0.00000011927	0.00000001225
78	26.53%	0.00000002653%	0.00000012082	0.00000001205
79	26.87%	0.00000002687%	0.00000012237	0.00000001184
80	27.21%	0.00000002721%	0.00000012392	0.00000001165
81	27.55%	0.00000002755%	0.00000012547	0.00000001145

82	27.89%	0.00000002789%	0.00000012702	0.00000001125
83	28.23%	0.00000002823%	0.00000012857	0.00000001106
84	28.57%	0.00000002857%	0.00000013011	0.00000001086
85	28.91%	0.00000002891%	0.00000013166	0.00000001067
86	29.25%	0.00000002925%	0.00000013321	0.00000001048
87	29.59%	0.00000002959%	0.00000013476	0.00000001030
88	29.93%	0.00000002993%	0.00000013631	0.00000001011
89	30.27%	0.00000003027%	0.00000013786	0.00000000993
90	30.61%	0.00000003061%	0.00000013941	0.00000000975
91	30.95%	0.00000003095%	0.00000014096	0.00000000957
92	31.29%	0.00000003129%	0.00000014251	0.00000000939
93	31.63%	0.00000003163%	0.00000014406	0.00000000922
94	31.97%	0.00000003197%	0.00000014560	0.00000000905
95	32.31%	0.00000003231%	0.00000014715	0.00000000888
96	32.65%	0.00000003265%	0.00000014870	0.00000000871
97	32.99%	0.00000003299%	0.00000015025	0.00000000854
98	33.33%	0.00000003333%	0.00000015180	0.00000000838
99	33.67%	0.00000003367%	0.00000015335	0.00000000822
100	34.01%	0.00000003401%	0.00000015490	0.00000000806
101	34.35%	0.00000003435%	0.00000015645	0.00000000790
102	34.69%	0.00000003469%	0.00000015800	0.00000000775
103	35.03%	0.00000003503%	0.00000015954	0.00000000760
104	35.37%	0.00000003537%	0.00000016109	0.00000000745
105	35.71%	0.00000003571%	0.00000016264	0.00000000730
106	36.05%	0.00000003605%	0.00000016419	0.00000000715
107	36.39%	0.00000003639%	0.00000016574	0.00000000701
108	36.73%	0.00000003673%	0.00000016729	0.00000000687
109	37.07%	0.00000003707%	0.00000016884	0.00000000673
110	37.41%	0.00000003741%	0.00000017039	0.00000000660
111	37.76%	0.00000003776%	0.00000017194	0.00000000646
112	38.10%	0.00000003810%	0.00000017349	0.00000000633
113	38.44%	0.00000003844%	0.00000017503	0.00000000620
114	38.78%	0.00000003878%	0.00000017658	0.00000000607
115	39.12%	0.00000003912%	0.00000017813	0.00000000595
116	39.46%	0.00000003946%	0.00000017968	0.00000000583
117	39.80%	0.00000003980%	0.00000018123	0.00000000571
118	40.14%	0.00000004014%	0.00000018278	0.00000000559
119	40.48%	0.00000004048%	0.00000018433	0.00000000547
120	40.82%	0.00000004082%	0.00000018588	0.00000000536
121	41.16%	0.00000004116%	0.00000018743	0.00000000524
122	41.50%	0.00000004150%	0.00000018898	0.00000000513
123	41.84%	0.00000004184%	0.00000019052	0.00000000502
124	42.18%	0.00000004218%	0.00000019207	0.00000000492
125	42.52%	0.00000004252%	0.00000019362	0.00000000481
126	42.86%	0.00000004286%	0.00000019517	0.00000000471
127	43.20%	0.00000004320%	0.00000019672	0.00000000461
128	43.54%	0.00000004354%	0.00000019827	0.00000000451
129	43.88%	0.00000004388%	0.00000019982	0.00000000441
130	44.22%	0.00000004422%	0.00000020137	0.00000000432
131	44.56%	0.00000004456%	0.00000020292	0.00000000422
132	44.90%	0.00000004490%	0.00000020447	0.00000000413
133	45.24%	0.00000004524%	0.00000020601	0.00000000404

134	45.58%	0.00000004558%	0.00000020756	0.00000000395
135	45.92%	0.00000004592%	0.00000020911	0.00000000387
136	46.26%	0.00000004626%	0.00000021066	0.00000000378
137	46.60%	0.00000004660%	0.00000021221	0.00000000370
138	46.94%	0.00000004694%	0.00000021376	0.00000000362
139	47.28%	0.00000004728%	0.00000021531	0.00000000354
140	47.62%	0.00000004762%	0.00000021686	0.00000000346
141	47.96%	0.00000004796%	0.00000021841	0.00000000338
142	48.30%	0.00000004830%	0.00000021996	0.00000000331
143	48.64%	0.00000004864%	0.00000022150	0.00000000323
144	48.98%	0.00000004898%	0.00000022305	0.00000000316
145	49.32%	0.00000004932%	0.00000022460	0.00000000309
146	49.66%	0.00000004966%	0.00000022615	0.00000000302
147	50.00%	0.00000005000%	0.00000022770	0.00000000295
148	50.34%	0.00000005034%	0.00000022925	0.00000000289
149	50.68%	0.00000005068%	0.00000023080	0.00000000282
150	51.02%	0.00000005102%	0.00000023235	0.00000000276
151	51.36%	0.00000005136%	0.00000023390	0.00000000270
152	51.70%	0.00000005170%	0.00000023544	0.00000000263
153	52.04%	0.00000005204%	0.00000023699	0.00000000257
154	52.38%	0.00000005238%	0.00000023854	0.00000000252
155	52.72%	0.00000005272%	0.00000024009	0.00000000246
156	53.06%	0.00000005306%	0.00000024164	0.00000000240
157	53.40%	0.00000005340%	0.00000024319	0.00000000235
158	53.74%	0.00000005374%	0.00000024474	0.00000000229
159	54.08%	0.00000005408%	0.00000024629	0.00000000224
160	54.42%	0.00000005442%	0.00000024784	0.00000000219
161	54.76%	0.00000005476%	0.00000024939	0.00000000214
162	55.10%	0.00000005510%	0.00000025093	0.00000000209
163	55.44%	0.00000005544%	0.00000025248	0.00000000204
164	55.78%	0.00000005578%	0.00000025403	0.00000000199
165	56.12%	0.00000005612%	0.00000025558	0.00000000195
166	56.46%	0.00000005646%	0.00000025713	0.00000000190
167	56.80%	0.00000005680%	0.00000025868	0.00000000186
168	57.14%	0.00000005714%	0.00000026023	0.00000000181
169	57.48%	0.00000005748%	0.00000026178	0.00000000177
170	57.82%	0.00000005782%	0.00000026333	0.00000000173
171	58.16%	0.00000005816%	0.00000026488	0.00000000169
172	58.50%	0.00000005850%	0.00000026642	0.00000000165
173	58.84%	0.00000005884%	0.00000026797	0.00000000161
174	59.18%	0.00000005918%	0.00000026952	0.00000000157
175	59.52%	0.00000005952%	0.00000027107	0.00000000154
176	59.86%	0.00000005986%	0.00000027262	0.00000000150
177	60.20%	0.00000006020%	0.00000027417	0.00000000146
178	60.54%	0.00000006054%	0.00000027572	0.00000000143
179	60.88%	0.00000006088%	0.00000027727	0.00000000140
180	61.22%	0.00000006122%	0.00000027882	0.00000000136
181	61.56%	0.00000006156%	0.00000028037	0.00000000133
182	61.90%	0.00000006190%	0.00000028191	0.00000000130
183	62.24%	0.00000006224%	0.00000028346	0.00000000127
184	62.59%	0.00000006259%	0.00000028501	0.00000000124
185	62.93%	0.00000006293%	0.00000028656	0.00000000121

186	63.27%	0.00000006327%	0.00000028811	0.0000000118
187	63.61%	0.00000006361%	0.00000028966	0.0000000115
188	63.95%	0.00000006395%	0.00000029121	0.0000000112
189	64.29%	0.00000006429%	0.00000029276	0.0000000110
190	64.63%	0.00000006463%	0.00000029431	0.0000000107
191	64.97%	0.00000006497%	0.00000029586	0.0000000105
192	65.31%	0.00000006531%	0.00000029740	0.0000000102
193	65.65%	0.00000006565%	0.00000029895	0.0000000100
194	65.99%	0.00000006599%	0.00000030050	0.0000000097
195	66.33%	0.00000006633%	0.00000030205	0.0000000095
196	66.67%	0.00000006667%	0.00000030360	0.0000000093
197	67.01%	0.00000006701%	0.00000030515	0.0000000090
198	67.35%	0.00000006735%	0.00000030670	0.0000000088
199	67.69%	0.00000006769%	0.00000030825	0.0000000086
200	68.03%	0.00000006803%	0.00000030980	0.0000000084
201	68.37%	0.00000006837%	0.00000031134	0.0000000082
202	68.71%	0.00000006871%	0.00000031289	0.0000000080
203	69.05%	0.00000006905%	0.00000031444	0.0000000078
204	69.39%	0.00000006939%	0.00000031599	0.0000000076
205	69.73%	0.00000006973%	0.00000031754	0.0000000074
206	70.07%	0.00000007007%	0.00000031909	0.0000000072
207	70.41%	0.00000007041%	0.00000032064	0.0000000071
208	70.75%	0.00000007075%	0.00000032219	0.0000000069
209	71.09%	0.00000007109%	0.00000032374	0.0000000067
210	71.43%	0.00000007143%	0.00000032529	0.0000000066
211	71.77%	0.00000007177%	0.00000032683	0.0000000064
212	72.11%	0.00000007211%	0.00000032838	0.0000000062
213	72.45%	0.00000007245%	0.00000032993	0.0000000061
214	72.79%	0.00000007279%	0.00000033148	0.0000000059
215	73.13%	0.00000007313%	0.00000033303	0.0000000058
216	73.47%	0.00000007347%	0.00000033458	0.0000000056
217	73.81%	0.00000007381%	0.00000033613	0.0000000055
218	74.15%	0.00000007415%	0.00000033768	0.0000000054
219	74.49%	0.00000007449%	0.00000033923	0.0000000052
220	74.83%	0.00000007483%	0.00000034078	0.0000000051
221	75.17%	0.00000007517%	0.00000034232	0.0000000050
222	75.51%	0.00000007551%	0.00000034387	0.0000000049
223	75.85%	0.00000007585%	0.00000034542	0.0000000047
224	76.19%	0.00000007619%	0.00000034697	0.0000000046
225	76.53%	0.00000007653%	0.00000034852	0.0000000045
226	76.87%	0.00000007687%	0.00000035007	0.0000000044
227	77.21%	0.00000007721%	0.00000035162	0.0000000043
228	77.55%	0.00000007755%	0.00000035317	0.0000000042
229	77.89%	0.00000007789%	0.00000035472	0.0000000041
230	78.23%	0.00000007823%	0.00000035627	0.0000000040
231	78.57%	0.00000007857%	0.00000035781	0.0000000039
232	78.91%	0.00000007891%	0.00000035936	0.0000000038
233	79.25%	0.00000007925%	0.00000036091	0.0000000037
234	79.59%	0.00000007959%	0.00000036246	0.0000000036
235	79.93%	0.00000007993%	0.00000036401	0.0000000035
236	80.27%	0.00000008027%	0.00000036556	0.0000000034
237	80.61%	0.00000008061%	0.00000036711	0.0000000033

238	80.95%	0.0000008095%	0.0000036866	0.0000000032
239	81.29%	0.0000008129%	0.0000037021	0.0000000032
240	81.63%	0.0000008163%	0.0000037176	0.0000000031
241	81.97%	0.0000008197%	0.0000037330	0.0000000030
242	82.31%	0.0000008231%	0.0000037485	0.0000000029
243	82.65%	0.0000008265%	0.0000037640	0.0000000029
244	82.99%	0.0000008299%	0.0000037795	0.0000000028
245	83.33%	0.0000008333%	0.0000037950	0.0000000027
246	83.67%	0.0000008367%	0.0000038105	0.0000000026
247	84.01%	0.0000008401%	0.0000038260	0.0000000026
248	84.35%	0.0000008435%	0.0000038415	0.0000000025
249	84.69%	0.0000008469%	0.0000038570	0.0000000025
250	85.03%	0.0000008503%	0.0000038724	0.0000000024
251	85.37%	0.0000008537%	0.0000038879	0.0000000023
252	85.71%	0.0000008571%	0.0000039034	0.0000000023
253	86.05%	0.0000008605%	0.0000039189	0.0000000022
254	86.39%	0.0000008639%	0.0000039344	0.0000000022
255	86.73%	0.0000008673%	0.0000039499	0.0000000021
256	87.07%	0.0000008707%	0.0000039654	0.0000000021
257	87.41%	0.0000008741%	0.0000039809	0.0000000020
258	87.76%	0.0000008776%	0.0000039964	0.0000000019
259	88.10%	0.0000008810%	0.0000040119	0.0000000019
260	88.44%	0.0000008844%	0.0000040273	0.0000000019
261	88.78%	0.0000008878%	0.0000040428	0.0000000018
262	89.12%	0.0000008912%	0.0000040583	0.0000000018
263	89.46%	0.0000008946%	0.0000040738	0.0000000017
264	89.80%	0.0000008980%	0.0000040893	0.0000000017
265	90.14%	0.0000009014%	0.0000041048	0.0000000016
266	90.48%	0.0000009048%	0.0000041203	0.0000000016
267	90.82%	0.0000009082%	0.0000041358	0.0000000015
268	91.16%	0.0000009116%	0.0000041513	0.0000000015
269	91.50%	0.0000009150%	0.0000041668	0.0000000015
270	91.84%	0.0000009184%	0.0000041822	0.0000000014
271	92.18%	0.0000009218%	0.0000041977	0.0000000014
272	92.52%	0.0000009252%	0.0000042132	0.0000000014
273	92.86%	0.0000009286%	0.0000042287	0.0000000013
274	93.20%	0.0000009320%	0.0000042442	0.0000000013
275	93.54%	0.0000009354%	0.0000042597	0.0000000013
276	93.88%	0.0000009388%	0.0000042752	0.0000000012
277	94.22%	0.0000009422%	0.0000042907	0.0000000012
278	94.56%	0.0000009456%	0.0000043062	0.0000000012
279	94.90%	0.0000009490%	0.0000043217	0.0000000011
280	95.24%	0.0000009524%	0.0000043371	0.0000000011
281	95.58%	0.0000009558%	0.0000043526	0.0000000011
282	95.92%	0.0000009592%	0.0000043681	0.0000000010
283	96.26%	0.0000009626%	0.0000043836	0.0000000010
284	96.60%	0.0000009660%	0.0000043991	0.0000000010
285	96.94%	0.0000009694%	0.0000044146	0.0000000010
286	97.28%	0.0000009728%	0.0000044301	0.0000000009
287	97.62%	0.0000009762%	0.0000044456	0.0000000009
288	97.96%	0.0000009796%	0.0000044611	0.0000000009
289	98.30%	0.0000009830%	0.0000044766	0.0000000009

290	98.64%	0.00000009864%	0.00000044920	0.00000000009
291	98.98%	0.00000009898%	0.00000045075	0.00000000008
292	99.32%	0.00000009932%	0.00000045230	0.00000000008
293	99.66%	0.00000009966%	0.00000045385	0.00000000008
294	100.00%	0.00000010000%	0.00000045540	0.00000000008
Beyond (c)				0.00000000255
Total				0.00000177242

Section 1.2 Lake Winnipeg - Jump Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00000000000%	0.00000000000	0.00000000000
1	0.57%	0.00000000057%	0.00003353500	0.00003255825
2	1.14%	0.00000000114%	0.00006707000	0.00006321991
3	1.71%	0.00000000171%	0.00010060500	0.00009206783
4	2.29%	0.00000000229%	0.00013414000	0.00011918165
5	2.86%	0.00000000286%	0.00016767500	0.00014463793
6	3.43%	0.00000000343%	0.00020121000	0.00016851021
7	4.00%	0.00000000400%	0.00023474500	0.00019086917
8	4.57%	0.00000000457%	0.00026828000	0.00021178271
9	5.14%	0.00000000514%	0.00030181500	0.00023131607
10	5.71%	0.00000000571%	0.00033535000	0.00024953189
11	6.29%	0.00000000629%	0.00036888500	0.00026649037
12	6.86%	0.00000000686%	0.00040242000	0.00028224929
13	7.43%	0.00000000743%	0.00043595500	0.00029686414
14	8.00%	0.00000000800%	0.00046949000	0.00031038820
15	8.57%	0.00000000857%	0.00050302500	0.00032287261
16	9.14%	0.00000000914%	0.00053656000	0.00033436645
17	9.71%	0.00000000971%	0.00057009500	0.00034491685
18	10.29%	0.00000001029%	0.00060363000	0.00035456901
19	10.86%	0.00000001086%	0.00063716500	0.00036336630
20	11.43%	0.00000001143%	0.00067070000	0.00037135033
21	12.00%	0.00000001200%	0.00070423500	0.00037856101
22	12.57%	0.00000001257%	0.00073777000	0.00038503663
23	13.14%	0.00000001314%	0.00077130500	0.00039081388
24	13.71%	0.00000001371%	0.00080484000	0.00039592795
25	14.29%	0.00000001429%	0.00083837500	0.00040041257
26	14.86%	0.00000001486%	0.00087191000	0.00040430007
27	15.43%	0.00000001543%	0.00090544500	0.00040762143
28	16.00%	0.00000001600%	0.00093898000	0.00041040633
29	16.57%	0.00000001657%	0.00097251500	0.00041268320
30	17.14%	0.00000001714%	0.00100605000	0.00041447928
31	17.71%	0.00000001771%	0.00103958500	0.00041582064
32	18.29%	0.00000001829%	0.00107312000	0.00041673224
33	18.86%	0.00000001886%	0.00110665500	0.00041723798
34	19.43%	0.00000001943%	0.00114019000	0.00041736073
35	20.00%	0.00000002000%	0.00117372500	0.00041712238

36	20.57%	0.00000002057%	0.00120726000	0.00041654385
37	21.14%	0.00000002114%	0.00124079500	0.00041564515
38	21.71%	0.00000002171%	0.00127433000	0.00041444544
39	22.29%	0.00000002229%	0.00130786500	0.00041296301
40	22.86%	0.00000002286%	0.00134140000	0.00041121535
41	23.43%	0.00000002343%	0.00137493500	0.00040921916
42	24.00%	0.00000002400%	0.00140847000	0.00040699040
43	24.57%	0.00000002457%	0.00144200500	0.00040454432
44	25.14%	0.00000002514%	0.00147554000	0.00040189546
45	25.71%	0.00000002571%	0.00150907500	0.00039905772
46	26.29%	0.00000002629%	0.00154261000	0.00039604434
47	26.86%	0.00000002686%	0.00157614500	0.00039286796
48	27.43%	0.00000002743%	0.00160968000	0.00038954063
49	28.00%	0.00000002800%	0.00164321500	0.00038607384
50	28.57%	0.00000002857%	0.00167675000	0.00038247855
51	29.14%	0.00000002914%	0.00171028500	0.00037876516
52	29.71%	0.00000002971%	0.00174382000	0.00037494362
53	30.29%	0.00000003029%	0.00177735500	0.00037102337
54	30.86%	0.00000003086%	0.00181089000	0.00036701341
55	31.43%	0.00000003143%	0.00184442500	0.00036292229
56	32.00%	0.00000003200%	0.00187796000	0.00035875813
57	32.57%	0.00000003257%	0.00191149500	0.00035452867
58	33.14%	0.00000003314%	0.00194503000	0.00035024123
59	33.71%	0.00000003371%	0.00197856500	0.00034590279
60	34.29%	0.00000003429%	0.00201210000	0.00034151995
61	34.86%	0.00000003486%	0.00204563500	0.00033709898
62	35.43%	0.00000003543%	0.00207917000	0.00033264582
63	36.00%	0.00000003600%	0.00211270500	0.00032816609
64	36.57%	0.00000003657%	0.00214624000	0.00032366512
65	37.14%	0.00000003714%	0.00217977500	0.00031914795
66	37.71%	0.00000003771%	0.00221331000	0.00031461934
67	38.29%	0.00000003829%	0.00224684500	0.00031008379
68	38.86%	0.00000003886%	0.00228038000	0.00030554554
69	39.43%	0.00000003943%	0.00231391500	0.00030100860
70	40.00%	0.00000004000%	0.00234745000	0.00029647674
71	40.57%	0.00000004057%	0.00238098500	0.00029195351
72	41.14%	0.00000004114%	0.00241452000	0.00028744227
73	41.71%	0.00000004171%	0.00244805500	0.00028294614
74	42.29%	0.00000004229%	0.00248159000	0.00027846807
75	42.86%	0.00000004286%	0.00251512500	0.00027401083
76	43.43%	0.00000004343%	0.00254866000	0.00026957699
77	44.00%	0.00000004400%	0.00258219500	0.00026516899
78	44.57%	0.00000004457%	0.00261573000	0.00026078907
79	45.14%	0.00000004514%	0.00264926500	0.00025643934
80	45.71%	0.00000004571%	0.00268280000	0.00025212175
81	46.29%	0.00000004629%	0.00271633500	0.00024783813
82	46.86%	0.00000004686%	0.00274987000	0.00024359016
83	47.43%	0.00000004743%	0.00278340500	0.00023937939
84	48.00%	0.00000004800%	0.00281694000	0.00023520726
85	48.57%	0.00000004857%	0.00285047500	0.00023107509
86	49.14%	0.00000004914%	0.00288401000	0.00022698410
87	49.71%	0.00000004971%	0.00291754500	0.00022293539

88	50.29%	0.00000005029%	0.00295108000	0.00021892997
89	50.86%	0.00000005086%	0.00298461500	0.00021496874
90	51.43%	0.00000005143%	0.00301815000	0.00021105255
91	52.00%	0.00000005200%	0.00305168500	0.00020718211
92	52.57%	0.00000005257%	0.00308522000	0.00020335810
93	53.14%	0.00000005314%	0.00311875500	0.00019958108
94	53.71%	0.00000005371%	0.00315229000	0.00019585156
95	54.29%	0.00000005429%	0.00318582500	0.00019216999
96	54.86%	0.00000005486%	0.00321936000	0.00018853673
97	55.43%	0.00000005543%	0.00325289500	0.00018495209
98	56.00%	0.00000005600%	0.00328643000	0.00018141633
99	56.57%	0.00000005657%	0.00331996500	0.00017792962
100	57.14%	0.00000005714%	0.00335350000	0.00017449213
101	57.71%	0.00000005771%	0.00338703500	0.00017110393
102	58.29%	0.00000005829%	0.00342057000	0.00016776508
103	58.86%	0.00000005886%	0.00345410500	0.00016447557
104	59.43%	0.00000005943%	0.00348764000	0.00016123536
105	60.00%	0.00000006000%	0.00352117500	0.00015804436
106	60.57%	0.00000006057%	0.00355471000	0.00015490248
107	61.14%	0.00000006114%	0.00358824500	0.00015180953
108	61.71%	0.00000006171%	0.00362178000	0.00014876535
109	62.29%	0.00000006229%	0.00365531500	0.00014576972
110	62.86%	0.00000006286%	0.00368885000	0.00014282238
111	63.43%	0.00000006343%	0.00372238500	0.00013992308
112	64.00%	0.00000006400%	0.00375592000	0.00013707150
113	64.57%	0.00000006457%	0.00378945500	0.00013426733
114	65.14%	0.00000006514%	0.00382299000	0.00013151023
115	65.71%	0.00000006571%	0.00385652500	0.00012879984
116	66.29%	0.00000006629%	0.00389006000	0.00012613576
117	66.86%	0.00000006686%	0.00392359500	0.00012351761
118	67.43%	0.00000006743%	0.00395713000	0.00012094497
119	68.00%	0.00000006800%	0.00399066500	0.00011841740
120	68.57%	0.00000006857%	0.00402420000	0.00011593447
121	69.14%	0.00000006914%	0.00405773500	0.00011349572
122	69.71%	0.00000006971%	0.00409127000	0.00011110068
123	70.29%	0.00000007029%	0.00412480500	0.00010874888
124	70.86%	0.00000007086%	0.00415834000	0.00010643982
125	71.43%	0.00000007143%	0.00419187500	0.00010417302
126	72.00%	0.00000007200%	0.00422541000	0.00010194796
127	72.57%	0.00000007257%	0.00425894500	0.00009976415
128	73.14%	0.00000007314%	0.00429248000	0.00009762106
129	73.71%	0.00000007371%	0.00432601500	0.00009551818
130	74.29%	0.00000007429%	0.00435955000	0.00009345498
131	74.86%	0.00000007486%	0.00439308500	0.00009143094
132	75.43%	0.00000007543%	0.00442662000	0.00008944552
133	76.00%	0.00000007600%	0.00446015500	0.00008749819
134	76.57%	0.00000007657%	0.00449369000	0.00008558842
135	77.14%	0.00000007714%	0.00452722500	0.00008371567
136	77.71%	0.00000007771%	0.00456076000	0.00008187940
137	78.29%	0.00000007829%	0.00459429500	0.00008007908
138	78.86%	0.00000007886%	0.00462783000	0.00007831418
139	79.43%	0.00000007943%	0.00466136500	0.00007658415

140	80.00%	0.0000008000%	0.00469490000	0.00007488846
141	80.57%	0.0000008057%	0.00472843500	0.00007322658
142	81.14%	0.0000008114%	0.00476197000	0.00007159798
143	81.71%	0.0000008171%	0.00479550500	0.00007000212
144	82.29%	0.0000008229%	0.00482904000	0.00006843849
145	82.86%	0.0000008286%	0.00486257500	0.00006690656
146	83.43%	0.0000008343%	0.00489611000	0.00006540581
147	84.00%	0.0000008400%	0.00492964500	0.00006393573
148	84.57%	0.0000008457%	0.00496318000	0.00006249579
149	85.14%	0.0000008514%	0.00499671500	0.00006108550
150	85.71%	0.0000008571%	0.00503025000	0.00005970433
151	86.29%	0.0000008629%	0.00506378500	0.00005835181
152	86.86%	0.0000008686%	0.00509732000	0.00005702742
153	87.43%	0.0000008743%	0.00513085500	0.00005573068
154	88.00%	0.0000008800%	0.00516439000	0.00005446110
155	88.57%	0.0000008857%	0.00519792500	0.00005321820
156	89.14%	0.0000008914%	0.00523146000	0.00005200150
157	89.71%	0.0000008971%	0.00526499500	0.00005081053
158	90.29%	0.0000009029%	0.00529853000	0.00004964481
159	90.86%	0.0000009086%	0.00533206500	0.00004850391
160	91.43%	0.0000009143%	0.00536560000	0.00004738734
161	92.00%	0.0000009200%	0.00539913500	0.00004629467
162	92.57%	0.0000009257%	0.00543267000	0.00004522545
163	93.14%	0.0000009314%	0.00546620500	0.00004417924
164	93.71%	0.0000009371%	0.00549974000	0.00004315561
165	94.29%	0.0000009429%	0.00553327500	0.00004215413
166	94.86%	0.0000009486%	0.00556681000	0.00004117438
167	95.43%	0.0000009543%	0.00560034500	0.00004021594
168	96.00%	0.0000009600%	0.00563388000	0.00003927840
169	96.57%	0.0000009657%	0.00566741500	0.00003836136
170	97.14%	0.0000009714%	0.00570095000	0.00003746442
171	97.71%	0.0000009771%	0.00573448500	0.00003658719
172	98.29%	0.0000009829%	0.00576802000	0.00003572927
173	98.86%	0.0000009886%	0.00580155500	0.00003489029
174	99.43%	0.0000009943%	0.00583509000	0.00003406987
175	100.00%	0.0000010000%	0.00586862500	0.00003326764
Beyond (d)				0.00110892144
Total				0.03816138462

Section 1.3 Lake Winnipeg - Progressive Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
294	0.00%	0.0000000000%	0.00000000000	0.00000000000
295	0.57%	0.0000000057%	0.00003353500	0.00000000548
296	1.14%	0.0000000114%	0.00006707000	0.00000001063
297	1.71%	0.0000000171%	0.00010060500	0.00000001549
298	2.29%	0.0000000229%	0.00013414000	0.00000002005

299	2.86%	0.0000000286%	0.00016767500	0.00000002433
300	3.43%	0.0000000343%	0.00020121000	0.00000002835
301	4.00%	0.0000000400%	0.00023474500	0.00000003211
302	4.57%	0.0000000457%	0.00026828000	0.00000003562
303	5.14%	0.0000000514%	0.00030181500	0.00000003891
304	5.71%	0.0000000571%	0.00033535000	0.00000004197
305	6.29%	0.0000000629%	0.00036888500	0.00000004483
306	6.86%	0.0000000686%	0.00040242000	0.00000004748
307	7.43%	0.0000000743%	0.00043595500	0.00000004994
308	8.00%	0.0000000800%	0.00046949000	0.00000005221
309	8.57%	0.0000000857%	0.00050302500	0.00000005431
310	9.14%	0.0000000914%	0.00053656000	0.00000005624
311	9.71%	0.0000000971%	0.00057009500	0.00000005802
312	10.29%	0.0000001029%	0.00060363000	0.00000005964
313	10.86%	0.0000001086%	0.00063716500	0.00000006112
314	11.43%	0.0000001143%	0.00067070000	0.00000006247
315	12.00%	0.0000001200%	0.00070423500	0.00000006368
316	12.57%	0.0000001257%	0.00073777000	0.00000006477
317	13.14%	0.0000001314%	0.00077130500	0.00000006574
318	13.71%	0.0000001371%	0.00080484000	0.00000006660
319	14.29%	0.0000001429%	0.00083837500	0.00000006735
320	14.86%	0.0000001486%	0.00087191000	0.00000006801
321	15.43%	0.0000001543%	0.00090544500	0.00000006857
322	16.00%	0.0000001600%	0.00093898000	0.00000006904
323	16.57%	0.0000001657%	0.00097251500	0.00000006942
324	17.14%	0.0000001714%	0.00100605000	0.00000006972
325	17.71%	0.0000001771%	0.00103958500	0.00000006995
326	18.29%	0.0000001829%	0.00107312000	0.00000007010
327	18.86%	0.0000001886%	0.00110665500	0.00000007018
328	19.43%	0.0000001943%	0.00114019000	0.00000007020
329	20.00%	0.0000002000%	0.00117372500	0.00000007016
330	20.57%	0.0000002057%	0.00120726000	0.00000007007
331	21.14%	0.0000002114%	0.00124079500	0.00000006992
332	21.71%	0.0000002171%	0.00127433000	0.00000006971
333	22.29%	0.0000002229%	0.00130786500	0.00000006947
334	22.86%	0.0000002286%	0.00134140000	0.00000006917
335	23.43%	0.0000002343%	0.00137493500	0.00000006884
336	24.00%	0.0000002400%	0.00140847000	0.00000006846
337	24.57%	0.0000002457%	0.00144200500	0.00000006805
338	25.14%	0.0000002514%	0.00147554000	0.00000006760
339	25.71%	0.0000002571%	0.00150907500	0.00000006713
340	26.29%	0.0000002629%	0.00154261000	0.00000006662
341	26.86%	0.0000002686%	0.00157614500	0.00000006608
342	27.43%	0.0000002743%	0.00160968000	0.00000006553
343	28.00%	0.0000002800%	0.00164321500	0.00000006494
344	28.57%	0.0000002857%	0.00167675000	0.00000006434
345	29.14%	0.0000002914%	0.00171028500	0.00000006371
346	29.71%	0.0000002971%	0.00174382000	0.00000006307
347	30.29%	0.0000003029%	0.00177735500	0.00000006241
348	30.86%	0.0000003086%	0.00181089000	0.00000006174
349	31.43%	0.0000003143%	0.00184442500	0.00000006105
350	32.00%	0.0000003200%	0.00187796000	0.00000006035

351	32.57%	0.00000003257%	0.00191149500	0.00000005964
352	33.14%	0.00000003314%	0.00194503000	0.00000005891
353	33.71%	0.00000003371%	0.00197856500	0.00000005818
354	34.29%	0.00000003429%	0.00201210000	0.00000005745
355	34.86%	0.00000003486%	0.00204563500	0.00000005670
356	35.43%	0.00000003543%	0.00207917000	0.00000005595
357	36.00%	0.00000003600%	0.00211270500	0.00000005520
358	36.57%	0.00000003657%	0.00214624000	0.00000005444
359	37.14%	0.00000003714%	0.00217977500	0.00000005368
360	37.71%	0.00000003771%	0.00221331000	0.00000005292
361	38.29%	0.00000003829%	0.00224684500	0.00000005216
362	38.86%	0.00000003886%	0.00228038000	0.00000005140
363	39.43%	0.00000003943%	0.00231391500	0.00000005063
364	40.00%	0.00000004000%	0.00234745000	0.00000004987
365	40.57%	0.00000004057%	0.00238098500	0.00000004911
366	41.14%	0.00000004114%	0.00241452000	0.00000004835
367	41.71%	0.00000004171%	0.00244805500	0.00000004759
368	42.29%	0.00000004229%	0.00248159000	0.00000004684
369	42.86%	0.00000004286%	0.00251512500	0.00000004609
370	43.43%	0.00000004343%	0.00254866000	0.00000004535
371	44.00%	0.00000004400%	0.00258219500	0.00000004460
372	44.57%	0.00000004457%	0.00261573000	0.00000004387
373	45.14%	0.00000004514%	0.00264926500	0.00000004314
374	45.71%	0.00000004571%	0.00268280000	0.00000004241
375	46.29%	0.00000004629%	0.00271633500	0.00000004169
376	46.86%	0.00000004686%	0.00274987000	0.00000004097
377	47.43%	0.00000004743%	0.00278340500	0.00000004027
378	48.00%	0.00000004800%	0.00281694000	0.00000003956
379	48.57%	0.00000004857%	0.00285047500	0.00000003887
380	49.14%	0.00000004914%	0.00288401000	0.00000003818
381	49.71%	0.00000004971%	0.00291754500	0.00000003750
382	50.29%	0.00000005029%	0.00295108000	0.00000003683
383	50.86%	0.00000005086%	0.00298461500	0.00000003616
384	51.43%	0.00000005143%	0.00301815000	0.00000003550
385	52.00%	0.00000005200%	0.00305168500	0.00000003485
386	52.57%	0.00000005257%	0.00308522000	0.00000003421
387	53.14%	0.00000005314%	0.00311875500	0.00000003357
388	53.71%	0.00000005371%	0.00315229000	0.00000003294
389	54.29%	0.00000005429%	0.00318582500	0.00000003233
390	54.86%	0.00000005486%	0.00321936000	0.00000003171
391	55.43%	0.00000005543%	0.00325289500	0.00000003111
392	56.00%	0.00000005600%	0.00328643000	0.00000003052
393	56.57%	0.00000005657%	0.00331996500	0.00000002993
394	57.14%	0.00000005714%	0.00335350000	0.00000002935
395	57.71%	0.00000005771%	0.00338703500	0.00000002878
396	58.29%	0.00000005829%	0.00342057000	0.00000002822
397	58.86%	0.00000005886%	0.00345410500	0.00000002767
398	59.43%	0.00000005943%	0.00348764000	0.00000002712
399	60.00%	0.00000006000%	0.00352117500	0.00000002658
400	60.57%	0.00000006057%	0.00355471000	0.00000002606
401	61.14%	0.00000006114%	0.00358824500	0.00000002554
402	61.71%	0.00000006171%	0.00362178000	0.00000002502

403	62.29%	0.00000006229%	0.00365531500	0.00000002452
404	62.86%	0.00000006286%	0.00368885000	0.00000002402
405	63.43%	0.00000006343%	0.00372238500	0.00000002354
406	64.00%	0.00000006400%	0.00375592000	0.00000002306
407	64.57%	0.00000006457%	0.00378945500	0.00000002259
408	65.14%	0.00000006514%	0.00382299000	0.00000002212
409	65.71%	0.00000006571%	0.00385652500	0.00000002167
410	66.29%	0.00000006629%	0.00389006000	0.00000002122
411	66.86%	0.00000006686%	0.00392359500	0.00000002078
412	67.43%	0.00000006743%	0.00395713000	0.00000002034
413	68.00%	0.00000006800%	0.00399066500	0.00000001992
414	68.57%	0.00000006857%	0.00402420000	0.00000001950
415	69.14%	0.00000006914%	0.00405773500	0.00000001909
416	69.71%	0.00000006971%	0.00409127000	0.00000001869
417	70.29%	0.00000007029%	0.00412480500	0.00000001829
418	70.86%	0.00000007086%	0.00415834000	0.00000001790
419	71.43%	0.00000007143%	0.00419187500	0.00000001752
420	72.00%	0.00000007200%	0.00422541000	0.00000001715
421	72.57%	0.00000007257%	0.00425894500	0.00000001678
422	73.14%	0.00000007314%	0.00429248000	0.00000001642
423	73.71%	0.00000007371%	0.00432601500	0.00000001607
424	74.29%	0.00000007429%	0.00435955000	0.00000001572
425	74.86%	0.00000007486%	0.00439308500	0.00000001538
426	75.43%	0.00000007543%	0.00442662000	0.00000001505
427	76.00%	0.00000007600%	0.00446015500	0.00000001472
428	76.57%	0.00000007657%	0.00449369000	0.00000001440
429	77.14%	0.00000007714%	0.00452722500	0.00000001408
430	77.71%	0.00000007771%	0.00456076000	0.00000001377
431	78.29%	0.00000007829%	0.00459429500	0.00000001347
432	78.86%	0.00000007886%	0.00462783000	0.00000001317
433	79.43%	0.00000007943%	0.00466136500	0.00000001288
434	80.00%	0.00000008000%	0.00469490000	0.00000001260
435	80.57%	0.00000008057%	0.00472843500	0.00000001232
436	81.14%	0.00000008114%	0.00476197000	0.00000001204
437	81.71%	0.00000008171%	0.00479550500	0.00000001178
438	82.29%	0.00000008229%	0.00482904000	0.00000001151
439	82.86%	0.00000008286%	0.00486257500	0.00000001125
440	83.43%	0.00000008343%	0.00489611000	0.00000001100
441	84.00%	0.00000008400%	0.00492964500	0.00000001075
442	84.57%	0.00000008457%	0.00496318000	0.00000001051
443	85.14%	0.00000008514%	0.00499671500	0.00000001028
444	85.71%	0.00000008571%	0.00503025000	0.00000001004
445	86.29%	0.00000008629%	0.00506378500	0.00000000982
446	86.86%	0.00000008686%	0.00509732000	0.00000000959
447	87.43%	0.00000008743%	0.00513085500	0.00000000937
448	88.00%	0.00000008800%	0.00516439000	0.00000000916
449	88.57%	0.00000008857%	0.00519792500	0.00000000895
450	89.14%	0.00000008914%	0.00523146000	0.00000000875
451	89.71%	0.00000008971%	0.00526499500	0.00000000855
452	90.29%	0.00000009029%	0.00529853000	0.00000000835
453	90.86%	0.00000009086%	0.00533206500	0.00000000816
454	91.43%	0.00000009143%	0.00536560000	0.00000000797

455	92.00%	0.00000009200%	0.00539913500	0.00000000779
456	92.57%	0.00000009257%	0.00543267000	0.00000000761
457	93.14%	0.00000009314%	0.00546620500	0.00000000743
458	93.71%	0.00000009371%	0.00549974000	0.00000000726
459	94.29%	0.00000009429%	0.00553327500	0.00000000709
460	94.86%	0.00000009486%	0.00556681000	0.00000000693
461	95.43%	0.00000009543%	0.00560034500	0.00000000676
462	96.00%	0.00000009600%	0.00563388000	0.00000000661
463	96.57%	0.00000009657%	0.00566741500	0.00000000645
464	97.14%	0.00000009714%	0.00570095000	0.00000000630
465	97.71%	0.00000009771%	0.00573448500	0.00000000615
466	98.29%	0.00000009829%	0.00576802000	0.00000000601
467	98.86%	0.00000009886%	0.00580155500	0.00000000587
468	99.43%	0.00000009943%	0.00583509000	0.00000000573
469	100.00%	0.00000010000%	0.00586862500	0.00000000560
Beyond (e)				0.00000018653
Total				0.00000641919

Section 2 Quantification of Replacement Services

Year	<------(Percentage)----->	
	Current Value	Present Value
5	0.0%	0.0%
6	5.0%	4.2%
7	10.0%	8.1%
8	15.0%	11.8%
9	20.0%	15.3%
10	25.0%	18.6%
11	30.0%	21.7%
12	35.0%	24.5%
13	40.0%	27.2%
14	45.0%	29.8%
15	50.0%	32.1%
16	55.0%	34.3%
17	60.0%	36.3%
18	65.0%	38.2%
19	70.0%	39.9%
20	75.0%	41.5%
21	80.0%	43.0%
22	85.0%	44.4%
23	90.0%	45.6%
24	95.0%	46.7%
25	100.0%	47.8%
Beyond (f)		1592.0%
Total		2203.1%

Section 3 Offsetting Restoration for One Organism

Red River - Progressive Dispersal (river-miles):	0.0000000805
Lake Winnipeg - Jump Dispersal (acres):	0.00173
Lake Winnipeg - Progressive Dispersal (acres):	0.000000291

Section 4 Notes

- (a) Percent loss given certain invasion
- (b) Percent loss given probability of successful invasion
- (c) From year 295 into perpetuity
- (d) From year 176 into perpetuity
- (e) From year 470 into perpetuity
- (f) From year 26 into perpetuity

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Appendix 15C. Habitat Equivalency Analysis of Risk Consequences: Slow Invasion - Low Risk (One Organism)

Probability of successful invasion:	1.00E-06
Annual discount rate:	3.0%
Present year:	0

Section 1 Quantification of Expected Lost Services

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Affected habitat (river-miles):	455.40
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Year	<------(Percentage)----->		<------(River-Mile Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00000000%	0.00000000	0.00000000
1	0.34%	0.00000034%	0.00000155	0.00000150
2	0.68%	0.00000068%	0.00000310	0.00000292
3	1.02%	0.00000102%	0.00000465	0.00000425
4	1.36%	0.00000136%	0.00000620	0.00000550
5	1.70%	0.00000170%	0.00000774	0.00000668
6	2.04%	0.00000204%	0.00000929	0.00000778
7	2.38%	0.00000238%	0.00001084	0.00000882
8	2.72%	0.00000272%	0.00001239	0.00000978
9	3.06%	0.00000306%	0.00001394	0.00001068
10	3.40%	0.00000340%	0.00001549	0.00001153
11	3.74%	0.00000374%	0.00001704	0.00001231
12	4.08%	0.00000408%	0.00001859	0.00001304
13	4.42%	0.00000442%	0.00002014	0.00001371
14	4.76%	0.00000476%	0.00002169	0.00001434
15	5.10%	0.00000510%	0.00002323	0.00001491
16	5.44%	0.00000544%	0.00002478	0.00001544
17	5.78%	0.00000578%	0.00002633	0.00001593
18	6.12%	0.00000612%	0.00002788	0.00001638
19	6.46%	0.00000646%	0.00002943	0.00001678
20	6.80%	0.00000680%	0.00003098	0.00001715
21	7.14%	0.00000714%	0.00003253	0.00001749
22	7.48%	0.00000748%	0.00003408	0.00001778
23	7.82%	0.00000782%	0.00003563	0.00001805
24	8.16%	0.00000816%	0.00003718	0.00001829
25	8.50%	0.00000850%	0.00003872	0.00001850
26	8.84%	0.00000884%	0.00004027	0.00001867
27	9.18%	0.00000918%	0.00004182	0.00001883
28	9.52%	0.00000952%	0.00004337	0.00001896
29	9.86%	0.00000986%	0.00004492	0.00001906

30	10.20%	0.00001020%	0.00004647	0.00001914
31	10.54%	0.00001054%	0.00004802	0.00001921
32	10.88%	0.00001088%	0.00004957	0.00001925
33	11.22%	0.00001122%	0.00005112	0.00001927
34	11.56%	0.00001156%	0.00005267	0.00001928
35	11.90%	0.00001190%	0.00005421	0.00001927
36	12.24%	0.00001224%	0.00005576	0.00001924
37	12.59%	0.00001259%	0.00005731	0.00001920
38	12.93%	0.00001293%	0.00005886	0.00001914
39	13.27%	0.00001327%	0.00006041	0.00001907
40	13.61%	0.00001361%	0.00006196	0.00001899
41	13.95%	0.00001395%	0.00006351	0.00001890
42	14.29%	0.00001429%	0.00006506	0.00001880
43	14.63%	0.00001463%	0.00006661	0.00001869
44	14.97%	0.00001497%	0.00006816	0.00001856
45	15.31%	0.00001531%	0.00006970	0.00001843
46	15.65%	0.00001565%	0.00007125	0.00001829
47	15.99%	0.00001599%	0.00007280	0.00001815
48	16.33%	0.00001633%	0.00007435	0.00001799
49	16.67%	0.00001667%	0.00007590	0.00001783
50	17.01%	0.00001701%	0.00007745	0.00001767
51	17.35%	0.00001735%	0.00007900	0.00001750
52	17.69%	0.00001769%	0.00008055	0.00001732
53	18.03%	0.00001803%	0.00008210	0.00001714
54	18.37%	0.00001837%	0.00008364	0.00001695
55	18.71%	0.00001871%	0.00008519	0.00001676
56	19.05%	0.00001905%	0.00008674	0.00001657
57	19.39%	0.00001939%	0.00008829	0.00001638
58	19.73%	0.00001973%	0.00008984	0.00001618
59	20.07%	0.00002007%	0.00009139	0.00001598
60	20.41%	0.00002041%	0.00009294	0.00001577
61	20.75%	0.00002075%	0.00009449	0.00001557
62	21.09%	0.00002109%	0.00009604	0.00001536
63	21.43%	0.00002143%	0.00009759	0.00001516
64	21.77%	0.00002177%	0.00009913	0.00001495
65	22.11%	0.00002211%	0.00010068	0.00001474
66	22.45%	0.00002245%	0.00010223	0.00001453
67	22.79%	0.00002279%	0.00010378	0.00001432
68	23.13%	0.00002313%	0.00010533	0.00001411
69	23.47%	0.00002347%	0.00010688	0.00001390
70	23.81%	0.00002381%	0.00010843	0.00001369
71	24.15%	0.00002415%	0.00010998	0.00001349
72	24.49%	0.00002449%	0.00011153	0.00001328
73	24.83%	0.00002483%	0.00011308	0.00001307
74	25.17%	0.00002517%	0.00011462	0.00001286
75	25.51%	0.00002551%	0.00011617	0.00001266
76	25.85%	0.00002585%	0.00011772	0.00001245
77	26.19%	0.00002619%	0.00011927	0.00001225
78	26.53%	0.00002653%	0.00012082	0.00001205
79	26.87%	0.00002687%	0.00012237	0.00001184
80	27.21%	0.00002721%	0.00012392	0.00001165
81	27.55%	0.00002755%	0.00012547	0.00001145

82	27.89%	0.00002789%	0.00012702	0.00001125
83	28.23%	0.00002823%	0.00012857	0.00001106
84	28.57%	0.00002857%	0.00013011	0.00001086
85	28.91%	0.00002891%	0.00013166	0.00001067
86	29.25%	0.00002925%	0.00013321	0.00001048
87	29.59%	0.00002959%	0.00013476	0.00001030
88	29.93%	0.00002993%	0.00013631	0.00001011
89	30.27%	0.00003027%	0.00013786	0.00000993
90	30.61%	0.00003061%	0.00013941	0.00000975
91	30.95%	0.00003095%	0.00014096	0.00000957
92	31.29%	0.00003129%	0.00014251	0.00000939
93	31.63%	0.00003163%	0.00014406	0.00000922
94	31.97%	0.00003197%	0.00014560	0.00000905
95	32.31%	0.00003231%	0.00014715	0.00000888
96	32.65%	0.00003265%	0.00014870	0.00000871
97	32.99%	0.00003299%	0.00015025	0.00000854
98	33.33%	0.00003333%	0.00015180	0.00000838
99	33.67%	0.00003367%	0.00015335	0.00000822
100	34.01%	0.00003401%	0.00015490	0.00000806
101	34.35%	0.00003435%	0.00015645	0.00000790
102	34.69%	0.00003469%	0.00015800	0.00000775
103	35.03%	0.00003503%	0.00015954	0.00000760
104	35.37%	0.00003537%	0.00016109	0.00000745
105	35.71%	0.00003571%	0.00016264	0.00000730
106	36.05%	0.00003605%	0.00016419	0.00000715
107	36.39%	0.00003639%	0.00016574	0.00000701
108	36.73%	0.00003673%	0.00016729	0.00000687
109	37.07%	0.00003707%	0.00016884	0.00000673
110	37.41%	0.00003741%	0.00017039	0.00000660
111	37.76%	0.00003776%	0.00017194	0.00000646
112	38.10%	0.00003810%	0.00017349	0.00000633
113	38.44%	0.00003844%	0.00017503	0.00000620
114	38.78%	0.00003878%	0.00017658	0.00000607
115	39.12%	0.00003912%	0.00017813	0.00000595
116	39.46%	0.00003946%	0.00017968	0.00000583
117	39.80%	0.00003980%	0.00018123	0.00000571
118	40.14%	0.00004014%	0.00018278	0.00000559
119	40.48%	0.00004048%	0.00018433	0.00000547
120	40.82%	0.00004082%	0.00018588	0.00000536
121	41.16%	0.00004116%	0.00018743	0.00000524
122	41.50%	0.00004150%	0.00018898	0.00000513
123	41.84%	0.00004184%	0.00019052	0.00000502
124	42.18%	0.00004218%	0.00019207	0.00000492
125	42.52%	0.00004252%	0.00019362	0.00000481
126	42.86%	0.00004286%	0.00019517	0.00000471
127	43.20%	0.00004320%	0.00019672	0.00000461
128	43.54%	0.00004354%	0.00019827	0.00000451
129	43.88%	0.00004388%	0.00019982	0.00000441
130	44.22%	0.00004422%	0.00020137	0.00000432
131	44.56%	0.00004456%	0.00020292	0.00000422
132	44.90%	0.00004490%	0.00020447	0.00000413
133	45.24%	0.00004524%	0.00020601	0.00000404

134	45.58%	0.00004558%	0.00020756	0.00000395
135	45.92%	0.00004592%	0.00020911	0.00000387
136	46.26%	0.00004626%	0.00021066	0.00000378
137	46.60%	0.00004660%	0.00021221	0.00000370
138	46.94%	0.00004694%	0.00021376	0.00000362
139	47.28%	0.00004728%	0.00021531	0.00000354
140	47.62%	0.00004762%	0.00021686	0.00000346
141	47.96%	0.00004796%	0.00021841	0.00000338
142	48.30%	0.00004830%	0.00021996	0.00000331
143	48.64%	0.00004864%	0.00022150	0.00000323
144	48.98%	0.00004898%	0.00022305	0.00000316
145	49.32%	0.00004932%	0.00022460	0.00000309
146	49.66%	0.00004966%	0.00022615	0.00000302
147	50.00%	0.00005000%	0.00022770	0.00000295
148	50.34%	0.00005034%	0.00022925	0.00000289
149	50.68%	0.00005068%	0.00023080	0.00000282
150	51.02%	0.00005102%	0.00023235	0.00000276
151	51.36%	0.00005136%	0.00023390	0.00000270
152	51.70%	0.00005170%	0.00023544	0.00000263
153	52.04%	0.00005204%	0.00023699	0.00000257
154	52.38%	0.00005238%	0.00023854	0.00000252
155	52.72%	0.00005272%	0.00024009	0.00000246
156	53.06%	0.00005306%	0.00024164	0.00000240
157	53.40%	0.00005340%	0.00024319	0.00000235
158	53.74%	0.00005374%	0.00024474	0.00000229
159	54.08%	0.00005408%	0.00024629	0.00000224
160	54.42%	0.00005442%	0.00024784	0.00000219
161	54.76%	0.00005476%	0.00024939	0.00000214
162	55.10%	0.00005510%	0.00025093	0.00000209
163	55.44%	0.00005544%	0.00025248	0.00000204
164	55.78%	0.00005578%	0.00025403	0.00000199
165	56.12%	0.00005612%	0.00025558	0.00000195
166	56.46%	0.00005646%	0.00025713	0.00000190
167	56.80%	0.00005680%	0.00025868	0.00000186
168	57.14%	0.00005714%	0.00026023	0.00000181
169	57.48%	0.00005748%	0.00026178	0.00000177
170	57.82%	0.00005782%	0.00026333	0.00000173
171	58.16%	0.00005816%	0.00026488	0.00000169
172	58.50%	0.00005850%	0.00026642	0.00000165
173	58.84%	0.00005884%	0.00026797	0.00000161
174	59.18%	0.00005918%	0.00026952	0.00000157
175	59.52%	0.00005952%	0.00027107	0.00000154
176	59.86%	0.00005986%	0.00027262	0.00000150
177	60.20%	0.00006020%	0.00027417	0.00000146
178	60.54%	0.00006054%	0.00027572	0.00000143
179	60.88%	0.00006088%	0.00027727	0.00000140
180	61.22%	0.00006122%	0.00027882	0.00000136
181	61.56%	0.00006156%	0.00028037	0.00000133
182	61.90%	0.00006190%	0.00028191	0.00000130
183	62.24%	0.00006224%	0.00028346	0.00000127
184	62.59%	0.00006259%	0.00028501	0.00000124
185	62.93%	0.00006293%	0.00028656	0.00000121

186	63.27%	0.00006327%	0.00028811	0.00000118
187	63.61%	0.00006361%	0.00028966	0.00000115
188	63.95%	0.00006395%	0.00029121	0.00000112
189	64.29%	0.00006429%	0.00029276	0.00000110
190	64.63%	0.00006463%	0.00029431	0.00000107
191	64.97%	0.00006497%	0.00029586	0.00000105
192	65.31%	0.00006531%	0.00029740	0.00000102
193	65.65%	0.00006565%	0.00029895	0.00000100
194	65.99%	0.00006599%	0.00030050	0.00000097
195	66.33%	0.00006633%	0.00030205	0.00000095
196	66.67%	0.00006667%	0.00030360	0.00000093
197	67.01%	0.00006701%	0.00030515	0.00000090
198	67.35%	0.00006735%	0.00030670	0.00000088
199	67.69%	0.00006769%	0.00030825	0.00000086
200	68.03%	0.00006803%	0.00030980	0.00000084
201	68.37%	0.00006837%	0.00031134	0.00000082
202	68.71%	0.00006871%	0.00031289	0.00000080
203	69.05%	0.00006905%	0.00031444	0.00000078
204	69.39%	0.00006939%	0.00031599	0.00000076
205	69.73%	0.00006973%	0.00031754	0.00000074
206	70.07%	0.00007007%	0.00031909	0.00000072
207	70.41%	0.00007041%	0.00032064	0.00000071
208	70.75%	0.00007075%	0.00032219	0.00000069
209	71.09%	0.00007109%	0.00032374	0.00000067
210	71.43%	0.00007143%	0.00032529	0.00000066
211	71.77%	0.00007177%	0.00032683	0.00000064
212	72.11%	0.00007211%	0.00032838	0.00000062
213	72.45%	0.00007245%	0.00032993	0.00000061
214	72.79%	0.00007279%	0.00033148	0.00000059
215	73.13%	0.00007313%	0.00033303	0.00000058
216	73.47%	0.00007347%	0.00033458	0.00000056
217	73.81%	0.00007381%	0.00033613	0.00000055
218	74.15%	0.00007415%	0.00033768	0.00000054
219	74.49%	0.00007449%	0.00033923	0.00000052
220	74.83%	0.00007483%	0.00034078	0.00000051
221	75.17%	0.00007517%	0.00034232	0.00000050
222	75.51%	0.00007551%	0.00034387	0.00000049
223	75.85%	0.00007585%	0.00034542	0.00000047
224	76.19%	0.00007619%	0.00034697	0.00000046
225	76.53%	0.00007653%	0.00034852	0.00000045
226	76.87%	0.00007687%	0.00035007	0.00000044
227	77.21%	0.00007721%	0.00035162	0.00000043
228	77.55%	0.00007755%	0.00035317	0.00000042
229	77.89%	0.00007789%	0.00035472	0.00000041
230	78.23%	0.00007823%	0.00035627	0.00000040
231	78.57%	0.00007857%	0.00035781	0.00000039
232	78.91%	0.00007891%	0.00035936	0.00000038
233	79.25%	0.00007925%	0.00036091	0.00000037
234	79.59%	0.00007959%	0.00036246	0.00000036
235	79.93%	0.00007993%	0.00036401	0.00000035
236	80.27%	0.00008027%	0.00036556	0.00000034
237	80.61%	0.00008061%	0.00036711	0.00000033

238	80.95%	0.00008095%	0.00036866	0.00000032
239	81.29%	0.00008129%	0.00037021	0.00000032
240	81.63%	0.00008163%	0.00037176	0.00000031
241	81.97%	0.00008197%	0.00037330	0.00000030
242	82.31%	0.00008231%	0.00037485	0.00000029
243	82.65%	0.00008265%	0.00037640	0.00000029
244	82.99%	0.00008299%	0.00037795	0.00000028
245	83.33%	0.00008333%	0.00037950	0.00000027
246	83.67%	0.00008367%	0.00038105	0.00000026
247	84.01%	0.00008401%	0.00038260	0.00000026
248	84.35%	0.00008435%	0.00038415	0.00000025
249	84.69%	0.00008469%	0.00038570	0.00000025
250	85.03%	0.00008503%	0.00038724	0.00000024
251	85.37%	0.00008537%	0.00038879	0.00000023
252	85.71%	0.00008571%	0.00039034	0.00000023
253	86.05%	0.00008605%	0.00039189	0.00000022
254	86.39%	0.00008639%	0.00039344	0.00000022
255	86.73%	0.00008673%	0.00039499	0.00000021
256	87.07%	0.00008707%	0.00039654	0.00000021
257	87.41%	0.00008741%	0.00039809	0.00000020
258	87.76%	0.00008776%	0.00039964	0.00000019
259	88.10%	0.00008810%	0.00040119	0.00000019
260	88.44%	0.00008844%	0.00040273	0.00000019
261	88.78%	0.00008878%	0.00040428	0.00000018
262	89.12%	0.00008912%	0.00040583	0.00000018
263	89.46%	0.00008946%	0.00040738	0.00000017
264	89.80%	0.00008980%	0.00040893	0.00000017
265	90.14%	0.00009014%	0.00041048	0.00000016
266	90.48%	0.00009048%	0.00041203	0.00000016
267	90.82%	0.00009082%	0.00041358	0.00000015
268	91.16%	0.00009116%	0.00041513	0.00000015
269	91.50%	0.00009150%	0.00041668	0.00000015
270	91.84%	0.00009184%	0.00041822	0.00000014
271	92.18%	0.00009218%	0.00041977	0.00000014
272	92.52%	0.00009252%	0.00042132	0.00000014
273	92.86%	0.00009286%	0.00042287	0.00000013
274	93.20%	0.00009320%	0.00042442	0.00000013
275	93.54%	0.00009354%	0.00042597	0.00000013
276	93.88%	0.00009388%	0.00042752	0.00000012
277	94.22%	0.00009422%	0.00042907	0.00000012
278	94.56%	0.00009456%	0.00043062	0.00000012
279	94.90%	0.00009490%	0.00043217	0.00000011
280	95.24%	0.00009524%	0.00043371	0.00000011
281	95.58%	0.00009558%	0.00043526	0.00000011
282	95.92%	0.00009592%	0.00043681	0.00000010
283	96.26%	0.00009626%	0.00043836	0.00000010
284	96.60%	0.00009660%	0.00043991	0.00000010
285	96.94%	0.00009694%	0.00044146	0.00000010
286	97.28%	0.00009728%	0.00044301	0.00000009
287	97.62%	0.00009762%	0.00044456	0.00000009
288	97.96%	0.00009796%	0.00044611	0.00000009
289	98.30%	0.00009830%	0.00044766	0.00000009

290	98.64%	0.00009864%	0.00044920	0.00000009
291	98.98%	0.00009898%	0.00045075	0.00000008
292	99.32%	0.00009932%	0.00045230	0.00000008
293	99.66%	0.00009966%	0.00045385	0.00000008
294	100.00%	0.00010000%	0.00045540	0.00000008
Beyond (c)				0.00000255
Total				0.00177242

Section 1.2 Lake Winnipeg - Jump Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00000000%	0.00000000	0.00000000
1	0.57%	0.00000057%	0.03353500	0.03255825
2	1.14%	0.00000114%	0.06707000	0.06321991
3	1.71%	0.00000171%	0.10060500	0.09206783
4	2.29%	0.00000229%	0.13414000	0.11918165
5	2.86%	0.00000286%	0.16767500	0.14463793
6	3.43%	0.00000343%	0.20121000	0.16851021
7	4.00%	0.00000400%	0.23474500	0.19086917
8	4.57%	0.00000457%	0.26828000	0.21178271
9	5.14%	0.00000514%	0.30181500	0.23131607
10	5.71%	0.00000571%	0.33535000	0.24953189
11	6.29%	0.00000629%	0.36888500	0.26649037
12	6.86%	0.00000686%	0.40242000	0.28224929
13	7.43%	0.00000743%	0.43595500	0.29686414
14	8.00%	0.00000800%	0.46949000	0.31038820
15	8.57%	0.00000857%	0.50302500	0.32287261
16	9.14%	0.00000914%	0.53656000	0.33436645
17	9.71%	0.00000971%	0.57009500	0.34491685
18	10.29%	0.00001029%	0.60363000	0.35456901
19	10.86%	0.00001086%	0.63716500	0.36336630
20	11.43%	0.00001143%	0.67070000	0.37135033
21	12.00%	0.00001200%	0.70423500	0.37856101
22	12.57%	0.00001257%	0.73777000	0.38503663
23	13.14%	0.00001314%	0.77130500	0.39081388
24	13.71%	0.00001371%	0.80484000	0.39592795
25	14.29%	0.00001429%	0.83837500	0.40041257
26	14.86%	0.00001486%	0.87191000	0.40430007
27	15.43%	0.00001543%	0.90544500	0.40762143
28	16.00%	0.00001600%	0.93898000	0.41040633
29	16.57%	0.00001657%	0.97251500	0.41268320
30	17.14%	0.00001714%	1.00605000	0.41447928
31	17.71%	0.00001771%	1.03958500	0.41582064
32	18.29%	0.00001829%	1.07312000	0.41673224
33	18.86%	0.00001886%	1.10665500	0.41723798
34	19.43%	0.00001943%	1.14019000	0.41736073
35	20.00%	0.00002000%	1.17372500	0.41712238

36	20.57%	0.00002057%	1.20726000	0.41654385
37	21.14%	0.00002114%	1.24079500	0.41564515
38	21.71%	0.00002171%	1.27433000	0.41444544
39	22.29%	0.00002229%	1.30786500	0.41296301
40	22.86%	0.00002286%	1.34140000	0.41121535
41	23.43%	0.00002343%	1.37493500	0.40921916
42	24.00%	0.00002400%	1.40847000	0.40699040
43	24.57%	0.00002457%	1.44200500	0.40454432
44	25.14%	0.00002514%	1.47554000	0.40189546
45	25.71%	0.00002571%	1.50907500	0.39905772
46	26.29%	0.00002629%	1.54261000	0.39604434
47	26.86%	0.00002686%	1.57614500	0.39286796
48	27.43%	0.00002743%	1.60968000	0.38954063
49	28.00%	0.00002800%	1.64321500	0.38607384
50	28.57%	0.00002857%	1.67675000	0.38247855
51	29.14%	0.00002914%	1.71028500	0.37876516
52	29.71%	0.00002971%	1.74382000	0.37494362
53	30.29%	0.00003029%	1.77735500	0.37102337
54	30.86%	0.00003086%	1.81089000	0.36701341
55	31.43%	0.00003143%	1.84442500	0.36292229
56	32.00%	0.00003200%	1.87796000	0.35875813
57	32.57%	0.00003257%	1.91149500	0.35452867
58	33.14%	0.00003314%	1.94503000	0.35024123
59	33.71%	0.00003371%	1.97856500	0.34590279
60	34.29%	0.00003429%	2.01210000	0.34151995
61	34.86%	0.00003486%	2.04563500	0.33709898
62	35.43%	0.00003543%	2.07917000	0.33264582
63	36.00%	0.00003600%	2.11270500	0.32816609
64	36.57%	0.00003657%	2.14624000	0.32366512
65	37.14%	0.00003714%	2.17977500	0.31914795
66	37.71%	0.00003771%	2.21331000	0.31461934
67	38.29%	0.00003829%	2.24684500	0.31008379
68	38.86%	0.00003886%	2.28038000	0.30554554
69	39.43%	0.00003943%	2.31391500	0.30100860
70	40.00%	0.00004000%	2.34745000	0.29647674
71	40.57%	0.00004057%	2.38098500	0.29195351
72	41.14%	0.00004114%	2.41452000	0.28744227
73	41.71%	0.00004171%	2.44805500	0.28294614
74	42.29%	0.00004229%	2.48159000	0.27846807
75	42.86%	0.00004286%	2.51512500	0.27401083
76	43.43%	0.00004343%	2.54866000	0.26957699
77	44.00%	0.00004400%	2.58219500	0.26516899
78	44.57%	0.00004457%	2.61573000	0.26078907
79	45.14%	0.00004514%	2.64926500	0.25643934
80	45.71%	0.00004571%	2.68280000	0.25212175
81	46.29%	0.00004629%	2.71633500	0.24783813
82	46.86%	0.00004686%	2.74987000	0.24359016
83	47.43%	0.00004743%	2.78340500	0.23937939
84	48.00%	0.00004800%	2.81694000	0.23520726
85	48.57%	0.00004857%	2.85047500	0.23107509
86	49.14%	0.00004914%	2.88401000	0.22698410
87	49.71%	0.00004971%	2.91754500	0.22293539

88	50.29%	0.00005029%	2.95108000	0.21892997
89	50.86%	0.00005086%	2.98461500	0.21496874
90	51.43%	0.00005143%	3.01815000	0.21105255
91	52.00%	0.00005200%	3.05168500	0.20718211
92	52.57%	0.00005257%	3.08522000	0.20335810
93	53.14%	0.00005314%	3.11875500	0.19958108
94	53.71%	0.00005371%	3.15229000	0.19585156
95	54.29%	0.00005429%	3.18582500	0.19216999
96	54.86%	0.00005486%	3.21936000	0.18853673
97	55.43%	0.00005543%	3.25289500	0.18495209
98	56.00%	0.00005600%	3.28643000	0.18141633
99	56.57%	0.00005657%	3.31996500	0.17792962
100	57.14%	0.00005714%	3.35350000	0.17449213
101	57.71%	0.00005771%	3.38703500	0.17110393
102	58.29%	0.00005829%	3.42057000	0.16776508
103	58.86%	0.00005886%	3.45410500	0.16447557
104	59.43%	0.00005943%	3.48764000	0.16123536
105	60.00%	0.00006000%	3.52117500	0.15804436
106	60.57%	0.00006057%	3.55471000	0.15490248
107	61.14%	0.00006114%	3.58824500	0.15180953
108	61.71%	0.00006171%	3.62178000	0.14876535
109	62.29%	0.00006229%	3.65531500	0.14576972
110	62.86%	0.00006286%	3.68885000	0.14282238
111	63.43%	0.00006343%	3.72238500	0.13992308
112	64.00%	0.00006400%	3.75592000	0.13707150
113	64.57%	0.00006457%	3.78945500	0.13426733
114	65.14%	0.00006514%	3.82299000	0.13151023
115	65.71%	0.00006571%	3.85652500	0.12879984
116	66.29%	0.00006629%	3.89006000	0.12613576
117	66.86%	0.00006686%	3.92359500	0.12351761
118	67.43%	0.00006743%	3.95713000	0.12094497
119	68.00%	0.00006800%	3.99066500	0.11841740
120	68.57%	0.00006857%	4.02420000	0.11593447
121	69.14%	0.00006914%	4.05773500	0.11349572
122	69.71%	0.00006971%	4.09127000	0.11110068
123	70.29%	0.00007029%	4.12480500	0.10874888
124	70.86%	0.00007086%	4.15834000	0.10643982
125	71.43%	0.00007143%	4.19187500	0.10417302
126	72.00%	0.00007200%	4.22541000	0.10194796
127	72.57%	0.00007257%	4.25894500	0.09976415
128	73.14%	0.00007314%	4.29248000	0.09762106
129	73.71%	0.00007371%	4.32601500	0.09551818
130	74.29%	0.00007429%	4.35955000	0.09345498
131	74.86%	0.00007486%	4.39308500	0.09143094
132	75.43%	0.00007543%	4.42662000	0.08944552
133	76.00%	0.00007600%	4.46015500	0.08749819
134	76.57%	0.00007657%	4.49369000	0.08558842
135	77.14%	0.00007714%	4.52722500	0.08371567
136	77.71%	0.00007771%	4.56076000	0.08187940
137	78.29%	0.00007829%	4.59429500	0.08007908
138	78.86%	0.00007886%	4.62783000	0.07831418
139	79.43%	0.00007943%	4.66136500	0.07658415

140	80.00%	0.00008000%	4.69490000	0.07488846
141	80.57%	0.00008057%	4.72843500	0.07322658
142	81.14%	0.00008114%	4.76197000	0.07159798
143	81.71%	0.00008171%	4.79550500	0.07000212
144	82.29%	0.00008229%	4.82904000	0.06843849
145	82.86%	0.00008286%	4.86257500	0.06690656
146	83.43%	0.00008343%	4.89611000	0.06540581
147	84.00%	0.00008400%	4.92964500	0.06393573
148	84.57%	0.00008457%	4.96318000	0.06249579
149	85.14%	0.00008514%	4.99671500	0.06108550
150	85.71%	0.00008571%	5.03025000	0.05970433
151	86.29%	0.00008629%	5.06378500	0.05835181
152	86.86%	0.00008686%	5.09732000	0.05702742
153	87.43%	0.00008743%	5.13085500	0.05573068
154	88.00%	0.00008800%	5.16439000	0.05446110
155	88.57%	0.00008857%	5.19792500	0.05321820
156	89.14%	0.00008914%	5.23146000	0.05200150
157	89.71%	0.00008971%	5.26499500	0.05081053
158	90.29%	0.00009029%	5.29853000	0.04964481
159	90.86%	0.00009086%	5.33206500	0.04850391
160	91.43%	0.00009143%	5.36560000	0.04738734
161	92.00%	0.00009200%	5.39913500	0.04629467
162	92.57%	0.00009257%	5.43267000	0.04522545
163	93.14%	0.00009314%	5.46620500	0.04417924
164	93.71%	0.00009371%	5.49974000	0.04315561
165	94.29%	0.00009429%	5.53327500	0.04215413
166	94.86%	0.00009486%	5.56681000	0.04117438
167	95.43%	0.00009543%	5.60034500	0.04021594
168	96.00%	0.00009600%	5.63388000	0.03927840
169	96.57%	0.00009657%	5.66741500	0.03836136
170	97.14%	0.00009714%	5.70095000	0.03746442
171	97.71%	0.00009771%	5.73448500	0.03658719
172	98.29%	0.00009829%	5.76802000	0.03572927
173	98.86%	0.00009886%	5.80155500	0.03489029
174	99.43%	0.00009943%	5.83509000	0.03406987
175	100.00%	0.00010000%	5.86862500	0.03326764
Beyond (d)				1.10892144
Total				38.16138462

Section 1.3 Lake Winnipeg - Progressive Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
294	0.00%	0.00000000%	0.00000000	0.00000000
295	0.57%	0.00000057%	0.03353500	0.00000548
296	1.14%	0.00000114%	0.06707000	0.00001063
297	1.71%	0.00000171%	0.10060500	0.00001549
298	2.29%	0.00000229%	0.13414000	0.00002005

299	2.86%	0.0000286%	0.16767500	0.00002433
300	3.43%	0.0000343%	0.20121000	0.00002835
301	4.00%	0.0000400%	0.23474500	0.00003211
302	4.57%	0.0000457%	0.26828000	0.00003562
303	5.14%	0.0000514%	0.30181500	0.00003891
304	5.71%	0.0000571%	0.33535000	0.00004197
305	6.29%	0.0000629%	0.36888500	0.00004483
306	6.86%	0.0000686%	0.40242000	0.00004748
307	7.43%	0.0000743%	0.43595500	0.00004994
308	8.00%	0.0000800%	0.46949000	0.00005221
309	8.57%	0.0000857%	0.50302500	0.00005431
310	9.14%	0.0000914%	0.53656000	0.00005624
311	9.71%	0.0000971%	0.57009500	0.00005802
312	10.29%	0.0001029%	0.60363000	0.00005964
313	10.86%	0.0001086%	0.63716500	0.00006112
314	11.43%	0.0001143%	0.67070000	0.00006247
315	12.00%	0.0001200%	0.70423500	0.00006368
316	12.57%	0.0001257%	0.73777000	0.00006477
317	13.14%	0.0001314%	0.77130500	0.00006574
318	13.71%	0.0001371%	0.80484000	0.00006660
319	14.29%	0.0001429%	0.83837500	0.00006735
320	14.86%	0.0001486%	0.87191000	0.00006801
321	15.43%	0.0001543%	0.90544500	0.00006857
322	16.00%	0.0001600%	0.93898000	0.00006904
323	16.57%	0.0001657%	0.97251500	0.00006942
324	17.14%	0.0001714%	1.00605000	0.00006972
325	17.71%	0.0001771%	1.03958500	0.00006995
326	18.29%	0.0001829%	1.07312000	0.00007010
327	18.86%	0.0001886%	1.10665500	0.00007018
328	19.43%	0.0001943%	1.14019000	0.00007020
329	20.00%	0.0002000%	1.17372500	0.00007016
330	20.57%	0.0002057%	1.20726000	0.00007007
331	21.14%	0.0002114%	1.24079500	0.00006992
332	21.71%	0.0002171%	1.27433000	0.00006971
333	22.29%	0.0002229%	1.30786500	0.00006947
334	22.86%	0.0002286%	1.34140000	0.00006917
335	23.43%	0.0002343%	1.37493500	0.00006884
336	24.00%	0.0002400%	1.40847000	0.00006846
337	24.57%	0.0002457%	1.44200500	0.00006805
338	25.14%	0.0002514%	1.47554000	0.00006760
339	25.71%	0.0002571%	1.50907500	0.00006713
340	26.29%	0.0002629%	1.54261000	0.00006662
341	26.86%	0.0002686%	1.57614500	0.00006608
342	27.43%	0.0002743%	1.60968000	0.00006553
343	28.00%	0.0002800%	1.64321500	0.00006494
344	28.57%	0.0002857%	1.67675000	0.00006434
345	29.14%	0.0002914%	1.71028500	0.00006371
346	29.71%	0.0002971%	1.74382000	0.00006307
347	30.29%	0.0003029%	1.77735500	0.00006241
348	30.86%	0.0003086%	1.81089000	0.00006174
349	31.43%	0.0003143%	1.84442500	0.00006105
350	32.00%	0.0003200%	1.87796000	0.00006035

351	32.57%	0.00003257%	1.91149500	0.00005964
352	33.14%	0.00003314%	1.94503000	0.00005891
353	33.71%	0.00003371%	1.97856500	0.00005818
354	34.29%	0.00003429%	2.01210000	0.00005745
355	34.86%	0.00003486%	2.04563500	0.00005670
356	35.43%	0.00003543%	2.07917000	0.00005595
357	36.00%	0.00003600%	2.11270500	0.00005520
358	36.57%	0.00003657%	2.14624000	0.00005444
359	37.14%	0.00003714%	2.17977500	0.00005368
360	37.71%	0.00003771%	2.21331000	0.00005292
361	38.29%	0.00003829%	2.24684500	0.00005216
362	38.86%	0.00003886%	2.28038000	0.00005140
363	39.43%	0.00003943%	2.31391500	0.00005063
364	40.00%	0.00004000%	2.34745000	0.00004987
365	40.57%	0.00004057%	2.38098500	0.00004911
366	41.14%	0.00004114%	2.41452000	0.00004835
367	41.71%	0.00004171%	2.44805500	0.00004759
368	42.29%	0.00004229%	2.48159000	0.00004684
369	42.86%	0.00004286%	2.51512500	0.00004609
370	43.43%	0.00004343%	2.54866000	0.00004535
371	44.00%	0.00004400%	2.58219500	0.00004460
372	44.57%	0.00004457%	2.61573000	0.00004387
373	45.14%	0.00004514%	2.64926500	0.00004314
374	45.71%	0.00004571%	2.68280000	0.00004241
375	46.29%	0.00004629%	2.71633500	0.00004169
376	46.86%	0.00004686%	2.74987000	0.00004097
377	47.43%	0.00004743%	2.78340500	0.00004027
378	48.00%	0.00004800%	2.81694000	0.00003956
379	48.57%	0.00004857%	2.85047500	0.00003887
380	49.14%	0.00004914%	2.88401000	0.00003818
381	49.71%	0.00004971%	2.91754500	0.00003750
382	50.29%	0.00005029%	2.95108000	0.00003683
383	50.86%	0.00005086%	2.98461500	0.00003616
384	51.43%	0.00005143%	3.01815000	0.00003550
385	52.00%	0.00005200%	3.05168500	0.00003485
386	52.57%	0.00005257%	3.08522000	0.00003421
387	53.14%	0.00005314%	3.11875500	0.00003357
388	53.71%	0.00005371%	3.15229000	0.00003294
389	54.29%	0.00005429%	3.18582500	0.00003233
390	54.86%	0.00005486%	3.21936000	0.00003171
391	55.43%	0.00005543%	3.25289500	0.00003111
392	56.00%	0.00005600%	3.28643000	0.00003052
393	56.57%	0.00005657%	3.31996500	0.00002993
394	57.14%	0.00005714%	3.35350000	0.00002935
395	57.71%	0.00005771%	3.38703500	0.00002878
396	58.29%	0.00005829%	3.42057000	0.00002822
397	58.86%	0.00005886%	3.45410500	0.00002767
398	59.43%	0.00005943%	3.48764000	0.00002712
399	60.00%	0.00006000%	3.52117500	0.00002658
400	60.57%	0.00006057%	3.55471000	0.00002606
401	61.14%	0.00006114%	3.58824500	0.00002554
402	61.71%	0.00006171%	3.62178000	0.00002502

403	62.29%	0.00006229%	3.65531500	0.00002452
404	62.86%	0.00006286%	3.68885000	0.00002402
405	63.43%	0.00006343%	3.72238500	0.00002354
406	64.00%	0.00006400%	3.75592000	0.00002306
407	64.57%	0.00006457%	3.78945500	0.00002259
408	65.14%	0.00006514%	3.82299000	0.00002212
409	65.71%	0.00006571%	3.85652500	0.00002167
410	66.29%	0.00006629%	3.89006000	0.00002122
411	66.86%	0.00006686%	3.92359500	0.00002078
412	67.43%	0.00006743%	3.95713000	0.00002034
413	68.00%	0.00006800%	3.99066500	0.00001992
414	68.57%	0.00006857%	4.02420000	0.00001950
415	69.14%	0.00006914%	4.05773500	0.00001909
416	69.71%	0.00006971%	4.09127000	0.00001869
417	70.29%	0.00007029%	4.12480500	0.00001829
418	70.86%	0.00007086%	4.15834000	0.00001790
419	71.43%	0.00007143%	4.19187500	0.00001752
420	72.00%	0.00007200%	4.22541000	0.00001715
421	72.57%	0.00007257%	4.25894500	0.00001678
422	73.14%	0.00007314%	4.29248000	0.00001642
423	73.71%	0.00007371%	4.32601500	0.00001607
424	74.29%	0.00007429%	4.35955000	0.00001572
425	74.86%	0.00007486%	4.39308500	0.00001538
426	75.43%	0.00007543%	4.42662000	0.00001505
427	76.00%	0.00007600%	4.46015500	0.00001472
428	76.57%	0.00007657%	4.49369000	0.00001440
429	77.14%	0.00007714%	4.52722500	0.00001408
430	77.71%	0.00007771%	4.56076000	0.00001377
431	78.29%	0.00007829%	4.59429500	0.00001347
432	78.86%	0.00007886%	4.62783000	0.00001317
433	79.43%	0.00007943%	4.66136500	0.00001288
434	80.00%	0.00008000%	4.69490000	0.00001260
435	80.57%	0.00008057%	4.72843500	0.00001232
436	81.14%	0.00008114%	4.76197000	0.00001204
437	81.71%	0.00008171%	4.79550500	0.00001178
438	82.29%	0.00008229%	4.82904000	0.00001151
439	82.86%	0.00008286%	4.86257500	0.00001125
440	83.43%	0.00008343%	4.89611000	0.00001100
441	84.00%	0.00008400%	4.92964500	0.00001075
442	84.57%	0.00008457%	4.96318000	0.00001051
443	85.14%	0.00008514%	4.99671500	0.00001028
444	85.71%	0.00008571%	5.03025000	0.00001004
445	86.29%	0.00008629%	5.06378500	0.00000982
446	86.86%	0.00008686%	5.09732000	0.00000959
447	87.43%	0.00008743%	5.13085500	0.00000937
448	88.00%	0.00008800%	5.16439000	0.00000916
449	88.57%	0.00008857%	5.19792500	0.00000895
450	89.14%	0.00008914%	5.23146000	0.00000875
451	89.71%	0.00008971%	5.26499500	0.00000855
452	90.29%	0.00009029%	5.29853000	0.00000835
453	90.86%	0.00009086%	5.33206500	0.00000816
454	91.43%	0.00009143%	5.36560000	0.00000797

455	92.00%	0.00009200%	5.39913500	0.00000779
456	92.57%	0.00009257%	5.43267000	0.00000761
457	93.14%	0.00009314%	5.46620500	0.00000743
458	93.71%	0.00009371%	5.49974000	0.00000726
459	94.29%	0.00009429%	5.53327500	0.00000709
460	94.86%	0.00009486%	5.56681000	0.00000693
461	95.43%	0.00009543%	5.60034500	0.00000676
462	96.00%	0.00009600%	5.63388000	0.00000661
463	96.57%	0.00009657%	5.66741500	0.00000645
464	97.14%	0.00009714%	5.70095000	0.00000630
465	97.71%	0.00009771%	5.73448500	0.00000615
466	98.29%	0.00009829%	5.76802000	0.00000601
467	98.86%	0.00009886%	5.80155500	0.00000587
468	99.43%	0.00009943%	5.83509000	0.00000573
469	100.00%	0.00010000%	5.86862500	0.00000560
Beyond (e)				0.00018653
Total				0.00641919

Section 2 Quantification of Replacement Services

Year	<------(Percentage)----->	
	Current Value	Present Value
5	0.0%	0.0%
6	5.0%	4.2%
7	10.0%	8.1%
8	15.0%	11.8%
9	20.0%	15.3%
10	25.0%	18.6%
11	30.0%	21.7%
12	35.0%	24.5%
13	40.0%	27.2%
14	45.0%	29.8%
15	50.0%	32.1%
16	55.0%	34.3%
17	60.0%	36.3%
18	65.0%	38.2%
19	70.0%	39.9%
20	75.0%	41.5%
21	80.0%	43.0%
22	85.0%	44.4%
23	90.0%	45.6%
24	95.0%	46.7%
25	100.0%	47.8%
Beyond (f)		1592.0%
Total		2203.1%

Section 3 Offsetting Restoration for One Organism

Red River - Progressive Dispersal (river-miles):	0.0000805
Lake Winnipeg - Jump Dispersal (acres):	1.73
Lake Winnipeg - Progressive Dispersal (acres):	0.000291

Section 4 Notes

- (a) Percent loss given certain invasion
- (b) Percent loss given probability of successful invasion
- (c) From year 295 into perpetuity
- (d) From year 176 into perpetuity
- (e) From year 470 into perpetuity
- (f) From year 26 into perpetuity

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Appendix 15D. Habitat Equivalency Analysis of Risk Consequences: Slow Invasion - Moderate Risk (One Organism)

Probability of successful invasion:	1.00E-03
Annual discount rate:	3.0%
Present year:	0

Section 1 Quantification of Expected Lost Services

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Affected habitat (river-miles):	455.40
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Year	<------(Percentage)----->		<------(River-Mile Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00000%	0.00000	0.00000
1	0.34%	0.00034%	0.00155	0.00150
2	0.68%	0.00068%	0.00310	0.00292
3	1.02%	0.00102%	0.00465	0.00425
4	1.36%	0.00136%	0.00620	0.00550
5	1.70%	0.00170%	0.00774	0.00668
6	2.04%	0.00204%	0.00929	0.00778
7	2.38%	0.00238%	0.01084	0.00882
8	2.72%	0.00272%	0.01239	0.00978
9	3.06%	0.00306%	0.01394	0.01068
10	3.40%	0.00340%	0.01549	0.01153
11	3.74%	0.00374%	0.01704	0.01231
12	4.08%	0.00408%	0.01859	0.01304
13	4.42%	0.00442%	0.02014	0.01371
14	4.76%	0.00476%	0.02169	0.01434
15	5.10%	0.00510%	0.02323	0.01491
16	5.44%	0.00544%	0.02478	0.01544
17	5.78%	0.00578%	0.02633	0.01593
18	6.12%	0.00612%	0.02788	0.01638
19	6.46%	0.00646%	0.02943	0.01678
20	6.80%	0.00680%	0.03098	0.01715
21	7.14%	0.00714%	0.03253	0.01749
22	7.48%	0.00748%	0.03408	0.01778
23	7.82%	0.00782%	0.03563	0.01805
24	8.16%	0.00816%	0.03718	0.01829
25	8.50%	0.00850%	0.03872	0.01850
26	8.84%	0.00884%	0.04027	0.01867
27	9.18%	0.00918%	0.04182	0.01883
28	9.52%	0.00952%	0.04337	0.01896
29	9.86%	0.00986%	0.04492	0.01906

30	10.20%	0.01020%	0.04647	0.01914
31	10.54%	0.01054%	0.04802	0.01921
32	10.88%	0.01088%	0.04957	0.01925
33	11.22%	0.01122%	0.05112	0.01927
34	11.56%	0.01156%	0.05267	0.01928
35	11.90%	0.01190%	0.05421	0.01927
36	12.24%	0.01224%	0.05576	0.01924
37	12.59%	0.01259%	0.05731	0.01920
38	12.93%	0.01293%	0.05886	0.01914
39	13.27%	0.01327%	0.06041	0.01907
40	13.61%	0.01361%	0.06196	0.01899
41	13.95%	0.01395%	0.06351	0.01890
42	14.29%	0.01429%	0.06506	0.01880
43	14.63%	0.01463%	0.06661	0.01869
44	14.97%	0.01497%	0.06816	0.01856
45	15.31%	0.01531%	0.06970	0.01843
46	15.65%	0.01565%	0.07125	0.01829
47	15.99%	0.01599%	0.07280	0.01815
48	16.33%	0.01633%	0.07435	0.01799
49	16.67%	0.01667%	0.07590	0.01783
50	17.01%	0.01701%	0.07745	0.01767
51	17.35%	0.01735%	0.07900	0.01750
52	17.69%	0.01769%	0.08055	0.01732
53	18.03%	0.01803%	0.08210	0.01714
54	18.37%	0.01837%	0.08364	0.01695
55	18.71%	0.01871%	0.08519	0.01676
56	19.05%	0.01905%	0.08674	0.01657
57	19.39%	0.01939%	0.08829	0.01638
58	19.73%	0.01973%	0.08984	0.01618
59	20.07%	0.02007%	0.09139	0.01598
60	20.41%	0.02041%	0.09294	0.01577
61	20.75%	0.02075%	0.09449	0.01557
62	21.09%	0.02109%	0.09604	0.01536
63	21.43%	0.02143%	0.09759	0.01516
64	21.77%	0.02177%	0.09913	0.01495
65	22.11%	0.02211%	0.10068	0.01474
66	22.45%	0.02245%	0.10223	0.01453
67	22.79%	0.02279%	0.10378	0.01432
68	23.13%	0.02313%	0.10533	0.01411
69	23.47%	0.02347%	0.10688	0.01390
70	23.81%	0.02381%	0.10843	0.01369
71	24.15%	0.02415%	0.10998	0.01349
72	24.49%	0.02449%	0.11153	0.01328
73	24.83%	0.02483%	0.11308	0.01307
74	25.17%	0.02517%	0.11462	0.01286
75	25.51%	0.02551%	0.11617	0.01266
76	25.85%	0.02585%	0.11772	0.01245
77	26.19%	0.02619%	0.11927	0.01225
78	26.53%	0.02653%	0.12082	0.01205
79	26.87%	0.02687%	0.12237	0.01184
80	27.21%	0.02721%	0.12392	0.01165
81	27.55%	0.02755%	0.12547	0.01145

82	27.89%	0.02789%	0.12702	0.01125
83	28.23%	0.02823%	0.12857	0.01106
84	28.57%	0.02857%	0.13011	0.01086
85	28.91%	0.02891%	0.13166	0.01067
86	29.25%	0.02925%	0.13321	0.01048
87	29.59%	0.02959%	0.13476	0.01030
88	29.93%	0.02993%	0.13631	0.01011
89	30.27%	0.03027%	0.13786	0.00993
90	30.61%	0.03061%	0.13941	0.00975
91	30.95%	0.03095%	0.14096	0.00957
92	31.29%	0.03129%	0.14251	0.00939
93	31.63%	0.03163%	0.14406	0.00922
94	31.97%	0.03197%	0.14560	0.00905
95	32.31%	0.03231%	0.14715	0.00888
96	32.65%	0.03265%	0.14870	0.00871
97	32.99%	0.03299%	0.15025	0.00854
98	33.33%	0.03333%	0.15180	0.00838
99	33.67%	0.03367%	0.15335	0.00822
100	34.01%	0.03401%	0.15490	0.00806
101	34.35%	0.03435%	0.15645	0.00790
102	34.69%	0.03469%	0.15800	0.00775
103	35.03%	0.03503%	0.15954	0.00760
104	35.37%	0.03537%	0.16109	0.00745
105	35.71%	0.03571%	0.16264	0.00730
106	36.05%	0.03605%	0.16419	0.00715
107	36.39%	0.03639%	0.16574	0.00701
108	36.73%	0.03673%	0.16729	0.00687
109	37.07%	0.03707%	0.16884	0.00673
110	37.41%	0.03741%	0.17039	0.00660
111	37.76%	0.03776%	0.17194	0.00646
112	38.10%	0.03810%	0.17349	0.00633
113	38.44%	0.03844%	0.17503	0.00620
114	38.78%	0.03878%	0.17658	0.00607
115	39.12%	0.03912%	0.17813	0.00595
116	39.46%	0.03946%	0.17968	0.00583
117	39.80%	0.03980%	0.18123	0.00571
118	40.14%	0.04014%	0.18278	0.00559
119	40.48%	0.04048%	0.18433	0.00547
120	40.82%	0.04082%	0.18588	0.00536
121	41.16%	0.04116%	0.18743	0.00524
122	41.50%	0.04150%	0.18898	0.00513
123	41.84%	0.04184%	0.19052	0.00502
124	42.18%	0.04218%	0.19207	0.00492
125	42.52%	0.04252%	0.19362	0.00481
126	42.86%	0.04286%	0.19517	0.00471
127	43.20%	0.04320%	0.19672	0.00461
128	43.54%	0.04354%	0.19827	0.00451
129	43.88%	0.04388%	0.19982	0.00441
130	44.22%	0.04422%	0.20137	0.00432
131	44.56%	0.04456%	0.20292	0.00422
132	44.90%	0.04490%	0.20447	0.00413
133	45.24%	0.04524%	0.20601	0.00404

134	45.58%	0.04558%	0.20756	0.00395
135	45.92%	0.04592%	0.20911	0.00387
136	46.26%	0.04626%	0.21066	0.00378
137	46.60%	0.04660%	0.21221	0.00370
138	46.94%	0.04694%	0.21376	0.00362
139	47.28%	0.04728%	0.21531	0.00354
140	47.62%	0.04762%	0.21686	0.00346
141	47.96%	0.04796%	0.21841	0.00338
142	48.30%	0.04830%	0.21996	0.00331
143	48.64%	0.04864%	0.22150	0.00323
144	48.98%	0.04898%	0.22305	0.00316
145	49.32%	0.04932%	0.22460	0.00309
146	49.66%	0.04966%	0.22615	0.00302
147	50.00%	0.05000%	0.22770	0.00295
148	50.34%	0.05034%	0.22925	0.00289
149	50.68%	0.05068%	0.23080	0.00282
150	51.02%	0.05102%	0.23235	0.00276
151	51.36%	0.05136%	0.23390	0.00270
152	51.70%	0.05170%	0.23544	0.00263
153	52.04%	0.05204%	0.23699	0.00257
154	52.38%	0.05238%	0.23854	0.00252
155	52.72%	0.05272%	0.24009	0.00246
156	53.06%	0.05306%	0.24164	0.00240
157	53.40%	0.05340%	0.24319	0.00235
158	53.74%	0.05374%	0.24474	0.00229
159	54.08%	0.05408%	0.24629	0.00224
160	54.42%	0.05442%	0.24784	0.00219
161	54.76%	0.05476%	0.24939	0.00214
162	55.10%	0.05510%	0.25093	0.00209
163	55.44%	0.05544%	0.25248	0.00204
164	55.78%	0.05578%	0.25403	0.00199
165	56.12%	0.05612%	0.25558	0.00195
166	56.46%	0.05646%	0.25713	0.00190
167	56.80%	0.05680%	0.25868	0.00186
168	57.14%	0.05714%	0.26023	0.00181
169	57.48%	0.05748%	0.26178	0.00177
170	57.82%	0.05782%	0.26333	0.00173
171	58.16%	0.05816%	0.26488	0.00169
172	58.50%	0.05850%	0.26642	0.00165
173	58.84%	0.05884%	0.26797	0.00161
174	59.18%	0.05918%	0.26952	0.00157
175	59.52%	0.05952%	0.27107	0.00154
176	59.86%	0.05986%	0.27262	0.00150
177	60.20%	0.06020%	0.27417	0.00146
178	60.54%	0.06054%	0.27572	0.00143
179	60.88%	0.06088%	0.27727	0.00140
180	61.22%	0.06122%	0.27882	0.00136
181	61.56%	0.06156%	0.28037	0.00133
182	61.90%	0.06190%	0.28191	0.00130
183	62.24%	0.06224%	0.28346	0.00127
184	62.59%	0.06259%	0.28501	0.00124
185	62.93%	0.06293%	0.28656	0.00121

186	63.27%	0.06327%	0.28811	0.00118
187	63.61%	0.06361%	0.28966	0.00115
188	63.95%	0.06395%	0.29121	0.00112
189	64.29%	0.06429%	0.29276	0.00110
190	64.63%	0.06463%	0.29431	0.00107
191	64.97%	0.06497%	0.29586	0.00105
192	65.31%	0.06531%	0.29740	0.00102
193	65.65%	0.06565%	0.29895	0.00100
194	65.99%	0.06599%	0.30050	0.00097
195	66.33%	0.06633%	0.30205	0.00095
196	66.67%	0.06667%	0.30360	0.00093
197	67.01%	0.06701%	0.30515	0.00090
198	67.35%	0.06735%	0.30670	0.00088
199	67.69%	0.06769%	0.30825	0.00086
200	68.03%	0.06803%	0.30980	0.00084
201	68.37%	0.06837%	0.31134	0.00082
202	68.71%	0.06871%	0.31289	0.00080
203	69.05%	0.06905%	0.31444	0.00078
204	69.39%	0.06939%	0.31599	0.00076
205	69.73%	0.06973%	0.31754	0.00074
206	70.07%	0.07007%	0.31909	0.00072
207	70.41%	0.07041%	0.32064	0.00071
208	70.75%	0.07075%	0.32219	0.00069
209	71.09%	0.07109%	0.32374	0.00067
210	71.43%	0.07143%	0.32529	0.00066
211	71.77%	0.07177%	0.32683	0.00064
212	72.11%	0.07211%	0.32838	0.00062
213	72.45%	0.07245%	0.32993	0.00061
214	72.79%	0.07279%	0.33148	0.00059
215	73.13%	0.07313%	0.33303	0.00058
216	73.47%	0.07347%	0.33458	0.00056
217	73.81%	0.07381%	0.33613	0.00055
218	74.15%	0.07415%	0.33768	0.00054
219	74.49%	0.07449%	0.33923	0.00052
220	74.83%	0.07483%	0.34078	0.00051
221	75.17%	0.07517%	0.34232	0.00050
222	75.51%	0.07551%	0.34387	0.00049
223	75.85%	0.07585%	0.34542	0.00047
224	76.19%	0.07619%	0.34697	0.00046
225	76.53%	0.07653%	0.34852	0.00045
226	76.87%	0.07687%	0.35007	0.00044
227	77.21%	0.07721%	0.35162	0.00043
228	77.55%	0.07755%	0.35317	0.00042
229	77.89%	0.07789%	0.35472	0.00041
230	78.23%	0.07823%	0.35627	0.00040
231	78.57%	0.07857%	0.35781	0.00039
232	78.91%	0.07891%	0.35936	0.00038
233	79.25%	0.07925%	0.36091	0.00037
234	79.59%	0.07959%	0.36246	0.00036
235	79.93%	0.07993%	0.36401	0.00035
236	80.27%	0.08027%	0.36556	0.00034
237	80.61%	0.08061%	0.36711	0.00033

238	80.95%	0.08095%	0.36866	0.00032
239	81.29%	0.08129%	0.37021	0.00032
240	81.63%	0.08163%	0.37176	0.00031
241	81.97%	0.08197%	0.37330	0.00030
242	82.31%	0.08231%	0.37485	0.00029
243	82.65%	0.08265%	0.37640	0.00029
244	82.99%	0.08299%	0.37795	0.00028
245	83.33%	0.08333%	0.37950	0.00027
246	83.67%	0.08367%	0.38105	0.00026
247	84.01%	0.08401%	0.38260	0.00026
248	84.35%	0.08435%	0.38415	0.00025
249	84.69%	0.08469%	0.38570	0.00025
250	85.03%	0.08503%	0.38724	0.00024
251	85.37%	0.08537%	0.38879	0.00023
252	85.71%	0.08571%	0.39034	0.00023
253	86.05%	0.08605%	0.39189	0.00022
254	86.39%	0.08639%	0.39344	0.00022
255	86.73%	0.08673%	0.39499	0.00021
256	87.07%	0.08707%	0.39654	0.00021
257	87.41%	0.08741%	0.39809	0.00020
258	87.76%	0.08776%	0.39964	0.00019
259	88.10%	0.08810%	0.40119	0.00019
260	88.44%	0.08844%	0.40273	0.00019
261	88.78%	0.08878%	0.40428	0.00018
262	89.12%	0.08912%	0.40583	0.00018
263	89.46%	0.08946%	0.40738	0.00017
264	89.80%	0.08980%	0.40893	0.00017
265	90.14%	0.09014%	0.41048	0.00016
266	90.48%	0.09048%	0.41203	0.00016
267	90.82%	0.09082%	0.41358	0.00015
268	91.16%	0.09116%	0.41513	0.00015
269	91.50%	0.09150%	0.41668	0.00015
270	91.84%	0.09184%	0.41822	0.00014
271	92.18%	0.09218%	0.41977	0.00014
272	92.52%	0.09252%	0.42132	0.00014
273	92.86%	0.09286%	0.42287	0.00013
274	93.20%	0.09320%	0.42442	0.00013
275	93.54%	0.09354%	0.42597	0.00013
276	93.88%	0.09388%	0.42752	0.00012
277	94.22%	0.09422%	0.42907	0.00012
278	94.56%	0.09456%	0.43062	0.00012
279	94.90%	0.09490%	0.43217	0.00011
280	95.24%	0.09524%	0.43371	0.00011
281	95.58%	0.09558%	0.43526	0.00011
282	95.92%	0.09592%	0.43681	0.00010
283	96.26%	0.09626%	0.43836	0.00010
284	96.60%	0.09660%	0.43991	0.00010
285	96.94%	0.09694%	0.44146	0.00010
286	97.28%	0.09728%	0.44301	0.00009
287	97.62%	0.09762%	0.44456	0.00009
288	97.96%	0.09796%	0.44611	0.00009
289	98.30%	0.09830%	0.44766	0.00009

290	98.64%	0.09864%	0.44920	0.00009
291	98.98%	0.09898%	0.45075	0.00008
292	99.32%	0.09932%	0.45230	0.00008
293	99.66%	0.09966%	0.45385	0.00008
294	100.00%	0.10000%	0.45540	0.00008
Beyond (c)				0.00255
Total				1.77242

Section 1.2 Lake Winnipeg - Jump Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00000%	0.00000	0.00000
1	0.57%	0.00057%	33.53500	32.55825
2	1.14%	0.00114%	67.07000	63.21991
3	1.71%	0.00171%	100.60500	92.06783
4	2.29%	0.00229%	134.14000	119.18165
5	2.86%	0.00286%	167.67500	144.63793
6	3.43%	0.00343%	201.21000	168.51021
7	4.00%	0.00400%	234.74500	190.86917
8	4.57%	0.00457%	268.28000	211.78271
9	5.14%	0.00514%	301.81500	231.31607
10	5.71%	0.00571%	335.35000	249.53189
11	6.29%	0.00629%	368.88500	266.49037
12	6.86%	0.00686%	402.42000	282.24929
13	7.43%	0.00743%	435.95500	296.86414
14	8.00%	0.00800%	469.49000	310.38820
15	8.57%	0.00857%	503.02500	322.87261
16	9.14%	0.00914%	536.56000	334.36645
17	9.71%	0.00971%	570.09500	344.91685
18	10.29%	0.01029%	603.63000	354.56901
19	10.86%	0.01086%	637.16500	363.36630
20	11.43%	0.01143%	670.70000	371.35033
21	12.00%	0.01200%	704.23500	378.56101
22	12.57%	0.01257%	737.77000	385.03663
23	13.14%	0.01314%	771.30500	390.81388
24	13.71%	0.01371%	804.84000	395.92795
25	14.29%	0.01429%	838.37500	400.41257
26	14.86%	0.01486%	871.91000	404.30007
27	15.43%	0.01543%	905.44500	407.62143
28	16.00%	0.01600%	938.98000	410.40633
29	16.57%	0.01657%	972.51500	412.68320
30	17.14%	0.01714%	1,006.05000	414.47928
31	17.71%	0.01771%	1,039.58500	415.82064
32	18.29%	0.01829%	1,073.12000	416.73224
33	18.86%	0.01886%	1,106.65500	417.23798
34	19.43%	0.01943%	1,140.19000	417.36073
35	20.00%	0.02000%	1,173.72500	417.12238

36	20.57%	0.02057%	1,207.26000	416.54385
37	21.14%	0.02114%	1,240.79500	415.64515
38	21.71%	0.02171%	1,274.33000	414.44544
39	22.29%	0.02229%	1,307.86500	412.96301
40	22.86%	0.02286%	1,341.40000	411.21535
41	23.43%	0.02343%	1,374.93500	409.21916
42	24.00%	0.02400%	1,408.47000	406.99040
43	24.57%	0.02457%	1,442.00500	404.54432
44	25.14%	0.02514%	1,475.54000	401.89546
45	25.71%	0.02571%	1,509.07500	399.05772
46	26.29%	0.02629%	1,542.61000	396.04434
47	26.86%	0.02686%	1,576.14500	392.86796
48	27.43%	0.02743%	1,609.68000	389.54063
49	28.00%	0.02800%	1,643.21500	386.07384
50	28.57%	0.02857%	1,676.75000	382.47855
51	29.14%	0.02914%	1,710.28500	378.76516
52	29.71%	0.02971%	1,743.82000	374.94362
53	30.29%	0.03029%	1,777.35500	371.02337
54	30.86%	0.03086%	1,810.89000	367.01341
55	31.43%	0.03143%	1,844.42500	362.92229
56	32.00%	0.03200%	1,877.96000	358.75813
57	32.57%	0.03257%	1,911.49500	354.52867
58	33.14%	0.03314%	1,945.03000	350.24123
59	33.71%	0.03371%	1,978.56500	345.90279
60	34.29%	0.03429%	2,012.10000	341.51995
61	34.86%	0.03486%	2,045.63500	337.09898
62	35.43%	0.03543%	2,079.17000	332.64582
63	36.00%	0.03600%	2,112.70500	328.16609
64	36.57%	0.03657%	2,146.24000	323.66512
65	37.14%	0.03714%	2,179.77500	319.14795
66	37.71%	0.03771%	2,213.31000	314.61934
67	38.29%	0.03829%	2,246.84500	310.08379
68	38.86%	0.03886%	2,280.38000	305.54554
69	39.43%	0.03943%	2,313.91500	301.00860
70	40.00%	0.04000%	2,347.45000	296.47674
71	40.57%	0.04057%	2,380.98500	291.95351
72	41.14%	0.04114%	2,414.52000	287.44227
73	41.71%	0.04171%	2,448.05500	282.94614
74	42.29%	0.04229%	2,481.59000	278.46807
75	42.86%	0.04286%	2,515.12500	274.01083
76	43.43%	0.04343%	2,548.66000	269.57699
77	44.00%	0.04400%	2,582.19500	265.16899
78	44.57%	0.04457%	2,615.73000	260.78907
79	45.14%	0.04514%	2,649.26500	256.43934
80	45.71%	0.04571%	2,682.80000	252.12175
81	46.29%	0.04629%	2,716.33500	247.83813
82	46.86%	0.04686%	2,749.87000	243.59016
83	47.43%	0.04743%	2,783.40500	239.37939
84	48.00%	0.04800%	2,816.94000	235.20726
85	48.57%	0.04857%	2,850.47500	231.07509
86	49.14%	0.04914%	2,884.01000	226.98410
87	49.71%	0.04971%	2,917.54500	222.93539

88	50.29%	0.05029%	2,951.08000	218.92997
89	50.86%	0.05086%	2,984.61500	214.96874
90	51.43%	0.05143%	3,018.15000	211.05255
91	52.00%	0.05200%	3,051.68500	207.18211
92	52.57%	0.05257%	3,085.22000	203.35810
93	53.14%	0.05314%	3,118.75500	199.58108
94	53.71%	0.05371%	3,152.29000	195.85156
95	54.29%	0.05429%	3,185.82500	192.16999
96	54.86%	0.05486%	3,219.36000	188.53673
97	55.43%	0.05543%	3,252.89500	184.95209
98	56.00%	0.05600%	3,286.43000	181.41633
99	56.57%	0.05657%	3,319.96500	177.92962
100	57.14%	0.05714%	3,353.50000	174.49213
101	57.71%	0.05771%	3,387.03500	171.10393
102	58.29%	0.05829%	3,420.57000	167.76508
103	58.86%	0.05886%	3,454.10500	164.47557
104	59.43%	0.05943%	3,487.64000	161.23536
105	60.00%	0.06000%	3,521.17500	158.04436
106	60.57%	0.06057%	3,554.71000	154.90248
107	61.14%	0.06114%	3,588.24500	151.80953
108	61.71%	0.06171%	3,621.78000	148.76535
109	62.29%	0.06229%	3,655.31500	145.76972
110	62.86%	0.06286%	3,688.85000	142.82238
111	63.43%	0.06343%	3,722.38500	139.92308
112	64.00%	0.06400%	3,755.92000	137.07150
113	64.57%	0.06457%	3,789.45500	134.26733
114	65.14%	0.06514%	3,822.99000	131.51023
115	65.71%	0.06571%	3,856.52500	128.79984
116	66.29%	0.06629%	3,890.06000	126.13576
117	66.86%	0.06686%	3,923.59500	123.51761
118	67.43%	0.06743%	3,957.13000	120.94497
119	68.00%	0.06800%	3,990.66500	118.41740
120	68.57%	0.06857%	4,024.20000	115.93447
121	69.14%	0.06914%	4,057.73500	113.49572
122	69.71%	0.06971%	4,091.27000	111.10068
123	70.29%	0.07029%	4,124.80500	108.74888
124	70.86%	0.07086%	4,158.34000	106.43982
125	71.43%	0.07143%	4,191.87500	104.17302
126	72.00%	0.07200%	4,225.41000	101.94796
127	72.57%	0.07257%	4,258.94500	99.76415
128	73.14%	0.07314%	4,292.48000	97.62106
129	73.71%	0.07371%	4,326.01500	95.51818
130	74.29%	0.07429%	4,359.55000	93.45498
131	74.86%	0.07486%	4,393.08500	91.43094
132	75.43%	0.07543%	4,426.62000	89.44552
133	76.00%	0.07600%	4,460.15500	87.49819
134	76.57%	0.07657%	4,493.69000	85.58842
135	77.14%	0.07714%	4,527.22500	83.71567
136	77.71%	0.07771%	4,560.76000	81.87940
137	78.29%	0.07829%	4,594.29500	80.07908
138	78.86%	0.07886%	4,627.83000	78.31418
139	79.43%	0.07943%	4,661.36500	76.58415

140	80.00%	0.08000%	4,694.90000	74.88846
141	80.57%	0.08057%	4,728.43500	73.22658
142	81.14%	0.08114%	4,761.97000	71.59798
143	81.71%	0.08171%	4,795.50500	70.00212
144	82.29%	0.08229%	4,829.04000	68.43849
145	82.86%	0.08286%	4,862.57500	66.90656
146	83.43%	0.08343%	4,896.11000	65.40581
147	84.00%	0.08400%	4,929.64500	63.93573
148	84.57%	0.08457%	4,963.18000	62.49579
149	85.14%	0.08514%	4,996.71500	61.08550
150	85.71%	0.08571%	5,030.25000	59.70433
151	86.29%	0.08629%	5,063.78500	58.35181
152	86.86%	0.08686%	5,097.32000	57.02742
153	87.43%	0.08743%	5,130.85500	55.73068
154	88.00%	0.08800%	5,164.39000	54.46110
155	88.57%	0.08857%	5,197.92500	53.21820
156	89.14%	0.08914%	5,231.46000	52.00150
157	89.71%	0.08971%	5,264.99500	50.81053
158	90.29%	0.09029%	5,298.53000	49.64481
159	90.86%	0.09086%	5,332.06500	48.50391
160	91.43%	0.09143%	5,365.60000	47.38734
161	92.00%	0.09200%	5,399.13500	46.29467
162	92.57%	0.09257%	5,432.67000	45.22545
163	93.14%	0.09314%	5,466.20500	44.17924
164	93.71%	0.09371%	5,499.74000	43.15561
165	94.29%	0.09429%	5,533.27500	42.15413
166	94.86%	0.09486%	5,566.81000	41.17438
167	95.43%	0.09543%	5,600.34500	40.21594
168	96.00%	0.09600%	5,633.88000	39.27840
169	96.57%	0.09657%	5,667.41500	38.36136
170	97.14%	0.09714%	5,700.95000	37.46442
171	97.71%	0.09771%	5,734.48500	36.58719
172	98.29%	0.09829%	5,768.02000	35.72927
173	98.86%	0.09886%	5,801.55500	34.89029
174	99.43%	0.09943%	5,835.09000	34.06987
175	100.00%	0.10000%	5,868.62500	33.26764
Beyond (d)				1,108.92144
Total				38,161.38462

Section 1.3 Lake Winnipeg - Progressive Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
294	0.00%	0.00000%	0.00000	0.00000
295	0.57%	0.00057%	33.53500	0.00548
296	1.14%	0.00114%	67.07000	0.01063
297	1.71%	0.00171%	100.60500	0.01549
298	2.29%	0.00229%	134.14000	0.02005

299	2.86%	0.00286%	167.67500	0.02433
300	3.43%	0.00343%	201.21000	0.02835
301	4.00%	0.00400%	234.74500	0.03211
302	4.57%	0.00457%	268.28000	0.03562
303	5.14%	0.00514%	301.81500	0.03891
304	5.71%	0.00571%	335.35000	0.04197
305	6.29%	0.00629%	368.88500	0.04483
306	6.86%	0.00686%	402.42000	0.04748
307	7.43%	0.00743%	435.95500	0.04994
308	8.00%	0.00800%	469.49000	0.05221
309	8.57%	0.00857%	503.02500	0.05431
310	9.14%	0.00914%	536.56000	0.05624
311	9.71%	0.00971%	570.09500	0.05802
312	10.29%	0.01029%	603.63000	0.05964
313	10.86%	0.01086%	637.16500	0.06112
314	11.43%	0.01143%	670.70000	0.06247
315	12.00%	0.01200%	704.23500	0.06368
316	12.57%	0.01257%	737.77000	0.06477
317	13.14%	0.01314%	771.30500	0.06574
318	13.71%	0.01371%	804.84000	0.06660
319	14.29%	0.01429%	838.37500	0.06735
320	14.86%	0.01486%	871.91000	0.06801
321	15.43%	0.01543%	905.44500	0.06857
322	16.00%	0.01600%	938.98000	0.06904
323	16.57%	0.01657%	972.51500	0.06942
324	17.14%	0.01714%	1,006.05000	0.06972
325	17.71%	0.01771%	1,039.58500	0.06995
326	18.29%	0.01829%	1,073.12000	0.07010
327	18.86%	0.01886%	1,106.65500	0.07018
328	19.43%	0.01943%	1,140.19000	0.07020
329	20.00%	0.02000%	1,173.72500	0.07016
330	20.57%	0.02057%	1,207.26000	0.07007
331	21.14%	0.02114%	1,240.79500	0.06992
332	21.71%	0.02171%	1,274.33000	0.06971
333	22.29%	0.02229%	1,307.86500	0.06947
334	22.86%	0.02286%	1,341.40000	0.06917
335	23.43%	0.02343%	1,374.93500	0.06884
336	24.00%	0.02400%	1,408.47000	0.06846
337	24.57%	0.02457%	1,442.00500	0.06805
338	25.14%	0.02514%	1,475.54000	0.06760
339	25.71%	0.02571%	1,509.07500	0.06713
340	26.29%	0.02629%	1,542.61000	0.06662
341	26.86%	0.02686%	1,576.14500	0.06608
342	27.43%	0.02743%	1,609.68000	0.06553
343	28.00%	0.02800%	1,643.21500	0.06494
344	28.57%	0.02857%	1,676.75000	0.06434
345	29.14%	0.02914%	1,710.28500	0.06371
346	29.71%	0.02971%	1,743.82000	0.06307
347	30.29%	0.03029%	1,777.35500	0.06241
348	30.86%	0.03086%	1,810.89000	0.06174
349	31.43%	0.03143%	1,844.42500	0.06105
350	32.00%	0.03200%	1,877.96000	0.06035

351	32.57%	0.03257%	1,911.49500	0.05964
352	33.14%	0.03314%	1,945.03000	0.05891
353	33.71%	0.03371%	1,978.56500	0.05818
354	34.29%	0.03429%	2,012.10000	0.05745
355	34.86%	0.03486%	2,045.63500	0.05670
356	35.43%	0.03543%	2,079.17000	0.05595
357	36.00%	0.03600%	2,112.70500	0.05520
358	36.57%	0.03657%	2,146.24000	0.05444
359	37.14%	0.03714%	2,179.77500	0.05368
360	37.71%	0.03771%	2,213.31000	0.05292
361	38.29%	0.03829%	2,246.84500	0.05216
362	38.86%	0.03886%	2,280.38000	0.05140
363	39.43%	0.03943%	2,313.91500	0.05063
364	40.00%	0.04000%	2,347.45000	0.04987
365	40.57%	0.04057%	2,380.98500	0.04911
366	41.14%	0.04114%	2,414.52000	0.04835
367	41.71%	0.04171%	2,448.05500	0.04759
368	42.29%	0.04229%	2,481.59000	0.04684
369	42.86%	0.04286%	2,515.12500	0.04609
370	43.43%	0.04343%	2,548.66000	0.04535
371	44.00%	0.04400%	2,582.19500	0.04460
372	44.57%	0.04457%	2,615.73000	0.04387
373	45.14%	0.04514%	2,649.26500	0.04314
374	45.71%	0.04571%	2,682.80000	0.04241
375	46.29%	0.04629%	2,716.33500	0.04169
376	46.86%	0.04686%	2,749.87000	0.04097
377	47.43%	0.04743%	2,783.40500	0.04027
378	48.00%	0.04800%	2,816.94000	0.03956
379	48.57%	0.04857%	2,850.47500	0.03887
380	49.14%	0.04914%	2,884.01000	0.03818
381	49.71%	0.04971%	2,917.54500	0.03750
382	50.29%	0.05029%	2,951.08000	0.03683
383	50.86%	0.05086%	2,984.61500	0.03616
384	51.43%	0.05143%	3,018.15000	0.03550
385	52.00%	0.05200%	3,051.68500	0.03485
386	52.57%	0.05257%	3,085.22000	0.03421
387	53.14%	0.05314%	3,118.75500	0.03357
388	53.71%	0.05371%	3,152.29000	0.03294
389	54.29%	0.05429%	3,185.82500	0.03233
390	54.86%	0.05486%	3,219.36000	0.03171
391	55.43%	0.05543%	3,252.89500	0.03111
392	56.00%	0.05600%	3,286.43000	0.03052
393	56.57%	0.05657%	3,319.96500	0.02993
394	57.14%	0.05714%	3,353.50000	0.02935
395	57.71%	0.05771%	3,387.03500	0.02878
396	58.29%	0.05829%	3,420.57000	0.02822
397	58.86%	0.05886%	3,454.10500	0.02767
398	59.43%	0.05943%	3,487.64000	0.02712
399	60.00%	0.06000%	3,521.17500	0.02658
400	60.57%	0.06057%	3,554.71000	0.02606
401	61.14%	0.06114%	3,588.24500	0.02554
402	61.71%	0.06171%	3,621.78000	0.02502

403	62.29%	0.06229%	3,655.31500	0.02452
404	62.86%	0.06286%	3,688.85000	0.02402
405	63.43%	0.06343%	3,722.38500	0.02354
406	64.00%	0.06400%	3,755.92000	0.02306
407	64.57%	0.06457%	3,789.45500	0.02259
408	65.14%	0.06514%	3,822.99000	0.02212
409	65.71%	0.06571%	3,856.52500	0.02167
410	66.29%	0.06629%	3,890.06000	0.02122
411	66.86%	0.06686%	3,923.59500	0.02078
412	67.43%	0.06743%	3,957.13000	0.02034
413	68.00%	0.06800%	3,990.66500	0.01992
414	68.57%	0.06857%	4,024.20000	0.01950
415	69.14%	0.06914%	4,057.73500	0.01909
416	69.71%	0.06971%	4,091.27000	0.01869
417	70.29%	0.07029%	4,124.80500	0.01829
418	70.86%	0.07086%	4,158.34000	0.01790
419	71.43%	0.07143%	4,191.87500	0.01752
420	72.00%	0.07200%	4,225.41000	0.01715
421	72.57%	0.07257%	4,258.94500	0.01678
422	73.14%	0.07314%	4,292.48000	0.01642
423	73.71%	0.07371%	4,326.01500	0.01607
424	74.29%	0.07429%	4,359.55000	0.01572
425	74.86%	0.07486%	4,393.08500	0.01538
426	75.43%	0.07543%	4,426.62000	0.01505
427	76.00%	0.07600%	4,460.15500	0.01472
428	76.57%	0.07657%	4,493.69000	0.01440
429	77.14%	0.07714%	4,527.22500	0.01408
430	77.71%	0.07771%	4,560.76000	0.01377
431	78.29%	0.07829%	4,594.29500	0.01347
432	78.86%	0.07886%	4,627.83000	0.01317
433	79.43%	0.07943%	4,661.36500	0.01288
434	80.00%	0.08000%	4,694.90000	0.01260
435	80.57%	0.08057%	4,728.43500	0.01232
436	81.14%	0.08114%	4,761.97000	0.01204
437	81.71%	0.08171%	4,795.50500	0.01178
438	82.29%	0.08229%	4,829.04000	0.01151
439	82.86%	0.08286%	4,862.57500	0.01125
440	83.43%	0.08343%	4,896.11000	0.01100
441	84.00%	0.08400%	4,929.64500	0.01075
442	84.57%	0.08457%	4,963.18000	0.01051
443	85.14%	0.08514%	4,996.71500	0.01028
444	85.71%	0.08571%	5,030.25000	0.01004
445	86.29%	0.08629%	5,063.78500	0.00982
446	86.86%	0.08686%	5,097.32000	0.00959
447	87.43%	0.08743%	5,130.85500	0.00937
448	88.00%	0.08800%	5,164.39000	0.00916
449	88.57%	0.08857%	5,197.92500	0.00895
450	89.14%	0.08914%	5,231.46000	0.00875
451	89.71%	0.08971%	5,264.99500	0.00855
452	90.29%	0.09029%	5,298.53000	0.00835
453	90.86%	0.09086%	5,332.06500	0.00816
454	91.43%	0.09143%	5,365.60000	0.00797

455	92.00%	0.09200%	5,399.13500	0.00779
456	92.57%	0.09257%	5,432.67000	0.00761
457	93.14%	0.09314%	5,466.20500	0.00743
458	93.71%	0.09371%	5,499.74000	0.00726
459	94.29%	0.09429%	5,533.27500	0.00709
460	94.86%	0.09486%	5,566.81000	0.00693
461	95.43%	0.09543%	5,600.34500	0.00676
462	96.00%	0.09600%	5,633.88000	0.00661
463	96.57%	0.09657%	5,667.41500	0.00645
464	97.14%	0.09714%	5,700.95000	0.00630
465	97.71%	0.09771%	5,734.48500	0.00615
466	98.29%	0.09829%	5,768.02000	0.00601
467	98.86%	0.09886%	5,801.55500	0.00587
468	99.43%	0.09943%	5,835.09000	0.00573
469	100.00%	0.10000%	5,868.62500	0.00560
Beyond (e)				0.18653
Total				6.41919

Section 2 Quantification of Replacement Services

Year	<------(Percentage)----->	
	Current Value	Present Value
5	0.0%	0.0%
6	5.0%	4.2%
7	10.0%	8.1%
8	15.0%	11.8%
9	20.0%	15.3%
10	25.0%	18.6%
11	30.0%	21.7%
12	35.0%	24.5%
13	40.0%	27.2%
14	45.0%	29.8%
15	50.0%	32.1%
16	55.0%	34.3%
17	60.0%	36.3%
18	65.0%	38.2%
19	70.0%	39.9%
20	75.0%	41.5%
21	80.0%	43.0%
22	85.0%	44.4%
23	90.0%	45.6%
24	95.0%	46.7%
25	100.0%	47.8%
Beyond (f)		1592.0%
Total		2203.1%

Section 3 Offsetting Restoration for One Organism

Red River - Progressive Dispersal (river-miles):	0.0805
Lake Winnipeg - Jump Dispersal (acres):	1,730
Lake Winnipeg - Progressive Dispersal (acres):	0.291

Section 4 Notes

- (a) Percent loss given certain invasion
- (b) Percent loss given probability of successful invasion
- (c) From year 295 into perpetuity
- (d) From year 176 into perpetuity
- (e) From year 470 into perpetuity
- (f) From year 26 into perpetuity

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Appendix 15E. Habitat Equivalency Analysis of Risk Consequences: Slow Invasion - High Risk (One Organism)

Probability of successful invasion:	1.00E-02
Annual discount rate:	3.0%
Present year:	0

Section 1 Quantification of Expected Lost Services

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Affected habitat (river-miles):	455.40
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Year	<------(Percentage)----->		<------(River-Mile Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.0000%	0.0000	0.0000
1	0.34%	0.0034%	0.0155	0.0150
2	0.68%	0.0068%	0.0310	0.0292
3	1.02%	0.0102%	0.0465	0.0425
4	1.36%	0.0136%	0.0620	0.0550
5	1.70%	0.0170%	0.0774	0.0668
6	2.04%	0.0204%	0.0929	0.0778
7	2.38%	0.0238%	0.1084	0.0882
8	2.72%	0.0272%	0.1239	0.0978
9	3.06%	0.0306%	0.1394	0.1068
10	3.40%	0.0340%	0.1549	0.1153
11	3.74%	0.0374%	0.1704	0.1231
12	4.08%	0.0408%	0.1859	0.1304
13	4.42%	0.0442%	0.2014	0.1371
14	4.76%	0.0476%	0.2169	0.1434
15	5.10%	0.0510%	0.2323	0.1491
16	5.44%	0.0544%	0.2478	0.1544
17	5.78%	0.0578%	0.2633	0.1593
18	6.12%	0.0612%	0.2788	0.1638
19	6.46%	0.0646%	0.2943	0.1678
20	6.80%	0.0680%	0.3098	0.1715
21	7.14%	0.0714%	0.3253	0.1749
22	7.48%	0.0748%	0.3408	0.1778
23	7.82%	0.0782%	0.3563	0.1805
24	8.16%	0.0816%	0.3718	0.1829
25	8.50%	0.0850%	0.3872	0.1850
26	8.84%	0.0884%	0.4027	0.1867
27	9.18%	0.0918%	0.4182	0.1883
28	9.52%	0.0952%	0.4337	0.1896
29	9.86%	0.0986%	0.4492	0.1906

30	10.20%	0.1020%	0.4647	0.1914
31	10.54%	0.1054%	0.4802	0.1921
32	10.88%	0.1088%	0.4957	0.1925
33	11.22%	0.1122%	0.5112	0.1927
34	11.56%	0.1156%	0.5267	0.1928
35	11.90%	0.1190%	0.5421	0.1927
36	12.24%	0.1224%	0.5576	0.1924
37	12.59%	0.1259%	0.5731	0.1920
38	12.93%	0.1293%	0.5886	0.1914
39	13.27%	0.1327%	0.6041	0.1907
40	13.61%	0.1361%	0.6196	0.1899
41	13.95%	0.1395%	0.6351	0.1890
42	14.29%	0.1429%	0.6506	0.1880
43	14.63%	0.1463%	0.6661	0.1869
44	14.97%	0.1497%	0.6816	0.1856
45	15.31%	0.1531%	0.6970	0.1843
46	15.65%	0.1565%	0.7125	0.1829
47	15.99%	0.1599%	0.7280	0.1815
48	16.33%	0.1633%	0.7435	0.1799
49	16.67%	0.1667%	0.7590	0.1783
50	17.01%	0.1701%	0.7745	0.1767
51	17.35%	0.1735%	0.7900	0.1750
52	17.69%	0.1769%	0.8055	0.1732
53	18.03%	0.1803%	0.8210	0.1714
54	18.37%	0.1837%	0.8364	0.1695
55	18.71%	0.1871%	0.8519	0.1676
56	19.05%	0.1905%	0.8674	0.1657
57	19.39%	0.1939%	0.8829	0.1638
58	19.73%	0.1973%	0.8984	0.1618
59	20.07%	0.2007%	0.9139	0.1598
60	20.41%	0.2041%	0.9294	0.1577
61	20.75%	0.2075%	0.9449	0.1557
62	21.09%	0.2109%	0.9604	0.1536
63	21.43%	0.2143%	0.9759	0.1516
64	21.77%	0.2177%	0.9913	0.1495
65	22.11%	0.2211%	1.0068	0.1474
66	22.45%	0.2245%	1.0223	0.1453
67	22.79%	0.2279%	1.0378	0.1432
68	23.13%	0.2313%	1.0533	0.1411
69	23.47%	0.2347%	1.0688	0.1390
70	23.81%	0.2381%	1.0843	0.1369
71	24.15%	0.2415%	1.0998	0.1349
72	24.49%	0.2449%	1.1153	0.1328
73	24.83%	0.2483%	1.1308	0.1307
74	25.17%	0.2517%	1.1462	0.1286
75	25.51%	0.2551%	1.1617	0.1266
76	25.85%	0.2585%	1.1772	0.1245
77	26.19%	0.2619%	1.1927	0.1225
78	26.53%	0.2653%	1.2082	0.1205
79	26.87%	0.2687%	1.2237	0.1184
80	27.21%	0.2721%	1.2392	0.1165
81	27.55%	0.2755%	1.2547	0.1145

82	27.89%	0.2789%	1.2702	0.1125
83	28.23%	0.2823%	1.2857	0.1106
84	28.57%	0.2857%	1.3011	0.1086
85	28.91%	0.2891%	1.3166	0.1067
86	29.25%	0.2925%	1.3321	0.1048
87	29.59%	0.2959%	1.3476	0.1030
88	29.93%	0.2993%	1.3631	0.1011
89	30.27%	0.3027%	1.3786	0.0993
90	30.61%	0.3061%	1.3941	0.0975
91	30.95%	0.3095%	1.4096	0.0957
92	31.29%	0.3129%	1.4251	0.0939
93	31.63%	0.3163%	1.4406	0.0922
94	31.97%	0.3197%	1.4560	0.0905
95	32.31%	0.3231%	1.4715	0.0888
96	32.65%	0.3265%	1.4870	0.0871
97	32.99%	0.3299%	1.5025	0.0854
98	33.33%	0.3333%	1.5180	0.0838
99	33.67%	0.3367%	1.5335	0.0822
100	34.01%	0.3401%	1.5490	0.0806
101	34.35%	0.3435%	1.5645	0.0790
102	34.69%	0.3469%	1.5800	0.0775
103	35.03%	0.3503%	1.5954	0.0760
104	35.37%	0.3537%	1.6109	0.0745
105	35.71%	0.3571%	1.6264	0.0730
106	36.05%	0.3605%	1.6419	0.0715
107	36.39%	0.3639%	1.6574	0.0701
108	36.73%	0.3673%	1.6729	0.0687
109	37.07%	0.3707%	1.6884	0.0673
110	37.41%	0.3741%	1.7039	0.0660
111	37.76%	0.3776%	1.7194	0.0646
112	38.10%	0.3810%	1.7349	0.0633
113	38.44%	0.3844%	1.7503	0.0620
114	38.78%	0.3878%	1.7658	0.0607
115	39.12%	0.3912%	1.7813	0.0595
116	39.46%	0.3946%	1.7968	0.0583
117	39.80%	0.3980%	1.8123	0.0571
118	40.14%	0.4014%	1.8278	0.0559
119	40.48%	0.4048%	1.8433	0.0547
120	40.82%	0.4082%	1.8588	0.0536
121	41.16%	0.4116%	1.8743	0.0524
122	41.50%	0.4150%	1.8898	0.0513
123	41.84%	0.4184%	1.9052	0.0502
124	42.18%	0.4218%	1.9207	0.0492
125	42.52%	0.4252%	1.9362	0.0481
126	42.86%	0.4286%	1.9517	0.0471
127	43.20%	0.4320%	1.9672	0.0461
128	43.54%	0.4354%	1.9827	0.0451
129	43.88%	0.4388%	1.9982	0.0441
130	44.22%	0.4422%	2.0137	0.0432
131	44.56%	0.4456%	2.0292	0.0422
132	44.90%	0.4490%	2.0447	0.0413
133	45.24%	0.4524%	2.0601	0.0404

134	45.58%	0.4558%	2.0756	0.0395
135	45.92%	0.4592%	2.0911	0.0387
136	46.26%	0.4626%	2.1066	0.0378
137	46.60%	0.4660%	2.1221	0.0370
138	46.94%	0.4694%	2.1376	0.0362
139	47.28%	0.4728%	2.1531	0.0354
140	47.62%	0.4762%	2.1686	0.0346
141	47.96%	0.4796%	2.1841	0.0338
142	48.30%	0.4830%	2.1996	0.0331
143	48.64%	0.4864%	2.2150	0.0323
144	48.98%	0.4898%	2.2305	0.0316
145	49.32%	0.4932%	2.2460	0.0309
146	49.66%	0.4966%	2.2615	0.0302
147	50.00%	0.5000%	2.2770	0.0295
148	50.34%	0.5034%	2.2925	0.0289
149	50.68%	0.5068%	2.3080	0.0282
150	51.02%	0.5102%	2.3235	0.0276
151	51.36%	0.5136%	2.3390	0.0270
152	51.70%	0.5170%	2.3544	0.0263
153	52.04%	0.5204%	2.3699	0.0257
154	52.38%	0.5238%	2.3854	0.0252
155	52.72%	0.5272%	2.4009	0.0246
156	53.06%	0.5306%	2.4164	0.0240
157	53.40%	0.5340%	2.4319	0.0235
158	53.74%	0.5374%	2.4474	0.0229
159	54.08%	0.5408%	2.4629	0.0224
160	54.42%	0.5442%	2.4784	0.0219
161	54.76%	0.5476%	2.4939	0.0214
162	55.10%	0.5510%	2.5093	0.0209
163	55.44%	0.5544%	2.5248	0.0204
164	55.78%	0.5578%	2.5403	0.0199
165	56.12%	0.5612%	2.5558	0.0195
166	56.46%	0.5646%	2.5713	0.0190
167	56.80%	0.5680%	2.5868	0.0186
168	57.14%	0.5714%	2.6023	0.0181
169	57.48%	0.5748%	2.6178	0.0177
170	57.82%	0.5782%	2.6333	0.0173
171	58.16%	0.5816%	2.6488	0.0169
172	58.50%	0.5850%	2.6642	0.0165
173	58.84%	0.5884%	2.6797	0.0161
174	59.18%	0.5918%	2.6952	0.0157
175	59.52%	0.5952%	2.7107	0.0154
176	59.86%	0.5986%	2.7262	0.0150
177	60.20%	0.6020%	2.7417	0.0146
178	60.54%	0.6054%	2.7572	0.0143
179	60.88%	0.6088%	2.7727	0.0140
180	61.22%	0.6122%	2.7882	0.0136
181	61.56%	0.6156%	2.8037	0.0133
182	61.90%	0.6190%	2.8191	0.0130
183	62.24%	0.6224%	2.8346	0.0127
184	62.59%	0.6259%	2.8501	0.0124
185	62.93%	0.6293%	2.8656	0.0121

186	63.27%	0.6327%	2.8811	0.0118
187	63.61%	0.6361%	2.8966	0.0115
188	63.95%	0.6395%	2.9121	0.0112
189	64.29%	0.6429%	2.9276	0.0110
190	64.63%	0.6463%	2.9431	0.0107
191	64.97%	0.6497%	2.9586	0.0105
192	65.31%	0.6531%	2.9740	0.0102
193	65.65%	0.6565%	2.9895	0.0100
194	65.99%	0.6599%	3.0050	0.0097
195	66.33%	0.6633%	3.0205	0.0095
196	66.67%	0.6667%	3.0360	0.0093
197	67.01%	0.6701%	3.0515	0.0090
198	67.35%	0.6735%	3.0670	0.0088
199	67.69%	0.6769%	3.0825	0.0086
200	68.03%	0.6803%	3.0980	0.0084
201	68.37%	0.6837%	3.1134	0.0082
202	68.71%	0.6871%	3.1289	0.0080
203	69.05%	0.6905%	3.1444	0.0078
204	69.39%	0.6939%	3.1599	0.0076
205	69.73%	0.6973%	3.1754	0.0074
206	70.07%	0.7007%	3.1909	0.0072
207	70.41%	0.7041%	3.2064	0.0071
208	70.75%	0.7075%	3.2219	0.0069
209	71.09%	0.7109%	3.2374	0.0067
210	71.43%	0.7143%	3.2529	0.0066
211	71.77%	0.7177%	3.2683	0.0064
212	72.11%	0.7211%	3.2838	0.0062
213	72.45%	0.7245%	3.2993	0.0061
214	72.79%	0.7279%	3.3148	0.0059
215	73.13%	0.7313%	3.3303	0.0058
216	73.47%	0.7347%	3.3458	0.0056
217	73.81%	0.7381%	3.3613	0.0055
218	74.15%	0.7415%	3.3768	0.0054
219	74.49%	0.7449%	3.3923	0.0052
220	74.83%	0.7483%	3.4078	0.0051
221	75.17%	0.7517%	3.4232	0.0050
222	75.51%	0.7551%	3.4387	0.0049
223	75.85%	0.7585%	3.4542	0.0047
224	76.19%	0.7619%	3.4697	0.0046
225	76.53%	0.7653%	3.4852	0.0045
226	76.87%	0.7687%	3.5007	0.0044
227	77.21%	0.7721%	3.5162	0.0043
228	77.55%	0.7755%	3.5317	0.0042
229	77.89%	0.7789%	3.5472	0.0041
230	78.23%	0.7823%	3.5627	0.0040
231	78.57%	0.7857%	3.5781	0.0039
232	78.91%	0.7891%	3.5936	0.0038
233	79.25%	0.7925%	3.6091	0.0037
234	79.59%	0.7959%	3.6246	0.0036
235	79.93%	0.7993%	3.6401	0.0035
236	80.27%	0.8027%	3.6556	0.0034
237	80.61%	0.8061%	3.6711	0.0033

238	80.95%	0.8095%	3.6866	0.0032
239	81.29%	0.8129%	3.7021	0.0032
240	81.63%	0.8163%	3.7176	0.0031
241	81.97%	0.8197%	3.7330	0.0030
242	82.31%	0.8231%	3.7485	0.0029
243	82.65%	0.8265%	3.7640	0.0029
244	82.99%	0.8299%	3.7795	0.0028
245	83.33%	0.8333%	3.7950	0.0027
246	83.67%	0.8367%	3.8105	0.0026
247	84.01%	0.8401%	3.8260	0.0026
248	84.35%	0.8435%	3.8415	0.0025
249	84.69%	0.8469%	3.8570	0.0025
250	85.03%	0.8503%	3.8724	0.0024
251	85.37%	0.8537%	3.8879	0.0023
252	85.71%	0.8571%	3.9034	0.0023
253	86.05%	0.8605%	3.9189	0.0022
254	86.39%	0.8639%	3.9344	0.0022
255	86.73%	0.8673%	3.9499	0.0021
256	87.07%	0.8707%	3.9654	0.0021
257	87.41%	0.8741%	3.9809	0.0020
258	87.76%	0.8776%	3.9964	0.0019
259	88.10%	0.8810%	4.0119	0.0019
260	88.44%	0.8844%	4.0273	0.0019
261	88.78%	0.8878%	4.0428	0.0018
262	89.12%	0.8912%	4.0583	0.0018
263	89.46%	0.8946%	4.0738	0.0017
264	89.80%	0.8980%	4.0893	0.0017
265	90.14%	0.9014%	4.1048	0.0016
266	90.48%	0.9048%	4.1203	0.0016
267	90.82%	0.9082%	4.1358	0.0015
268	91.16%	0.9116%	4.1513	0.0015
269	91.50%	0.9150%	4.1668	0.0015
270	91.84%	0.9184%	4.1822	0.0014
271	92.18%	0.9218%	4.1977	0.0014
272	92.52%	0.9252%	4.2132	0.0014
273	92.86%	0.9286%	4.2287	0.0013
274	93.20%	0.9320%	4.2442	0.0013
275	93.54%	0.9354%	4.2597	0.0013
276	93.88%	0.9388%	4.2752	0.0012
277	94.22%	0.9422%	4.2907	0.0012
278	94.56%	0.9456%	4.3062	0.0012
279	94.90%	0.9490%	4.3217	0.0011
280	95.24%	0.9524%	4.3371	0.0011
281	95.58%	0.9558%	4.3526	0.0011
282	95.92%	0.9592%	4.3681	0.0010
283	96.26%	0.9626%	4.3836	0.0010
284	96.60%	0.9660%	4.3991	0.0010
285	96.94%	0.9694%	4.4146	0.0010
286	97.28%	0.9728%	4.4301	0.0009
287	97.62%	0.9762%	4.4456	0.0009
288	97.96%	0.9796%	4.4611	0.0009
289	98.30%	0.9830%	4.4766	0.0009

290	98.64%	0.9864%	4.4920	0.0009
291	98.98%	0.9898%	4.5075	0.0008
292	99.32%	0.9932%	4.5230	0.0008
293	99.66%	0.9966%	4.5385	0.0008
294	100.00%	1.0000%	4.5540	0.0008
Beyond (c)				0.0255
Total				17.7242

Section 1.2 Lake Winnipeg - Jump Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.0000%	0.0000	0.0000
1	0.57%	0.0057%	335.3500	325.5825
2	1.14%	0.0114%	670.7000	632.1991
3	1.71%	0.0171%	1,006.0500	920.6783
4	2.29%	0.0229%	1,341.4000	1,191.8165
5	2.86%	0.0286%	1,676.7500	1,446.3793
6	3.43%	0.0343%	2,012.1000	1,685.1021
7	4.00%	0.0400%	2,347.4500	1,908.6917
8	4.57%	0.0457%	2,682.8000	2,117.8271
9	5.14%	0.0514%	3,018.1500	2,313.1607
10	5.71%	0.0571%	3,353.5000	2,495.3189
11	6.29%	0.0629%	3,688.8500	2,664.9037
12	6.86%	0.0686%	4,024.2000	2,822.4929
13	7.43%	0.0743%	4,359.5500	2,968.6414
14	8.00%	0.0800%	4,694.9000	3,103.8820
15	8.57%	0.0857%	5,030.2500	3,228.7261
16	9.14%	0.0914%	5,365.6000	3,343.6645
17	9.71%	0.0971%	5,700.9500	3,449.1685
18	10.29%	0.1029%	6,036.3000	3,545.6901
19	10.86%	0.1086%	6,371.6500	3,633.6630
20	11.43%	0.1143%	6,707.0000	3,713.5033
21	12.00%	0.1200%	7,042.3500	3,785.6101
22	12.57%	0.1257%	7,377.7000	3,850.3663
23	13.14%	0.1314%	7,713.0500	3,908.1388
24	13.71%	0.1371%	8,048.4000	3,959.2795
25	14.29%	0.1429%	8,383.7500	4,004.1257
26	14.86%	0.1486%	8,719.1000	4,043.0007
27	15.43%	0.1543%	9,054.4500	4,076.2143
28	16.00%	0.1600%	9,389.8000	4,104.0633
29	16.57%	0.1657%	9,725.1500	4,126.8320
30	17.14%	0.1714%	10,060.5000	4,144.7928
31	17.71%	0.1771%	10,395.8500	4,158.2064
32	18.29%	0.1829%	10,731.2000	4,167.3224
33	18.86%	0.1886%	11,066.5500	4,172.3798
34	19.43%	0.1943%	11,401.9000	4,173.6073
35	20.00%	0.2000%	11,737.2500	4,171.2238

36	20.57%	0.2057%	12,072.6000	4,165.4385
37	21.14%	0.2114%	12,407.9500	4,156.4515
38	21.71%	0.2171%	12,743.3000	4,144.4544
39	22.29%	0.2229%	13,078.6500	4,129.6301
40	22.86%	0.2286%	13,414.0000	4,112.1535
41	23.43%	0.2343%	13,749.3500	4,092.1916
42	24.00%	0.2400%	14,084.7000	4,069.9040
43	24.57%	0.2457%	14,420.0500	4,045.4432
44	25.14%	0.2514%	14,755.4000	4,018.9546
45	25.71%	0.2571%	15,090.7500	3,990.5772
46	26.29%	0.2629%	15,426.1000	3,960.4434
47	26.86%	0.2686%	15,761.4500	3,928.6796
48	27.43%	0.2743%	16,096.8000	3,895.4063
49	28.00%	0.2800%	16,432.1500	3,860.7384
50	28.57%	0.2857%	16,767.5000	3,824.7855
51	29.14%	0.2914%	17,102.8500	3,787.6516
52	29.71%	0.2971%	17,438.2000	3,749.4362
53	30.29%	0.3029%	17,773.5500	3,710.2337
54	30.86%	0.3086%	18,108.9000	3,670.1341
55	31.43%	0.3143%	18,444.2500	3,629.2229
56	32.00%	0.3200%	18,779.6000	3,587.5813
57	32.57%	0.3257%	19,114.9500	3,545.2867
58	33.14%	0.3314%	19,450.3000	3,502.4123
59	33.71%	0.3371%	19,785.6500	3,459.0279
60	34.29%	0.3429%	20,121.0000	3,415.1995
61	34.86%	0.3486%	20,456.3500	3,370.9898
62	35.43%	0.3543%	20,791.7000	3,326.4582
63	36.00%	0.3600%	21,127.0500	3,281.6609
64	36.57%	0.3657%	21,462.4000	3,236.6512
65	37.14%	0.3714%	21,797.7500	3,191.4795
66	37.71%	0.3771%	22,133.1000	3,146.1934
67	38.29%	0.3829%	22,468.4500	3,100.8379
68	38.86%	0.3886%	22,803.8000	3,055.4554
69	39.43%	0.3943%	23,139.1500	3,010.0860
70	40.00%	0.4000%	23,474.5000	2,964.7674
71	40.57%	0.4057%	23,809.8500	2,919.5351
72	41.14%	0.4114%	24,145.2000	2,874.4227
73	41.71%	0.4171%	24,480.5500	2,829.4614
74	42.29%	0.4229%	24,815.9000	2,784.6807
75	42.86%	0.4286%	25,151.2500	2,740.1083
76	43.43%	0.4343%	25,486.6000	2,695.7699
77	44.00%	0.4400%	25,821.9500	2,651.6899
78	44.57%	0.4457%	26,157.3000	2,607.8907
79	45.14%	0.4514%	26,492.6500	2,564.3934
80	45.71%	0.4571%	26,828.0000	2,521.2175
81	46.29%	0.4629%	27,163.3500	2,478.3813
82	46.86%	0.4686%	27,498.7000	2,435.9016
83	47.43%	0.4743%	27,834.0500	2,393.7939
84	48.00%	0.4800%	28,169.4000	2,352.0726
85	48.57%	0.4857%	28,504.7500	2,310.7509
86	49.14%	0.4914%	28,840.1000	2,269.8410
87	49.71%	0.4971%	29,175.4500	2,229.3539

88	50.29%	0.5029%	29,510.8000	2,189.2997
89	50.86%	0.5086%	29,846.1500	2,149.6874
90	51.43%	0.5143%	30,181.5000	2,110.5255
91	52.00%	0.5200%	30,516.8500	2,071.8211
92	52.57%	0.5257%	30,852.2000	2,033.5810
93	53.14%	0.5314%	31,187.5500	1,995.8108
94	53.71%	0.5371%	31,522.9000	1,958.5156
95	54.29%	0.5429%	31,858.2500	1,921.6999
96	54.86%	0.5486%	32,193.6000	1,885.3673
97	55.43%	0.5543%	32,528.9500	1,849.5209
98	56.00%	0.5600%	32,864.3000	1,814.1633
99	56.57%	0.5657%	33,199.6500	1,779.2962
100	57.14%	0.5714%	33,535.0000	1,744.9213
101	57.71%	0.5771%	33,870.3500	1,711.0393
102	58.29%	0.5829%	34,205.7000	1,677.6508
103	58.86%	0.5886%	34,541.0500	1,644.7557
104	59.43%	0.5943%	34,876.4000	1,612.3536
105	60.00%	0.6000%	35,211.7500	1,580.4436
106	60.57%	0.6057%	35,547.1000	1,549.0248
107	61.14%	0.6114%	35,882.4500	1,518.0953
108	61.71%	0.6171%	36,217.8000	1,487.6535
109	62.29%	0.6229%	36,553.1500	1,457.6972
110	62.86%	0.6286%	36,888.5000	1,428.2238
111	63.43%	0.6343%	37,223.8500	1,399.2308
112	64.00%	0.6400%	37,559.2000	1,370.7150
113	64.57%	0.6457%	37,894.5500	1,342.6733
114	65.14%	0.6514%	38,229.9000	1,315.1023
115	65.71%	0.6571%	38,565.2500	1,287.9984
116	66.29%	0.6629%	38,900.6000	1,261.3576
117	66.86%	0.6686%	39,235.9500	1,235.1761
118	67.43%	0.6743%	39,571.3000	1,209.4497
119	68.00%	0.6800%	39,906.6500	1,184.1740
120	68.57%	0.6857%	40,242.0000	1,159.3447
121	69.14%	0.6914%	40,577.3500	1,134.9572
122	69.71%	0.6971%	40,912.7000	1,111.0068
123	70.29%	0.7029%	41,248.0500	1,087.4888
124	70.86%	0.7086%	41,583.4000	1,064.3982
125	71.43%	0.7143%	41,918.7500	1,041.7302
126	72.00%	0.7200%	42,254.1000	1,019.4796
127	72.57%	0.7257%	42,589.4500	997.6415
128	73.14%	0.7314%	42,924.8000	976.2106
129	73.71%	0.7371%	43,260.1500	955.1818
130	74.29%	0.7429%	43,595.5000	934.5498
131	74.86%	0.7486%	43,930.8500	914.3094
132	75.43%	0.7543%	44,266.2000	894.4552
133	76.00%	0.7600%	44,601.5500	874.9819
134	76.57%	0.7657%	44,936.9000	855.8842
135	77.14%	0.7714%	45,272.2500	837.1567
136	77.71%	0.7771%	45,607.6000	818.7940
137	78.29%	0.7829%	45,942.9500	800.7908
138	78.86%	0.7886%	46,278.3000	783.1418
139	79.43%	0.7943%	46,613.6500	765.8415

140	80.00%	0.8000%	46,949.0000	748.8846
141	80.57%	0.8057%	47,284.3500	732.2658
142	81.14%	0.8114%	47,619.7000	715.9798
143	81.71%	0.8171%	47,955.0500	700.0212
144	82.29%	0.8229%	48,290.4000	684.3849
145	82.86%	0.8286%	48,625.7500	669.0656
146	83.43%	0.8343%	48,961.1000	654.0581
147	84.00%	0.8400%	49,296.4500	639.3573
148	84.57%	0.8457%	49,631.8000	624.9579
149	85.14%	0.8514%	49,967.1500	610.8550
150	85.71%	0.8571%	50,302.5000	597.0433
151	86.29%	0.8629%	50,637.8500	583.5181
152	86.86%	0.8686%	50,973.2000	570.2742
153	87.43%	0.8743%	51,308.5500	557.3068
154	88.00%	0.8800%	51,643.9000	544.6110
155	88.57%	0.8857%	51,979.2500	532.1820
156	89.14%	0.8914%	52,314.6000	520.0150
157	89.71%	0.8971%	52,649.9500	508.1053
158	90.29%	0.9029%	52,985.3000	496.4481
159	90.86%	0.9086%	53,320.6500	485.0391
160	91.43%	0.9143%	53,656.0000	473.8734
161	92.00%	0.9200%	53,991.3500	462.9467
162	92.57%	0.9257%	54,326.7000	452.2545
163	93.14%	0.9314%	54,662.0500	441.7924
164	93.71%	0.9371%	54,997.4000	431.5561
165	94.29%	0.9429%	55,332.7500	421.5413
166	94.86%	0.9486%	55,668.1000	411.7438
167	95.43%	0.9543%	56,003.4500	402.1594
168	96.00%	0.9600%	56,338.8000	392.7840
169	96.57%	0.9657%	56,674.1500	383.6136
170	97.14%	0.9714%	57,009.5000	374.6442
171	97.71%	0.9771%	57,344.8500	365.8719
172	98.29%	0.9829%	57,680.2000	357.2927
173	98.86%	0.9886%	58,015.5500	348.9029
174	99.43%	0.9943%	58,350.9000	340.6987
175	100.00%	1.0000%	58,686.2500	332.6764
Beyond (d)				11,089.2144
Total				381,613.8462

Section 1.3 Lake Winnipeg - Progressive Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
294	0.00%	0.0000%	0.0000	0.0000
295	0.57%	0.0057%	335.3500	0.0548
296	1.14%	0.0114%	670.7000	0.1063
297	1.71%	0.0171%	1,006.0500	0.1549
298	2.29%	0.0229%	1,341.4000	0.2005

299	2.86%	0.0286%	1,676.7500	0.2433
300	3.43%	0.0343%	2,012.1000	0.2835
301	4.00%	0.0400%	2,347.4500	0.3211
302	4.57%	0.0457%	2,682.8000	0.3562
303	5.14%	0.0514%	3,018.1500	0.3891
304	5.71%	0.0571%	3,353.5000	0.4197
305	6.29%	0.0629%	3,688.8500	0.4483
306	6.86%	0.0686%	4,024.2000	0.4748
307	7.43%	0.0743%	4,359.5500	0.4994
308	8.00%	0.0800%	4,694.9000	0.5221
309	8.57%	0.0857%	5,030.2500	0.5431
310	9.14%	0.0914%	5,365.6000	0.5624
311	9.71%	0.0971%	5,700.9500	0.5802
312	10.29%	0.1029%	6,036.3000	0.5964
313	10.86%	0.1086%	6,371.6500	0.6112
314	11.43%	0.1143%	6,707.0000	0.6247
315	12.00%	0.1200%	7,042.3500	0.6368
316	12.57%	0.1257%	7,377.7000	0.6477
317	13.14%	0.1314%	7,713.0500	0.6574
318	13.71%	0.1371%	8,048.4000	0.6660
319	14.29%	0.1429%	8,383.7500	0.6735
320	14.86%	0.1486%	8,719.1000	0.6801
321	15.43%	0.1543%	9,054.4500	0.6857
322	16.00%	0.1600%	9,389.8000	0.6904
323	16.57%	0.1657%	9,725.1500	0.6942
324	17.14%	0.1714%	10,060.5000	0.6972
325	17.71%	0.1771%	10,395.8500	0.6995
326	18.29%	0.1829%	10,731.2000	0.7010
327	18.86%	0.1886%	11,066.5500	0.7018
328	19.43%	0.1943%	11,401.9000	0.7020
329	20.00%	0.2000%	11,737.2500	0.7016
330	20.57%	0.2057%	12,072.6000	0.7007
331	21.14%	0.2114%	12,407.9500	0.6992
332	21.71%	0.2171%	12,743.3000	0.6971
333	22.29%	0.2229%	13,078.6500	0.6947
334	22.86%	0.2286%	13,414.0000	0.6917
335	23.43%	0.2343%	13,749.3500	0.6884
336	24.00%	0.2400%	14,084.7000	0.6846
337	24.57%	0.2457%	14,420.0500	0.6805
338	25.14%	0.2514%	14,755.4000	0.6760
339	25.71%	0.2571%	15,090.7500	0.6713
340	26.29%	0.2629%	15,426.1000	0.6662
341	26.86%	0.2686%	15,761.4500	0.6608
342	27.43%	0.2743%	16,096.8000	0.6553
343	28.00%	0.2800%	16,432.1500	0.6494
344	28.57%	0.2857%	16,767.5000	0.6434
345	29.14%	0.2914%	17,102.8500	0.6371
346	29.71%	0.2971%	17,438.2000	0.6307
347	30.29%	0.3029%	17,773.5500	0.6241
348	30.86%	0.3086%	18,108.9000	0.6174
349	31.43%	0.3143%	18,444.2500	0.6105
350	32.00%	0.3200%	18,779.6000	0.6035

351	32.57%	0.3257%	19,114.9500	0.5964
352	33.14%	0.3314%	19,450.3000	0.5891
353	33.71%	0.3371%	19,785.6500	0.5818
354	34.29%	0.3429%	20,121.0000	0.5745
355	34.86%	0.3486%	20,456.3500	0.5670
356	35.43%	0.3543%	20,791.7000	0.5595
357	36.00%	0.3600%	21,127.0500	0.5520
358	36.57%	0.3657%	21,462.4000	0.5444
359	37.14%	0.3714%	21,797.7500	0.5368
360	37.71%	0.3771%	22,133.1000	0.5292
361	38.29%	0.3829%	22,468.4500	0.5216
362	38.86%	0.3886%	22,803.8000	0.5140
363	39.43%	0.3943%	23,139.1500	0.5063
364	40.00%	0.4000%	23,474.5000	0.4987
365	40.57%	0.4057%	23,809.8500	0.4911
366	41.14%	0.4114%	24,145.2000	0.4835
367	41.71%	0.4171%	24,480.5500	0.4759
368	42.29%	0.4229%	24,815.9000	0.4684
369	42.86%	0.4286%	25,151.2500	0.4609
370	43.43%	0.4343%	25,486.6000	0.4535
371	44.00%	0.4400%	25,821.9500	0.4460
372	44.57%	0.4457%	26,157.3000	0.4387
373	45.14%	0.4514%	26,492.6500	0.4314
374	45.71%	0.4571%	26,828.0000	0.4241
375	46.29%	0.4629%	27,163.3500	0.4169
376	46.86%	0.4686%	27,498.7000	0.4097
377	47.43%	0.4743%	27,834.0500	0.4027
378	48.00%	0.4800%	28,169.4000	0.3956
379	48.57%	0.4857%	28,504.7500	0.3887
380	49.14%	0.4914%	28,840.1000	0.3818
381	49.71%	0.4971%	29,175.4500	0.3750
382	50.29%	0.5029%	29,510.8000	0.3683
383	50.86%	0.5086%	29,846.1500	0.3616
384	51.43%	0.5143%	30,181.5000	0.3550
385	52.00%	0.5200%	30,516.8500	0.3485
386	52.57%	0.5257%	30,852.2000	0.3421
387	53.14%	0.5314%	31,187.5500	0.3357
388	53.71%	0.5371%	31,522.9000	0.3294
389	54.29%	0.5429%	31,858.2500	0.3233
390	54.86%	0.5486%	32,193.6000	0.3171
391	55.43%	0.5543%	32,528.9500	0.3111
392	56.00%	0.5600%	32,864.3000	0.3052
393	56.57%	0.5657%	33,199.6500	0.2993
394	57.14%	0.5714%	33,535.0000	0.2935
395	57.71%	0.5771%	33,870.3500	0.2878
396	58.29%	0.5829%	34,205.7000	0.2822
397	58.86%	0.5886%	34,541.0500	0.2767
398	59.43%	0.5943%	34,876.4000	0.2712
399	60.00%	0.6000%	35,211.7500	0.2658
400	60.57%	0.6057%	35,547.1000	0.2606
401	61.14%	0.6114%	35,882.4500	0.2554
402	61.71%	0.6171%	36,217.8000	0.2502

403	62.29%	0.6229%	36,553.1500	0.2452
404	62.86%	0.6286%	36,888.5000	0.2402
405	63.43%	0.6343%	37,223.8500	0.2354
406	64.00%	0.6400%	37,559.2000	0.2306
407	64.57%	0.6457%	37,894.5500	0.2259
408	65.14%	0.6514%	38,229.9000	0.2212
409	65.71%	0.6571%	38,565.2500	0.2167
410	66.29%	0.6629%	38,900.6000	0.2122
411	66.86%	0.6686%	39,235.9500	0.2078
412	67.43%	0.6743%	39,571.3000	0.2034
413	68.00%	0.6800%	39,906.6500	0.1992
414	68.57%	0.6857%	40,242.0000	0.1950
415	69.14%	0.6914%	40,577.3500	0.1909
416	69.71%	0.6971%	40,912.7000	0.1869
417	70.29%	0.7029%	41,248.0500	0.1829
418	70.86%	0.7086%	41,583.4000	0.1790
419	71.43%	0.7143%	41,918.7500	0.1752
420	72.00%	0.7200%	42,254.1000	0.1715
421	72.57%	0.7257%	42,589.4500	0.1678
422	73.14%	0.7314%	42,924.8000	0.1642
423	73.71%	0.7371%	43,260.1500	0.1607
424	74.29%	0.7429%	43,595.5000	0.1572
425	74.86%	0.7486%	43,930.8500	0.1538
426	75.43%	0.7543%	44,266.2000	0.1505
427	76.00%	0.7600%	44,601.5500	0.1472
428	76.57%	0.7657%	44,936.9000	0.1440
429	77.14%	0.7714%	45,272.2500	0.1408
430	77.71%	0.7771%	45,607.6000	0.1377
431	78.29%	0.7829%	45,942.9500	0.1347
432	78.86%	0.7886%	46,278.3000	0.1317
433	79.43%	0.7943%	46,613.6500	0.1288
434	80.00%	0.8000%	46,949.0000	0.1260
435	80.57%	0.8057%	47,284.3500	0.1232
436	81.14%	0.8114%	47,619.7000	0.1204
437	81.71%	0.8171%	47,955.0500	0.1178
438	82.29%	0.8229%	48,290.4000	0.1151
439	82.86%	0.8286%	48,625.7500	0.1125
440	83.43%	0.8343%	48,961.1000	0.1100
441	84.00%	0.8400%	49,296.4500	0.1075
442	84.57%	0.8457%	49,631.8000	0.1051
443	85.14%	0.8514%	49,967.1500	0.1028
444	85.71%	0.8571%	50,302.5000	0.1004
445	86.29%	0.8629%	50,637.8500	0.0982
446	86.86%	0.8686%	50,973.2000	0.0959
447	87.43%	0.8743%	51,308.5500	0.0937
448	88.00%	0.8800%	51,643.9000	0.0916
449	88.57%	0.8857%	51,979.2500	0.0895
450	89.14%	0.8914%	52,314.6000	0.0875
451	89.71%	0.8971%	52,649.9500	0.0855
452	90.29%	0.9029%	52,985.3000	0.0835
453	90.86%	0.9086%	53,320.6500	0.0816
454	91.43%	0.9143%	53,656.0000	0.0797

455	92.00%	0.9200%	53,991.3500	0.0779
456	92.57%	0.9257%	54,326.7000	0.0761
457	93.14%	0.9314%	54,662.0500	0.0743
458	93.71%	0.9371%	54,997.4000	0.0726
459	94.29%	0.9429%	55,332.7500	0.0709
460	94.86%	0.9486%	55,668.1000	0.0693
461	95.43%	0.9543%	56,003.4500	0.0676
462	96.00%	0.9600%	56,338.8000	0.0661
463	96.57%	0.9657%	56,674.1500	0.0645
464	97.14%	0.9714%	57,009.5000	0.0630
465	97.71%	0.9771%	57,344.8500	0.0615
466	98.29%	0.9829%	57,680.2000	0.0601
467	98.86%	0.9886%	58,015.5500	0.0587
468	99.43%	0.9943%	58,350.9000	0.0573
469	100.00%	1.0000%	58,686.2500	0.0560
Beyond (e)				1.8653
Total				64.1919

Section 2 Quantification of Replacement Services

Year	<------(Percentage)----->	
	Current Value	Present Value
5	0.0%	0.0%
6	5.0%	4.2%
7	10.0%	8.1%
8	15.0%	11.8%
9	20.0%	15.3%
10	25.0%	18.6%
11	30.0%	21.7%
12	35.0%	24.5%
13	40.0%	27.2%
14	45.0%	29.8%
15	50.0%	32.1%
16	55.0%	34.3%
17	60.0%	36.3%
18	65.0%	38.2%
19	70.0%	39.9%
20	75.0%	41.5%
21	80.0%	43.0%
22	85.0%	44.4%
23	90.0%	45.6%
24	95.0%	46.7%
25	100.0%	47.8%
Beyond (f)		1592.0%
Total		2203.1%

Section 3 Offsetting Restoration for One Organism

Red River - Progressive Dispersal (river-miles):	0.805
Lake Winnipeg - Jump Dispersal (acres):	17,300
Lake Winnipeg - Progressive Dispersal (acres):	2.91

Section 4 Notes

- (a) Percent loss given certain invasion
- (b) Percent loss given probability of successful invasion
- (c) From year 295 into perpetuity
- (d) From year 176 into perpetuity
- (e) From year 470 into perpetuity
- (f) From year 26 into perpetuity

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Appendix 15F. Habitat Equivalency Analysis of Risk Consequences: Slow Invasion - Very High Risk (One Organism)

Probability of successful invasion:	1.00E+00
Annual discount rate:	3.0%
Present year:	0

Section 1 Quantification of Expected Lost Services

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Affected habitat (river-miles):	455.40
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Year	<------(Percentage)----->		<------(River-Mile Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00%	0.00	0.00
1	0.34%	0.34%	1.55	1.50
2	0.68%	0.68%	3.10	2.92
3	1.02%	1.02%	4.65	4.25
4	1.36%	1.36%	6.20	5.50
5	1.70%	1.70%	7.74	6.68
6	2.04%	2.04%	9.29	7.78
7	2.38%	2.38%	10.84	8.82
8	2.72%	2.72%	12.39	9.78
9	3.06%	3.06%	13.94	10.68
10	3.40%	3.40%	15.49	11.53
11	3.74%	3.74%	17.04	12.31
12	4.08%	4.08%	18.59	13.04
13	4.42%	4.42%	20.14	13.71
14	4.76%	4.76%	21.69	14.34
15	5.10%	5.10%	23.23	14.91
16	5.44%	5.44%	24.78	15.44
17	5.78%	5.78%	26.33	15.93
18	6.12%	6.12%	27.88	16.38
19	6.46%	6.46%	29.43	16.78
20	6.80%	6.80%	30.98	17.15
21	7.14%	7.14%	32.53	17.49
22	7.48%	7.48%	34.08	17.78
23	7.82%	7.82%	35.63	18.05
24	8.16%	8.16%	37.18	18.29
25	8.50%	8.50%	38.72	18.50
26	8.84%	8.84%	40.27	18.67
27	9.18%	9.18%	41.82	18.83
28	9.52%	9.52%	43.37	18.96
29	9.86%	9.86%	44.92	19.06

30	10.20%	10.20%	46.47	19.14
31	10.54%	10.54%	48.02	19.21
32	10.88%	10.88%	49.57	19.25
33	11.22%	11.22%	51.12	19.27
34	11.56%	11.56%	52.67	19.28
35	11.90%	11.90%	54.21	19.27
36	12.24%	12.24%	55.76	19.24
37	12.59%	12.59%	57.31	19.20
38	12.93%	12.93%	58.86	19.14
39	13.27%	13.27%	60.41	19.07
40	13.61%	13.61%	61.96	18.99
41	13.95%	13.95%	63.51	18.90
42	14.29%	14.29%	65.06	18.80
43	14.63%	14.63%	66.61	18.69
44	14.97%	14.97%	68.16	18.56
45	15.31%	15.31%	69.70	18.43
46	15.65%	15.65%	71.25	18.29
47	15.99%	15.99%	72.80	18.15
48	16.33%	16.33%	74.35	17.99
49	16.67%	16.67%	75.90	17.83
50	17.01%	17.01%	77.45	17.67
51	17.35%	17.35%	79.00	17.50
52	17.69%	17.69%	80.55	17.32
53	18.03%	18.03%	82.10	17.14
54	18.37%	18.37%	83.64	16.95
55	18.71%	18.71%	85.19	16.76
56	19.05%	19.05%	86.74	16.57
57	19.39%	19.39%	88.29	16.38
58	19.73%	19.73%	89.84	16.18
59	20.07%	20.07%	91.39	15.98
60	20.41%	20.41%	92.94	15.77
61	20.75%	20.75%	94.49	15.57
62	21.09%	21.09%	96.04	15.36
63	21.43%	21.43%	97.59	15.16
64	21.77%	21.77%	99.13	14.95
65	22.11%	22.11%	100.68	14.74
66	22.45%	22.45%	102.23	14.53
67	22.79%	22.79%	103.78	14.32
68	23.13%	23.13%	105.33	14.11
69	23.47%	23.47%	106.88	13.90
70	23.81%	23.81%	108.43	13.69
71	24.15%	24.15%	109.98	13.49
72	24.49%	24.49%	111.53	13.28
73	24.83%	24.83%	113.08	13.07
74	25.17%	25.17%	114.62	12.86
75	25.51%	25.51%	116.17	12.66
76	25.85%	25.85%	117.72	12.45
77	26.19%	26.19%	119.27	12.25
78	26.53%	26.53%	120.82	12.05
79	26.87%	26.87%	122.37	11.84
80	27.21%	27.21%	123.92	11.65
81	27.55%	27.55%	125.47	11.45

82	27.89%	27.89%	127.02	11.25
83	28.23%	28.23%	128.57	11.06
84	28.57%	28.57%	130.11	10.86
85	28.91%	28.91%	131.66	10.67
86	29.25%	29.25%	133.21	10.48
87	29.59%	29.59%	134.76	10.30
88	29.93%	29.93%	136.31	10.11
89	30.27%	30.27%	137.86	9.93
90	30.61%	30.61%	139.41	9.75
91	30.95%	30.95%	140.96	9.57
92	31.29%	31.29%	142.51	9.39
93	31.63%	31.63%	144.06	9.22
94	31.97%	31.97%	145.60	9.05
95	32.31%	32.31%	147.15	8.88
96	32.65%	32.65%	148.70	8.71
97	32.99%	32.99%	150.25	8.54
98	33.33%	33.33%	151.80	8.38
99	33.67%	33.67%	153.35	8.22
100	34.01%	34.01%	154.90	8.06
101	34.35%	34.35%	156.45	7.90
102	34.69%	34.69%	158.00	7.75
103	35.03%	35.03%	159.54	7.60
104	35.37%	35.37%	161.09	7.45
105	35.71%	35.71%	162.64	7.30
106	36.05%	36.05%	164.19	7.15
107	36.39%	36.39%	165.74	7.01
108	36.73%	36.73%	167.29	6.87
109	37.07%	37.07%	168.84	6.73
110	37.41%	37.41%	170.39	6.60
111	37.76%	37.76%	171.94	6.46
112	38.10%	38.10%	173.49	6.33
113	38.44%	38.44%	175.03	6.20
114	38.78%	38.78%	176.58	6.07
115	39.12%	39.12%	178.13	5.95
116	39.46%	39.46%	179.68	5.83
117	39.80%	39.80%	181.23	5.71
118	40.14%	40.14%	182.78	5.59
119	40.48%	40.48%	184.33	5.47
120	40.82%	40.82%	185.88	5.36
121	41.16%	41.16%	187.43	5.24
122	41.50%	41.50%	188.98	5.13
123	41.84%	41.84%	190.52	5.02
124	42.18%	42.18%	192.07	4.92
125	42.52%	42.52%	193.62	4.81
126	42.86%	42.86%	195.17	4.71
127	43.20%	43.20%	196.72	4.61
128	43.54%	43.54%	198.27	4.51
129	43.88%	43.88%	199.82	4.41
130	44.22%	44.22%	201.37	4.32
131	44.56%	44.56%	202.92	4.22
132	44.90%	44.90%	204.47	4.13
133	45.24%	45.24%	206.01	4.04

134	45.58%	45.58%	207.56	3.95
135	45.92%	45.92%	209.11	3.87
136	46.26%	46.26%	210.66	3.78
137	46.60%	46.60%	212.21	3.70
138	46.94%	46.94%	213.76	3.62
139	47.28%	47.28%	215.31	3.54
140	47.62%	47.62%	216.86	3.46
141	47.96%	47.96%	218.41	3.38
142	48.30%	48.30%	219.96	3.31
143	48.64%	48.64%	221.50	3.23
144	48.98%	48.98%	223.05	3.16
145	49.32%	49.32%	224.60	3.09
146	49.66%	49.66%	226.15	3.02
147	50.00%	50.00%	227.70	2.95
148	50.34%	50.34%	229.25	2.89
149	50.68%	50.68%	230.80	2.82
150	51.02%	51.02%	232.35	2.76
151	51.36%	51.36%	233.90	2.70
152	51.70%	51.70%	235.44	2.63
153	52.04%	52.04%	236.99	2.57
154	52.38%	52.38%	238.54	2.52
155	52.72%	52.72%	240.09	2.46
156	53.06%	53.06%	241.64	2.40
157	53.40%	53.40%	243.19	2.35
158	53.74%	53.74%	244.74	2.29
159	54.08%	54.08%	246.29	2.24
160	54.42%	54.42%	247.84	2.19
161	54.76%	54.76%	249.39	2.14
162	55.10%	55.10%	250.93	2.09
163	55.44%	55.44%	252.48	2.04
164	55.78%	55.78%	254.03	1.99
165	56.12%	56.12%	255.58	1.95
166	56.46%	56.46%	257.13	1.90
167	56.80%	56.80%	258.68	1.86
168	57.14%	57.14%	260.23	1.81
169	57.48%	57.48%	261.78	1.77
170	57.82%	57.82%	263.33	1.73
171	58.16%	58.16%	264.88	1.69
172	58.50%	58.50%	266.42	1.65
173	58.84%	58.84%	267.97	1.61
174	59.18%	59.18%	269.52	1.57
175	59.52%	59.52%	271.07	1.54
176	59.86%	59.86%	272.62	1.50
177	60.20%	60.20%	274.17	1.46
178	60.54%	60.54%	275.72	1.43
179	60.88%	60.88%	277.27	1.40
180	61.22%	61.22%	278.82	1.36
181	61.56%	61.56%	280.37	1.33
182	61.90%	61.90%	281.91	1.30
183	62.24%	62.24%	283.46	1.27
184	62.59%	62.59%	285.01	1.24
185	62.93%	62.93%	286.56	1.21

186	63.27%	63.27%	288.11	1.18
187	63.61%	63.61%	289.66	1.15
188	63.95%	63.95%	291.21	1.12
189	64.29%	64.29%	292.76	1.10
190	64.63%	64.63%	294.31	1.07
191	64.97%	64.97%	295.86	1.05
192	65.31%	65.31%	297.40	1.02
193	65.65%	65.65%	298.95	1.00
194	65.99%	65.99%	300.50	0.97
195	66.33%	66.33%	302.05	0.95
196	66.67%	66.67%	303.60	0.93
197	67.01%	67.01%	305.15	0.90
198	67.35%	67.35%	306.70	0.88
199	67.69%	67.69%	308.25	0.86
200	68.03%	68.03%	309.80	0.84
201	68.37%	68.37%	311.34	0.82
202	68.71%	68.71%	312.89	0.80
203	69.05%	69.05%	314.44	0.78
204	69.39%	69.39%	315.99	0.76
205	69.73%	69.73%	317.54	0.74
206	70.07%	70.07%	319.09	0.72
207	70.41%	70.41%	320.64	0.71
208	70.75%	70.75%	322.19	0.69
209	71.09%	71.09%	323.74	0.67
210	71.43%	71.43%	325.29	0.66
211	71.77%	71.77%	326.83	0.64
212	72.11%	72.11%	328.38	0.62
213	72.45%	72.45%	329.93	0.61
214	72.79%	72.79%	331.48	0.59
215	73.13%	73.13%	333.03	0.58
216	73.47%	73.47%	334.58	0.56
217	73.81%	73.81%	336.13	0.55
218	74.15%	74.15%	337.68	0.54
219	74.49%	74.49%	339.23	0.52
220	74.83%	74.83%	340.78	0.51
221	75.17%	75.17%	342.32	0.50
222	75.51%	75.51%	343.87	0.49
223	75.85%	75.85%	345.42	0.47
224	76.19%	76.19%	346.97	0.46
225	76.53%	76.53%	348.52	0.45
226	76.87%	76.87%	350.07	0.44
227	77.21%	77.21%	351.62	0.43
228	77.55%	77.55%	353.17	0.42
229	77.89%	77.89%	354.72	0.41
230	78.23%	78.23%	356.27	0.40
231	78.57%	78.57%	357.81	0.39
232	78.91%	78.91%	359.36	0.38
233	79.25%	79.25%	360.91	0.37
234	79.59%	79.59%	362.46	0.36
235	79.93%	79.93%	364.01	0.35
236	80.27%	80.27%	365.56	0.34
237	80.61%	80.61%	367.11	0.33

238	80.95%	80.95%	368.66	0.32
239	81.29%	81.29%	370.21	0.32
240	81.63%	81.63%	371.76	0.31
241	81.97%	81.97%	373.30	0.30
242	82.31%	82.31%	374.85	0.29
243	82.65%	82.65%	376.40	0.29
244	82.99%	82.99%	377.95	0.28
245	83.33%	83.33%	379.50	0.27
246	83.67%	83.67%	381.05	0.26
247	84.01%	84.01%	382.60	0.26
248	84.35%	84.35%	384.15	0.25
249	84.69%	84.69%	385.70	0.25
250	85.03%	85.03%	387.24	0.24
251	85.37%	85.37%	388.79	0.23
252	85.71%	85.71%	390.34	0.23
253	86.05%	86.05%	391.89	0.22
254	86.39%	86.39%	393.44	0.22
255	86.73%	86.73%	394.99	0.21
256	87.07%	87.07%	396.54	0.21
257	87.41%	87.41%	398.09	0.20
258	87.76%	87.76%	399.64	0.19
259	88.10%	88.10%	401.19	0.19
260	88.44%	88.44%	402.73	0.19
261	88.78%	88.78%	404.28	0.18
262	89.12%	89.12%	405.83	0.18
263	89.46%	89.46%	407.38	0.17
264	89.80%	89.80%	408.93	0.17
265	90.14%	90.14%	410.48	0.16
266	90.48%	90.48%	412.03	0.16
267	90.82%	90.82%	413.58	0.15
268	91.16%	91.16%	415.13	0.15
269	91.50%	91.50%	416.68	0.15
270	91.84%	91.84%	418.22	0.14
271	92.18%	92.18%	419.77	0.14
272	92.52%	92.52%	421.32	0.14
273	92.86%	92.86%	422.87	0.13
274	93.20%	93.20%	424.42	0.13
275	93.54%	93.54%	425.97	0.13
276	93.88%	93.88%	427.52	0.12
277	94.22%	94.22%	429.07	0.12
278	94.56%	94.56%	430.62	0.12
279	94.90%	94.90%	432.17	0.11
280	95.24%	95.24%	433.71	0.11
281	95.58%	95.58%	435.26	0.11
282	95.92%	95.92%	436.81	0.10
283	96.26%	96.26%	438.36	0.10
284	96.60%	96.60%	439.91	0.10
285	96.94%	96.94%	441.46	0.10
286	97.28%	97.28%	443.01	0.09
287	97.62%	97.62%	444.56	0.09
288	97.96%	97.96%	446.11	0.09
289	98.30%	98.30%	447.66	0.09

290	98.64%	98.64%	449.20	0.09
291	98.98%	98.98%	450.75	0.08
292	99.32%	99.32%	452.30	0.08
293	99.66%	99.66%	453.85	0.08
294	100.00%	100.00%	455.40	0.08
Beyond (c)				2.55
Total				1,772.42

Section 1.2 Lake Winnipeg - Jump Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00%	0.00	0.00
1	0.57%	0.57%	33,535.00	32,558.25
2	1.14%	1.14%	67,070.00	63,219.91
3	1.71%	1.71%	100,605.00	92,067.83
4	2.29%	2.29%	134,140.00	119,181.65
5	2.86%	2.86%	167,675.00	144,637.93
6	3.43%	3.43%	201,210.00	168,510.21
7	4.00%	4.00%	234,745.00	190,869.17
8	4.57%	4.57%	268,280.00	211,782.71
9	5.14%	5.14%	301,815.00	231,316.07
10	5.71%	5.71%	335,350.00	249,531.89
11	6.29%	6.29%	368,885.00	266,490.37
12	6.86%	6.86%	402,420.00	282,249.29
13	7.43%	7.43%	435,955.00	296,864.14
14	8.00%	8.00%	469,490.00	310,388.20
15	8.57%	8.57%	503,025.00	322,872.61
16	9.14%	9.14%	536,560.00	334,366.45
17	9.71%	9.71%	570,095.00	344,916.85
18	10.29%	10.29%	603,630.00	354,569.01
19	10.86%	10.86%	637,165.00	363,366.30
20	11.43%	11.43%	670,700.00	371,350.33
21	12.00%	12.00%	704,235.00	378,561.01
22	12.57%	12.57%	737,770.00	385,036.63
23	13.14%	13.14%	771,305.00	390,813.88
24	13.71%	13.71%	804,840.00	395,927.95
25	14.29%	14.29%	838,375.00	400,412.57
26	14.86%	14.86%	871,910.00	404,300.07
27	15.43%	15.43%	905,445.00	407,621.43
28	16.00%	16.00%	938,980.00	410,406.33
29	16.57%	16.57%	972,515.00	412,683.20
30	17.14%	17.14%	1,006,050.00	414,479.28
31	17.71%	17.71%	1,039,585.00	415,820.64
32	18.29%	18.29%	1,073,120.00	416,732.24
33	18.86%	18.86%	1,106,655.00	417,237.98
34	19.43%	19.43%	1,140,190.00	417,360.73
35	20.00%	20.00%	1,173,725.00	417,122.38

36	20.57%	20.57%	1,207,260.00	416,543.85
37	21.14%	21.14%	1,240,795.00	415,645.15
38	21.71%	21.71%	1,274,330.00	414,445.44
39	22.29%	22.29%	1,307,865.00	412,963.01
40	22.86%	22.86%	1,341,400.00	411,215.35
41	23.43%	23.43%	1,374,935.00	409,219.16
42	24.00%	24.00%	1,408,470.00	406,990.40
43	24.57%	24.57%	1,442,005.00	404,544.32
44	25.14%	25.14%	1,475,540.00	401,895.46
45	25.71%	25.71%	1,509,075.00	399,057.72
46	26.29%	26.29%	1,542,610.00	396,044.34
47	26.86%	26.86%	1,576,145.00	392,867.96
48	27.43%	27.43%	1,609,680.00	389,540.63
49	28.00%	28.00%	1,643,215.00	386,073.84
50	28.57%	28.57%	1,676,750.00	382,478.55
51	29.14%	29.14%	1,710,285.00	378,765.16
52	29.71%	29.71%	1,743,820.00	374,943.62
53	30.29%	30.29%	1,777,355.00	371,023.37
54	30.86%	30.86%	1,810,890.00	367,013.41
55	31.43%	31.43%	1,844,425.00	362,922.29
56	32.00%	32.00%	1,877,960.00	358,758.13
57	32.57%	32.57%	1,911,495.00	354,528.67
58	33.14%	33.14%	1,945,030.00	350,241.23
59	33.71%	33.71%	1,978,565.00	345,902.79
60	34.29%	34.29%	2,012,100.00	341,519.95
61	34.86%	34.86%	2,045,635.00	337,098.98
62	35.43%	35.43%	2,079,170.00	332,645.82
63	36.00%	36.00%	2,112,705.00	328,166.09
64	36.57%	36.57%	2,146,240.00	323,665.12
65	37.14%	37.14%	2,179,775.00	319,147.95
66	37.71%	37.71%	2,213,310.00	314,619.34
67	38.29%	38.29%	2,246,845.00	310,083.79
68	38.86%	38.86%	2,280,380.00	305,545.54
69	39.43%	39.43%	2,313,915.00	301,008.60
70	40.00%	40.00%	2,347,450.00	296,476.74
71	40.57%	40.57%	2,380,985.00	291,953.51
72	41.14%	41.14%	2,414,520.00	287,442.27
73	41.71%	41.71%	2,448,055.00	282,946.14
74	42.29%	42.29%	2,481,590.00	278,468.07
75	42.86%	42.86%	2,515,125.00	274,010.83
76	43.43%	43.43%	2,548,660.00	269,576.99
77	44.00%	44.00%	2,582,195.00	265,168.99
78	44.57%	44.57%	2,615,730.00	260,789.07
79	45.14%	45.14%	2,649,265.00	256,439.34
80	45.71%	45.71%	2,682,800.00	252,121.75
81	46.29%	46.29%	2,716,335.00	247,838.13
82	46.86%	46.86%	2,749,870.00	243,590.16
83	47.43%	47.43%	2,783,405.00	239,379.39
84	48.00%	48.00%	2,816,940.00	235,207.26
85	48.57%	48.57%	2,850,475.00	231,075.09
86	49.14%	49.14%	2,884,010.00	226,984.10
87	49.71%	49.71%	2,917,545.00	222,935.39

88	50.29%	50.29%	2,951,080.00	218,929.97
89	50.86%	50.86%	2,984,615.00	214,968.74
90	51.43%	51.43%	3,018,150.00	211,052.55
91	52.00%	52.00%	3,051,685.00	207,182.11
92	52.57%	52.57%	3,085,220.00	203,358.10
93	53.14%	53.14%	3,118,755.00	199,581.08
94	53.71%	53.71%	3,152,290.00	195,851.56
95	54.29%	54.29%	3,185,825.00	192,169.99
96	54.86%	54.86%	3,219,360.00	188,536.73
97	55.43%	55.43%	3,252,895.00	184,952.09
98	56.00%	56.00%	3,286,430.00	181,416.33
99	56.57%	56.57%	3,319,965.00	177,929.62
100	57.14%	57.14%	3,353,500.00	174,492.13
101	57.71%	57.71%	3,387,035.00	171,103.93
102	58.29%	58.29%	3,420,570.00	167,765.08
103	58.86%	58.86%	3,454,105.00	164,475.57
104	59.43%	59.43%	3,487,640.00	161,235.36
105	60.00%	60.00%	3,521,175.00	158,044.36
106	60.57%	60.57%	3,554,710.00	154,902.48
107	61.14%	61.14%	3,588,245.00	151,809.53
108	61.71%	61.71%	3,621,780.00	148,765.35
109	62.29%	62.29%	3,655,315.00	145,769.72
110	62.86%	62.86%	3,688,850.00	142,822.38
111	63.43%	63.43%	3,722,385.00	139,923.08
112	64.00%	64.00%	3,755,920.00	137,071.50
113	64.57%	64.57%	3,789,455.00	134,267.33
114	65.14%	65.14%	3,822,990.00	131,510.23
115	65.71%	65.71%	3,856,525.00	128,799.84
116	66.29%	66.29%	3,890,060.00	126,135.76
117	66.86%	66.86%	3,923,595.00	123,517.61
118	67.43%	67.43%	3,957,130.00	120,944.97
119	68.00%	68.00%	3,990,665.00	118,417.40
120	68.57%	68.57%	4,024,200.00	115,934.47
121	69.14%	69.14%	4,057,735.00	113,495.72
122	69.71%	69.71%	4,091,270.00	111,100.68
123	70.29%	70.29%	4,124,805.00	108,748.88
124	70.86%	70.86%	4,158,340.00	106,439.82
125	71.43%	71.43%	4,191,875.00	104,173.02
126	72.00%	72.00%	4,225,410.00	101,947.96
127	72.57%	72.57%	4,258,945.00	99,764.15
128	73.14%	73.14%	4,292,480.00	97,621.06
129	73.71%	73.71%	4,326,015.00	95,518.18
130	74.29%	74.29%	4,359,550.00	93,454.98
131	74.86%	74.86%	4,393,085.00	91,430.94
132	75.43%	75.43%	4,426,620.00	89,445.52
133	76.00%	76.00%	4,460,155.00	87,498.19
134	76.57%	76.57%	4,493,690.00	85,588.42
135	77.14%	77.14%	4,527,225.00	83,715.67
136	77.71%	77.71%	4,560,760.00	81,879.40
137	78.29%	78.29%	4,594,295.00	80,079.08
138	78.86%	78.86%	4,627,830.00	78,314.18
139	79.43%	79.43%	4,661,365.00	76,584.15

140	80.00%	80.00%	4,694,900.00	74,888.46
141	80.57%	80.57%	4,728,435.00	73,226.58
142	81.14%	81.14%	4,761,970.00	71,597.98
143	81.71%	81.71%	4,795,505.00	70,002.12
144	82.29%	82.29%	4,829,040.00	68,438.49
145	82.86%	82.86%	4,862,575.00	66,906.56
146	83.43%	83.43%	4,896,110.00	65,405.81
147	84.00%	84.00%	4,929,645.00	63,935.73
148	84.57%	84.57%	4,963,180.00	62,495.79
149	85.14%	85.14%	4,996,715.00	61,085.50
150	85.71%	85.71%	5,030,250.00	59,704.33
151	86.29%	86.29%	5,063,785.00	58,351.81
152	86.86%	86.86%	5,097,320.00	57,027.42
153	87.43%	87.43%	5,130,855.00	55,730.68
154	88.00%	88.00%	5,164,390.00	54,461.10
155	88.57%	88.57%	5,197,925.00	53,218.20
156	89.14%	89.14%	5,231,460.00	52,001.50
157	89.71%	89.71%	5,264,995.00	50,810.53
158	90.29%	90.29%	5,298,530.00	49,644.81
159	90.86%	90.86%	5,332,065.00	48,503.91
160	91.43%	91.43%	5,365,600.00	47,387.34
161	92.00%	92.00%	5,399,135.00	46,294.67
162	92.57%	92.57%	5,432,670.00	45,225.45
163	93.14%	93.14%	5,466,205.00	44,179.24
164	93.71%	93.71%	5,499,740.00	43,155.61
165	94.29%	94.29%	5,533,275.00	42,154.13
166	94.86%	94.86%	5,566,810.00	41,174.38
167	95.43%	95.43%	5,600,345.00	40,215.94
168	96.00%	96.00%	5,633,880.00	39,278.40
169	96.57%	96.57%	5,667,415.00	38,361.36
170	97.14%	97.14%	5,700,950.00	37,464.42
171	97.71%	97.71%	5,734,485.00	36,587.19
172	98.29%	98.29%	5,768,020.00	35,729.27
173	98.86%	98.86%	5,801,555.00	34,890.29
174	99.43%	99.43%	5,835,090.00	34,069.87
175	100.00%	100.00%	5,868,625.00	33,267.64
Beyond (d)				1,108,921.44
Total				38,161,384.62

Section 1.3 Lake Winnipeg - Progressive Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
294	0.00%	0.00%	0.00	0.00
295	0.57%	0.57%	33,535.00	5.48
296	1.14%	1.14%	67,070.00	10.63
297	1.71%	1.71%	100,605.00	15.49
298	2.29%	2.29%	134,140.00	20.05

299	2.86%	2.86%	167,675.00	24.33
300	3.43%	3.43%	201,210.00	28.35
301	4.00%	4.00%	234,745.00	32.11
302	4.57%	4.57%	268,280.00	35.62
303	5.14%	5.14%	301,815.00	38.91
304	5.71%	5.71%	335,350.00	41.97
305	6.29%	6.29%	368,885.00	44.83
306	6.86%	6.86%	402,420.00	47.48
307	7.43%	7.43%	435,955.00	49.94
308	8.00%	8.00%	469,490.00	52.21
309	8.57%	8.57%	503,025.00	54.31
310	9.14%	9.14%	536,560.00	56.24
311	9.71%	9.71%	570,095.00	58.02
312	10.29%	10.29%	603,630.00	59.64
313	10.86%	10.86%	637,165.00	61.12
314	11.43%	11.43%	670,700.00	62.47
315	12.00%	12.00%	704,235.00	63.68
316	12.57%	12.57%	737,770.00	64.77
317	13.14%	13.14%	771,305.00	65.74
318	13.71%	13.71%	804,840.00	66.60
319	14.29%	14.29%	838,375.00	67.35
320	14.86%	14.86%	871,910.00	68.01
321	15.43%	15.43%	905,445.00	68.57
322	16.00%	16.00%	938,980.00	69.04
323	16.57%	16.57%	972,515.00	69.42
324	17.14%	17.14%	1,006,050.00	69.72
325	17.71%	17.71%	1,039,585.00	69.95
326	18.29%	18.29%	1,073,120.00	70.10
327	18.86%	18.86%	1,106,655.00	70.18
328	19.43%	19.43%	1,140,190.00	70.20
329	20.00%	20.00%	1,173,725.00	70.16
330	20.57%	20.57%	1,207,260.00	70.07
331	21.14%	21.14%	1,240,795.00	69.92
332	21.71%	21.71%	1,274,330.00	69.71
333	22.29%	22.29%	1,307,865.00	69.47
334	22.86%	22.86%	1,341,400.00	69.17
335	23.43%	23.43%	1,374,935.00	68.84
336	24.00%	24.00%	1,408,470.00	68.46
337	24.57%	24.57%	1,442,005.00	68.05
338	25.14%	25.14%	1,475,540.00	67.60
339	25.71%	25.71%	1,509,075.00	67.13
340	26.29%	26.29%	1,542,610.00	66.62
341	26.86%	26.86%	1,576,145.00	66.08
342	27.43%	27.43%	1,609,680.00	65.53
343	28.00%	28.00%	1,643,215.00	64.94
344	28.57%	28.57%	1,676,750.00	64.34
345	29.14%	29.14%	1,710,285.00	63.71
346	29.71%	29.71%	1,743,820.00	63.07
347	30.29%	30.29%	1,777,355.00	62.41
348	30.86%	30.86%	1,810,890.00	61.74
349	31.43%	31.43%	1,844,425.00	61.05
350	32.00%	32.00%	1,877,960.00	60.35

351	32.57%	32.57%	1,911,495.00	59.64
352	33.14%	33.14%	1,945,030.00	58.91
353	33.71%	33.71%	1,978,565.00	58.18
354	34.29%	34.29%	2,012,100.00	57.45
355	34.86%	34.86%	2,045,635.00	56.70
356	35.43%	35.43%	2,079,170.00	55.95
357	36.00%	36.00%	2,112,705.00	55.20
358	36.57%	36.57%	2,146,240.00	54.44
359	37.14%	37.14%	2,179,775.00	53.68
360	37.71%	37.71%	2,213,310.00	52.92
361	38.29%	38.29%	2,246,845.00	52.16
362	38.86%	38.86%	2,280,380.00	51.40
363	39.43%	39.43%	2,313,915.00	50.63
364	40.00%	40.00%	2,347,450.00	49.87
365	40.57%	40.57%	2,380,985.00	49.11
366	41.14%	41.14%	2,414,520.00	48.35
367	41.71%	41.71%	2,448,055.00	47.59
368	42.29%	42.29%	2,481,590.00	46.84
369	42.86%	42.86%	2,515,125.00	46.09
370	43.43%	43.43%	2,548,660.00	45.35
371	44.00%	44.00%	2,582,195.00	44.60
372	44.57%	44.57%	2,615,730.00	43.87
373	45.14%	45.14%	2,649,265.00	43.14
374	45.71%	45.71%	2,682,800.00	42.41
375	46.29%	46.29%	2,716,335.00	41.69
376	46.86%	46.86%	2,749,870.00	40.97
377	47.43%	47.43%	2,783,405.00	40.27
378	48.00%	48.00%	2,816,940.00	39.56
379	48.57%	48.57%	2,850,475.00	38.87
380	49.14%	49.14%	2,884,010.00	38.18
381	49.71%	49.71%	2,917,545.00	37.50
382	50.29%	50.29%	2,951,080.00	36.83
383	50.86%	50.86%	2,984,615.00	36.16
384	51.43%	51.43%	3,018,150.00	35.50
385	52.00%	52.00%	3,051,685.00	34.85
386	52.57%	52.57%	3,085,220.00	34.21
387	53.14%	53.14%	3,118,755.00	33.57
388	53.71%	53.71%	3,152,290.00	32.94
389	54.29%	54.29%	3,185,825.00	32.33
390	54.86%	54.86%	3,219,360.00	31.71
391	55.43%	55.43%	3,252,895.00	31.11
392	56.00%	56.00%	3,286,430.00	30.52
393	56.57%	56.57%	3,319,965.00	29.93
394	57.14%	57.14%	3,353,500.00	29.35
395	57.71%	57.71%	3,387,035.00	28.78
396	58.29%	58.29%	3,420,570.00	28.22
397	58.86%	58.86%	3,454,105.00	27.67
398	59.43%	59.43%	3,487,640.00	27.12
399	60.00%	60.00%	3,521,175.00	26.58
400	60.57%	60.57%	3,554,710.00	26.06
401	61.14%	61.14%	3,588,245.00	25.54
402	61.71%	61.71%	3,621,780.00	25.02

403	62.29%	62.29%	3,655,315.00	24.52
404	62.86%	62.86%	3,688,850.00	24.02
405	63.43%	63.43%	3,722,385.00	23.54
406	64.00%	64.00%	3,755,920.00	23.06
407	64.57%	64.57%	3,789,455.00	22.59
408	65.14%	65.14%	3,822,990.00	22.12
409	65.71%	65.71%	3,856,525.00	21.67
410	66.29%	66.29%	3,890,060.00	21.22
411	66.86%	66.86%	3,923,595.00	20.78
412	67.43%	67.43%	3,957,130.00	20.34
413	68.00%	68.00%	3,990,665.00	19.92
414	68.57%	68.57%	4,024,200.00	19.50
415	69.14%	69.14%	4,057,735.00	19.09
416	69.71%	69.71%	4,091,270.00	18.69
417	70.29%	70.29%	4,124,805.00	18.29
418	70.86%	70.86%	4,158,340.00	17.90
419	71.43%	71.43%	4,191,875.00	17.52
420	72.00%	72.00%	4,225,410.00	17.15
421	72.57%	72.57%	4,258,945.00	16.78
422	73.14%	73.14%	4,292,480.00	16.42
423	73.71%	73.71%	4,326,015.00	16.07
424	74.29%	74.29%	4,359,550.00	15.72
425	74.86%	74.86%	4,393,085.00	15.38
426	75.43%	75.43%	4,426,620.00	15.05
427	76.00%	76.00%	4,460,155.00	14.72
428	76.57%	76.57%	4,493,690.00	14.40
429	77.14%	77.14%	4,527,225.00	14.08
430	77.71%	77.71%	4,560,760.00	13.77
431	78.29%	78.29%	4,594,295.00	13.47
432	78.86%	78.86%	4,627,830.00	13.17
433	79.43%	79.43%	4,661,365.00	12.88
434	80.00%	80.00%	4,694,900.00	12.60
435	80.57%	80.57%	4,728,435.00	12.32
436	81.14%	81.14%	4,761,970.00	12.04
437	81.71%	81.71%	4,795,505.00	11.78
438	82.29%	82.29%	4,829,040.00	11.51
439	82.86%	82.86%	4,862,575.00	11.25
440	83.43%	83.43%	4,896,110.00	11.00
441	84.00%	84.00%	4,929,645.00	10.75
442	84.57%	84.57%	4,963,180.00	10.51
443	85.14%	85.14%	4,996,715.00	10.28
444	85.71%	85.71%	5,030,250.00	10.04
445	86.29%	86.29%	5,063,785.00	9.82
446	86.86%	86.86%	5,097,320.00	9.59
447	87.43%	87.43%	5,130,855.00	9.37
448	88.00%	88.00%	5,164,390.00	9.16
449	88.57%	88.57%	5,197,925.00	8.95
450	89.14%	89.14%	5,231,460.00	8.75
451	89.71%	89.71%	5,264,995.00	8.55
452	90.29%	90.29%	5,298,530.00	8.35
453	90.86%	90.86%	5,332,065.00	8.16
454	91.43%	91.43%	5,365,600.00	7.97

455	92.00%	92.00%	5,399,135.00	7.79
456	92.57%	92.57%	5,432,670.00	7.61
457	93.14%	93.14%	5,466,205.00	7.43
458	93.71%	93.71%	5,499,740.00	7.26
459	94.29%	94.29%	5,533,275.00	7.09
460	94.86%	94.86%	5,566,810.00	6.93
461	95.43%	95.43%	5,600,345.00	6.76
462	96.00%	96.00%	5,633,880.00	6.61
463	96.57%	96.57%	5,667,415.00	6.45
464	97.14%	97.14%	5,700,950.00	6.30
465	97.71%	97.71%	5,734,485.00	6.15
466	98.29%	98.29%	5,768,020.00	6.01
467	98.86%	98.86%	5,801,555.00	5.87
468	99.43%	99.43%	5,835,090.00	5.73
469	100.00%	100.00%	5,868,625.00	5.60
Beyond (e)				186.53
Total				6,419.19

Section 2 Quantification of Replacement Services

Year	<------(Percentage)----->	
	Current Value	Present Value
5	0.0%	0.0%
6	5.0%	4.2%
7	10.0%	8.1%
8	15.0%	11.8%
9	20.0%	15.3%
10	25.0%	18.6%
11	30.0%	21.7%
12	35.0%	24.5%
13	40.0%	27.2%
14	45.0%	29.8%
15	50.0%	32.1%
16	55.0%	34.3%
17	60.0%	36.3%
18	65.0%	38.2%
19	70.0%	39.9%
20	75.0%	41.5%
21	80.0%	43.0%
22	85.0%	44.4%
23	90.0%	45.6%
24	95.0%	46.7%
25	100.0%	47.8%
Beyond (f)		1592.0%
Total		2203.1%

Section 3 Offsetting Restoration for One Organism

Red River - Progressive Dispersal (river-miles):	80.5
Lake Winnipeg - Jump Dispersal (acres):	1,730,000
Lake Winnipeg - Progressive Dispersal (acres):	291

Section 4 Notes

- (a) Percent loss given certain invasion
- (b) Percent loss given probability of successful invasion
- (c) From year 295 into perpetuity
- (d) From year 176 into perpetuity
- (e) From year 470 into perpetuity
- (f) From year 26 into perpetuity

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**Appendix 15G. Habitat Equivalency Analysis of Risk Consequences:
Fast Invasion - Very Low Risk (One Organism)**

Probability of successful invasion: 1.00E-09
 Annual discount rate: 3.0%
 Present year: 0

Section 1 Quantification of Expected Lost Services

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Affected habitat (river-miles): 455.40

Year	<------(Percentage)----->		<------(River-Mile Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.000000000000%	0.00000000000	0.00000000000
1	3.45%	0.00000000345%	0.00000001570	0.00000001525
2	6.90%	0.00000000690%	0.00000003141	0.00000002960
3	10.34%	0.00000001034%	0.00000004711	0.00000004311
4	13.79%	0.00000001379%	0.00000006281	0.00000005581
5	17.24%	0.00000001724%	0.00000007852	0.00000006773
6	20.69%	0.00000002069%	0.00000009422	0.00000007891
7	24.14%	0.00000002414%	0.00000010992	0.00000008938
8	27.59%	0.00000002759%	0.00000012563	0.00000009917
9	31.03%	0.00000003103%	0.00000014133	0.00000010832
10	34.48%	0.00000003448%	0.00000015703	0.00000011685
11	37.93%	0.00000003793%	0.00000017274	0.00000012479
12	41.38%	0.00000004138%	0.00000018844	0.00000013217
13	44.83%	0.00000004483%	0.00000020414	0.00000013901
14	48.28%	0.00000004828%	0.00000021985	0.00000014535
15	51.72%	0.00000005172%	0.00000023555	0.00000015119
16	55.17%	0.00000005517%	0.00000025126	0.00000015657
17	58.62%	0.00000005862%	0.00000026696	0.00000016151
18	62.07%	0.00000006207%	0.00000028266	0.00000016603
19	65.52%	0.00000006552%	0.00000029837	0.00000017015
20	68.97%	0.00000006897%	0.00000031407	0.00000017389
21	72.41%	0.00000007241%	0.00000032977	0.00000017727
22	75.86%	0.00000007586%	0.00000034548	0.00000018030
23	79.31%	0.00000007931%	0.00000036118	0.00000018301
24	82.76%	0.00000008276%	0.00000037688	0.00000018540
25	86.21%	0.00000008621%	0.00000039259	0.00000018750
26	89.66%	0.00000008966%	0.00000040829	0.00000018932
27	93.10%	0.00000009310%	0.00000042399	0.00000019088
28	96.55%	0.00000009655%	0.00000043970	0.00000019218
29	100.00%	0.00000010000%	0.00000045540	0.00000019325

Beyond (c)	0.00000644158
Total	0.00001034549

Section 1.2 Lake Winnipeg - Jump Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.0000000000%	0.0000000000	0.0000000000
1	5.88%	0.0000000588%	0.00034521324	0.00033515848
2	11.76%	0.0000001176%	0.00069042647	0.00065079317
3	17.65%	0.0000001765%	0.00103563971	0.00094775704
4	23.53%	0.0000002353%	0.00138085294	0.00122686995
5	29.41%	0.0000002941%	0.00172606618	0.00148891985
6	35.29%	0.0000003529%	0.00207127941	0.00173466390
7	41.18%	0.0000004118%	0.00241649265	0.00196482966
8	47.06%	0.0000004706%	0.00276170588	0.00218011613
9	52.94%	0.0000005294%	0.00310691912	0.00238119480
10	58.82%	0.0000005882%	0.00345213235	0.00256871068
11	64.71%	0.0000006471%	0.00379734559	0.00274328325
12	70.59%	0.0000007059%	0.00414255882	0.00290550741
13	76.47%	0.0000007647%	0.00448777206	0.00305595440
14	82.35%	0.0000008235%	0.00483298529	0.00319517263
15	88.24%	0.0000008824%	0.00517819853	0.00332368859
16	94.12%	0.0000009412%	0.00552341176	0.00344200760
17	100.00%	0.0000010000%	0.00586862500	0.00355061464
Beyond (d)				0.11835382132
Total				0.15604906348

Section 1.3 Lake Winnipeg - Progressive Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
29	0.00%	0.0000000000%	0.0000000000	0.0000000000
30	5.88%	0.0000000588%	0.00034521324	0.00014222328
31	11.76%	0.0000001176%	0.00069042647	0.00027616171
32	17.65%	0.0000001765%	0.00103563971	0.00040217725
33	23.53%	0.0000002353%	0.00138085294	0.00052061780
34	29.41%	0.0000002941%	0.00172606618	0.00063181772
35	35.29%	0.0000003529%	0.00207127941	0.00073609832
36	41.18%	0.0000004118%	0.00241649265	0.00083376832
37	47.06%	0.0000004706%	0.00276170588	0.00092512435
38	52.94%	0.0000005294%	0.00310691912	0.00101045135
39	58.82%	0.0000005882%	0.00345213235	0.00109002303
40	64.71%	0.0000006471%	0.00379734559	0.00116410227

41	70.59%	0.0000007059%	0.00414255882	0.00123294150
42	76.47%	0.0000007647%	0.00448777206	0.00129678313
43	82.35%	0.0000008235%	0.00483298529	0.00135585988
44	88.24%	0.0000008824%	0.00517819853	0.00141039516
45	94.12%	0.0000009412%	0.00552341176	0.00146060341
46	100.00%	0.0000010000%	0.00586862500	0.00150669041
Beyond (e)				0.05022301354
Total				0.06621885243

Section 2 Quantification of Replacement Services

Year	<------(Percentage)----->	
	Current Value	Present Value
5	0.0%	0.0%
6	5.0%	4.2%
7	10.0%	8.1%
8	15.0%	11.8%
9	20.0%	15.3%
10	25.0%	18.6%
11	30.0%	21.7%
12	35.0%	24.5%
13	40.0%	27.2%
14	45.0%	29.8%
15	50.0%	32.1%
16	55.0%	34.3%
17	60.0%	36.3%
18	65.0%	38.2%
19	70.0%	39.9%
20	75.0%	41.5%
21	80.0%	43.0%
22	85.0%	44.4%
23	90.0%	45.6%
24	95.0%	46.7%
25	100.0%	47.8%
Beyond (f)		1592.0%
Total		2203.1%

Section 3 Offsetting Restoration for One Organism

Red River - Progressive Dispersal (river-miles):	0.000000470
Lake Winnipeg - Jump Dispersal (acres):	0.00708
Lake Winnipeg - Progressive Dispersal (acres):	0.00301

Section 4 Notes

- (a) Percent loss given certain invasion
- (b) Percent loss given probability of successful invasion
- (c) From year 30 into perpetuity
- (d) From year 18 into perpetuity
- (e) From year 47 into perpetuity
- (f) From year 26 into perpetuity

Appendix 15H. Habitat Equivalency Analysis of Risk Consequences: Fast Invasion - Low Risk (One Organism)

Probability of successful invasion:	1.00E-06
Annual discount rate:	3.0%
Present year:	0

Section 1 Quantification of Expected Lost Services

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Affected habitat (river-miles):	455.40
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Year	<------(Percentage)----->		<------(River-Mile Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00000000%	0.00000000	0.00000000
1	3.45%	0.00000345%	0.00001570	0.00001525
2	6.90%	0.00000690%	0.00003141	0.00002960
3	10.34%	0.00001034%	0.00004711	0.00004311
4	13.79%	0.00001379%	0.00006281	0.00005581
5	17.24%	0.00001724%	0.00007852	0.00006773
6	20.69%	0.00002069%	0.00009422	0.00007891
7	24.14%	0.00002414%	0.00010992	0.00008938
8	27.59%	0.00002759%	0.00012563	0.00009917
9	31.03%	0.00003103%	0.00014133	0.00010832
10	34.48%	0.00003448%	0.00015703	0.00011685
11	37.93%	0.00003793%	0.00017274	0.00012479
12	41.38%	0.00004138%	0.00018844	0.00013217
13	44.83%	0.00004483%	0.00020414	0.00013901
14	48.28%	0.00004828%	0.00021985	0.00014535
15	51.72%	0.00005172%	0.00023555	0.00015119
16	55.17%	0.00005517%	0.00025126	0.00015657
17	58.62%	0.00005862%	0.00026696	0.00016151
18	62.07%	0.00006207%	0.00028266	0.00016603
19	65.52%	0.00006552%	0.00029837	0.00017015
20	68.97%	0.00006897%	0.00031407	0.00017389
21	72.41%	0.00007241%	0.00032977	0.00017727
22	75.86%	0.00007586%	0.00034548	0.00018030
23	79.31%	0.00007931%	0.00036118	0.00018301
24	82.76%	0.00008276%	0.00037688	0.00018540
25	86.21%	0.00008621%	0.00039259	0.00018750
26	89.66%	0.00008966%	0.00040829	0.00018932
27	93.10%	0.00009310%	0.00042399	0.00019088
28	96.55%	0.00009655%	0.00043970	0.00019218
29	100.00%	0.00010000%	0.00045540	0.00019325

Beyond (c)	0.00644158
Total	0.01034549

Section 1.2 Lake Winnipeg - Jump Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00000000%	0.00000000	0.00000000
1	5.88%	0.00000588%	0.34521324	0.33515848
2	11.76%	0.00001176%	0.69042647	0.65079317
3	17.65%	0.00001765%	1.03563971	0.94775704
4	23.53%	0.00002353%	1.38085294	1.22686995
5	29.41%	0.00002941%	1.72606618	1.48891985
6	35.29%	0.00003529%	2.07127941	1.73466390
7	41.18%	0.00004118%	2.41649265	1.96482966
8	47.06%	0.00004706%	2.76170588	2.18011613
9	52.94%	0.00005294%	3.10691912	2.38119480
10	58.82%	0.00005882%	3.45213235	2.56871068
11	64.71%	0.00006471%	3.79734559	2.74328325
12	70.59%	0.00007059%	4.14255882	2.90550741
13	76.47%	0.00007647%	4.48777206	3.05595440
14	82.35%	0.00008235%	4.83298529	3.19517263
15	88.24%	0.00008824%	5.17819853	3.32368859
16	94.12%	0.00009412%	5.52341176	3.44200760
17	100.00%	0.00010000%	5.86862500	3.55061464
Beyond (d)				118.35382132
Total				156.04906348

Section 1.3 Lake Winnipeg - Progressive Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
29	0.00%	0.00000000%	0.00000000	0.00000000
30	5.88%	0.00000588%	0.34521324	0.14222328
31	11.76%	0.00001176%	0.69042647	0.27616171
32	17.65%	0.00001765%	1.03563971	0.40217725
33	23.53%	0.00002353%	1.38085294	0.52061780
34	29.41%	0.00002941%	1.72606618	0.63181772
35	35.29%	0.00003529%	2.07127941	0.73609832
36	41.18%	0.00004118%	2.41649265	0.83376832
37	47.06%	0.00004706%	2.76170588	0.92512435
38	52.94%	0.00005294%	3.10691912	1.01045135
39	58.82%	0.00005882%	3.45213235	1.09002303
40	64.71%	0.00006471%	3.79734559	1.16410227

41	70.59%	0.00007059%	4.14255882	1.23294150
42	76.47%	0.00007647%	4.48777206	1.29678313
43	82.35%	0.00008235%	4.83298529	1.35585988
44	88.24%	0.00008824%	5.17819853	1.41039516
45	94.12%	0.00009412%	5.52341176	1.46060341
46	100.00%	0.00010000%	5.86862500	1.50669041
Beyond (e)				50.22301354
Total				66.21885243

Section 2 Quantification of Replacement Services

Year	<------(Percentage)----->	
	Current Value	Present Value
5	0.0%	0.0%
6	5.0%	4.2%
7	10.0%	8.1%
8	15.0%	11.8%
9	20.0%	15.3%
10	25.0%	18.6%
11	30.0%	21.7%
12	35.0%	24.5%
13	40.0%	27.2%
14	45.0%	29.8%
15	50.0%	32.1%
16	55.0%	34.3%
17	60.0%	36.3%
18	65.0%	38.2%
19	70.0%	39.9%
20	75.0%	41.5%
21	80.0%	43.0%
22	85.0%	44.4%
23	90.0%	45.6%
24	95.0%	46.7%
25	100.0%	47.8%
Beyond (f)		1592.0%
Total		2203.1%

Section 3 Offsetting Restoration for One Organism

Red River - Progressive Dispersal (river-miles):	0.000470
Lake Winnipeg - Jump Dispersal (acres):	7.08
Lake Winnipeg - Progressive Dispersal (acres):	3.01

Section 4 Notes

- (a) Percent loss given certain invasion
- (b) Percent loss given probability of successful invasion
- (c) From year 30 into perpetuity
- (d) From year 18 into perpetuity
- (e) From year 47 into perpetuity
- (f) From year 26 into perpetuity

Appendix 15I. Habitat Equivalency Analysis of Risk Consequences: Fast Invasion - Moderate Risk (One Organism)

Probability of successful invasion:	1.00E-03
Annual discount rate:	3.0%
Present year:	0

Section 1 Quantification of Expected Lost Services

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Affected habitat (river-miles):	455.40
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Year	<------(Percentage)----->		<------(River-Mile Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00000%	0.00000	0.00000
1	3.45%	0.00345%	0.01570	0.01525
2	6.90%	0.00690%	0.03141	0.02960
3	10.34%	0.01034%	0.04711	0.04311
4	13.79%	0.01379%	0.06281	0.05581
5	17.24%	0.01724%	0.07852	0.06773
6	20.69%	0.02069%	0.09422	0.07891
7	24.14%	0.02414%	0.10992	0.08938
8	27.59%	0.02759%	0.12563	0.09917
9	31.03%	0.03103%	0.14133	0.10832
10	34.48%	0.03448%	0.15703	0.11685
11	37.93%	0.03793%	0.17274	0.12479
12	41.38%	0.04138%	0.18844	0.13217
13	44.83%	0.04483%	0.20414	0.13901
14	48.28%	0.04828%	0.21985	0.14535
15	51.72%	0.05172%	0.23555	0.15119
16	55.17%	0.05517%	0.25126	0.15657
17	58.62%	0.05862%	0.26696	0.16151
18	62.07%	0.06207%	0.28266	0.16603
19	65.52%	0.06552%	0.29837	0.17015
20	68.97%	0.06897%	0.31407	0.17389
21	72.41%	0.07241%	0.32977	0.17727
22	75.86%	0.07586%	0.34548	0.18030
23	79.31%	0.07931%	0.36118	0.18301
24	82.76%	0.08276%	0.37688	0.18540
25	86.21%	0.08621%	0.39259	0.18750
26	89.66%	0.08966%	0.40829	0.18932
27	93.10%	0.09310%	0.42399	0.19088
28	96.55%	0.09655%	0.43970	0.19218
29	100.00%	0.10000%	0.45540	0.19325

Beyond (c)	6.44158
Total	10.34549

Section 1.2 Lake Winnipeg - Jump Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00000%	0.00000	0.00000
1	5.88%	0.00588%	345.21324	335.15848
2	11.76%	0.01176%	690.42647	650.79317
3	17.65%	0.01765%	1,035.63971	947.75704
4	23.53%	0.02353%	1,380.85294	1,226.86995
5	29.41%	0.02941%	1,726.06618	1,488.91985
6	35.29%	0.03529%	2,071.27941	1,734.66390
7	41.18%	0.04118%	2,416.49265	1,964.82966
8	47.06%	0.04706%	2,761.70588	2,180.11613
9	52.94%	0.05294%	3,106.91912	2,381.19480
10	58.82%	0.05882%	3,452.13235	2,568.71068
11	64.71%	0.06471%	3,797.34559	2,743.28325
12	70.59%	0.07059%	4,142.55882	2,905.50741
13	76.47%	0.07647%	4,487.77206	3,055.95440
14	82.35%	0.08235%	4,832.98529	3,195.17263
15	88.24%	0.08824%	5,178.19853	3,323.68859
16	94.12%	0.09412%	5,523.41176	3,442.00760
17	100.00%	0.10000%	5,868.62500	3,550.61464
Beyond (d)				118,353.82132
Total				156,049.06348

Section 1.3 Lake Winnipeg - Progressive Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
29	0.00%	0.00000%	0.00000	0.00000
30	5.88%	0.00588%	345.21324	142.22328
31	11.76%	0.01176%	690.42647	276.16171
32	17.65%	0.01765%	1,035.63971	402.17725
33	23.53%	0.02353%	1,380.85294	520.61780
34	29.41%	0.02941%	1,726.06618	631.81772
35	35.29%	0.03529%	2,071.27941	736.09832
36	41.18%	0.04118%	2,416.49265	833.76832
37	47.06%	0.04706%	2,761.70588	925.12435
38	52.94%	0.05294%	3,106.91912	1,010.45135
39	58.82%	0.05882%	3,452.13235	1,090.02303
40	64.71%	0.06471%	3,797.34559	1,164.10227

41	70.59%	0.07059%	4,142.55882	1,232.94150
42	76.47%	0.07647%	4,487.77206	1,296.78313
43	82.35%	0.08235%	4,832.98529	1,355.85988
44	88.24%	0.08824%	5,178.19853	1,410.39516
45	94.12%	0.09412%	5,523.41176	1,460.60341
46	100.00%	0.10000%	5,868.62500	1,506.69041
Beyond (e)				50,223.01354
Total				66,218.85243

Section 2 Quantification of Replacement Services

Year	<------(Percentage)----->	
	Current Value	Present Value
5	0.0%	0.0%
6	5.0%	4.2%
7	10.0%	8.1%
8	15.0%	11.8%
9	20.0%	15.3%
10	25.0%	18.6%
11	30.0%	21.7%
12	35.0%	24.5%
13	40.0%	27.2%
14	45.0%	29.8%
15	50.0%	32.1%
16	55.0%	34.3%
17	60.0%	36.3%
18	65.0%	38.2%
19	70.0%	39.9%
20	75.0%	41.5%
21	80.0%	43.0%
22	85.0%	44.4%
23	90.0%	45.6%
24	95.0%	46.7%
25	100.0%	47.8%
Beyond (f)		1592.0%
Total		2203.1%

Section 3 Offsetting Restoration for One Organism

Red River - Progressive Dispersal (river-miles):	0.470
Lake Winnipeg - Jump Dispersal (acres):	7,080
Lake Winnipeg - Progressive Dispersal (acres):	3,010

Section 4 Notes

- (a) Percent loss given certain invasion
- (b) Percent loss given probability of successful invasion
- (c) From year 30 into perpetuity
- (d) From year 18 into perpetuity
- (e) From year 47 into perpetuity
- (f) From year 26 into perpetuity

Appendix 15J. Habitat Equivalency Analysis of Risk Consequences: Fast Invasion - High Risk (One Organism)

Probability of successful invasion:	1.00E-02
Annual discount rate:	3.0%
Present year:	0

Section 1 Quantification of Expected Lost Services

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Affected habitat (river-miles):	455.40
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Year	<------(Percentage)----->		<------(River-Mile Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.0000%	0.0000	0.0000
1	3.45%	0.0345%	0.1570	0.1525
2	6.90%	0.0690%	0.3141	0.2960
3	10.34%	0.1034%	0.4711	0.4311
4	13.79%	0.1379%	0.6281	0.5581
5	17.24%	0.1724%	0.7852	0.6773
6	20.69%	0.2069%	0.9422	0.7891
7	24.14%	0.2414%	1.0992	0.8938
8	27.59%	0.2759%	1.2563	0.9917
9	31.03%	0.3103%	1.4133	1.0832
10	34.48%	0.3448%	1.5703	1.1685
11	37.93%	0.3793%	1.7274	1.2479
12	41.38%	0.4138%	1.8844	1.3217
13	44.83%	0.4483%	2.0414	1.3901
14	48.28%	0.4828%	2.1985	1.4535
15	51.72%	0.5172%	2.3555	1.5119
16	55.17%	0.5517%	2.5126	1.5657
17	58.62%	0.5862%	2.6696	1.6151
18	62.07%	0.6207%	2.8266	1.6603
19	65.52%	0.6552%	2.9837	1.7015
20	68.97%	0.6897%	3.1407	1.7389
21	72.41%	0.7241%	3.2977	1.7727
22	75.86%	0.7586%	3.4548	1.8030
23	79.31%	0.7931%	3.6118	1.8301
24	82.76%	0.8276%	3.7688	1.8540
25	86.21%	0.8621%	3.9259	1.8750
26	89.66%	0.8966%	4.0829	1.8932
27	93.10%	0.9310%	4.2399	1.9088
28	96.55%	0.9655%	4.3970	1.9218
29	100.00%	1.0000%	4.5540	1.9325

Beyond (c)	64.4158
Total	103.4549

Section 1.2 Lake Winnipeg - Jump Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.0000%	0.0000	0.0000
1	5.88%	0.0588%	3,452.1324	3,351.5848
2	11.76%	0.1176%	6,904.2647	6,507.9317
3	17.65%	0.1765%	10,356.3971	9,477.5704
4	23.53%	0.2353%	13,808.5294	12,268.6995
5	29.41%	0.2941%	17,260.6618	14,889.1985
6	35.29%	0.3529%	20,712.7941	17,346.6390
7	41.18%	0.4118%	24,164.9265	19,648.2966
8	47.06%	0.4706%	27,617.0588	21,801.1613
9	52.94%	0.5294%	31,069.1912	23,811.9480
10	58.82%	0.5882%	34,521.3235	25,687.1068
11	64.71%	0.6471%	37,973.4559	27,432.8325
12	70.59%	0.7059%	41,425.5882	29,055.0741
13	76.47%	0.7647%	44,877.7206	30,559.5440
14	82.35%	0.8235%	48,329.8529	31,951.7263
15	88.24%	0.8824%	51,781.9853	33,236.8859
16	94.12%	0.9412%	55,234.1176	34,420.0760
17	100.00%	1.0000%	58,686.2500	35,506.1464
Beyond (d)				1,183,538.2132
Total				1,560,490.6348

Section 1.3 Lake Winnipeg - Progressive Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
29	0.00%	0.0000%	0.0000	0.0000
30	5.88%	0.0588%	3,452.1324	1,422.2328
31	11.76%	0.1176%	6,904.2647	2,761.6171
32	17.65%	0.1765%	10,356.3971	4,021.7725
33	23.53%	0.2353%	13,808.5294	5,206.1780
34	29.41%	0.2941%	17,260.6618	6,318.1772
35	35.29%	0.3529%	20,712.7941	7,360.9832
36	41.18%	0.4118%	24,164.9265	8,337.6832
37	47.06%	0.4706%	27,617.0588	9,251.2435
38	52.94%	0.5294%	31,069.1912	10,104.5135
39	58.82%	0.5882%	34,521.3235	10,900.2303
40	64.71%	0.6471%	37,973.4559	11,641.0227

41	70.59%	0.7059%	41,425.5882	12,329.4150
42	76.47%	0.7647%	44,877.7206	12,967.8313
43	82.35%	0.8235%	48,329.8529	13,558.5988
44	88.24%	0.8824%	51,781.9853	14,103.9516
45	94.12%	0.9412%	55,234.1176	14,606.0341
46	100.00%	1.0000%	58,686.2500	15,066.9041
Beyond (e)				502,230.1354
Total				662,188.5243

Section 2 Quantification of Replacement Services

Year	<------(Percentage)----->	
	Current Value	Present Value
5	0.0%	0.0%
6	5.0%	4.2%
7	10.0%	8.1%
8	15.0%	11.8%
9	20.0%	15.3%
10	25.0%	18.6%
11	30.0%	21.7%
12	35.0%	24.5%
13	40.0%	27.2%
14	45.0%	29.8%
15	50.0%	32.1%
16	55.0%	34.3%
17	60.0%	36.3%
18	65.0%	38.2%
19	70.0%	39.9%
20	75.0%	41.5%
21	80.0%	43.0%
22	85.0%	44.4%
23	90.0%	45.6%
24	95.0%	46.7%
25	100.0%	47.8%
Beyond (f)		1592.0%
Total		2203.1%

Section 3 Offsetting Restoration for One Organism

Red River - Progressive Dispersal (river-miles):	4.70
Lake Winnipeg - Jump Dispersal (acres):	70,800
Lake Winnipeg - Progressive Dispersal (acres):	30,100

Section 4 Notes

- (a) Percent loss given certain invasion
- (b) Percent loss given probability of successful invasion
- (c) From year 30 into perpetuity
- (d) From year 18 into perpetuity
- (e) From year 47 into perpetuity
- (f) From year 26 into perpetuity

Appendix 15K. Habitat Equivalency Analysis of Risk Consequences: Fast Invasion - Very High Risk (One Organism)

Probability of successful invasion:	1.00E+00
Annual discount rate:	3.0%
Present year:	0

Section 1 Quantification of Expected Lost Services

Section 1.1 Red River from Fargo to Lake Winnipeg - Progressive Dispersal

Affected habitat (river-miles):	455.40
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Year	<------(Percentage)----->		<------(River-Mile Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00%	0.00	0.00
1	3.45%	3.45%	15.70	15.25
2	6.90%	6.90%	31.41	29.60
3	10.34%	10.34%	47.11	43.11
4	13.79%	13.79%	62.81	55.81
5	17.24%	17.24%	78.52	67.73
6	20.69%	20.69%	94.22	78.91
7	24.14%	24.14%	109.92	89.38
8	27.59%	27.59%	125.63	99.17
9	31.03%	31.03%	141.33	108.32
10	34.48%	34.48%	157.03	116.85
11	37.93%	37.93%	172.74	124.79
12	41.38%	41.38%	188.44	132.17
13	44.83%	44.83%	204.14	139.01
14	48.28%	48.28%	219.85	145.35
15	51.72%	51.72%	235.55	151.19
16	55.17%	55.17%	251.26	156.57
17	58.62%	58.62%	266.96	161.51
18	62.07%	62.07%	282.66	166.03
19	65.52%	65.52%	298.37	170.15
20	68.97%	68.97%	314.07	173.89
21	72.41%	72.41%	329.77	177.27
22	75.86%	75.86%	345.48	180.30
23	79.31%	79.31%	361.18	183.01
24	82.76%	82.76%	376.88	185.40
25	86.21%	86.21%	392.59	187.50
26	89.66%	89.66%	408.29	189.32
27	93.10%	93.10%	423.99	190.88
28	96.55%	96.55%	439.70	192.18
29	100.00%	100.00%	455.40	193.25

Beyond (c)	6,441.58
Total	10,345.49

Section 1.2 Lake Winnipeg - Jump Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
0	0.00%	0.00%	0.00	0.00
1	5.88%	5.88%	345,213.24	335,158.48
2	11.76%	11.76%	690,426.47	650,793.17
3	17.65%	17.65%	1,035,639.71	947,757.04
4	23.53%	23.53%	1,380,852.94	1,226,869.95
5	29.41%	29.41%	1,726,066.18	1,488,919.85
6	35.29%	35.29%	2,071,279.41	1,734,663.90
7	41.18%	41.18%	2,416,492.65	1,964,829.66
8	47.06%	47.06%	2,761,705.88	2,180,116.13
9	52.94%	52.94%	3,106,919.12	2,381,194.80
10	58.82%	58.82%	3,452,132.35	2,568,710.68
11	64.71%	64.71%	3,797,345.59	2,743,283.25
12	70.59%	70.59%	4,142,558.82	2,905,507.41
13	76.47%	76.47%	4,487,772.06	3,055,954.40
14	82.35%	82.35%	4,832,985.29	3,195,172.63
15	88.24%	88.24%	5,178,198.53	3,323,688.59
16	94.12%	94.12%	5,523,411.76	3,442,007.60
17	100.00%	100.00%	5,868,625.00	3,550,614.64
Beyond (d)				118,353,821.32
Total				156,049,063.48

Section 1.3 Lake Winnipeg - Progressive Dispersal

Affected habitat (acres): 5,868,625.00

Year	<------(Percentage)----->		<------(Acre Years)----->	
	Certain (a)	Expected (b)	Current Value	Present Value
29	0.00%	0.00%	0.00	0.00
30	5.88%	5.88%	345,213.24	142,223.28
31	11.76%	11.76%	690,426.47	276,161.71
32	17.65%	17.65%	1,035,639.71	402,177.25
33	23.53%	23.53%	1,380,852.94	520,617.80
34	29.41%	29.41%	1,726,066.18	631,817.72
35	35.29%	35.29%	2,071,279.41	736,098.32
36	41.18%	41.18%	2,416,492.65	833,768.32
37	47.06%	47.06%	2,761,705.88	925,124.35
38	52.94%	52.94%	3,106,919.12	1,010,451.35
39	58.82%	58.82%	3,452,132.35	1,090,023.03
40	64.71%	64.71%	3,797,345.59	1,164,102.27

41	70.59%	70.59%	4,142,558.82	1,232,941.50
42	76.47%	76.47%	4,487,772.06	1,296,783.13
43	82.35%	82.35%	4,832,985.29	1,355,859.88
44	88.24%	88.24%	5,178,198.53	1,410,395.16
45	94.12%	94.12%	5,523,411.76	1,460,603.41
46	100.00%	100.00%	5,868,625.00	1,506,690.41
Beyond (e)				50,223,013.54
Total				66,218,852.43

Section 2 Quantification of Replacement Services

Year	<------(Percentage)----->	
	Current Value	Present Value
5	0.0%	0.0%
6	5.0%	4.2%
7	10.0%	8.1%
8	15.0%	11.8%
9	20.0%	15.3%
10	25.0%	18.6%
11	30.0%	21.7%
12	35.0%	24.5%
13	40.0%	27.2%
14	45.0%	29.8%
15	50.0%	32.1%
16	55.0%	34.3%
17	60.0%	36.3%
18	65.0%	38.2%
19	70.0%	39.9%
20	75.0%	41.5%
21	80.0%	43.0%
22	85.0%	44.4%
23	90.0%	45.6%
24	95.0%	46.7%
25	100.0%	47.8%
Beyond (f)		1592.0%
Total		2203.1%

Section 3 Offsetting Restoration for One Organism

Red River - Progressive Dispersal (river-miles):	470
Lake Winnipeg - Jump Dispersal (acres):	7,080,000
Lake Winnipeg - Progressive Dispersal (acres):	3,010,000

Section 4 Notes

- (a) Percent loss given certain invasion
- (b) Percent loss given probability of successful invasion
- (c) From year 30 into perpetuity
- (d) From year 18 into perpetuity
- (e) From year 47 into perpetuity
- (f) From year 26 into perpetuity