

# Current Research on Milfoil Weevils and Eurasian Watermilfoil

**Paul Skawinski, UW-Stevens Point,  
Golden Sands RC&D  
Amy Thorstenson,  
Golden Sands RC&D**

Introducing  
*Euhrychiopsis lecontei*



# Egg Stage

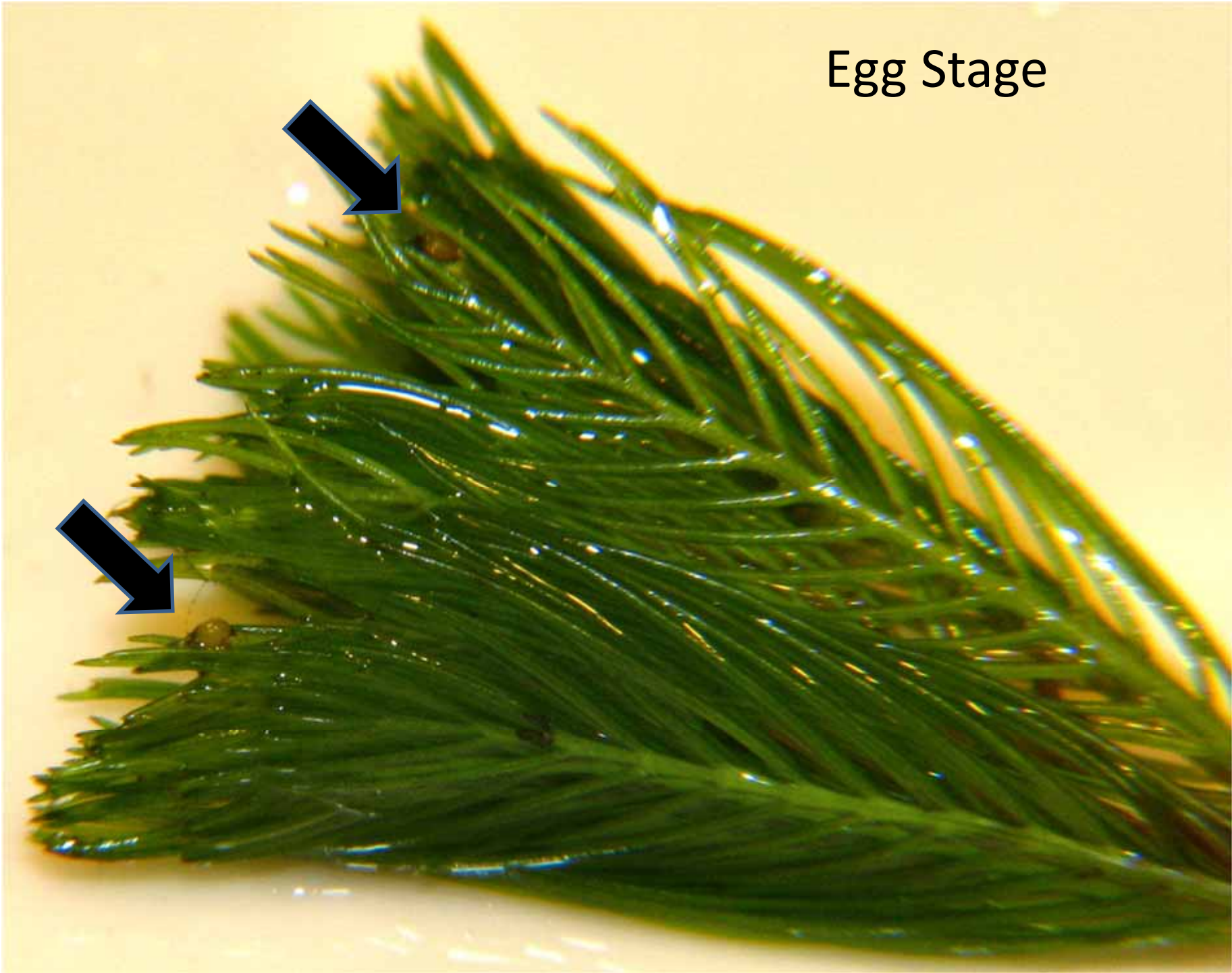


Photo: Paul Skawinski, UW-Stevens Point

# Larvae feed on vascular tissues of EWM



Photo: Paul Skawinski, UW-Stevens Point



Photo: Paul Skawinski, UW-Stevens Point



Photo: Paul Skawinski, UW-Stevens Point

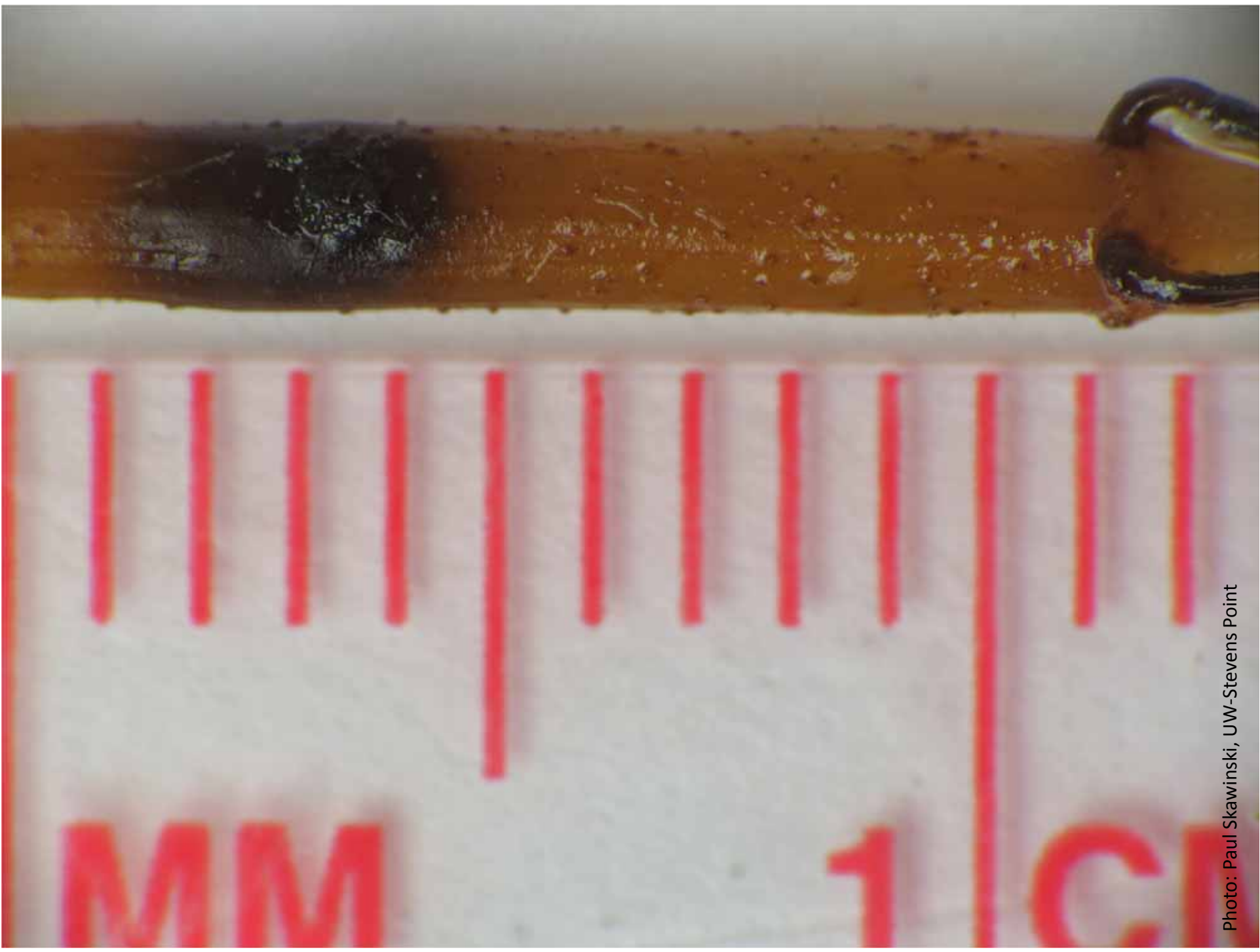


Photo: Paul Skawinski, UW-Stevens Point

Pupa emerges from a “blast hole”





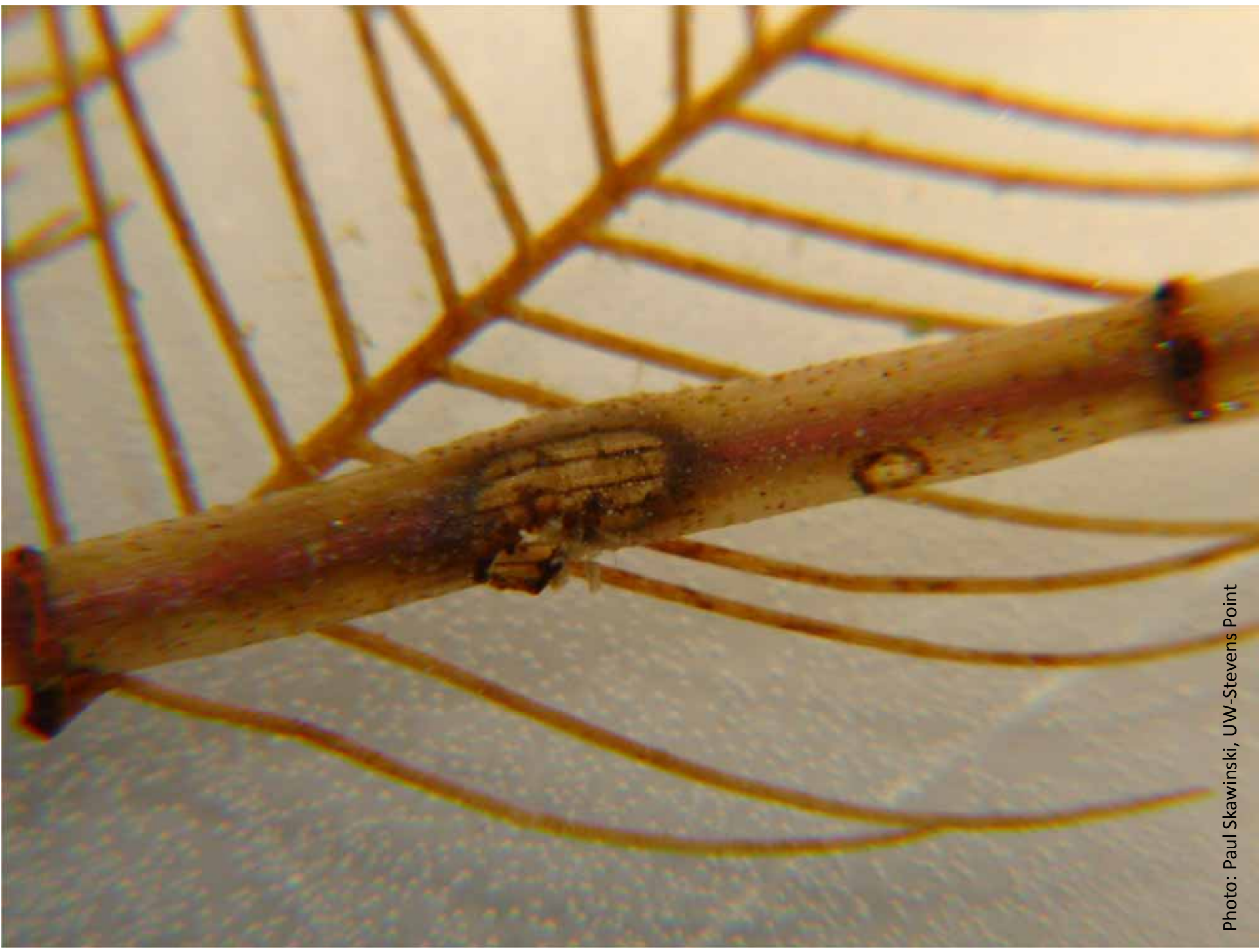


Photo: Paul Skawinski, UW-Stevens Point



*Euhrychiopsis lecontei*  
© Paul Skawinski 2010

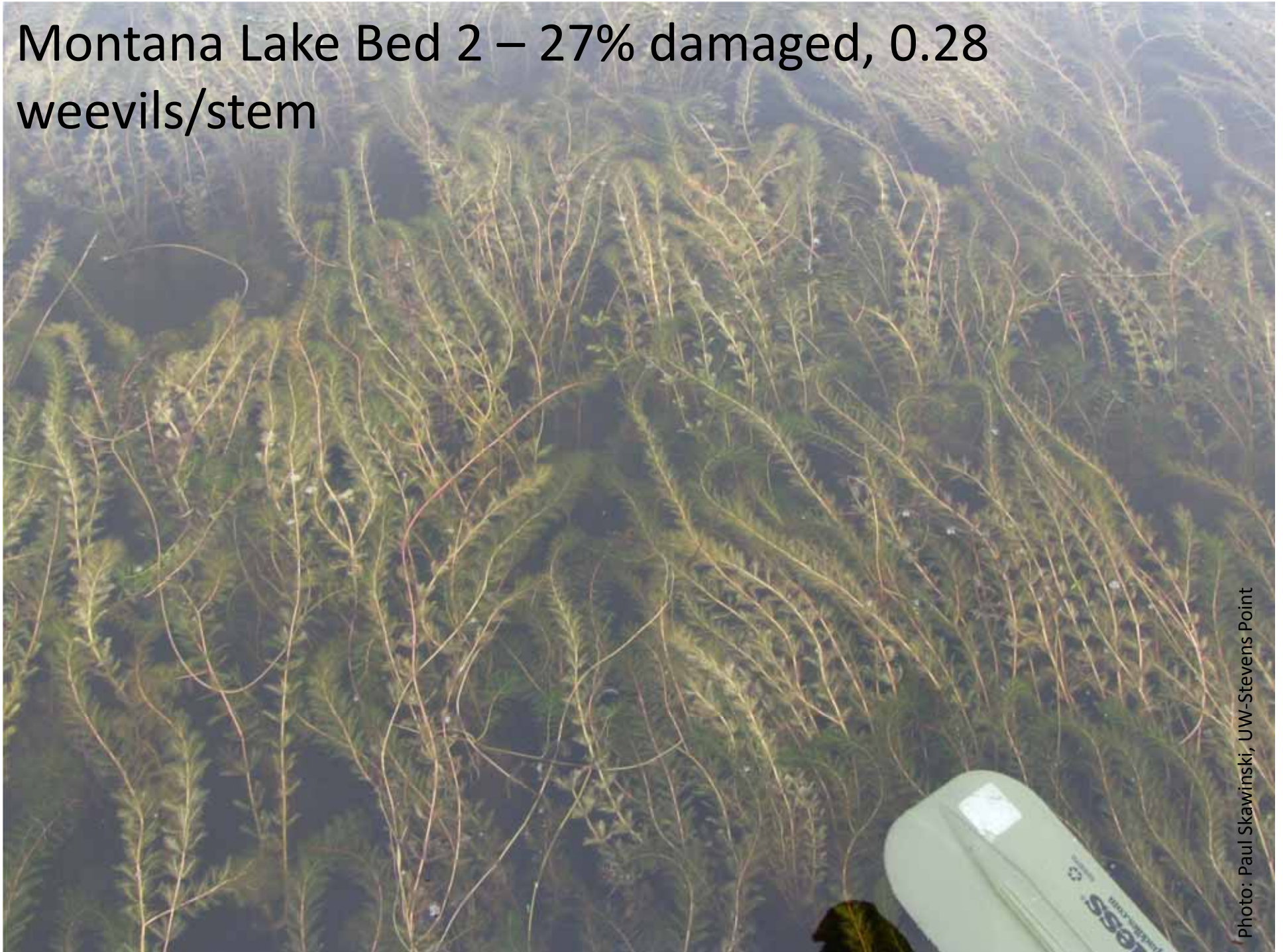


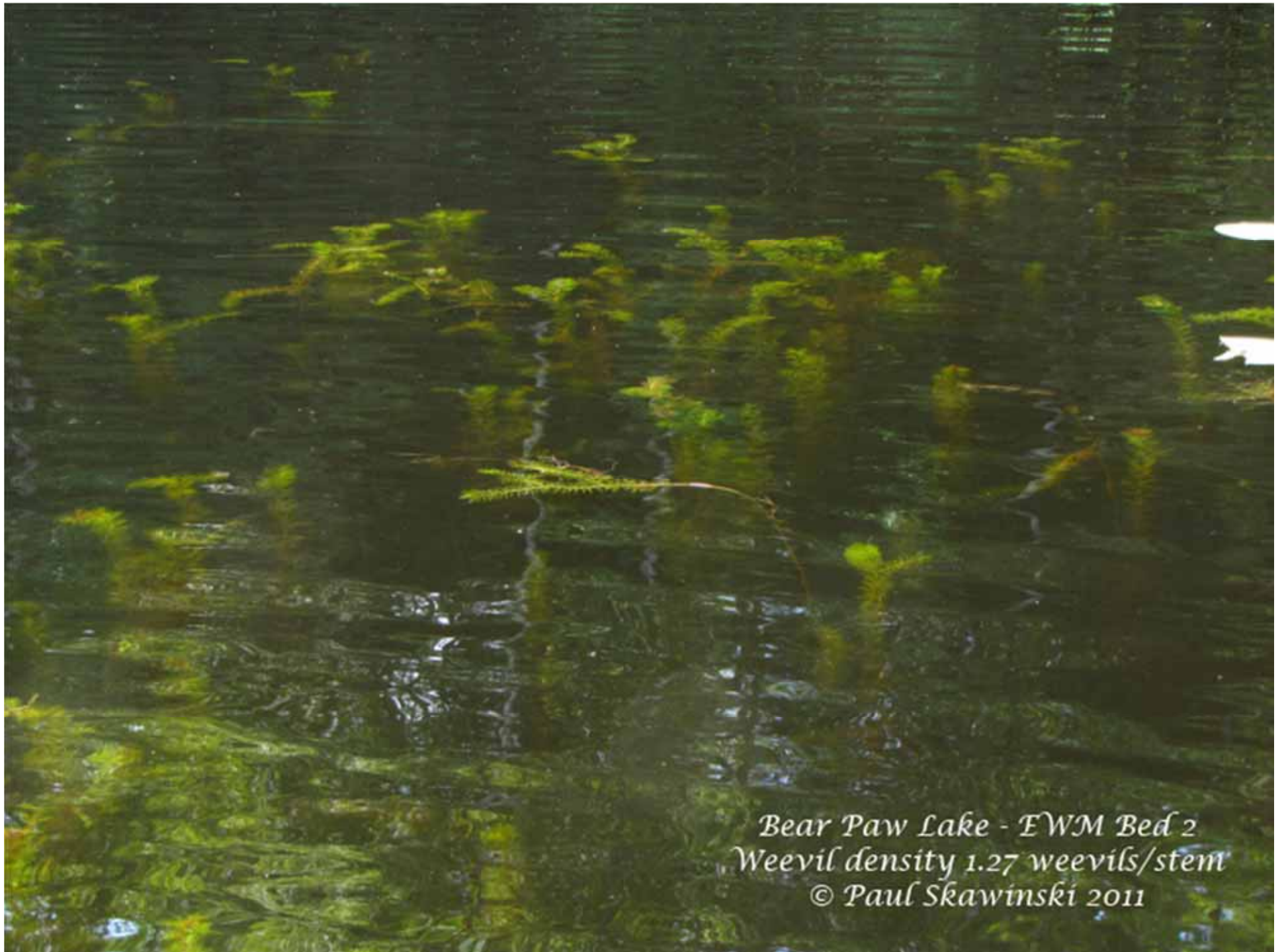
Photo: Paul Skawinski, UW-Stevens Point



Wingra Bed 4 – 61% of stems damaged,  
0.58 weevils/stem

Montana Lake Bed 2 – 27% damaged, 0.28 weevils/stem





*Bear Paw Lake - EWM Bed 2  
Weevil density 1.27 weevils/stem  
© Paul Skawinski 2011*



# Sediment Relationships to EWM

(Paul Skawinski - UW-Stevens Point)





# Purpose of this Study

- Relationships are largely unknown
  - EWM vs. *Euhrychiopsis lecontei* weevils
  - EWM vs. sediment nutrients
  - EWM vs. shoreline characteristics

Can these variables predict how susceptible a lake is to EWM invasion?

# Project Scope

- 15 study lakes
  - Selected from DNR's Long Term Trends (LTT) lakes
  - No active management of EWM
  - Two lakes decided to do herbicide treatments in spring 2011 and were dropped from the study
  - Two replacement lakes will be added for 2012 season

# Study Lakes

- **Ivanhoe** (Walworth);
- **Gibbs** (Rock);
- **Wingra, Fish** (Dane);
- **Crystal** (Marquette);
- **Joanis, Thomas, Emily** (Portage);
- **Bear Paw** (Oconto);
- **Montana** (Marinette);
- **Manson, Hancock, Little Bearskin** (Oneida);
- **Round** (Burnett);
- **Bass** (St. Croix)





# Soil Analysis

Report # 3162

Sample ID	pH	O.M. %	Bray P ppm	Olsen P ppm	NH <sub>4</sub> -N ppm	Avail. Mn ppm	Density cm <sup>3</sup>
Gibbs Lake Bed 1	7.7	15.5	1	13.1	4.7	12	0.30
Gibbs Lake Bed 2	7.7	15.7	2	13.9	7.3	12	0.30
Gibbs Lake Bed 3	8.0	4.4	1	16.3	4.9	13	0.55
Gibbs Lake Bed 4	7.8	10.5	2	18.8	9.7	15	0.48
Lake Emily North	7.9	15.5	1	9.2	14.0	5	0.44
Lake Wingra Bed 4	8.0	7.4	2	14.7	3.3	3	0.42
Lake Emily South	7.9	24.4	1	13.2	9.5	1	0.39
Lake Wingra Bed 3	7.9	7.8	1	10.9	6.2	8	0.43
Lake Wingra Bed 2	8.0	6.7	1	25.8	8.7	9	0.51
Lake Wingra Bed 1	7.9	7.9	1	26.5	10.0	11	0.51
Lake Thomas Bed 1	7.7	5.8	19	8.0	16.0	8	0.99
Lake Thomas Bed 2	7.8	14.5	3	5.3	5.1	3	0.44
Lake Joanis Bed 1	6.8	5.6	12	3.8	43.7	43	0.77
Lake Joanis Bed 2	6.6	4.2	15	2.8	36.8	26	0.89
Lake Joanis Bed 3	6.6	1.9	13	3.4	23.5	3	1.24
Lake Joanis Bed 4	6.6	2.2	16	4.2	33.5	18	1.10
Lake Joanis Bed 5	6.5	2.0	9	2.5	27.7	3	1.24
Ivanhoe Bed 1	7.7	14.2	1	12.1	15.3	8	0.38
Ivanhoe Bed 2	7.7	5.3	1	10.8	6.6	27	0.43
Ivanhoe Bed 3	7.8	9.7	1	13.2	12.5	12	0.40
Ivanhoe Bed 4	7.8	5.4	1	11.9	11.0	23	0.46
Lake Thomas Bed 3	7.8	5.8	10	7.3	17.7	3	0.89

## Soil Analysis - Total Minerals

Report # 3162

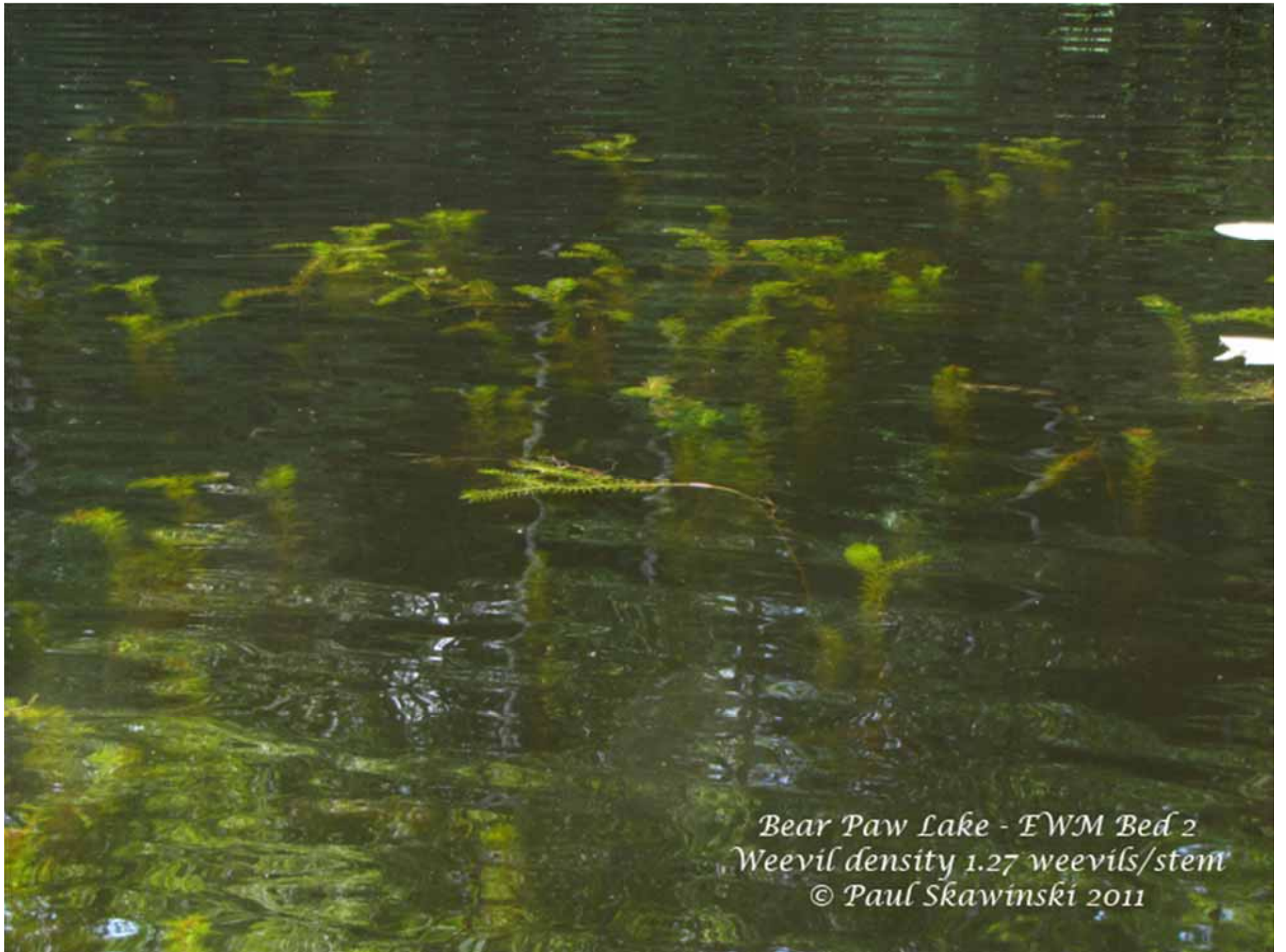
Sample ID	P %	K %	Ca %	Mg %	S %	Zn ppm	B ppm	Mn ppm	Fe ppm	Cu ppm	Al ppm	Na ppm
1 Gibbs Lake Bed 1	0.08	0.07	15.96	0.57	0.65	34.70	9.12	818.73	4858.13	7.46	5377.74	144.51
2 Gibbs Lake Bed 2	0.09	0.06	16.40	0.57	0.66	31.41	10.90	843.17	4375.47	6.83	4614.04	139.73
3 Gibbs Lake Bed 3	0.03	0.04	19.00	0.52	0.40	15.89	3.97	607.53	3685.78	3.08	2025.38	239.37
4 Gibbs Lake Bed 4	0.05	0.07	18.58	1.47	0.52	32.74	7.73	580.75	4293.61	7.22	3364.10	205.36
5 Lake Emily North	0.06	0.11	15.83	0.32	0.51	47.07	7.38	188.24	5489.32	8.43	7208.88	202.42
6 Lake Wingra Bed 4	0.01	0.01	9.17	0.11	0.10	9.64	<2	156.71	1062.35	1.27	596.75	143.70
7 Lake Emily South	0.07	0.06	16.55	0.32	0.67	44.88	9.34	202.62	4246.29	8.26	4057.20	214.70
8 Lake Wingra Bed 3	0.05	0.06	21.93	0.54	0.41	39.68	6.59	566.79	3588.40	7.19	3582.27	508.43
9 Lake Wingra Bed 2	0.06	0.08	18.93	1.02	0.49	55.12	8.22	477.17	4947.14	10.05	4535.38	593.38
0 Lake Wingra Bed 1	0.06	0.07	21.69	0.59	0.38	34.80	7.29	566.43	3727.51	7.34	4143.18	485.02
1 Lake Thomas Bed 1	0.04	0.07	1.13	0.24	0.11	26.37	9.48	89.25	5219.46	4.15	3376.24	74.10
2 Lake Thomas Bed 2	0.05	0.08	19.80	0.24	0.25	38.67	9.86	241.72	5518.01	6.80	5296.11	141.19
3 Lake Joanis Bed 1	0.04	0.08	0.61	0.17	0.15	48.64	8.05	203.43	13116.58	6.87	7782.17	164.07
4 Lake Joanis Bed 2	0.02	0.05	0.32	0.06	0.11	24.96	3.75	96.55	7109.26	3.69	5502.78	73.95
5 Lake Joanis Bed 3	0.01	0.03	0.12	0.03	0.05	14.82	2.05	36.68	3844.93	1.96	2333.18	50.57
6 Lake Joanis Bed 4	0.02	0.05	0.36	0.15	0.09	25.13	4.04	119.31	10366.40	2.43	4500.98	129.42
7 Lake Joanis Bed 5	0.01	0.04	0.17	0.04	0.17	16.42	4.43	55.63	7761.96	1.02	2452.06	76.78

# Weevil Densities



I will find you!





*Bear Paw Lake - EWM Bed 2  
Weevil density 1.27 weevils/stem  
© Paul Skawinski 2011*

# Weevil Stocking/Efficacy

(Susan Knight – UW Trout Lake Station)

- 7 lakes in northern Wisconsin
  - Boot (Vilas); Frog, Seidel, Long (Florence); Little Bearskin, Manson (Oneida)
  - 2012: Whole-lake PI surveys, stock weevils into two randomly selected beds in 6 of 7 lakes.
  - 2013-2015: Monitoring. Whole-lake PI surveys, weevil density surveys, and addition of more weevils if recommended.

# Weevil Rearing

(Amy Thorstenson - Golden Sands RC&D)