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## **Phylogenetic, taxonomic and biogeographical studies in the Pithophoraceae (Cladophorales, Chlorophyta)**

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**Appendix S1.** Synonyms of *Aegagropila linnaei* and a list of described *Aegagropila* species not referring to *Aegagropila linnaei*. [Chapters 3 & 4]

>>> also available online at:

[www.nationaalherbarium.nl/supplements/boedeker/BioScience\\_2010](http://www.nationaalherbarium.nl/supplements/boedeker/BioScience_2010)

**Appendix S2.** List of herbaria contacted in this study, including all inspected collections of *Aegagropila linnaei*. [Chapters 3 & 4]

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**Appendix S3.** List of all known locations of *Aegagropila linnaei*, with a list of locations that were excluded because of doubtful species identification. [Chapters 3 & 4]

>>> also available online at:

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**Appendix S4.** List of all known extant populations of *Aegagropila linnaei* (observations in the last 30 years). [Chapters 3 & 4]

>>> also available online at:

[www.nationaalherbarium.nl/supplements/boedeker/BioScience\\_2010](http://www.nationaalherbarium.nl/supplements/boedeker/BioScience_2010)

**Appendix S5.** List of outgroup taxa and their GenBank accession numbers. [Chapter 7].

**Appendix S6.** Effects of model choice and missing data on tree topologies and support. [Chapter 7]

**Appendix S7.** Molecular clock and midpoint rooting of the ingroup. [Chapter 7]

**Appendix S8.** List of all nomenclatorial changes proposed in this thesis. [Chapters 4 - 7]

**Appendix S1.** Synonyms of *Aegagropila linnaei* and a list of described *Aegagropila* species not referring to *Aegagropila linnaei*

**Synonyms of *Aegagropila linnaei* Kützing, 1843**

<i>Aegagropila</i>	reference
<i>Aegagropila armeniaca</i> (Wittrock) Heering, 1921	van den Hoek 1963*
<i>Aegagropila brownii</i> (Dillwyn) Kützing, 1854	van den Hoek 1963*
<i>Aegagropila bulnheimii</i> Rabenhorst, 1859	van den Hoek 1963*
<i>Aegagropila canescens</i> Kjellmann, 1898	van den Hoek 1963*
<i>Aegagropila coactilis</i> (Sauter) Nees von Esenbeck, 1824	Zahlbruckner 1901
<i>Aegagropila froelichiana</i> Kützing, 1845 (non <i>Cladophora froelichiana</i> Kützing = <i>C. sericea</i> )	van den Hoek 1963*
<i>Aegagropila holsatica</i> (Kützing) Kützing, 1854	van den Hoek 1963*
<i>Aegagropila kannoi</i> Tokida, 1954	Sakai 1964, Niiyama 1989*
<i>Aegagropila kurilensis</i> Nagai, 1940	Sakai 1964, Niiyama 1989*
<i>Aegagropila lagerheimii</i> Brand, 1906	van den Hoek 1963*
<i>Aegagropila martensii</i> (Meneghini ex Kützing) Kützing, 1854	van den Hoek 1963*
<i>Aegagropila minima</i> Okada, 1957	Sakai 1964
<i>Aegagropila muscoides</i> Meneghini ex Kützing, 1854	van den Hoek 1963*
<i>Aegagropila muscoides</i> var. <i>armeniaca</i> Wittrock et Nordstedt, 1878	van den Hoek 1963*
<i>Aegagropila profunda</i> (Brand) Heering, 1921	van den Hoek 1963*
<i>Aegagropila sauteri</i> Nees von Esenbeck ex Kützing, 1843	van den Hoek 1963*
<i>Aegagropila sauteri</i> var. <i>borgeana</i> (Brand) Heering, 1921	van den Hoek 1963*
<i>Aegagropila sauteri</i> var. <i>daldinii</i> Cesati & De Notaris ex Bertolini, 1862	Brand 1902
<i>Aegagropila sauteri</i> var. <i>minima</i> Okada, 1953	Sakai 1964, Niiyama 1989*
<i>Aegagropila sauteri</i> var. <i>sauteri</i> f. <i>profunda</i> (Brand) Heering, 1921	Niiyama 1989*
<i>Aegagropila sauteri</i> var. <i>yamanakaensis</i> Okada, 1957	Sakai 1964, Niiyama 1989*
<i>Aegagropila sauteri</i> f. <i>profunda</i> Brand, 1906	van den Hoek 1963*
<i>Aegagropila sauteri</i> f. <i>kurilensis</i> (Nagai) Sakai, 1964	Niiyama 1989*
<b>Ceramium</b>	
<i>Ceramium aegagropilum</i> (L.) de Lamarck & De Candolle, 1805	van den Hoek 1963*
<b>Chloronitum</b>	
<i>Chloronitum aegagropila</i> (L.) Gaillon, 1833	van den Hoek 1963*
<b>Cladophora</b>	
<i>Cladophora Aegagropila daldinii</i> Cesati & De Notaris ex Bertolini, 1862	van den Hoek 1963*
<i>Cladophora Aegagropila brownii</i> (Dillwyn) Harveyin Kützing, 1849	van den Hoek 1963*
<i>Cladophora Aegagropila holsatica</i> Kützing, 1849	van den Hoek 1963*
<i>Cladophora (Aegagropila) lagerheimii</i> Brand, 1906	van den Hoek 1963*
<i>Cladophora Aegagropila linnaei</i> (Kützing) Kützing, 1849	van den Hoek 1963*
<i>Cladophora Aegagropila martensii</i> Meneghini ex Kützing, 1849	van den Hoek 1963*
<i>Cladophora Aegagropila muscoides</i> Meneghini ex Kützing, 1849	van den Hoek 1963*
<i>Cladophora Aegagropila sauteri</i> (Nees von Esenbeck ex Kützing) Kützing, 1849	van den Hoek 1963*
<i>Cladophora aegagropila</i> (L.) Trevisan, 1845	see Silva, Basson & Moe 1996

<i>Cladophora aegagropila</i> (L.) Rabenhorst, 1868	van den Hoek 1963*
<i>Cladophora aegagropila</i> var. <i>brownii</i> (Dillwyn) Rabenhorst, 1868	van den Hoek 1963*
<i>Cladophora aegagropila</i> var. <i>bulnheimii</i> (Rabenhorst) Rabenhorst, 1869	van den Hoek 1963*
<i>Cladophora aegagropila</i> var. <i>daldinii</i> (Cesati & De Notaris ex Bertolini) Rabenhorst, 1868	van den Hoek 1963*
<i>Cladophora aegagropila</i> var. <i>holsatica</i> (Kützing) Rabenhorst, 1868	van den Hoek 1963*
<i>Cladophora aegagropila</i> var. <i>linnaei</i> (Kützing) Rabenhorst, 1868	van den Hoek 1963*
<i>Cladophora aegagropila</i> var. <i>martensii</i> (Meneghini ex Kützing) Rabenhorst, 1868	van den Hoek 1963*
<i>Cladophora aegagropila</i> var. <i>muscooides</i> (Meneghini ex Kützing) Rabenhorst, 1868	van den Hoek 1963*
<i>Cladophora aegagropila</i> var. <i>sauteri</i> (Nees von Esenbeck ex Kützing) Rabenhorst, 1868	van den Hoek 1963*
<i>Cladophora armeniaca</i> (Wittrock) Brand, 1902	van den Hoek 1963*
<i>Cladophora brownii</i> (Dillwyn) Harvey, 1846	van den Hoek 1963*
<i>Cladophora bulnheimii</i> (Rabenhorst) Rabenhorst, 1863	van den Hoek 1963*
<i>Cladophora holsatica</i> Kützing, 1849	Brand, 1902
<i>Cladophora linnaei</i> (Kützing) Kützing, 1849	Brand 1902, van den Hoek 1963*
<i>Cladophora martensii</i> Meneghini ex Kützing, 1849	van den Hoek 1963*
<i>Cladophora moravica</i> (Dvořák) Gardavský, 1986	Gardavský 1986
<i>Cladophora muscooides</i> Meneghini ex Kützing, 1849	Brand, 1902*
<i>Cladophora okadae</i> Sakai et Yoshida, 1977	Sakai 1980
<i>Cladophora okadae</i> f. <i>crassa</i> (Sakai) Sakai et Yoshida, 1977	Sakai 1980
<i>Cladophora profunda</i> Brand, 1895	van den Hoek 1963*
<i>Cladophora profunda</i> var. <i>nordstedtiana</i> Brand, 1902	van den Hoek 1963*
<i>Cladophora sauteri</i> (Nees von Esenbeck ex Kützing) Kützing	Brand 1902
<i>Cladophora sauteri</i> var. <i>borgeana</i> Brand, 1902	van den Hoek 1963*
<i>Cladophora sauteri</i> var. <i>daldinii</i> (Cesati & De Notaris ex Bertolini) Rabenhorst, 1868	Brand, 1902
<i>Cladophora sauteri</i> f. <i>sauteri</i> Sakai, 1964	Sakai 1964
<i>Cladophora sauteri</i> [var. <i>sauteri</i> ] f. <i>kurilensis</i> (Nagai) Sakai, 1964	Sakai 1964
<i>Cladophora sauteri</i> [var. <i>sauteri</i> ] f. <i>kanoi</i> (Tokida) Sakai, 1964	Sakai 1964
<i>Cladophora sauteri</i> f. <i>profunda</i> (Brand) Heering, 1921	Kanda 1982
<i>Cladophora sauteri</i> [var. <i>sauteri</i> ] f. <i>toroensis</i> Kanda, 1982	Kanda 1982
<b>Conferva</b>	
<i>Conferva aegagropila</i> L., 1753	van den Hoek 1963*
<i>Conferva aegagropila</i> var. <i>adnata</i> C. Agardh, 1824	van den Hoek 1963*
<i>Conferva brownii</i> Dillwyn, 1809	van den Hoek 1963*
<i>Conferva coactilis</i> Sauter ex Nees von Esenbeck, 1824 (non <i>Conferva coactilis</i> Mertens ex Jürgens)	van den Hoek 1963*
<i>Conferva froelichiana</i> (Kützing) Rabenhorst, 1847	van den Hoek 1963*
<i>Conferva pusilla</i> Rabenhorst, 1847 (non <i>Conferva pusilla</i> Bory de St Vincent; non <i>C. pusilla</i> Lyngbye)	van den Hoek 1963*
<i>Conferva sauteri</i> Nees van Esenbeck ex Kützing, 1843	Zahlbruckner 1901
<i>Conferva sauteri</i> f. <i>suecica</i> Areschoug, 1862	van den Hoek 1963*
<b>Oscillatoria</b>	
<i>Oscillatoria aegagropila</i> (L.) Corda, 1836	van den Hoek 1963*

\* synonymity already proposed in this publication

**Appendix S1 (continued).** Synonyms of *Aegagropila linnaei*, invalid names, and a list of described *Aegagropila* species not referring to *Aegagropila linnaei*.

Illegitimate, unpublished, and otherwise invalid synonyms of <i>A. linnaei</i>	reference	comments
<i>Aegagropila froelichii</i>	van den Hoek 1963*	unpublished name
<i>Aegagropila lagerheimii</i> Kanno (non Nordstedt), 1934	Sakai 1964, Niiyama 1989*	illegitimate
<i>Aegagropila lagerheimii</i> Nordstedt	Sakai, 1964	probably from exsiccatae
<i>Aegagropila sauteri</i> var. <i>borgeana</i> Kanno (non Nordstedt), 1934	Sakai 1964, Niiyama 1989*	illegitimate
<i>Cladophora Aegagropila lauenburgensis</i> Kützing (in litt.)	van den Hoek 1963*	unpublished
<i>Cladophora aegagropila</i> f. <i>brownii</i>	van den Hoek 1963*	inedit.
<i>Cladophora aegagropila</i> f. <i>linnaei</i>	van den Hoek 1963*	inedit.
<i>Cladophora coactilis</i> (Sauter) Nees von Esenbeck, 1824	Zahlbruckner 1901	illegitimate
<i>Cladophora holsatica</i> f. <i>adnata</i> Wittrock et Nordstedt (exsicc. 212)	Brand 1902	nomen nudum
<i>Cladophora holsatica</i> f. <i>fluitans</i> Wittrock et Nordstedt (exsicc. 35)	Brand 1902	nomen nudum
<i>Cladophora mansfeldensis</i> Kützing (in litt.)	van den Hoek 1963*	unpublished
<i>Cladophora minima</i> (Okada) Sakai, 1964	Sakai 1964, Niiyama 1989*	illegitimate
<i>Cladophora minima</i> f. <i>minima</i> Sakai	Sakai 1964	illegitimate
<i>Cladophora minima</i> f. <i>crassa</i> Sakai	Sakai 1964	illegitimate
<i>Cladophora minima</i> [var. <i>minima</i> ] f. <i>minima</i> Sakai	Niiyama 1989*	illegitimate
<i>Cladophora minima</i> [var. <i>minima</i> ] f. <i>crassa</i> Sakai	Niiyama 1989*	illegitimate
<i>Cladophora muscoides</i> Hansgirg	Brand 1902	inedit.
<i>Cladophora valderamosa</i> Kützing (in litt.)	van den Hoek 1963*	unpublished
<i>Conferva gigantea</i> Sauter	van den Hoek 1963*	unpublished
<i>Conferva verbania</i> Martens	van den Hoek 1963*	unpublished

\* synonymy already proposed in this publication

**Appendix S1 (continued).** Synonyms of *Aegagropila linnaei*, invalid names, and a list of described *Aegagropila* species not referring to *Aegagropila linnaei*.

<i>Aegagropila</i> species not referring to <i>Aegagropila linnaei</i>	
(Index Nominum Algarum and other sources)	current name
<i>Aegagropila agardhii</i> Kützing, 1843	<i>Cladophora fracta</i> (O.F. Müller ex Vahl) Kützing, 1843
<i>Cladophora (Aegagropila) amphibia</i> Collins, 1907	<i>Cladophora amphibia</i> Collins, 1907
<i>Aegagropila biasolettiana</i> Kützing, 1845	<i>Cladophora vadorum</i> (J.E. Areschoug) Kützing, 1849
<i>Aegagropila biformis</i> Wittrock, 1878	<i>Cladophora rupestris</i> (Linnaeus) Kützing, 1843
<i>Aegagropila breviarticulata</i> Reinbold, 1905	<i>Cladophora</i> cf. <i>coelothrix</i> Kützing, 1843
<i>Aegagropila coelothrix</i> (Kützing) Kützing, 1854	<i>Cladophora coelothrix</i> Kützing, 1843
<i>Aegagropila compacta</i> Meyer, 1926	<i>Cladophora compacta</i> (Meyer) Skabichevsky, 1976
<i>Aegagropila composita</i> (Harvey) Kützing, 1854	<i>Boodlea composita</i> (Harvey) Brand, 1904
<i>Aegagropila conglobata</i> (Kützing) Kützing, 1854	<i>Cladophora dalmatica</i> Kützing, 1843
<i>Aegagropila cornea</i> Kützing, 1843	<i>Cladophora echinus</i> (Biasoletto) Kützing, 1849

- Aegagropila cornea* f. *verticillata* Kützing, 1845
- Aegagropila cornuta* (Brand) Heering, 1921
- Aegagropila corynarthra* (Kützing) Kützing, 1854
- Aegagropila echinus* (Biasoletti) Kützing, 1845
- Cladophora* (*Aegagropila*) *elegans* Möbius, 1883
- Aegagropila enormis* (Montagne) Kützing, 1854
- Aegagropila flaccida* (Kützing) Kützing, 1854
- Aegagropila forskalii* (Kützing) Kützing, 1845
- Aegagropila fuliginosa* (Kützing) Kützing, 1854
- Aegagropila globulus* Meyer, 1927
- Aegagropila herpestica* (Montagne) Kützing, 1854
- Aegagropila javanica* Kützing, 1847 (in litt.)
- Aegagropila leprieurii* (Kützing) Kützing, 1854
- Aegagropila membranacea* (C. Agardh) Kützing, 1854
- Aegagropila meneghiniana* Kützing, 1845
- Aegagropila modonensis* (Kützing) Kützing, 1854
- Aegagropila montagneana* (Kützing) Kützing, 1854
- Aegagropila montagnei* Kützing var. *waianaeana* Brand, 1904
- Aegagropila patentiramea* (Montagne) Kützing, 1854
- Aegagropila pulvinata* Meyer, 1926
- Aegagropila pusilla* Suhr (in litt.)
- Aegagropila pygmaea* Meyer, 1927
- Aegagropila repens* (J. Agardh) Kützing, 1854
- Aegagropila repens meneghiniana* (see van den Hoek, 1963)
- Aegagropila repens* var. *gaditana* Bornet (in litt.)
- Aegagropila repens* f. *antarctica* Gain, 1912
- Aegagropila rudolphiana* (Agardh) Kützing, 1845
- Cladophora* (*Aegagropila*) *senta* Brand, 1904
- Aegagropila sibogae* Reinbold, 1905
- Aegagropila simplex* Lenormand ms. (not published)
- Aegagropila socialis* (Kützing) Kützing, 1854
- Cladophora* (*Aegagropila*) *socialis* Kützing var. *hawaiiiana* Brand, 1904
- Cladophora* (*Aegagropila*) *socialis* Kützing var. *sandwicensis* Brand, 1904
- Aegagropila subtilis* Kützing, 1854
- Cladophora* (*Aegagropila*) *subtilis* Kützing var. *oahuana* Brand, 1904
- Aegagropila trichotoma* (C. Agardh) Kützing, 1854
- Aegagropila zollingeri* (Kützing) Kützing, 1854
- Cladophora echinus* (Biasoletti) Kützing, 1849
- Cladophora cornuta* Brand, 1895
- Cladophora vadorum* (J.E. Areschoug) Kützing, 1849
- Cladophora echinus* (Biasoletti) Kützing, 1849
- cf. *Cladophora vagabunda* (Linnaeus) Hoek, 1963
- Bryopsis?* (Chile), Canary Islands: *Cladophora lehmanniana* (Lindenberg) Kützing, 1843
- Cladophora vagabunda* (Linnaeus) van den Hoek, 1963
- Siphonocladus forsskalii* (Kützing) Bornet ex De Toni 1889
- Cladophora catenata* (Linnaeus) Kützing, 1843
- Cladophora globulus* (Meyer) Skabichevsky, 1976
- Cladophora herpestica* (Montagne) Kützing, 1849
- Cladophora herpestica* (Montagne) Kützing, 1849
- not *A. linnaei* (see Brand, 1902)
- Cladophoropsis membranacea* (Hofman Bang ex C. Agardh) Børgesen, 1905
- Cladophora laetevirens* (Dillwyn) Kützing, 1843
- Cladophora coelothrix* Kützing, 1843
- Cladophora catenata* (Linnaeus) Kützing, 1843
- Cladophora catenata* (Linnaeus) Kützing, 1843 or *Cladophora luxurians* Abbott & Huisman, 2003
- Cladophora coelothrix* Kützing, 1843
- Cladophora pulvinata* (Meyer) Skabichevsky, 1976
- INA: published as *Conferva pusilla* Rabenhorst, 1847
- Cladophora kursanovii* (Meyer) Skabichevsky, 1976
- Cladophora coelothrix* Kützing, 1843
- Cladophora socialis* Kützing, 1849
- Cladophora socialis* Kützing, 1849
- Aegagropila repens* f. *antarctica* Gain, 1912 (marine, unknown affinity)
- Cladophora sericea* (Hudson) Kützing, 1843
- ? - tropical marine species
- Cladophora coelothrix* Kützing, 1843
- INA: pro syn. *Cladophora repens* J. Agardh, 1849 (Harvey phyc. Brit. 2: pl. CCXXXVI)
- Cladophora socialis* Kützing, 1849
- cf. *Cladophora socialis* Kützing, 1849
- cf. *Cladophora socialis* Kützing, 1849
- Cladophora dalmatica* Kützing, 1843
- ? - tropical marine species (*Cladophora socialis* Kützing, 1849?)
- Cladophora pellucida* (Hudson) Kützing, 1843
- Cladophora herpestica* (Montagne) Kützing, 1849

refused synonyms	comments
<i>Cladophora aegagopila</i> var. <i>thermalis</i> Wolle, 1885	description suggests different affinity ( <i>Cladophora</i> sp.)
<i>Cladophora sterrocladia</i> Skuja, 1949	synonymity had been proposed by Liu Guoxiang, 1999
<i>Cladophora yuennanensis</i> Skuja, 1937	synonymity had been proposed by van den Hoek, 1963
<i>Cladophora shensiensis</i> Jao, 1948	synonymity had been proposed by Liu Guoxiang, 1999
<i>Cladophora glomerata</i> var. <i>nana</i> Wang, 1935	synonymity had been proposed by Liu Guoxiang, 1999
<i>Cladophora parvula</i> Möbius, 1895	synonymity had been considered by Skinner & Entwisle, 2004
<i>Cladophora dusenii</i> Brand, 1902	possible synonymity had been discussed by Brand, 1902

INA = Index Nominum Algorum ([www.ucjeps.berkeley.edu/INA.html](http://www.ucjeps.berkeley.edu/INA.html))

**Appendix S2** List of herbaria contacted in this study, including all inspected collections of *Aegagropila linnaei*

No.	Institution <i>Aegagropila linnaei</i> collections checked	Acronym <sup>a</sup>
1	Botanischer Garten und Botanisches Museum Berlin-Dahlem, Germany	B
2	Ulster Museum, Belfast, Northern Ireland	BEL
3	The Natural History Museum, London, United Kingdom	BM
4	Hungarian Natural History Museum, Budapest, Hungary	BP
5	National Botanic Garden of Belgium, Meise, Belgium	BR
6	Masaryk University, Brno, Czech Republic	BRNU
7	University of Copenhagen, Copenhagen, Denmark	C
8	Canadian Museum of Nature, Ottawa, Canada	CANA
9	Kharkov State University, Kharkov, Ukraine	CWB
10	National Botanic Gardens, Glasnevin, Dublin, Ireland	DBN
11	Field Museum of Natural History, Chicago, USA	F
12	Museo di Storia Naturale dell'Università, Florence, Italy	FI
13	Institute of Hydrobiology, Wuhan, China (re-identified as <i>Cladophora sterrocladia</i> )	HBI
14	National Academy of Sciences of Ukraine, Kiev, Ukraine	KW
15	Nationaal Herbarium Nederland, Leiden, The Netherlands	L
16	Botanical Museum, Lund, Sweden	LD
17	V. L. Komarov Botanical Institute, St. Petersburg, Russia	LE
18	Botanische Staatssammlung München, Munich, Germany	M
19	New York Botanical Garden, New York, USA	NY
20	Botanical Museum, Natural History Museum, Oslo, Norway	O
21	Botanical Museum, University of Oulu, Finland	OULU
22	Muséum National d'Histoire Naturelle, Paris, France	PC
23	Université Laval, Quebec, Canada	QFA
24	Swedish Museum of Natural History, Stockholm, Sweden	S
25	Hokkaido University, Sapporo, Japan	SAP
26	Trinity College, Dublin, Ireland	TCD
27	University of British Columbia, Vancouver, Canada	UBC
28	Natural History Museum, Vienna, Austria	W
<b>no <i>Aegagropila linnaei</i> specimens</b>		
29	Universität Zürich, Zurich, Switzerland	Z
30	University of Alberta, Edmonton, Canada	ALTA
31	Hugo de Vries-Laboratory, University of Amsterdam, Amsterdam, The Netherlands	AMD
32	Chingan State Nature Reserve, Archara, Russia	ARKH
33	Dalhousie University, Halifax, Canada	DAL
34	Xishuangbanna Tropical Botanical Garden, Academia Sinica, China	HITBC
35	Irkutsk State University, Irkutsk, Russia	IRKU
36	Polish Academy of Sciences, Kraków, Poland	KRAM
37	Lódz University, Lódz, Poland	LOD
38	Main Botanical Garden, Moscow, Russia	MHA
39	I. I. Mecynikov State University of Odessa, Odessa, Ukraine	MSUD
40	Provincial Museum of Newfoundland and Labrador, St. John's, Canada	NFM
41	Nova Scotia Museum of Natural History, Halifax, Canada	NSPM
42	Royal Botanic Gardens, Sydney, Australia	NSW



43	Royal Alberta Museum, Edmonton, Canada	PMAE
44	National Museum, Prague, Czech Republic	PR
45	Charles University, Prague, Czech Republic	PRC
46	Queen's University, Kingston, Canada	QK
47	Singapore Botanic Gardens, Singapore	SING
48	University of New Brunswick, Fredericton, Canada	UNB
49	Herbarium of the Urals Pedagogical University, Ekaterinburg, Russia	URP*
50	University of Toronto Culture Collection, Toronto, Canada	UTTC
51	Warsaw University, Warsaw, Poland	WA
52	Omsk State Pedagogical University, Omsk, Russia*	
53	Herbarium of the Zeya Nature Reserve, Zeya, Russia*	
<b>no algal collections</b>		
54	South China Botanical Garden, Guangzhou, China	IBSC
55	Royal Botanic Gardens, Kew, United Kingdom	K
56	Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, China	KUN
57	Lakeland College, Vermillion	LCVA
58	University of Calgary, Calgary, Canada	UAC
59	Devonian Botanic Garden, University of Alberta, Edmonton, Canada	UAMH
60	Gdansk University, Gdansk, Poland	UGDA
<b>no answer</b>		
61	Altai State University, Barnaul, Russia	ALTB
62	Chelyabinsk State Pedagogical University, Chelyabinsk, Russia	CHPU
63	Far Eastern University, Vladivostok, Russia	FENU*
64	Siberian Institute of Plant Physiology and Biochemistry, Irkutsk, Russia	IRK
65	Krasnoyarsk State Pedagogical University, Krasnoyarsk, Russia	KRAS
66	Real Jardín Botánico, Madrid, Spain	MA
67	University of Massachusetts, Amherst, USA	MASS
68	National Academy of Sciences of Belarus, Minsk, Belarus	MSK
69	Belarusian State University, Minsk, Belarus	MSKU
70	Moscow State University, Moscow, Russia	MW
71	Memorial University of Newfoundland, St. John's, Canada	NFLD
72	Siberian Central Botanical Garden, Novosibirsk, Russia	NS
73	Institute of Plant and Animal Ecology, Ekaterinburg, Russia	SVER
74	Royal Ontario Museum, Toronto, Canada	TRT
75	Institute of Biology and Soil Science, Far Eastern Branch, Vladivostok, Russia	VLA
76	Museum of Natural History, Wroclaw, Poland	WRSL
77	Yakutsk State University, Yakutsk, Russia*	
78	Urals State University, Ekaterinburg, Russia*	

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\*Index Herbariorum: Holmgren *et al.*, 1990

\*Index Herbariorum Rossicum: [www.binran.ru/projects/herbaria](http://www.binran.ru/projects/herbaria)



**Appendix S3.** List of all known locations of *Aegagropila linnaei*, with a list of locations that were excluded because of doubt-verified). ITS genotypes are given (A-E), and brackish locations are indicated.

no.	COUNTRY	LOCATION	LAT	LONG	HERB	
1	Albania/ Macedonia	Lake Ohrid	41.048	20.715	X	
2	Austria	Almsee, near Grünau	47.753	13.957		
3	Austria	Altaussee See, Steiermark	47.640	13.785	X	
4	Austria	Erlaufsee, near Mariazell	47.792	15.275		
5	Austria	Klagenfurt	46.625	14.307	X	
6	Austria	Lake Zeller, Pinzgau	47.326	12.806	X	
7	Belarus	Lake Naroch, Myadzyel district	54.850	26.776		
8	Belarus	Lake, Lahoyk district	54.519487	28.433		
9	Canada	Lake Doré, Ontario	45.618	-77.108		
10	Canada	Lake Ontario	43.771	-78.036	X	
11	Czech Republic	Kaplice (as Kaplitz), Okres Český Krumlov	48.741	14.488	X	
12	Czech Republic	river Oslava	49.283	16.067		
13	Denmark	Furesøen	55.801	12.419	X	
14	Denmark	Sorø sø	55.426	11.548	X	
15	England	Heigham Sound, Norfolk	52.727	1.606	X	
16	England	Hickling Broad, Norfolk	52.739	1.580		
17	England	Holywell, west of Eastbourne	50.747	0.258	X	
18	England	Land's End, Cornwall coast	50.067	-5.700	X	
19	England	Malham Tarn, Yorkshire	54.097	-2.167		
20	England	Mousehole cave, Cornwall	50.133	-5.550	X	
21	England	River Swale	54.298	-1.507		
22	England	River Tees	54.527	-1.857		
23	England	River Tyne	54.980	-2.099		
24	England	River Wear	54.719	-1.853		
25	England	Spittal, Northumberland	55.760	-1.995	X	
26	England	The Fleet, Dorset	50.616	-2.518		
27	England	Walling Fen Moor, west of Hull	53.717	-0.548		
28	England	Whitemere, Shropshire	52.890	-2.872	X	
29	Estonia	Lake Öisu	58.209	25.513	X	
30	Estonia	Lake Ülemiste, near Tallinn	59.400	24.767		
31	Estonia	Lake Valgjärv	58.090	26.638	X	
32	Estonia	Pärnu river	58.492	24.833	X	
33	Faeroe Islands	Sandsvatn, Sondoy	61.852	-6.814	X	
34	Faeroe Islands	Vaag (Vágur), Suðuroy	61.469	-6.833		
35	Finland	Brahestad (Raahe), Bay of Bothnia	64.687	24.472		
36	Finland	Houtskari, Archipelago Sea	60.217	21.383	X	

ful species identification. "HERB" indicates morphologically verified specimens, "LIT" indicates literature data (not

LIT	ITS type	brack?	REFERENCES
X			Brand 1902, Pankow 1965
X			Brand 1902, Pankow 1965
			Brand 1902, Pankow 1965
	C		Pankow 1965, van den Hoek 1963
X			MINIPRIRODA 2006
X			MINIPRIRODA 2006
X			Kindle 1934
			Kindle 1915
X			Gardavský 1986
			van den Hoek 1963
			Wesenberg-Lund 1903, van den Hoek 1963
		X	
X		X	West & Fritsch 1927
X			Lund 1961, van den Hoek 1963, Pentecost 1999
			van den Hoek 1963
X			Holmes & Whitton 1977
X			Holmes & Whitton 1981a
X			Holmes & Whitton 1981b
X			Whitton <i>et al.</i> 1998
		X	van den Hoek 1963
X		X	Burrows 1991
X		X	West & West 1901
			van den Hoek 1963
	C		Einarsson <i>et al.</i> 2004
X			Trei & Pedusaar 2006
	C		
	C		Mölder 1944, van den Hoek 1963
			Brand 1902, van den Hoek 1963
X			van den Hoek 1963
X		X	Waern 1952, van den Hoek 1963
		X	

no.	COUNTRY	LOCATION	LAT	LONG	HERB
37	Finland	Loviisa (Lovisa), Gulf of Finland	60.450	26.233	
38	Finland	near Solf (Sulva), Vaasa (as Glofjärden in Solv near Wasa), Gulf of Bothnia	63.047	21.600	
39	Finland	Northern Quark, Gulf of Bothnia	63.105	21.116	X
40	Finland	Nyland, Tenala	60.057	23.295	X
41	Finland	Parainen, Gulf of Bothnia	60.305	22.305	X
42	Finland	Pojo Bay, Gulf of Finland	60.052	26.987	X
43	Finland	Pori (Björneborg), Gulf of Bothnia	61.483	21.783	
44	Finland	Porvoo (Borgå), Gulf of Finland	60.377	25.664	
45	Finland	Ritgrund, near Vaasa, Gulf of Bothnia	63.427	21.509	X
46	Finland	Saltvik, Gulf of Bothnia	60.279	20.036	X
47	Finland	Uusikaupunki- (Nystad-) archipelago	60.800	21.417	
48	Finland	Kaskhusfjärden, Kruunupyy, gulf of Bothnia	63.776	22.981	X
49	France	Brest, Bretagne	48.390	-4.444	X
50	France	Lac Bleu, Bagnères-de-Bigorre, Hautes-Pyrénées	42.937	0.079	X
51	France	river Moine, Clisson	47.095	-1.285	X
52	France	river Seine, Paris	48.854	2.284	X
53	Georgia	Lake Tabatskuri (Tabiščur)	41.650	43.617	X
54	Germany	Ammersee, near München	48.031	11.120	X
55	Germany	Bülteer, Schleswig-Holstein	54.500	9.754	X
56	Germany	Diecksee, Schleswig-Holstein	54.166	10.503	
57	Germany	Dobbertiner See, Mecklenburg-Vorpommern	53.615	12.084	X
58	Germany	Dreetz See, Feldberg, Mecklenburg-Vorpommern	53.289	13.434	
59	Germany	Galenbecker See, Mecklenburg-Vorpommern	53.633	13.719	
60	Germany	Großensee, Trittau	53.626	10.351	X
61	Germany	Grosser Dreisee, Uckermark	53.222	13.352	X
62	Germany	Grosser Plöner See, Schleswig-Holstein	54.140	10.417	
63	Germany	Jakobsdorfer See, Uckermark	53.132	13.892	X
64	Germany	Kellersee, Schleswig-Holstein	54.173	10.599	
65	Germany	Kleiner Lankesee, Brandenburg	52.910	13.225	X
66	Germany	Krakower See, Mecklenburg-Vorpommern	53.664	12.292	
67	Germany	Krummsee, Schleswig-Holstein	54.194	10.603	
68	Germany	Lake Constance (as Bodensee)	47.630	9.380	
69	Germany	Lake Müritz, Mecklenburg-Vorpommern	53.435	12.678	X
70	Germany	Mechower See, near Ratzeburg	53.717	10.826	X

LIT	ITS type	brack?	REFERENCES
X		X	Waern 1952, van den Hoek 1963
X		X	Waern 1952
		X	Bergström & Bergström 1999
		X	
		X	
	L68: C, L69: A	X	Luther 1951, Waern 1952
X		X	Waern 1952, van den Hoek 1963
X		X	Waern 1952, van den Hoek 1963
		X	van den Hoek 1963
		X	
X		X	Waern 1952, van den Hoek 1963
		X	
			van den Hoek 1963
			van den Hoek 1963
			van den Hoek 1963
			Brand 1902, van den Hoek 1963
			Brand 1902
			Jöns 1934
X			Kann 1940, van den Hoek 1963
			Pankow & Bolbrinker 1984
X			Pankow & Bolbrinker 1984
X			Pankow 1965, Pankow & Bolbrinker 1984
			van den Hoek 1963
			Bolbrinker 2000
X			Kann 1940, Waern, 1952, van den Hoek 1963
X			Kann, 1940, van den Hoek 1963
	E		
X			Pankow & Bolbrinker 1984
X			Brand 1902, Kann 1945
X			van den Hoek 1963
			van den Hoek 1963, Pankow & Bolbrinker 1984
			van den Hoek 1963, Pankow 1965

no.	COUNTRY	LOCATION	LAT	LONG	HERB	
71	Germany	Müggelsee, Berlin	52.437	13.649	X	
72	Germany	Neuklostersee, Mecklenburg-Vorpommern	53.852	11.702	X	
73	Germany	Salziger See (Mansfelder Seen), near Halle	51.483	11.658	X	
74	Germany	Sankelmarker See, Flensburg	54.713	9.427	X	
75	Germany	Schleswig, Schleswig-Holstein	54.517	9.567	X	
76	Germany	Schweriner See, Mecklenburg-Vorpommern	53.660	11.465		
77	Germany	Starnberger See (as Würmsee), near München	48.000	11.350	X	
78	Germany	Stechlinsee, Brandenburg	53.154	13.031		
79	Germany	Stienitzsee, Berlin	52.508	13.828	X	
80	Germany	Teterower See, Mecklenburg-Vorpommern	53.794	12.611	X	
81	Germany	Tiefwareensee, near Waren, Mecklenburg-Vorpommern	53.526	12.691	X	
82	Germany	Tollensesee, Uckermark	53.526	13.225		
83	Germany	Unteruckersee, Prenzlau	53.284	13.861	X	
84	Germany	Wandlitzsee, Brandenburg	52.761	13.455		
85	Germany	Warnemünde, Baltic Sea	54.167	12.083	X	
86	Germany	Zansen, Feldberg, Mecklenburg-Vorpommern	53.330	13.477		
87	Hungary	Fényes spring, Tata	47.646	18.327		
88	Iceland	Laugabólsvatn	65.939	-22.681		
89	Iceland	Miklavatn	65.965	-17.603		
90	Iceland	Vestmannsvatn	65.795	-17.416		
91	Iceland	Másvatn	65.637	-17.239		
92	Iceland	Kringluvatn	65.765	-17.228		
93	Iceland	Vikingavatn	66.107	-16.826		
94	Iceland	Snjóölduvötn	65.399	-14.348		
95	Iceland	Lake Myvatn	65.600	-17.000	X	
96	Iceland	Lake Thingvallavatn	64.168	-21.127		
97	Iceland	Myrasysla, Alftanes	64.467	-22.150	X	
98	Ireland	Loch an tSaile, near Screebe, Co. Galway	53.385	-9.555		
99	Ireland	Loch Raha, Co. Clare, Corofin	53.433	-8.850		
100	Ireland	Lough Ballycullinan, Co. Clare	52.919	-9.056		
101	Ireland	Lough Gill, near Sligo, Co. Sligo	54.253	-8.384	X	
102	Ireland	River Unshin, Lough Arrow, Co. Sligo	54.068	-8.332		
103	Ireland	Wicklow, Co. Wicklow	52.993	-6.053	X	
104	Italy	Lake Como, Lombardy	45.871	9.144	X	
105	Italy	Lake near Baselga di Piné, Tirol	46.115	11.226	X	

LIT	ITS type	brack?	REFERENCES
			Umweltministerium Mecklenburg-Vorpommern 2004
		X	van den Hoek 1963
			van den Hoek 1963
X			Brand 1906, Pankow & Bolbrinker 1984
			Brand 1902, van den Hoek 1963
X			
			van den Hoek 1963, Pankow 1965
			Pankow & Bolbrinker 1984
	C		
X			Pankow & Bolbrinker 1984
X			Pankow 1965
		X	Rabenhorst 1847, van den Hoek 1963
X			Pankow & Bolbrinker 1984
X			Palik 1963
X			p.c. Á. Einarsson
X			p.c. Á. Einarsson
X			p.c. Á. Einarsson
X			p.c. Á. Einarsson
X			p.c. Á. Einarsson
X			p.c. Á. Einarsson
X			Hallgrímsson 2002
	A		Einarsson <i>et al.</i> 2004
X			Jónsson 1992
X		X	Roden 1998
X			
X			van den Hoek 1963
X			John <i>et al.</i> 2002
			Burrows 1991
			Brand 1902, Pankow 1965



no.	COUNTRY	LOCATION	LAT	LONG	HERB	
106	Italy	Lake Varese, Lombardy	45.811	8.736		
107	Italy	Mantua lakes (Mantova)	45.150	10.800		
108	Italy	Trieste	45.649	13.780	X	
109	Japan	Kamoi swamp, Pref. Hokkaido	45.310	142.185		
110	Japan	Kamuito swamp, Pref. Hokkaido	45.310	142.185		
111	Japan	Kimoma swamp, Pref. Hokkaido	45.310	142.185		
112	Japan	Lake Akan, Pref. Kushiro	43.451	144.099	X	
113	Japan	Lake Biwa, Pref. Shiga	35.250	136.083	X	
114	Japan	Lake Chimikeppu	43.633	143.883	X	
115	Japan	Lake Kawaguchi, Pref. Yamanashi	35.517	138.750	X	
116	Japan	Lake Ogawara, Pref. Aomori	40.783	141.333	X	
117	Japan	Lake Panke, Pref. Hokkaido	45.031	141.722	X	
118	Japan	Lake Saiko, Pref. Yamanashi	35.498	138.685	X	
119	Japan	Lake Shirarutoro, Pref. Hokkaido	43.179	144.500	X	
120	Japan	Lake Toro, Pref. Hokkaido	43.144	144.540	X	
121	Japan	Lake Yamanaka, Pref. Yamanashi	35.417	138.867	X	
122	Japan	Naebo-numa, Etorofu (Iturup) Island, Kuriles	45.031	147.714	X	
123	Japan	Pon swamp, Pref. Hokkaido	45.310	142.185		
124	Japan	Pond Ane	40.936	141.347	X	
125	Japan	Pond Ichiyangi	40.936	141.347	X	
126	Japan	Pond Sakyo	41.257	141.398	X	
127	Japan	Pond Takkobu/Takkobu marsh, Pref. Hokkaido	43.100	144.483	X	
128	Japan	Pond Tamogi	40.936	141.347	X	
129	Japan	Pond Uchi	40.936	141.347	X	
130	Kazakhstan	Lake Markha-Kul' (Markakol)	48.750	85.750		
131	Latvia	Babites Ezers, near Riga	56.925	23.758		
132	Latvia	Lake Aluksnes	57.447	27.079		
133	Latvia	Lake Kisezers, near Riga	57.017	24.184		
134	Latvia	Lake Limbažu	57.484	24.701		
135	Latvia	Lake Usmas	57.205	22.177	X	
136	Netherlands	Beulaker Wijde	52.704	6.054		
137	Netherlands	Boven Wijde	52.724	6.103	X	
138	Netherlands	Duinigermeer	52.722	6.002		
139	Netherlands	Molengat	52.745	6.089	X	
140	Netherlands	Naardermeer	52.297	5.125	X	
141	Netherlands	Wijde blik, Loosdrechtse Plassen	52.227	5.055	X	
142	Netherlands	Zuideindiger Wijde	52.702	6.081	X	
143	Netherlands	Zwarte Broek	53.251	5.943	X	

LIT	ITS type	brack?	REFERENCES
X			
X			van den Hoek 1963
			no data
X			Wakana <i>et al.</i> 2001b
X			Wakana <i>et al.</i> 2001b
X			Wakana <i>et al.</i> 2001b
	A & B		Kurogi 1980, Niiyama 1989
	D		Soejima <i>et al.</i> 2008
	B		Wakana <i>et al.</i> 2003
	A		Kurogi 1980, Sakai 1980
	A		Soejima <i>et al.</i> 2008
	B		Wakana <i>et al.</i> 2001a
	A		Soejima <i>et al.</i> 2008
	B		Sakai 1964, Kanda 1979, Niiyama 1989
	B		Kanno 1934, Kanda 1982, Niiyama 1989
	A		Sakai 1964, Niiyama 1989
			Sakai 1964, Niiyama 1989
X			Wakana <i>et al.</i> 2001b
	A		Wakana <i>et al.</i> 2001a
	A		Wakana <i>et al.</i> 2001a
	A		Niiyama 1989
	A		Wakana <i>et al.</i> 2005
	A		Wakana <i>et al.</i> 2001a
	A		Wakana <i>et al.</i> 2001a
X			Ergashev & Taubaev 1967
X			Skuja 1928
X			Skuja 1927
X			Skuja 1928
X			Skuja 1928
			Skuja 1927
X			Koster 1959
	E		Boedeker & Immers 2009
X			Segal & Groenhart 1967
			Koster 1959, van den Hoek 1963
			Koster 1959
			Koster 1959
			Segal & Groenhart 1967
			Kops <i>et al.</i> 1911, Koster 1959

no.	COUNTRY	LOCATION	LAT	LONG	HERB	
144	Northern Ireland	small lake west of Clones	54.148	-7.405		
145	Norway	Semsvand, Akershus	59.858	10.422		
146	Norway	river Akerselven	59.957	10.766	X	
147	Poland	Gulf of Puck (Zatoka Pucka), Baltic Sea	54.721	18.445		
148	Poland	Jantar, Baltic Sea	54.347	19.070		
149	Poland	Kościerzyna (as Berent), Pomorze Wschodnie	54.123	17.977	X	
150	Poland	Lake Miedwie (as Madüsee), near Szczecin	53.264	14.882	X	
151	Poland	Lake Tatarak (as Pansdorfer See), near Legnica (as Liegnitz)	51.221	16.311	X	
152	Poland	Lake Wierzbnickie (as Soldiner See), near Myślubórz	52.917	14.867		
153	Poland	Rewa, Baltic Sea	54.633	18.500		
154	Poland	Sopot, Baltic Sea	54.444	18.583		
155	Romania	Lake Techirghiol, near Constanta, Black Sea	44.048	28.627	X	
156	Russia	Bol'shoy Berezovyy [Ber'ozovyy ostrov (Björkö)], Gulf of Finland	60.317	28.582		
157	Russia	coast of St. Petersburg (as Leningrad)	59.965	30.221		
158	Russia	Hogland (Suursaari), Gulf of Finland	60.480	26.980		
159	Russia	Lake Arakhlei, Transbaikalia	52.200	112.867		
160	Russia	Lake Cheremenetskoye (Čermeneckoje), Leningrad oblast	58.616	29.967		
161	Russia	Lake Lino, Novgorod oblast	58.450	33.750		
162	Russia	Lake near Noginsk (as Bogorodsk), Moscow oblast	55.881	38.489		
163	Russia	Lake Poimo, Taldom (as Leninsk), Moscow oblast - cf. Dubna wetlands	56.729	37.535		
164	Russia	Lake Sabolotje (Zabolot'ye), Tver oblast	57.033	32.105		
165	Russia	Lake Sabolotskoje (Zabolockoje), Moscow/Vladimir oblast - cf. Dubna wetlands	56.757	37.142		
166	Russia	Lake Valdaj (Valdajskoye), Novgorod oblast	57.976	33.291	X	
167	Russia	near Vladimir city, Vladimir oblast	56.129	40.410	X	
168	Russia	near Yaroslavl city, Yaroslavl oblast	57.631	39.864	X	
169	Russia	Sestrorezk (Systerbäck), Gulf of Finland	60.081	29.960		
170	Russia	Toba marsh, Sakhalin	46.744	143.190	X	
171	Russia	Vyborgskij zaliv (Gulf of Vyborg), Gulf of Finland	60.715	28.699		
172	Russia	Caspian Sea	45.120	49.219		
173	Russia	Vashutkiny Lakes, Nenetsia	68.026	61.526		
174	Russia	Kamchatka peninsula	52.613	157.668		

LIT	ITS type	brack?	REFERENCES
X			van den Hoek 1963
X			Wille 1901
X		X	Waern 1952, van den Hoek 1963
X		X	Pliński & Józwiak 2004
			Pankow 1965
X			Pankow 1965
X		X	Pliński & Józwiak 2004
X		X	Pliński & Józwiak 2004
		X	
X		X	Waern 1952, van den Hoek 1963
X		X	Waern 1952, Pankow 1965
X		X	van den Hoek 1963
X			Matafonov <i>et al.</i> 2005
X			van den Hoek 1963
X			van den Hoek 1963
X			Pankow 1965
X			Pankow 1965
X			Brand 1902
X			van den Hoek 1963, Pankow 1965
			van den Hoek 1963
X		X	Waern 1952
	B		Tokida 1954
X		X	Waern 1952, van den Hoek 1963
X		X	Getzen 1967, Caspian Sea Biodiversity Project
X			Getzen 1967
X			Getzen 1967

no.	COUNTRY	LOCATION	LAT	LONG	HERB	
175	Russia	Magnitogorsk area, Chelyabinsk oblast	53.579	59.189		
176	Russia	near Perm, Perm Krai	57.569	55.602		
177	Russia	near Krasnyy Yar (not Krasnoyarsk), Tomsk oblast	57.100	84.488		
178	Scotland	Appin, Argyll	56.563	-5.353		
179	Scotland	Loch Kildona, Outer Hebrides	57.223	-7.407		
180	Scotland	Loch Leodosay, Outer Hebrides	57.546	-7.334		
181	Scotland	Loch of Harray, Orkney Islands	59.014	-3.226	X	
182	Scotland	Loch of Stenness, Orkney Islands	58.995	-3.248		
183	Scotland	Loch Watten, Caithness	58.486	-3.315	X	
184	Scotland	Oban nam Fiadh, Outer Hebrides	57.545	-7.273		
185	Scotland	River Tweed	55.595	-2.481	X	
186	Scotland	Shetland Islands	60.271	-1.431		
187	Scotland	West Loch Ollay, Outer Hebrides	57.261	-7.388		
188	Slovenia	Piran	45.528	13.571		
189	Slovenia	Debeli rtič, Adriatic	45.587	13.715		
190	Slovenia	near Koper, Adriatic	45.548	13.701		
191	Spain	Corrubedo saltmarsh, Galicia	43.367	-9.046		
192	Spain	Ría de Arosa, Galicia	42.657	-8.749		
193	Spain	river Onar, Girona	41.973	2.835		
194	Sweden	Ängsskär, Grepen, Öregrund archipelago	60.483	18.068		
195	Sweden	Barkerydsjön/Ribblingsnäsjön, near Nässjö, Småland	57.727	14.555	X	
196	Sweden	Bilhamn, Älvkarleby, Uppland	60.634	17.440	X	
197	Sweden	Bornsjön, Botkyrka near Stockholm	59.233	17.747		
198	Sweden	Böringesjön, Skåne	55.482	13.316		
199	Sweden	Brosjön, near Stockhom	59.175	17.790		
200	Sweden	Bygdeå, Västerbotten	64.067	20.850	X	
201	Sweden	Dalarö, near Stockholm, Öregrund archipelago	59.133	18.406	X	
202	Sweden	Dalbyö, Baltic Sea	58.865	17.493	X	
203	Sweden	Djurgården, Stockholm	59.317	18.117	X	
204	Sweden	Fårösundet, Piteå, Bay of Bothnia	65.338	21.484	X	
205	Sweden	Fibysjön, Uppsala	59.895	17.350	X	
206	Sweden	Finjasjön, Skåne	56.131	13.708		
207	Sweden	Fläcksjön, Västmanland	59.868	16.315		
208	Sweden	Fluttuskär, Öregrund archipelago	60.475	18.544		
209	Sweden	Granfjärden, Öregrund archipelago	60.304	18.332		
210	Sweden	Gravtjärn near Orsa, Dalarna	60.777	14.303		

LIT	ITS type	brack?	REFERENCES
X			Getzen 1967
X			Getzen 1967
X			Getzen 1967
X		X	van den Hoek 1963
X			Acton 1916, van den Hoek 1963, John <i>et al.</i> 2002
X		X	BMT Cordah Limited 2004
		X	International Centre for Island Technology 2004
X		X	International Centre for Island Technology 2004
	C		
X		X	BMT Cordah Limited 2004
			John <i>et al.</i> 2002
X			van den Hoek 1963
X			John <i>et al.</i> 2002
X			Lazar 1975, Battelli 1997
X		X	Battelli 1997, Turk & Vukovic 2000
X		X	Battelli 1997
X		X	Calvo <i>et al.</i> 1999
X		X	Donze 1968, Calvo & Bárbara 2002
X			Pena Haitz 1980
X		X	Waern 1952
			van den Hoek 1963
		X	Waern 1952
X			Sjöo <i>et al.</i> 2005
X		X	Lundh 1951
X			Giegold & Tuttunen 1996
		no data	
		X	
		X	van den Hoek 1963
		X	
		X	
X			Lundh 1951
X			p.c. R. Bengtsson
X		X	Waern 1952
X		X	Waern 1952
X			p.c. I. Lennmark

no.	COUNTRY	LOCATION	LAT	LONG	HERB
211	Sweden	Grindsjön, Södertörn	59.086	17.871	
212	Sweden	Gyllebosjön, Skåne	55.596	14.191	
213	Sweden	Halsaren, Gulf of Bothnia	60.221	18.910	
214	Sweden	Hammarbysjön, Stockholm	59.308	18.101	X
215	Sweden	Hammarsjön, Skåne	55.983	14.225	
216	Sweden	Hästsjön, Jönköping county, Småland	57.736	14.679	
217	Sweden	Havgårdssjön, Skåne	55.484	13.359	
218	Sweden	Kansjön, Jönköping county, Småland	57.639	14.535	
219	Sweden	Krankesjön, Skåne	55.699	13.484	
220	Sweden	Kvesarumssjön, Skåne	55.941	13.658	
221	Sweden	Lake Aspen, Botkyrka near Stockholm	59.222	17.810	X
222	Sweden	Lake Dannemora, Uppsala	60.180	17.840	X
223	Sweden	Lake Erken, Uppsala	59.847	18.579	X
224	Sweden	Lake Hedeviken, Uppland	62.399	13.712	X
225	Sweden	Lake Hönsan, Dala-Husby, Dalarna	60.390	15.948	X
226	Sweden	Lake Mälaren	59.347	17.456	X
227	Sweden	Lake Mien, Kronoberg county, Småland	56.416	14.856	
228	Sweden	Lake Säbysjön, Järfälla, Uppland	59.438	17.868	X
229	Sweden	Lake Tåkern, Östergötland	58.351	14.774	
230	Sweden	Lake Tullan, near Södertälje, Södermanland	59.217	17.689	
231	Sweden	Lake Valloxen, Uppland	59.741	17.858	X
232	Sweden	Lake Vättern, Jönköping, Småland	57.783	14.183	X
233	Sweden	Launinkari, Haparanda, Bay of Bothnia	65.789264	24.039	
234	Sweden	Levasjön, Skåne	56.103	14.489	
235	Sweden	Lidingö, Stockholm	59.367	18.133	
236	Sweden	Lillsjön, Stockholm	59.341	17.957	X
237	Sweden	Lötaviken, Nabbo (Rådmansö), Norrtälje	59.750	18.998	X
238	Sweden	Luleå, Bothnian Gulf	65.583	22.150	
239	Sweden	Malmö	55.600	13.000	X
240	Sweden	Måskobben, Gulf of Bothnia	60.198	18.855	
241	Sweden	Näske, Gulf of Bothnia	63.155	18.521	X
242	Sweden	Northern Quark, Gulf of Bothnia	63.830	20.940	X
243	Sweden	Nynäshamn, Baltic Sea	58.901	17.954	
244	Sweden	Oppmannasjön, Skåne	56.099	14.324	
245	Sweden	Öregrund, Öregrund archipelago	60.340	18.429	X
246	Sweden	Östhammar, near Stockholm	60.267	18.373	

LIT	ITS type	brack?	REFERENCES
X			Giegold & Tuttoren 1996
X			Lundh 1951
X		X	Waern 1952
		X	
X			p.c. R. Bengtsson
X			p.c. R. Bengtsson
X			Lundh 1951
X			p.c. R. Bengtsson
X			Lundh 1951
X			Lundh 1951
	C		Hanyuda <i>et al.</i> 2002, Yoshii <i>et al.</i> 2004
	C		Kahlert <i>et al.</i> 2002
			van den Hoek 1963, Pankow 1965
			Brand 1902, van den Hoek 1963
X			p.c. R. Bengtsson
X			Waern 1939, 1952, van den Hoek 1963
X			Giegold & Tuttoren 1996
			van den Hoek 1963
X		X	Tolstoy & Österlund 2003
X			Lundh 1951
X		X	van den Hoek 1963
			Brand 1902, Pankow 1965
			Brand 1902, van den Hoek 1963, Pankow 1965
X		X	van den Hoek 1963
		no data	
X		X	Waern 1952
		X	Waern 1952, van den Hoek 1963
	C	X	
X		X	Bardun & Ljungberg 2001
X			Lundh 1951
		X	Waern 1952, van den Hoek 1963
X		X	Waern 1952



no.	COUNTRY	LOCATION	LAT	LONG	HERB	
247	Sweden	Östra Småskären, Överenhörna, Sörmland	59.309	17.371		
248	Sweden	Råbelövssjön, Skåne	56.105	14.234		
249	Sweden	Ringsjön, Skåne	55.865	13.557		
250	Sweden	Rössjön, Skåne	56.316	13.104		
251	Sweden	Sandhemssjön, Västergötland	57.995	13.781	X	
252	Sweden	Sandskär, Haparanda, Bay of Bothnia	65.577	23.741		
253	Sweden	Säter (Ljustern?), Dalarna	60.345	15.757	X	
254	Sweden	Skutskär, near Gävle	60.641	17.402		
255	Sweden	Snogeholmsjön, Skåne	55.562	13.726		
256	Sweden	Södra Vixen, near Nässjö, Småland	57.620	14.883		
257	Sweden	Sötåsjön, Jönköping county, Småland	57.944	14.687		
258	Sweden	Sövdesjön, Skåne	55.574	13.666		
259	Sweden	Stora Korssten, Gulf of Bothnia	60.203	18.842		
260	Sweden	Tjörnarpsjön, Skåne	55.994	13.613		
261	Sweden	Vallsjön, Jönköping county, Småland	57.845	13.729		
262	Sweden	Vässarö Garpen, Gulf of Bothnia	60.251	18.701		
263	Sweden	Västersjön, Skåne	56.321	13.044		
264	Sweden	Vombsjön, Skåne	55.687	13.572		
265	Sweden	Waldemarsudden (Saltsjön), Stockholm	59.304	18.227	X	
266	Sweden	Ytra Storhamn, Långvind, Gävleborg, Gulf of Bothnia	61.420	17.172		
267	Switzerland	Lake Zürich	47.336	8.556		
268	Switzerland	River Sasso near Locarno	46.167	8.800	X	
269	Switzerland	San Pancrazio, Lago Maggiore	46.132	8.736	X	
270	Switzerland	Södra Wixen SE of Nässjö in Småland county, 1991	46.164	8.806	X	
271	Turkey	Sinop, Black Sea	42.027	35.158		
272	Ukraine	Lake Svityaz, Shatsk National Park	51.501	23.851	X	
273	Ukraine	river Dnjpr (Dnipro), Poltava Oblast	48.930	33.904		
274	Ukraine	Lake Bile, Pripjat marshes, Rovenskyi region	51.839	25.499		
275	Ukraine	Lake Pischne, Shatsk National Park	51.573	23.919		
276	United States	Cayuta Lake, New York	42.369	-76.735	X	
277	United States	Lake Bemidji, Minnesota	47.474	-94.880	X	
278	United States	Lake Quannapowitt, Massachusetts	42.516	-71.079	X	
279	United States	Long Lake, Indiana	41.524	-87.050	X	
280	United States	Millcoguin lake, Mackinac (Michigan?)	45.771	-84.760	X	
281	United States	Thimble Islands, Long Island Sound, Connecticut	41.264	-72.753	X	

LIT	ITS type	brack?	REFERENCES
X			Giegold & Tuttoren 1996
X			Lundh 1951
X			Lundh 1951
X			Lundh 1951
			Brand 1902, Pankow 1965
X		X	p.c. A. Tolstoy
X		X	Waern 1952
X			Lundh 1951
X			p.c. I. Lennmark
X			p.c. R. Bengtsson
X			Lundh 1951
X		X	Waern 1952
X			Lundh 1951
X			p.c. R. Bengtsson
X		X	Waern 1952
X			Lundh 1951
X			Lundh 1951
		X	Waern 1952
X		X	p.c. H. Schreiber
X			Messikommer 1954
			van den Hoek 1963
			van den Hoek 1963
X		X	Aysel <i>et al.</i> 2004
	C		
X			p.c. O. Gerasymova
X			p.c. O. Gerasymova
X			p.c. O. Gerasymova
			Clovis 1955
	A		Wakana <i>et al.</i> 2001b
			(Collins 1909, Smith 1950)
		X	

no.	COUNTRY	LOCATION	LAT	LONG	HERB
282	United States	Trout Lake, Wisconsin	46.036	-89.673	
283	Uzbekistan	Lake Aral	43.945	60.095	
283	Uzbekistan	Lake Aral	43.945	60.095	

**Appendix S3 continued.** List of locations of *Aegagropila linnaei* that were excluded from our study.

EXCLUDED LOCATIONS	references/collections*
diff. tax. affinity suggested/synonymy refused	
USA (Florida?)	Wolle 1887
Iraq (Shatt al-Arab region)	Hinton & Maulood 1983
Libya (Ain Cherchara (Scersciara), Tarhuna)	Nizzamuddin & Gerloff 1982
Pakistan (Mahmood Booti; Mureedke; Neelum Valley)	Zarina <i>et al.</i> 2006
Sri Lanka	Durairatnam 1961, Durairatnam & Rangunathamuthaliar 1976
Sri Lanka	Grunow 1868
Myanmar, Pegu district (Irrawaddi, Balachoung (?), Tonghoo)	Zeller 1873
Bangladesh (Baraora Lake, Srimangal)	Islam & Irfanullah 2005
India (Andamans and Nicobar Islands)	Prasad & Misra 1992
China (Lake Donghu, Wuhan)	HBI
China (Manhoa springs, Yunnan)	Skuja 1937, van den Hoek 1963
Padua, Italy (botanical garden, hothouse)	P; van den Hoek 1963
Halle, Germany (zool. garden, hothouse)	W
Lake Baikal	Izboldina 2007
Mediterranean locations	references
Mediterranean (Sardinia & Sicily)	Báez <i>et al.</i> 2005
Mediterranean (Corsica/Sardinia, Sicily, Adriatic)	Gallardo <i>et al.</i> 1993
Mediterranean (Adriatic)	Furnari <i>et al.</i> 1999
Mediterranean (Sardinia)	Cossu 1992
Mediterranean (Ionian Sea)	Cecere <i>et al.</i> 1996
Mediterranean (Adriatic)	Cormaci <i>et al.</i> 2000
Mediterranean (Sardinia)	Brambati <i>et al.</i> 1980
Mediterranean (Sicily)	Giaccone <i>et al.</i> 1985
Mediterranean (Gulf of Venice, Trieste?)	Giaccone 1978
Mediterranean (Sea of Marmara/Aegean Sea? Lake Iznik?)	Getzen 1967
placenames not located	collections*
Muckawer See, Germany	L
Vestergarn, Skane, Sweden	BR, M, PC, S
river Monie, Ireland	TCD
Oregon, USA (no further information given)	BM

\* herbarium acronyms follow Holmgren *et al.* 1990

LIT	ITS type	brack?	REFERENCES
X			Prescott 1951
X			Getzen 1967
X			Getzen 1967

	notes
	freshwater record, information suggesting different <i>Cladophora</i> species
	freshwater record, information suggesting different <i>Cladophora</i> species
	one freshwater record (Muschler 1910), no further information given
	freshwater record, drawing suggests diff. affinity ( <i>Cladophora</i> sp.)
	marine records - cf. <i>Cladophora coelothrix</i> or <i>Boodlea vanbosseae</i>
	<i>Cladophora clavuligera</i> , on freshwater snails
	<i>Cladophora codiola</i> , <i>Cladophora contorta</i> , <i>Cladophora exigua</i> (on freshwater snails)
	freshwater record (on snail), drawing suggests <i>Cladophora sterrocladia</i>
	freshwater record, drawing suggests <i>Cladophora sterrocladia</i>
	re-identified as <i>Cladophora sterrocladia</i>
	<i>Cladophora yuennanensis</i>
	hothouse, cf. <i>Cladophora sterrocladia</i>
	hothouse, cf. <i>Cladophora sterrocladia</i>
	<i>A. linnaei</i> only listed in this book, not in the original publications
	notes
	quotes Gallardo <i>et al.</i> 1993, Furnari <i>et al.</i> 1999 (see below)
	quotes Cossu 1992, Giaccone 1978, Giaccone <i>et al.</i> 1985 (see below)
	quotes to Cormaci <i>et al.</i> 2000, Giaccone 1978 (see below)
	quotes Brambati <i>et al.</i> 1980 (see below)
	fully marine record
	fully marine record
	fully marine record
	fully marine record
	location unknown
	location unknown

**Appendix S4.** List of all known extant populations of *Aegagropila linnaei* (observations in the last 30 years).

no.	LOCATION	COUNTRY	LAT <sup>a</sup>	LONG <sup>a</sup>
1	Lake Zeller	Austria	47.326	12.806
2	Lake Naroch, Myadzyel district	Belarus	54.850	26.776
3	Lake, Lahoyks district	Belarus	54.519	28.433
4	Caspian Sea		45.120	49.219
5	Oslava River (as <i>Cl. moravica</i> )	Czech Republic	49.283	16.067
6	Sorø sø	Denmark	55.426	11.548
7	River Wear	England	54.719	-1.853
8	River Tees	England	54.527	-1.857
9	Malham Tarn, Yorkshire	England	54.097	-2.167
10	River Tyne	England	54.980	-2.099
11	River Swale	England	54.298	-1.507
12	Lake Ülemiste	Estonia	59.400	24.767
13	Lake Öisu	Estonia	58.209	25.513
14	Lake Valgjarv	Estonia	58.090	26.638
15	Pärnu river	Estonia	58.492	24.833
16	Northern Quark, Gulf of Bothnia	Finland	63.105	21.116
17	Saltvik, Gulf of Bothnia	Finland	60.279	20.036
18	Pojo Bay, Gulf of Finland	Finland	60.046	23.505
19	Neuklostersee	Germany	53.852	11.702
20	Grosser Dreisee	Germany	53.222	13.352
21	Teterower See	Germany	53.794	12.611
22	Kleiner Lankesee	Germany	52.910	13.225
23	Jakobsdorfer See	Germany	53.132	13.892
24	Tiefwareensee	Germany	53.526	12.691
25	Stechlinsee	Germany	53.154	13.031
26	Bültsee	Germany	54.500	9.754
27	Lake Myvatn	Iceland	65.600	-17.000
28	Lake Thingvallavatn	Iceland	64.168	-21.127
29	Laugabólsvatn	Iceland	65.939	-22.681
30	Miklavatn	Iceland	65.965	-17.603
31	Vestmannsvatn	Iceland	65.795	-17.416
32	Másvatn	Iceland	65.637	-17.239
33	Kringlúvatn	Iceland	65.765	-17.228
34	Víkingavatn	Iceland	66.107	-16.826
35	Snjóölduvötn	Iceland	65.399	-14.348
36	Lough Gill	Ireland	54.253	-8.384

SOURCE <sup>b</sup>	Most recent coll. date	GROWTH FORM
Kann & Sauer 1982, Wakana <i>et al.</i> 2001a	1999	attached
<a href="http://redbook.minpriroda.by/plantsinfo.html">http://redbook.minpriroda.by/plantsinfo.html</a>	1993	balls
<a href="http://redbook.minpriroda.by/plantsinfo.html">http://redbook.minpriroda.by/plantsinfo.html</a>	1993	balls
Caspian Sea Biodiversity Project.	?? (but recent)	n.d.
Gardavsky 1986	1978 <sup>c</sup>	attached
C, No. 41, coll. Krasiln.	1977 <sup>c</sup>	attached & floating, balls
Whitton <i>et al.</i> 1998	1996	attached
Holmes & Whitton 1981	1977 <sup>c</sup>	attached
Pentecost 1999, <a href="http://www.allphotography.free-online.co.uk/malham_web">http://www.allphotography.free-online.co.uk/malham_web</a>	2005	balls
Holmes & Whitton 1975, 1981	1975 <sup>c</sup>	attached
Holmes & Whitton 1977	1976 <sup>c</sup>	attached
Trei & Pedusaar 2006	2000	balls
Wakana <i>et al.</i> 2001a	2000	balls
Wakana <i>et al.</i> 2001a	2000	n.d.
Wakana <i>et al.</i> 2001a	2000	n.d.
Bergström & Bergström 1999	1996	attached
C, No. 34-1, coll. H. Mathiesen	1993	floating
L 0793578 & 79, coll. R. Munsterhjem	2007	floating
Umweltministerium Mecklenburg-Vorpommern 2004, p.c. T. Kabus	2007	floating
Bolbrinker 2000, p.c. P. Bolbrinker	2004	balls
Pankow & Bolbrinker 1984, p.c. P. Bolbrinker	2003	floating
p.c. T. Kabus	2006	unattached
p.c. T. Kabus	2008	floating
L 0793546, coll. T. Kabus	2008	floating
p.c. T. Kabus, M. Teppke	2007	floating
p.c. M. Bahnwart	2008	balls
L 0793580, coll. A. Einarsson	2002	balls
Jónsson 1992	1992	attached
p.c. A. Einarsson	2005	balls
p.c. A. Einarsson	2000	balls
p.c. A. Einarsson	2000	balls
p.c. A. Einarsson	2000	floating
p.c. A. Einarsson	1990s	balls
p.c. A. Einarsson	2000	floating
Hallgrímsson 2002	2002	balls
DBN, G7335, coll. J. J. Campbell	1987	balls

37	Loch an tSaille (near Screebe)	Ireland	53.385	-9.555
38	River Unshin, Lough Arrow	Ireland	54.068	-8.332
39	Lake Akan	Japan	43.451	144.099
40	Lake Chimikeppu	Japan	43.633	143.883
41	Lake Ogawara	Japan	40.783	141.333
42	Lake Biwa	Japan	35.250	136.083
43	Pond Takkobu/Takkobu marsh	Japan	43.100	144.483
44	Lake Saiko	Japan	35.498	138.685
45	Lake Shirarutoro	Japan	43.179	144.500
46	Lake Toro	Japan	43.144	144.540
47	Lake Kawaguchi	Japan	35.517	138.750
48	Pond Sakyo	Japan	40.804	140.441
49	Kimoma swamp	Japan	45.269	142.234
50	Kamuito swamp	Japan	45.269	142.234
51	Kamoi swamp	Japan	45.269	142.234
52	Pon swamp	Japan	45.269	142.234
53	Lake Panke	Japan	45.031	141.722
54	Pond Tamogi	Japan	40.750	141.000
55	Lake Yamanaka	Japan	35.417	138.867
56	Pond Ane	Japan	39.683	141.983
57	Pond Ichiyonagi	Japan	40.900	141.350
58	Pond Uchi	Japan	40.750	141.000
59	Boven Wijde	Netherlands	52.724	6.103
60	Jantar, Baltic Sea	Poland	54.347	19.070
61	Rewa, Baltic Sea	Poland	54.633	18.500
62	Sopot, Baltic Sea	Poland	54.444	18.583
63	Lake Arakhlei	Russia	52.200	112.867
64	Lake Toba, Sakhalin	Russia	46.744	143.190
65	Loch of Harray, Orkney Islands	Scotland	59.014	-3.226
66	Loch of Stenness, Orkney Islands	Scotland	58.995	-3.248
67	Oban nam Fiadh, Outer Hebrides	Scotland	57.545	-7.273
68	Loch Leodosay, Outer Hebrides	Scotland	57.546	-7.334
69	West Loch Ollay, Outer Hebrides	Scotland	57.261	-7.388
70	Loch Kildona, Outer Hebrides	Scotland	57.223	-7.407
71	River Tweed	Scotland	55.595	-2.481
72	Loch Watten	Scotland	58.486	-3.315
73	Debeli rtič, Adriatic	Slovenia	45.587	13.715
74	near Koper, Adriatic	Slovenia	45.548	13.701
75	Corrubedo saltmarsh, Galicia	Spain	43.367	-9.046

	Roden 1998	1992	balls
	John et al. 2002, p.c. N.H. Holmes	1977 <sup>c</sup>	balls
	Soejima et al. 2008	2002	attached & floating, balls
	Soejima et al. 2008	2002	attached & floating
	Soejima et al. 2008	2001	attached
	Soejima et al. 2008	2001	attached
	Wakana et al. 2005	2004	attached
	Soejima et al. 2008	2002	attached & floating
	Niiyama 1989	ca. 1987	floating
	Kanda 1982, Niiyama 1989	ca. 1987	attached
	Niiyama 1989	ca. 1987	floating, balls
	Niiyama 1989	ca. 1987	attached & floating
	Wakana et al. 2001b	1999	attached
	Wakana et al. 2001b	1999	attached & floating
	Wakana et al. 2001b	1999	attached
	Wakana et al. 2001b	1999	attached
	Wakana et al. 2001a	2001	n.d.
	Wakana et al. 2001a	1996	n.d.
	Wakana et al. 2001a	1993	n.d.
	Wakana et al. 2001a	1996	n.d.
	Wakana et al. 2001a	1999	n.d.
	Wakana et al. 2001a	1999	n.d.
	Boedeker & Immers 2009	2007	attached
	Pliński & Józwiak 2004	2000	n.d.
	Pliński & Józwiak 2004	1998	n.d.
	Pliński & Józwiak 2004	2000	n.d.
	Matafonov et al. 2005	2001	attached & floating
	Wakana et al. 2001a	1993	n.d.
	International Centre for Island Technology 2004	2002	floating
	International Centre for Island Technology 2004	2002	balls
	BMT Cordah Limited 2004	2002	balls
	BMT Cordah Limited 2004	2002	balls
	John et al. 2002, p.c. B. A. Whitton	ca. 1998	balls
	John et al. 2002	1980s (?)	balls
	John et al. 2002, p.c. B. A. Whitton	1977	attached
	L 0793543, coll. C. Scanlan	2008	balls
	Battelli 1997, Turk & Vukovic 2000	1999	attached
	Battelli 1997	ca. 1996	attached
	Calvo et al. 1999	1996-1998	n.d.



76	Brosjön	Sweden	59.175	17.790	
77	Grindsjön	Sweden	59.086	17.871	
78	Bornsjön	Sweden	59.233	17.747	
79	Lake Tullan	Sweden	59.217	17.689	
80	Östra Småskären	Sweden	59.309	17.371	
81	Lake Dannemora	Sweden	60.180	17.840	
82	Lake Erken	Sweden	59.847	18.579	
83	Piteå, Bay of Bothnia	Sweden	65.338	21.484	
84	Lake Mälaren	Sweden	59.347	17.456	
85	Nynäshamn, Gulf of Bothnia	Sweden	58.901	17.954	
86	Öregrund, Gulf of Bothnia	Sweden	60.340	18.429	
87	Gravtjärn near Orsa, Dalarna	Sweden	60.777	14.303	
88	Södra Vixen , near Nässjö, Småland	Sweden	57.620	14.883	
89	Northern Quark, Gulf of Bothnia	Sweden	63.830	20.940	
90	Barkerydsjön/Ribbingsnäsjön, near Nässjö, Småland	Sweden	57.727	14.555	
91	Sötåsasjön, Jönköping county, Småland	Sweden	57.945	14.687	
92	Vallsjön, Jönköping county, Småland	Sweden	57.845	13.729	
93	Kansjön, Jönköping county, Småland	Sweden	57.640	14.535	
94	Hästsjön, Jönköping county, Småland	Sweden	57.737	14.679	
95	Lake Mien, Kronoberg county, Småland	Sweden	56.417	14.856	
96	Fläcksjön, Västmanland	Sweden	59.868	16.315	
97	Hammarsjön, Skåne	Sweden	55.983	14.225	
98	Rössjön, Skåne	Sweden	56.317	13.104	
99	Västersjön, Skåne	Sweden	56.321	13.044	
100	Launinkari, Haparanda, Bay of Bothnia	Sweden	65.789	24.039	
101	Sandskär, Haparanda, Bay of Bothnia	Sweden	65.578	23.741	
102	Yttra Storhamn, Långvind, Gävleborg, Gulf of Bothnia	Sweden	61.420	17.172	
103	Sinop, Black Sea	Turkey	42.027	35.158	
104	Lake Svityaz, Shatsky (Shatsk)	Ukraine	51.501	23.851	
105	Lake Bile, Pripjat marshes, Rovenskyi region	Ukraine	51.839	25.499	
106	Lake Pischne, Shatsk National Park	Ukraine	51.573	23.919	
107	Lake Bemidji	USA	47.474	-94.880	

	Giegold & Tutturen 1996	1995	n.d.
	Giegold & Tutturen 1996	1995	n.d.
	Sjöo <i>et al.</i> 2005	2005	balls
	Giegold & Tutturen 1996	1995	n.d.
	Giegold & Tutturen 1996	1995	n.d.
	Yoshii <i>et al.</i> 2004	2000	balls
	Kahlert <i>et al.</i> 2002, Wakana <i>et al.</i> 2001a	2000	balls
	<b>S</b> , A3976, l.-G. Förare	1977 <sup>c</sup>	balls
	S, A3978, coll. J. Rydström, Bardun & Ljungberg 2001	1998/1999	balls
	Bardun & Ljungberg 2001	1998/1999	n.d.
	<b>C</b> , No.'s 31-1, 32-1, 33-1, coll. H. & L. Mathiesen, M. Waern	1982	n.d.
	p.c. I. Lennmark	1985	balls
	p.c. I. Lennmark	1991	balls
	<b>L</b> 0793571, coll. L. Bergstroem & J. Ask	2004	attached
	p.c. R. Bengtsson	2006	balls
	p.c. R. Bengtsson	2006	attached
	p.c. R. Bengtsson	2006	attached
	p.c. R. Bengtsson	2006	attached
	p.c. R. Bengtsson	2006	attached
	p.c. R. Bengtsson	ca. 1998	attached
	p.c. R. Bengtsson	2006	attached
	p.c. R. Bengtsson	2006	attached
	p.c. R. Bengtsson	2006	attached
	p.c. R. Bengtsson	2006	attached
	Tolstoy & Österlund 2003	1996	attached
	p.c. A. Tolstoy	1996	attached
	p.c. H. Schreiber	> 2000	balls
	Aysel <i>et al.</i> 2004	< 2003	attached
	<b>KW</b> , coll. P. M. Tsarenko	2006	balls
	p.c. O. Gerasymova	1980s (?)	n.d.
	p.c. O. Gerasymova	recent	balls
	Wakana <i>et al.</i> 2001a	2001	balls

<sup>a</sup><http://www.gorissen.info/Pierre/maps/googleMapLocation.php>

<sup>b</sup>herbarium acronyms (bold letters) follow Holmgren *et al.* 1990

<sup>c</sup>last record older than 30 years, but population probably still present