

Potamogeton schweinfurthii and similar broad-leaved species in Italy

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Potamogeton schweinfurthii e specie affini a foglia larga in Italia – *Potamogeton schweinfurthii* è segnalato per la prima volta nell’Italia peninsulare. Questa specie era stata recentemente riportata per la Sardegna e altre isole del Mediterraneo, dove era stata confusa con altre specie simili di *Potamogeton* a foglia larga, in particolare con *P. lucens*. Il ritrovamento di *P. schweinfurthii* in due località della Toscana (Italia centrale) ha suggerito di intraprendere un’indagine per verificare la presenza di ulteriori campioni di questa pianta tra il materiale di altre specie simili (*P. lucens*, *P. alpinus*, *P. nodosus*, *P. gramineus*) conservato nei principali erbari italiani. L’indagine erbariologica ha permesso di scoprire *P. schweinfurthii* anche nelle Marche e in Puglia. La distribuzione italiana di altre quattro specie simili del genere *Potamogeton* è precisata mediante lo studio dei reperti d’erbario.

Key words: distribution, herbarium data, identification key, Italy, new records, *Potamogeton schweinfurthii* .

Potamogeton schweinfurthii was recorded for the first time in Europe by Kaplan (2005a) who, investigating *Potamogetonaceae* collections in various European herbaria, discovered several specimens of *P. schweinfurthii* from the Mediterranean region. Collections from two sites in Sardinia represented the first reports for Italy, while the other collections came from Corsica, Malta, Crete and the Greek island of Kefallinía. The finding of *P. schweinfurthii* in Sardinia was successively reported in Conti et al. (2007).

Two other sites of this species were recently found in Tuscany (central Italy), which are the first records for the peninsular territory of Italy. The finding of the species in Tuscany has lead to carry out herbarium investigation to verify the possible presence of further specimens of this plant among the material of similar

species preserved in the main Italian herbaria.

The aim of this paper is to describe a detailed distribution of *Potamogeton schweinfurthii* in Italy based on field and herbarium data, to clarify the distribution of species with whose it has been or can be mistaken, and provide a key to identification of all these species.

Notes on the distribution and taxonomy of *Potamogeton schweinfurthii*

Potamogeton schweinfurthii was described for the first time on material from East Africa (Bennett, 1901). Its distribution in Africa was recently revised by means of herbarium investigations (Kaplan & Symoens, 2005). The species occurs in most of the African mainland, ex-

cept for the NW area, and in Madagascar and in the Azores. This species has been recently recorded by Kaplan (2005a) also from some islands of the Mediterranean Europe, including Sardinia. In this paper it is for the first time recorded from the peninsular Italy. Although the *P. schweinfurthii* collections from the Mediterranean islands and in the Italian peninsula are relatively recent, this species is unlikely to have only recently invaded this area. The more probable explanation of its recent discovery is that it is rather scarce in the Mediterranean region (as is usual at the borders of species' ranges) and has been overlooked by field botanists, partially also as a result of the rarity of the habitats suitable for this species (Kaplan, 2005a). Moreover, in the past, botanists devoted less attention to the flora and vegetation of wetlands, especially in Mediterranean areas (see Garbari, 1980; Tomei et al., 2001; Kaplan, 2005a). Their interest in aquatic plants increased in the second half of the 20th century, which provided more specimens that gave space for new discoveries.

The main reason why *P. schweinfurthii* was discovered only recently in Europe is that it can easily be mistaken with other species of *Potamogeton*, in particular with *P. lucens* L., with which it is closely related, but also with *P. gramineus* L., which all together belong to the *P. lucens* group *sensu* Wiegleb (1988). In addition, *P. schweinfurthii* can be confused with *P. alpinus* Balb., and also with *P. x salicifolius* Wölfg., a hybrid of *P. lucens* and *P. perfoliatus* L., recently recorded in Italy in the Como Lake (Kaplan, 2007). Finally, *P. schweinfurthii* was in Africa frequently confused with *P. nodosus* (Kaplan & Symoens, 2004; 2005). This later species occurs in Italy as well (Pignatti, 1982; Conti et al., 2005) and is therefore also considered in the present paper.

A further complication for the taxonomy of this group is enormous phenotypic plasticity of all *Potamogeton* taxa (Kaplan, 2002). In many cases, only complete and well-preserved specimens can be identified, and anatomical investigation of stem sections is necessary for determination of specimens (Wiegleb, 1990; Symoens, 2006).

Materials and Methods

The present study intends to determine the distribution of *P. schweinfurthii* and of similar species *P. lucens*, *P. gramineus*, *P. alpinus* and *P. nodosus*, based on field investigation and data from Italian herbaria. The

examined material comes from the following herbaria abbreviated according to Holmgren & al. (1990): APP, BOZ, CAT, FI, FIAF, G-BU, MFU, MSNM, NAP, PAD, PAL, PAV, PERU, PESA, PI (PI-CAR, PI-PELL, PI-ARC), RO, ROV, SIENA, SS, TR, TSB, TO, UTV. In addition, the herbarium of the Botanical Garden of Florence and some personal herbaria (Herb. Selvi, Herb. Bartolucci) were consulted. Finally, herbarium records collected by Z. Kaplan in various European herbaria (BM, BP, BR, C, CAG, E, FR, G, H, K, L, LD, M, MSB, OLM, P, PR, PRA, PRC, UPS, WU) during previous studies were also included. The following features, which proved to be of diagnostic value in recent taxonomic revisions of this group (Preston, 1995; Wiegleb & Kaplan, 1998; Kaplan, 2005a; Kaplan & Symoens, 2005; Symoens, 2006), were particularly investigated in the specimens: presence/absence of floating (emerged) leaves, length of the petiole of submerged leaves, length and width of lamina of the submerged leaves, number of the longitudinal veins in submerged leaves, length of stipules, length of peduncles, length of spikes and fruit size. These characters have been used to build up the determination keys and the descriptions of the species by integrating the information present in literature (Dandy, 1980; Pignatti, 1982; Clapham et al. 1987; Wiegleb & Kaplan, 1998; Kaplan, 2005a; Symoens, 2006).

The localities given on the labels of the herbarium collections have been mapped to show the distribution of the studied species in Italy (Fig. 1-5). In the maps, empty circles refer to the specimens recorded before 1950, while full circles represent specimens recorded after 1950. The list of *specimina visa* is reported after the description of each species. The work by Cucchini & Nepi (1999) was particularly useful for the identification of names of some collectors. The nomenclature follows Wiegleb & Kaplan (1998).

Results and discussion

Potamogeton schweinfurthii A. Bennett in Dyer, Fl. Trop. Afr. 8: 220. 1901. ("Schweinfurthii").

DESCRIPTION - Rhizome slender, terete, perennial. Stem unbranched or sparingly branched, terete, annual. Submerged leaves sessile or with petioles 1-5 mm (some uppermost leaves rarely up to 19 mm) long, with lamina narrowly lanceolate to oblong-elliptical, (7-) 10-22 (-28)

mm wide, (55-) 86-167 (-250) mm long, yellow-green to bright green, often reddish towards the end of summer; longitudinal veins (5-) 7-9 (-11); floating leaves absent; stipules (10-) 22-40 (-44) mm long; fruiting spikes 25-60 mm long with peduncle (27-) 50-120 (-160) long, thicker than the stem; fruits 3-4 mm long; endodermis of U-type, interlacunar bundles present.

NOTES - As noted by Kaplan (2005a), this species was often confused with similar *Potamogeton* species; the present survey shows that the Italian specimens of *P. schweinfurthii* were confused with *P. lucens*. Both the herbarium specimens and the plants observed in the field possessed only submerged leaves. Kaplan (2005a) reports that in the Mediterranean region the presence of floating leaves is rare. In the Tuscan stations the species appears to be rather abundant, with stable populations fruiting every summer as observed since 2005.

DISTRIBUTION IN ITALY (Fig. 1)

Sardinia (see also Kaplan, 2005a), Tuscany (field survey), Marche and Apulia (herbarium survey), at a variable altitude between 0 and 330 m a.s.l.

The indicated localities supplement the known distribution of this species and represent the first records for peninsular Italy and continental Europe (Tuscany, Marche and Apulia regions). For Sardinia, the locality of Rio Cannas listed by Kaplan (2005a) is also mapped.

Potamogeton nodosus Poirlet in Lamarck, Encycl. Méth. Bot., Suppl. 4: 535. 1816. ("nodosum"). (syn.: *P. fluitans* auct., non Roth).

DESCRIPTION - Rhizome slender, terete, perennial. Stem mostly unbranched, terete, annual. Submerged leaves petiolate, with lamina narrowly oblong to oblanceolate-oblong, (7-) 13-24 (-40) mm wide, (53-)



Fig. 1 - *Potamogeton schweinfurthii*: distribution in Italy according to the specimina visa (see the list in the text); empty circles = specimens recorded before 1950.

85-163 (-220) mm long, bright green to dark green, narrowly cuneate at base, acute at apex, with petiole (11-) 22-108 (-225) mm long; longitudinal veins (7-) 9-17 (-21); floating leaves mostly present in adult plants, lamina (13-) 20-37 (-75) mm wide, (40-) 63-115 (-155) mm long; stipules (15-) 32-67 (-105) mm long, petiole (18-) 50-150 (-240) mm long; fruiting spikes (20-) 28-50 (-72) mm long with peduncle 56-116 (-150) long, thicker than stem; fruits 3-4 mm long; endodermis of O-type or rarely U-O-type, interlacunar bundles absent.

Morphological note: Many examined specimens only presented floating leaves. This is because the submerged leaves of this species often disappear in adult plants, when floating leaves are developed. Phenotypes of *P. nodosus* that lack submerged leaves are difficult to identify according to characters usually given in determination keys. The floating leaves are mostly bigger than

those of any other here discussed species and exhibit specific tinge and opacity of the lamina and typical shape of the base of the lamina. These features mostly lead to successful identification. However, because these characters are difficult to describe in words, their correct application inevitably requires some experience.

Nomenclatural note - This species was frequently recorded under the name "*P. fluitans*" in the past (see e.g. Wiegleb & Kaplan, 1998; Kaplan, 2001). However, this name is the correct name for the hybrid *P. lucens* × *P. natans* (Kaplan, 2005b).

DISTRIBUTION IN ITALY (Fig. 2)

Campania, Emilia-Romagna, Friuli-Venezia Giulia, Lazio, Liguria, Lombardy, Marche, Piedmont, Sardinia, Sicily, Tuscany, Trentino-Alto Adige, Umbria, Veneto.

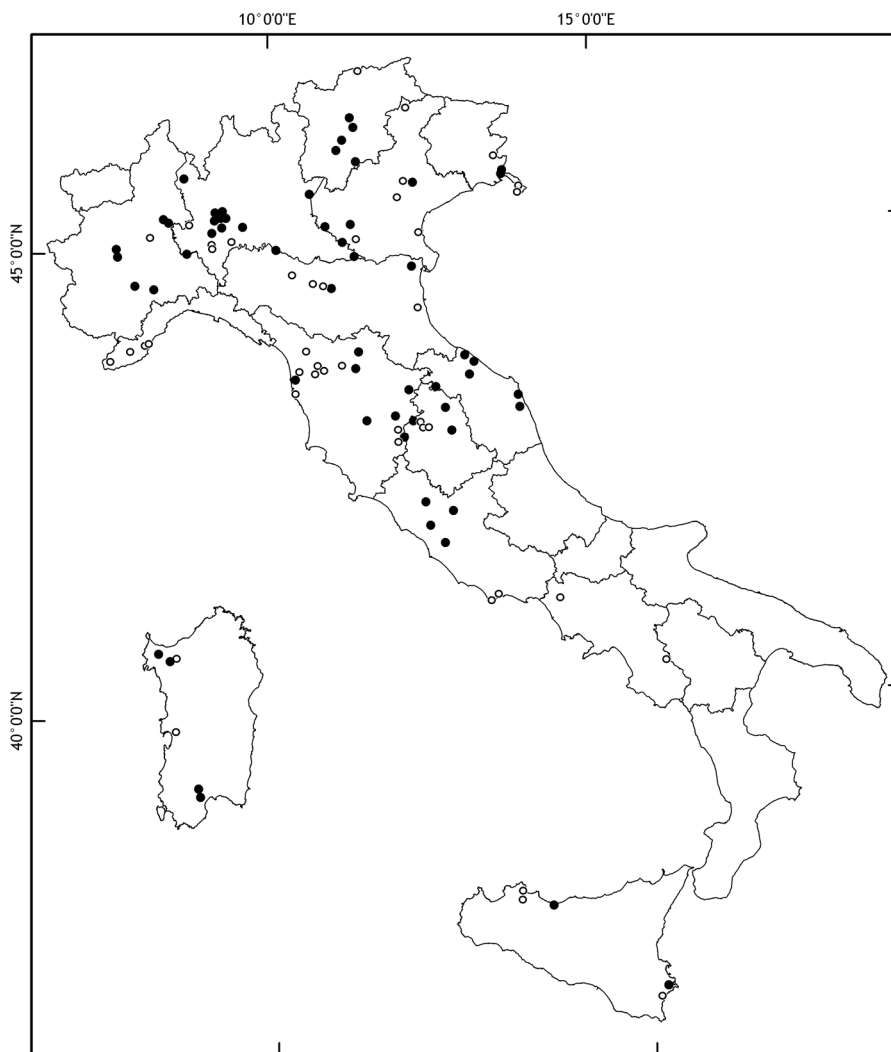


Fig. 2 - *Potamogeton nodosus*: distribution in Italy according to the specimens (see the list in the text); empty circles = specimens recorded before 1950; full circles = specimens recorded after 1950.

ALTITUDE: 0-1500 m.

With respect to Conti et al. (2005), the presence of *P. nodosus* in the Umbria region is confirmed (see also Falcinelli & Donnini, 2009) and allows adding two new regions: Liguria and Sardinia. No one specimens were found to Abruzzo; according to Conti et al. (2007) the species has no longer been recorded in the Abruzzo region for a long time, and that is why it was not even reported in the check-list of the Abruzzo flora of Conti (1998).

Potamogeton alpinus Balbis, Mém. Acad. Sci. Turin, Sci. Phys. Math. 1, 10-11 (1802-1803): 329. 1804. ("alpinum").

(syn.: *P. rufescens* Schrad. ex Cham., Adnot. Fl. Berol. 5. 1815.).

DESCRIPTION - Rhizome slender, terete, perennial. Stem unbranched, terete, annual. Submerged leaves sessile, with lamina narrowly lanceolate to oblong-elliptical, (7-) 9-16 (-22) mm wide, (40-) 50-110 (-150) mm long, yellow-green to bright green, often reddish, obtuse or narrowly obtuse at apex; longitudinal veins 9-15; floating leaves present or absent, lamina 7-16 (-20) mm wide, (25-) 30-60 (-75) mm long; petiole (2-)10-30 (-43) mm long; stipules (7-) 13-28 (-33) mm long; fruiting spikes (9-) 13-24 (-30) mm long with peduncle (15-) 27-80 (-125) long, as thick as the stem; fruits 2.5-3.5 mm long; endodermis of O-type, interlacunar bundles absent.

DISTRIBUTION IN ITALY (Fig. 3) - Friuli-Venezia Giulia, Lombardy, Piedmont, Trentino-Alto Adige, Aosta Valley, Veneto.



Fig. 3 - *Potamogeton alpinus*: distribution in Italy according to the specimens visa (see the list in the text); empty circles = specimens recorded before 1950; full circles = specimens recorded after 1950.

ALTITUDE 140 to 2300 m.

Pignatti (1982) reported that the presence of this species in Piedmont and Liguria needed of a verification. When compared to Conti et al. (2005), *P. alpinus* is recorded here also for Piedmont. No specimens were found from Liguria. The locality of quadrant nr. 9446 in Poldini (2002) is very probably sited in Austria and is reported by Hartl et al. (1992, Vidali, com pers.).

Potamogeton gramineus Linnaeus, Sp. Pl. 127. 1753

DESCRIPTION - Rhizome slender, terete, perennial. Stem branched, terete, annual. Submerged leaves sessile, lamina linear-oblong or narrowly oblong to lanceolate, 2-6 (-10) mm wide, (15-) 24-51 (-100) mm long, bright green to dark green, mucronate at apex; longitudinal veins 5-7 (-9); floating leaves present or absent, petiolate, lamina 7-30 mm wide, 25-75 mm

long; petiole (2-) 12-59 (-85) mm long; stipules 7-24 (-29) mm long; fruiting spikes (13-) 15-35 (-48) mm long with peduncle 18-90 (-120) long, usually thicker than the stem; fruits 2.4-3.1 (-3.6) mm long; endodermis of U-type, interlacunar bundles present.

DISTRIBUTION IN ITALY (Fig. 4) - Lazio, Lombardy, Piedmont, Sicily, Trentino-Alto Adige, Aosta Valley, Abruzzo, Calabria and Friuli-Venezia-Giulia.

ALTITUDE: from 120 to 2000 m.

When compared to Conti et al. (2005; 2007), the species is recorded here also for Calabria. Conti et al. (2005) report the presence of *P. gramineus* also in Veneto and Tuscany. For Tuscany the indication for the Padule di Fucecchio, turned out to be erroneous because based on a badly determined specimen. The record for Veneto was successively corrected in Conti et al. (2007).



Fig. 4 - *Potamogeton gramineus*: distribution in Italy according to the specimens visa (see the list in the text); empty circles = specimens recorded before 1950; full circles = specimens recorded after 1950.

For Friuli-Venezia Giulia, the species appears in Polidini (2002) but it is included in a quadrant at the border with Austria in which the specimen, preserved in TSB, was effectively collected (Egger Alpen See); the presence of *P. gramineus* in this region is however confirmed by a specimen from Lago del Predil preserved in OLM.

Doubt remains on the presence of the species in Campania based on a old reference derived from an indication of Terracciano (1873), recently reported by Del Guacchio (2007).

The species is therefore considered by Conti et al. (2007) as no longer recorded in Campania. Field records under the name *P. gramineus* from Sardinia are reported by Desfayes (2008) but no Sardinian specimens of this species were found in the consulted herbaria; the occurrence in this region is therefore not indicated in our map based on revised material.

Potamogeton lucens Linnaeus, Sp. Pl. 126. 1753

DESCRIPTION - Rhizome slender, terete, biennial to perennial. Stem unbranched or branched, terete, slender to robust, annual. Fully developed submerged leaves with lamina oblong to broadly elliptical, (11-) 21-60 mm wide, (42-) 72-135 (-210) mm long, yellow-green to bright green, mucronate at apex, denticulate at margins; sometimes that the lowest leaves reduced to phylloides; petioles of leaves with unreduced lamina 1,5-12 mm long, with relatively constant length along the stem (rarely some leaves sessile or petioles of leaves with reduced lamina sometimes up to 25 mm long); longitudinal veins 9-11; floating leaves always absent; stipules (16) 31-54 (-70) mm long; fruiting spikes (25-) 36-58 (-69) mm long with peduncle 40-280 long, conspicuously thicker than the stem; fruits 3.3-4.7 (-5.1) mm long; endodermis of U-type, interlacunar bundles present.

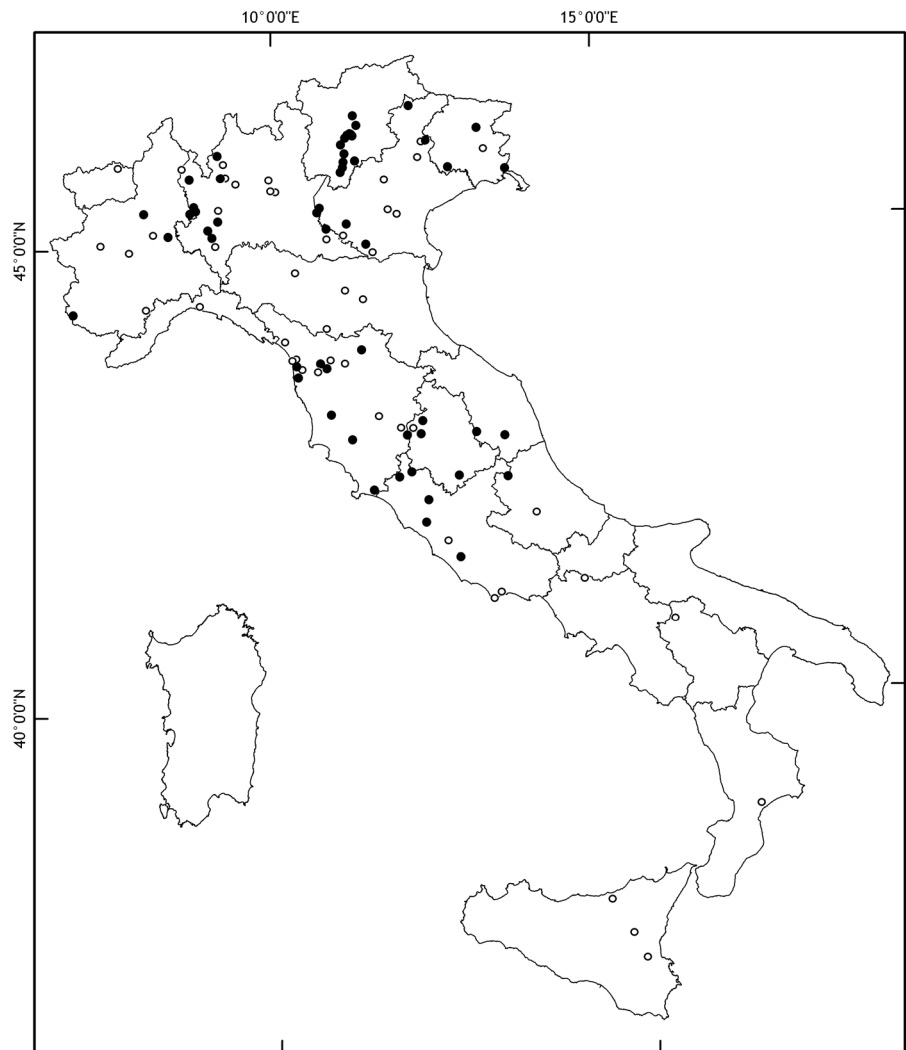


Fig. 5 - *Potamogeton lucens*: distribution in Italy according to the specimen visa (see the list in the text); empty circles = specimens recorded before 1950; full circles = specimens recorded after 1950.

DISTRIBUTION IN ITALY (Fig. 5) - Abruzzo, Basilicata, Calabria, Campania, Emilia-Romagna, Friuli-Venezia Giulia, Lazio, Liguria, Lombardy, Marche, Piedmont, Sicily, Tuscany, Trentino-Alto Adige, Umbria, Aosta Valley, Veneto.

ALTITUDE: 0-1930 m.

When compared to Conti et al. (2005), the present study identifies the occurrence of *P. lucens* also in Calabria. The specimen from Calabria is however very old (1898) and the actual presence of this species in this region should be verified by field surveys. Deshayes (2008) reported *P. lucens* from Sardinia but no sardinian collection of this species was found during our research. As already noted by Bocchieri & Poledrini (1983), some old records under the name of *P. lucens* are not documented by voucher herbarium specimens. The specimen determined as *P. lucens* from Taquisara (Ogliastra) preserved in FI belongs to *P. coloratus* and the specimens originally determined as such in CAG belong to *P. schweinfurthii* (see also Kaplan, 2005a) or to *P. polygonifolius* (rev. M. Deshayes, 17.5.2002).

Hybrids

Potamogeton x *salicifolius* Wolfg. in Schult. et Schult. f., Mant. 3: 355. 1827, pro sp.

DESCRIPTION - It is a sterile hybrid between *P. lucens* and *P. perfoliatus* and it is generally intermediate between its parents (Kaplan, 2007). It differs from *P. lucens* particularly in having the leaves sessile and semi-amplexicaul, and with more (9–17) longitudinal veins, and from *P. perfoliatus* by longer leaves with fewer veins and by bigger stipules.

DISTRIBUTION IN ITALY: Lombardy.

The finding of a specimen collected in PAV confirms the presence of this hybrid in Lombardy, where it has been recorded for the first time by Kaplan (2007) in Como Lake.

Key to *P. schweinfurthii* and similar species in Italy

- 1a. Submerged leaves sessile 2
- 1b. Submerged leaves petiolate (rarely subsessile), with petiole at least 1 mm long 4
- 2a. Submerged leaves obtuse at apex, with 9-15 longitudinal veins; stem unbranched; peduncle of fruiting spikes as thick as the stem apex *P. alpinus*
- 2b. Submerged leaves acute to mucronate at apex, with (5-) 7-9 (-11) longitudinal veins; stem often branched; peduncle of the fruiting spikes usually thicker than the stem 3
- 3a. Submerged leaves 2-6 (-10) mm wide, (15-) 24-51 (-100) mm long; stipules 7-24 (-29) mm long; fruiting spikes (13-) 15-35 (-48) mm long *P. gramineus*
- 3b. Submerged leaves (7-) 10-22 (-28) mm wide, (55-) 86-167 (-250) mm long; stipules (10-) 22-40 (-44) mm long; fruiting spikes 25-60 mm long *P. schweinfurthii*
- 4a. Submerged leaves with lamina oblong to broadly elliptical, (11-) 21-60 mm wide, petioles 1,5-12 (-25 in some leaves with reduced lamina) mm long (rarely some leaves subsessile), with relatively constant length along the stem; floating leaves always absent *P. lucens*
- 4b. Submerged leaves mostly narrowly oblong to oblong-elliptical, (7-) 10-24 (-40) mm wide, either the lower leaves sessile and upper shortly petiolate, with petioles 1-5 mm long (rarely up to 19 mm), or all leaves markedly petiolate with petioles (11-) 22-108 (-225), petiole length often variable along the stem; floating leaves present or absent 5
- 5a. Submerged leaves markedly petiolate, with petioles (11-) 22-108 (-225) mm long, lamina with (7-) 9-17 (-21) longitudinal veins; floating leaves usually present in adult plants; stem anatomy: endodermis of O-type, interlacunar bundles absent *P. nodosus*
- 5b. Submerged leaves sessile or shortly petiolate, with petioles 1-5 mm long (rarely some uppermost leaves rarely up to 19 mm), lamina with (5-) 7-9 (-11) longitudinal veins; floating leaves mostly absent (unknown in Italian plants); stem anatomy: endodermis of U-type, interlacunar bundles present *P. schweinfurthii*

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Summary: *Potamogeton schweinfurthii* A. Benn is recorded for the first time from peninsular Italy. This species was recently recorded from Sardinia and other Mediterranean islands, where it was confused with some other similar broad-leaved species of *Potamogeton*, in particular with *P. lucens*. The finding of *P. schweinfurthii* in two Tuscan localities (C Italy) initiated an investigation to verify the presence of further specimens of this plant among the material of similar *Potamogeton* species (*P. lucens*, *P. alpinus*, *P. nodosus*, *P. gramineus*) preserved in the main Italian herbaria. The herbarium survey allowed discovery of *P. schweinfurthii* also in Marche and Apulia regions. The distribution in Italy of four other similar *Potamogeton* species is specified through the herbarium investigation.

APPENDIX 1: SPECIMINA VISA

Potamogeton schweinfurthii

Marche: Dintorni di Fano: acquitrini in sinistra dell'alveo del Metauro a 5 Km dalla foce, 15 m, 09/1980, *L. Poggiani* (PESA sub *P. lucens*); Dintorni di Fano: pozze in sinistra dell'alveo del Metauro presso la Madonna del Ponte, 5 m, 01/08/1986, *A. Brillì-Cattarini*, *L. Gubellini*, *L. Poggiani* (PESA sub *P. lucens* ?); Dintorni di Mondolfo: stagni sulla sponda sinistra del Cesano, 5 m, 04/06/1981, *A. Brillì-Cattarini*, *L. Gubellini*, *L. Poggiani* (PESA sub *P. lucens*). **Apulia:** Lago Alimini piccolo, loc. Fontanelle (Otranto, Lecce), 08/08/2008, *F. Bartolucci* (Herb. Bartolucci, sub *P. lucens*). **Sardinia:** Riu Picocca, Burcei, Cagliari, 200 m, 19/07/1980, *E. Bocchieri*, *A. Poledrini* (FI sub *P. lucens*); Sardaigne, Rio Cannas, 23/07/1958, *Stemmler* (G); Picocca-Fluß südl. Muravera, S-Sardinien, 02/09/1970, *W. Jürgen Schrenk* (FR, sub *P. zizii*); Sardinien; Picocca, 02/09/1970, *R. A. Höfer* (FR, sub *P. zizii*); "Rio Picocca", Burcei, Cagliari, 24/06/1980, *E. Bocchieri et A. Poledrini* (CAG, sub *P. lucens*); ibidem, 19/07/1980, *E. Bocchieri et A. Poledrini* (CAG, sub *P. lucens*); ibidem, 200 m, 19/07/1980, (FI sub *P. lucens*); ibidem 05/06/1981, *E. Bocchieri et A. Poledrini* (CAG, sub *P. lucens*). **Tuscany:** Laghetto di San Fabiano (Monteroni d'Arbia), Siena, 15/09/2007, *P. Castagnini* (FI); ibidem, 12/08/2008, *F. Frignani*, *L. Lastrucci*, *B. Foggi*, *Z. Kaplan* (FI); Region of Tuscany: Province of Siena: water reservoir 1.1 km ENE of San Fabiano farm, 1.6 km NE of Monteroni d'Arbia, alt. 180 m, 12/08/2008, *Z. Kaplan*, *L. Lastrucci*, *F. Frignani* & *B. Foggi* 08/612 (PRA); Anghiari, lago artificiale in sponda destra del Te-

vere presso Viaio, 330 m, 20/07/2006, *L. Lastrucci*, *R. Benesperi* (FI); Anghiari, laghetti artificiali in sponda destra del Tevere presso loc. Viaio, 330 m, 12/08/2008, *L. Lastrucci*, *Z. Kaplan*, *B. Foggi*, *F. Frignani* (FI, SIENA); Tuscany (Italy), S. Fabiano/Monteroni d'Arbia (Siena), Die 29/09/2006, *Castagnini* (PRA); Tuscany (Italy), Anghiari (Arezzo), artificial lakes along Tevere River, 08/2006, *L. Lastrucci* (PRA); Region of Tuscany: Province of Arezzo: artificial lakes along Tevere (Tiber) River 3.5 km N of Anghiari: the lake 0.9 km NNW of Viaio; alt. 330 m, 12/08/2008, *Z. Kaplan*, *L. Lastrucci*, *F. Frignani* & *B. Foggi* 08/608 (PRA); Region of Tuscany: Province of Arezzo: artificial lakes along Tevere (Tiber) River 3.5 km N of Anghiari: the lake 0.7 km N-NNW of Viaio; alt. 330 m, 12/08/2008, *Z. Kaplan*, *L. Lastrucci*, *F. Frignani* & *B. Foggi* 08/611 (PRA).

Potamogeton nodosus

Campania: M. Alburno, lungo il fiume Tanagro, presso Polla, 10/06/1948, *A. De Philippis* (FI), Garigliano, s.d., *M. Tenore* (NAP); Fiume Garigliano presso il ponte (?), 23/06/1832, *G. Gussone* (NAP); Nel lago della Taverna delle Carraje presso Teano, 18/07/1834 *G. Gussone* (NAP); **Emilia-Romagna:** Codigoro, 3 m, 09/09/1991, *A. Brillì-Cattarini*, *S. di Massimo*, *L. Gubellini* (PESA); Fossi della pineta di Ravenna, 06/1864, *L. Caldesi* (TO et PI-CAR sub *P. natans*); Fontanetti lungo il fiume Secchia presso Rubiera, 05-06/1876, *E. Ferrari* (TO sub *P. natans*); Valli di S. Anna, lungo il Tanaro presso Modena, 11/07/1883, *A. Fiori* (FI sub *P. natans*); Parma, 06/1854, *G.*

Passerini (FI sub *P. natans*); Fossati nei dintorni di Modena, 07/1889, *A. Vaccari* (FI sub *P. natans*); Nelle fosse di S. Faustino in provincia di Modena, 21/06/1889, *A. Fiori* (FI sub *P. natans*); Fontanazzi di S. Faustino, 35 m, 19/04/1953, *D. Bertolani* (FI); Modena - Fosso Pratella, 11/06/1886, *C. Costa-Reghini* (PI); S. Savino (Reggio Emilia), 08/1936, *A. Bettini* (FI sub *P. natans*). **Friuli-Venezia Giulia**: Lago di Doberdò, 10 m, 10/08/1967, *L. Vascotto* (TSB); Litorale Veneto, 19/05/1951, S. Pignatti, (TSB); Lago di Sablici (Monfalcone), 31/10/1979, *L. Poldini* (TSB); Corno di Rosazzo, 20/05/1900, *L. Gortani* (FI sub *P. lucens*); Trieste, Valle S. Clemente 06/1922, *C. Marchesetti* (FI); Trieste, Ospio, 6/06/1879, *C. Marchesetti* (FI). **Lazio**: Nazzano Romano, 27/05/1986, *B. Anzalone* (RO sub *P. lucens*) *sp. pl.*; ibidem, 29/09/1980, *B. Anzalone* (RO); Rive del Tevere, 08/1944, *A. Cacciato* (RO); ibidem, 07/1945 *A. Cacciato* (RO); Rive del Tevere entro Roma, 09/1975, *B. Anzalone* (RO); Tevere, Ponte Regina Margherita, 09/1985, *B. Anzalone* (RO); Tevere, Ponte Milvio, 09/1979, *B. Anzalone* (RO); Lago di Martignano, 09/1976, *B. Anzalone* (RO) *sp. pl.*; Paludi Pontine, 05/1826, *E. Mauri* (RO); Terracina, 22/08/1928, *G. Lusina* (RO); Porto Badino, Terracina, 14/06/1929, *G. Lusina* (RO); Monte Circeo, Canale di Morticino, 17/05/1888, *N. Terracciano* (RO); Fossi della Magliana, 7/05/1862, *H. Rolli* (RO); Procoio, Lago di Vico (VT), 08/08/1985, *F. Anitori* (UTV); ibidem, 29/07/1986, *F. Anitori* (UTV); Lago di Vico (VT), settore E, Estate 1985, *A. Scoppola* (UTV); Lago di Vico (VT), settore NW, 27/07/1985, *A. Scoppola* (UTV); Caldera Lago di Vico (VT), tra B. Venere e Centro Velico, 24/07/1988, *A. Scoppola* (UTV). **Liguria**: S. Lazzaro Reale (Imperia), nel fiume Impero, 8/08/1937, *R. Corradi* (FI sub *P. natans*); Fosses a Villanova pres d'Albenga (Liguria occid.), 30/06/1882, *E. Burnat* (G-BU); Albenga (Liguria), 10/09/1887, *C. Bicknell* (G-BU); Pres de Dolceacqua, vallee de la Nervia, 06/07/1892, *G. Bicknell* (G-BU). **Lombardy**: Rio Torto-Abbadia Cerreto (MI), 17/09/1986, R. Cavani, V. Terzo, R. Zucchetti (PAV); Milano, Parco delle Cave, 125 m, 23/09/2006, *G. Galasso* (MSNM); Stagno Lombardo, 31 m, 30/08/2006, *G. Galasso* (MSNM); Trenno, 05/1953, *A. Piazzoli* (MSNM); Trenno, 120 m, 02/06/1991, *G. Galasso* (MSNM); Baggio, Parco delle Cave, 120 m, 26/05/1991, *G. Galasso* (MSNM); Canale tra Landriano e Locate, 30/11/1952, *A. Piazzoli* (MSNM); Laghetto di Segrate, 23/09/1952, *A. Piazzoli* (MSNM); San Donato Milanese, 08/05/1955, *A. Focarile* (MSNM); Canale a Mediglia, 04/11/1952, *A. Piazzoli* (MSNM); Canale a Est di Rozzano, 04/06/1953, *A. Piazzoli* (MSNM); Canale tra Rozzano e Basiglio, 06/1953, *A. Piazzoli* (MSNM); Rozzano, 1954, *C. Stucchi* (MSNM); Fossi di scolo delle risaie S. Cristina prov. di Pavia, 08/1878, *V. Mazzucchelli* (FI sub *P. natans*); Fossi e risaie fra Boschetto e Villalunga (N-W di Pavia), 12/07/1953, *S. Pignatti, Vido* (PAV) *sp. pl.*; Suardi (PV), 09/08/1983, *F. Bracco, F. Sartori, V. Terzo* (PAV); Ticino presso Pavia, s.d., *R. Farneti* (PAV); Cave di Manara, in palustribus, 03/07/1885, *P. Baccharini* (PAV); Ad Gravellona, 05/07/1885, *P. Baccharini* (PAV); Ad Ticinum, Canal Morto, 07/1884, *s. coll.* (PAV); Bressana, Paludi del Po, 07/1885, *ill.* (RO); Ad ripam lacus Lago di Garda in pago Toscolano, ca 2,5 km situ bor.-or. ab opp. Salo, ca 70 m n. m., 02/07/1998, *J. Štěpánková* (PRA); Bardello (Italian, Prov. Como), Lago di Varese, Höhe 238 m, Ausfluss des Sees, 21/07/1950, *E. Berger* (H, M, MSB). **Marche**: Dintorni di Loreto: luoghi acquitrinosi nell'alveo del Musone, 10 m, 23/05/1966, *A. Brillì-Cattarini* (PESA); Dintorni di Pesaro: acque più o meno stagnanti nell'alveo del Foglia, 10 m, 28/05/1962, *A. Brillì-Cattarini* (PESA); Dintorni di Apecchio: stagni artificiali presso Castel Guelfo 700 m, 01/10/1982, *A. Brillì-Cattarini, L. Gubellini* (PESA); Dintorni di Barchi: acque stagnanti nel lago di Barchi 120 m, 13/09/1985, *A. Brillì-Cattarini, L. Gubellini* (PESA); Fano, Metauro presso la Madonna del Ponte, 5 m, 01/08/1986, *A. Brillì-Cattarini, L. Gubellini* (PESA); Dintorni di Montecosaro: stagni artificiali nella valle del Chienti 40 m, 08/06/1984, *A. Brillì-Cattarini, L. Gubellini* (PESA); In palustribus maceratese, 04/1877, *B. F. Narducci* (FI sub *P. natans*). **Piedmont**: In un piccolo canale presso il Tanaro presso il ponte della ferr., 20/06/1902, *F. Vallino* (TO); Agro di Fontaneti Po, 30/05/1905, *F. Vallino* (TO); Fiume Po presso Moncalieri, 06/1973, *F. Montacchini* (TO); Tanaro, Roddi presso centrale Enel, 09/1987, *E. Rivella* (TO); Torino, laghetti Falchera, canale d'irrigazione, 22/05/2002, *S. Piovano* (TO); Cessole (AT) nelle acque del Bormida a valle del ponte, 03/09/1990, *G. Abbà* (TO); Po-Ebene: Reisfelder zwischen Oldenico und Greggio nördlich Vercelli, 01/08/1957, *H. Merxmüller & W. Wiedmann 4504* (M); Oberitalien: Reisfelder zwischen Oldenico und Borgo Vercelli, 30/05/1961, *H. Merxmüller & W. Wiedmann 4508* (M, sub *P. oblongus*). **Sardinia**: Oristano, 6-9/07/1895, *U. Martelli* (FI sub *P. natans*) - In aquis fluentibus Flumendosa, s.d., *D. Moris* (?) (TO sub *P. natans* ?); Rio Scala di Cioca (Giocca), s.d., *I. Nicotra* (RO); Sassari, s.d., *Solla* (RO sub *P. natans*); Rio di Usini, 1897, *I. Nicotra* (RO sub *P. lucens*); Decimomannu, lungo il Rio Mannu, 21/07/1968, *P.V. Arrigoni* (FI); S. Gilla, Assemmini, 21/08/1977, *Bocchieri, De Martis* (PI, sub *P. natans*); Sassari, Case Carta lungo il fiume Mascari, 06/07/1993, *S. Bagella et M. Urbani* (SS, sub *P. natans*); Sassari, Case Carta, 08/07/1993, *S. Bagella et M. Urbani* (SS, sub *P. natans*); Usini, Su Pianu e Sa Pira, 13/09/1993, *S. Bagella et M. Urbani* (SS, sub *P. natans*); Sardinia merid.: Fiume Palmas, 10/04/1971, *K. Holmen* (C, sub *P. coloratus*). **Sicily**: Siracusa, medio corso del Fiume Ciane, 30 m, 16/07/1999, *G. Giardina* (FI sub *P. lucens*); Foce del Fiume di Termini, Termini Imerese, 20 m, 19/97/1999, *G. Giardina* (FI, sub *P. lucens*); In aqua fontis vulga "Fonte Ciane" prope Siracusas, 5/06/1877, *A. Biondi* (FI et PI-ARC sub *P. natans*); Sicilia: Siracusa: fiume Ciane, 06/1885, *H. Ross* (M); Siracusa, Fontana Cyana, 22/05/1833, *F. L. Splüger* (L); Siracusa, 1886, *C. Marchesetti* (FI, sub *P. lucens*); Fiume Anapo, Siracusa, s.d., *s.coll.* (FI); Panormi S. Ciro 06/1837, *F. Parlatore* (FI et PI-CAR); ibidem, 03/1842, *F. Parlatore* (FI); ibidem, 10/1841, *F. Parlatore* (G); ibidem, s.d., *A. Todaro* (PI-CAR); Palermo a Rebuttoni, s.d., *A. Todaro* (FI sub *P. natans*); Sicilia: Palermo: fiume Oreto, 1899, *G. La Forte* (M, sub *P. natans*); Avola nelle acque dell'Asinaro e del Cassibile, 06-97/1858, *G. Bianca* (FI); Fiume S. Pietro, 08/1883, *F. Sorrentino* (FI); ibidem, 1896, *A. Todaro* (FI). **Tuscany**: Ardenza, presso Livorno, 06/09/1871, *S. Sommier* (FI, PERU); Nel Lucchese a Valdottavo, 08/1859, *O. Beccari* (FI); Valdottavo a Fiumicello, s.d., Giannini (PI-CAR sub *P. natans*); Padule di Asciano, 05/1892, *P. Pellegrini* (PI-PELL sub *P. natans*); Pisa, nelle acque dell'Arno presso il Ponte di Ferro, 09/08/1916, *M. Savelli* (FI); Pisa, nei fossi fuori della Porta a Lucca, lungo la via di S. Giuliano,

20/04/1916, *M. Savelli* (FI); Fossi d'acqua a San Giuliano, 5/5/1870, *E. Levier* (PI sub *P. natans*); Pisa, nelle acque scorren- ti del Fiume Morto, presso il ponte della via di Ponte a Serchio, 08/08/1916, *M. Savelli* (FI); Fiume Arno, Pisa, 07/1926, *M. Tani* (FI sub *P. natans*); Fiume Morto, S. Rossore, 9/05/1951, *A. Chiarugi, R. Corti* (FI sub *P. natans* var. *prolixus*); Presso S. Giuliano nel fosso di acqua termale a Caldaccoli, 18/05/1913, *M. Savelli* (FI sub *P. natans*); ibidem, 05/05/1890, *E. Levier* (FI, sub *P. natans*); Sibolla, 05/1887, *P. Fantozzi* (PI sub *P. natans*); Bi- entina, s.d., *N. Cberici* in Herb. Pichi Sermolli (FI); Poggio a Ca- iano, 7/5/1867, *E. Levier* (FI); ibidem, 09/1867, *E. Levier* (FI sub *P. natans*); Firenze, canali dell'acquedotto dell'Anconella, 24/01/1959, *B. Lanza* (FI); ibidem, 24/08/1958, *B. Lanza* (FI sub *P. natans*); Cascine, nell'Arno, 26/07/1929, *A. Fiori* (PI sub *P. natans*); Fucecchio, 06/1880, *U. Martelli* (FI); Sarteano, fosso delle travi, 29/04/1891, *P. Bargagli* (FI sub *P. natans*); Lago di ca- va presso Viaio (Anghiari, Arezzo), in destra idrografica del Te- vere, 12/08/2008, *L. Lastrucci, F. Frignani, B. Foggi, Z. Kaplan* (FI); Bosco ai Frati, S. Piero a Sieve, stagnetto al Bosco ai Ronchi, 14/08/2008, *L. Lastrucci, R. Becattini* (FI); Lago di Chiusi, sponda occidentale, 26/08/1980, (Herb. Orto Botanico FI); ibidem, 15/10/1980, *P.V. Arrigoni, C. Ricceri, M. Rizzotto* (Herb. Orto Botanico FI); lago di Montepulciano, 06/10/1932, *A. Fiori* (FIAF, sub *P. natans*); Laghetto presso il pod. Montet- onachi, Monteroni d'Arbia, 06/09/2006, *P. Castagnini, F. Romi* (Herb. Orto Botanico FI); Valdichiana aretina, canale Esse pres- so Foiano della Chiana, 2/07/2006, *L. Lastrucci, M. Landi* (FI); Region of Tuscany: Province of Arezzo: artificial lakes along Te- vere (Tiber) River 3.5 km N of Anghiari: the lake 0.9 km NNW of Viaio; alt. 330 m, 12/08/2008, *Z. Kaplan, L. Lastrucci, F. Frignani & B. Foggi* 08/609 (PRA). **Trentino-Alto Adige:** Val Sugana, Lago di Levico, 440 m, 08/09/2000, *F. Prosser* (ROV); ibidem, 11/06/1994, *F. Prosser* (ROV); Lago di Lamar, 718 m, 27/07/1999, *F. Prosser* (ROV); Tra Mezzocorona e Roverè della Luna, 205 m, 17/04/1997, *F. Prosser* (ROV); Maso Nuovo tra Mezzocorona e Roverè della Luna, 205 m, 04/06/1997, *F. Prosser* (ROV); Lago di Terlago, 415 m, 19/09/1992, *F. Prosser* (ROV); Grosser Montiggler See (Eppan), 480, 02/08/2005, *B. Thaler* (BOZ); ibidem, 492 m, 30/09/2007, *T. Wilhelm* (BOZ); Montigglersee, 500 m, 03/09/1905, *W. Pfaff* (PAD); Bahnhof Auer, 226 m, 18/10/2002, *F. Zemmer* (BOZ); Brennerbade, 1300 m, 28/07/1921, *F. Petz* (PAD); Terme del Brennero, Valle dell'Isarco, 1390 m, 23/07/1950, *S. Zenari* (PAD, FI). **Umbria:** Lago Trasimeno presso la Cava, 12/10/1888, *E. Tanfani*, (FI sub *P. natans*); Lago Trasimeno, 23/07/1955, *F. Palombini* (FI sub *P. natans*); Lago Trasimeno presso San Vito, 09/1888, *G. Cicioni* (PERU sub *P. natans*); Lago Trasimeno presso San Savino, 07/1890, *G. Cicioni* (PERU); Acque del Trasimeno presso Isola maggiore, 22/09/1898, *L. Palomba* (FIAF, sub *P. natans*); Biscina (Gubbio), Torrente Chiascio, 30/07/2008, *L. Lastrucci, R. Venanzoni, R. Barocco* (FI); M. Malbe in un laghetto presso Capoc- avallo, 14/07/1898, *L. Palomba* (FIAF, sub *P. natans*); Assisi (Pe- rugia), fosso tra Tordanera e Castelnuovo, 190 m, 07/08/2008, *F. Falcinelli* (PERU). **Veneto:** Sermide, Oasi di Gagnola, 12,24/05/2003, *F. Prosser* (ROV); Cave di Ronco all'Adige, 20 m, 06/04/2002, *F. Prosser* (ROV); Grezzano (com. di Mozzec- cane), 40 m, 23/08/2002, *F. Prosser* (ROV); Tra Vigasio e Poveg- liano nel fiume Tartaro, 45 m, 02/03/2002, *F. Prosser* (ROV);

Palude del Busatello, 14 m, 07/10/2001, *F. Prosser, F. Festi* (ROV); San Pietro in Valle, al Chiesone, 15 m, 07/10/2001, *F. Prosser, F. Festi* (ROV); Loreggia, Laghetto di Villa Wollemborg, 27/05/1906, *A. Beguinot* (PAD); Biadene, 1890, *F. Saccardo* (PAD); Castellare, s.d., *F. Saccardo* (PAD); Chioggia, 06/1884, *Herb. Chiamenti* (PAD) sp. pl.; Cortina d'Ampezzo, Lago Costa- lares, 1500 m, 25/07/1942, *S. Zenari* (PAD); Legnago fossi, 2/10/1896, *L. Vaccari* (FI).

Potamogeton alpinus

Friuli Venezia Giulia: Lago della Plotta, Rif. Marinelli, 2122 m, 11/09/2001, *M. Tomasella* (TSB); Lago sopra C.ra Tarandon al- ta, 1955 m, 22/08/1998, *L. Poldini* (TSB); ibidem, 03/09/2002, *M. Tomasella* (TSB); Laghetto di Bortaglia (Forni Avoltri), 1820 m, 01/09/1967, *L. Poldini* (TSB); Alpi Carniche, Piz di Mede, 1989 m, 16/08/1992, *F. Martini* (MFU). **Lom- bardy:** Canale a Cornaredo, 05/11/1952, *A. Piazzoli* (MSNM); Fraele, Val Alpisella (SO), 2230 m., 07/08/1985, *R. Gerdol et M. Brusoni* (PAV). **Piedmont:** Cuneo, Col della Maddalena, 1930 m, 13/07/2003, *F. Prosser* (ROV); Salbertrand (Val di Susa), ac- quitrini presso il colle Blegier, 10/09/1930, *Fontana, Crosetti* (?) (TO); Nell'Ossola presso Anzola, 22/09/1889, *E. Chioventa* (FI); Anzola d'Ossola, 07/09/1889, *E. Chioventa* (RO); In paludibus submontanis prope "Anzola d'Ossola", Argentera, 07/09/1889 *E. Chioventa* (PAV); Canali profondi. Premosello (Ossola), 07/1892, *S. Bassi* (G); Laghetto nel Bosco bandito, 25/08/1910, *A. Zola* (FI); Alpi Marittime, Colle della Lomba- da, 2300 m, s.d., *G.G. Bellia* (RO). **Trentino-Alto Adige:** Val di Fassa, Passo San Pellegrino, laghetto delle Pozze, 1914 m, 11/09/2001, *F. Prosser* (ROV); Passo Rolle, laghi del Colbricon, 1922 m, 04/08/1994, *F. Prosser* (ROV); Lago Juribrutto (Cate- na Bocche-Lusia), 2210 m, 20/07/1995, *F. Festi* (ROV); Lago- rai, Lago di Cece, 1880 m, 22/07/1995, *F. Festi* (ROV); Tanfers verso Gais, s.d., *L. Facchini* (TR); Seeber Alm, Moso in Passiria, 2056 m, 17/08/2005, *T. Wilhelm, A. Rinner, W. Tratter* (BOZ); Hochalmsee (Enneberg), 2252 m, 06/08/2005, *T. Kiebacher* (BOZ); Grunsee, am Fusse der kleinen Eidechsspitze, 2253 m, 08/1928, *P. Tschurtschenthaler* (PAD); Reschensee (Nordrand), 1480 m, 15/08/1922, *W. Pfaff* (PAD); Sterzing bei Thumburg, 950, 01/07/1920, *F. Petz* (PAD); Region of Trentino-Alto Adi- ge: Province of Bolzano: eastern edge of Lake Muta (Lago di Muta, Haider See) at San Valentino alla Muta, 08/06/2004, *Z. Kaplan et J. Štěpánková* 04/64 (PRA). **Aosta Valley:** Circa lacus Valtournenche et Chamollet in valle augustana, s.d., *Piottaz in Herb. Biroli* (TO). **Veneto:** Cortina d'Ampezzo, 2040 m, 29/08/1998, *C. Argenti* (ROV); Col di Lana, Laghetto di Ger- da, 29/08/1998, *C. Argenti*, 2180 m, (ROV); Lago di Gerda, Col di Lana, Livinallongo, 2200 m, 29/08/1998, *C. Argenti* (PAD); Lago da Lago, Rifugio Palmieri, Cortina d'Ampezzo, 2000 m, 29/08/1998, *C. Argenti* (PAD).

Potamogeton gramineus

Abruzzo: Lago di Campotosto, sotto Mascioni, 1315 m, n. 1912, 7/08/2002, *F. Conti, D. Tinti* (APP). **Calabria:** Calabria (Sila); c. 25 km. W. of San Giovanni in Fiore. Lago Arvo, c. 7 km. W. of Lorica. c. 1300 m. Edges of lake, 18/06/1979, *D. Davis et S. Sut- ton* D.65455 (E). **Friuli-Venezia Giulia:** Alpi Giulie, Lago di Predil (959 m), 08/08/1997, *P. Kusák* (OLM). **Lazio:** Lago di

Canterno, 13/08/1897, *A. Pappi* (RO); ibidem, 09/09/1965, *G. Montelucci*, (RO); ibidem, 09/09/1965, *B. Anzalone*, (RO) *sp. pl.*
Lombardy: Cuggiono, 02/1931, *C. Stucchi* (MSNM). **Piedmont:** Nei canapai in Valle di Membra (?) presso Armeno, L. d'Orta, 09/1906, *G. Gole* (TO); Fontaneto Po, lungo i canali e i fossati, 9/7/1906, *E. Ferrari* (TO); Vercelli, verso Torino, in una depressione del terreno con acqua stagnante, 1972?, *G. Abbà* (TO); Caresana. Nelle risaie vercellesi, 26/6/1864, *A. Malinverni* (FI); Aldernio (?), risaia al Vallone della Dobba di Levante, 14/07/1864, *A. Malinverni* (RO); Po-Ebene: Reisfelder zwischen Oldenico und Greggio nördlich Vercelli, 01/08/1957, *H. Merxmüller & W. Wiedmann 4497* (M); Prov. Novara: Bewässerungsgraben zwischen Oldenico und Albano Verellese, 01-08/06/1963, *D. Podlech 8841* (MSB, sub *P. alpinus*). **Sicily:** Lago Pian del Leone (Filaga), 829 m, 18/7/1996, *E. Schimmenti, G. Scafi di* (PAL); ibidem, 8/8/1996, *E. Schimmenti, G. Scafi di* (PAL); ibidem, 20/7/1996, *G. Giardina* (FI). **Trentino Alto-Adige:** Stenico, Lago Valagola, 1585 m, 7/9/2006, *F. Prosser* (ROV); Val di Cembra, Loc. Vegiose, 1220 m, 17/8/1999, *F. Prosser* (ROV); ibidem, 14/7/1999, *F. Prosser* (ROV); Val di Non, Lago di Tavon, 860 m, 21/8/2000, *F. Prosser* (ROV); Laghetto di Villa Welsberg (Fiera di Primiero), 20/7/1979, 1000 m, *E. et S. Pignatti* (TSB sub *P. nodosus*); Laghetto di Andalo, 18/8/1898, *Gelmi* (TR); Pinè, Brusago, 17/8/1893, *Gelmi* (TR); Lago di Brusago (Pinè), 03/07/1881, *M. de Sardegna* (WU). **Aosta Valley:** Lago Lauzon, 2/06/1900, *L. Vaccari* (FI).

Potamogeton lucens

Abruzzo: Ad lacum Molina in Aprutium, 07/1876, *H. Groves* (FI); Lago di Campotosto, 1315-1350 m, 2/07/1999, n. 2928, *F. Conti, D. Tinti* (APP). **Basilicata:** In Vulturio, lacubus Monticchio, 07/1880, *A. Biondi* (FI); Foresta di Monticchio, nei laghi, 652 m, 19/07/1918, *A. Fiori* (FI et FIAF). **Calabria** Catanzaro, 07/1898, *F. Amigoni* (FI). **Campania** Nel chiaro del lago del Matese, 20/08/1891, *U. Martelli* (FI). **Emilia-Romagna:** Valli di Molo (?), 23/05/1880, *E. Ferrari* (TO); Castelfranco Bolognese, 22/05/1884, *A. Fiori* (FI); In paludibus bononienibus, 1842, *A. Bertoloni* (FI); Parma, 1874, *G. Passerini* (FI); Nelle paludi di Crocetta, pressi di Bologna, 03/05/1906, *A. Fiori* (FI); Lago di Pratignano, 08/1883, *Pizzini* (RO sub *P. natans*). **Friuli Venezia Giulia:** Gorizia (Lago di Doberdò), 8 m, 19/07/1966, *L. Vasotto* (TS); ibidem 25/04/1969, *S. Pignatti* (TS); Padule di Barco (Azzano X), 21/08/1976, *L. Poldini* (TS); Udine, Ospedale, 20/09/1937, *G. Fornaciari* (MFU); Udine, Ospedaletto - Gemona - Lago Minisini, 05/06/1955, *G. Fornaciari* (MFU). **Lazio:** Lago di Bracciano, Trevignano, prov. Roma, 09/1976, *B. Anzalone* (RO); Lago di Bracciano, 09/1978, *Bazzichelli* (RO); ibidem 01/11/1990, *B. Anzalone* (RO); Lago di Albano, 09/1979, *B. Anzalone* (RO); Paludi Pontine, 05/1932, *Sanguinetti* (RO); Terracina, 22/07/1928, *G. Lusina* (RO); ibidem, 18/06/1928, *G. Lusina* (RO); Monte Circeo, Canale di Morticino, 27/05/1888, *N. Terracciano* (RO et G); Castelfusano, 24/05/1929, *G. Lusina* (RO); Castel Gandolfo, 20/07/1857, *H. Rolli* (RO); Selva del Lamone, Lago di Mezzano, 01/10/1988, *B. Anzalone* (RO); Lago di Vico, 23/09/1897, *A. Pappi* (RO); Caldera del Lago di Vico (VT), Estate 1985, *A. Scoppola* (UTV); Procoio, lago di Vico, 08/08/1985, *F. Anitori* (UTV); ibidem, 29/07/1986, *F. Anitori* (UTV); Region of Lazio: Province of

Viterbo: Lake Bolsena (Lago di Bolsena) 6 km S of Grádoli, 05/06/2004, *Z. Kaplan et J. Št pánková 04/52* (PRA). **Liguria:** Genova Nervi in canaletto ai molinetti, 06/1945, *R. Cucini* (SIENA). **Lombardy:** Tra Castiglione Mantovano e Colombare, 35 m, 10/05/2003, *F. Prosser* (ROV); Lago di Mantova, s.d., *s. coll.* (TR); Pescallo, 01/09/1928, *L. Fenaroli* (TR, sub *P. zizii*); Lago superiore sul Mincio, 06/1853, *A. Magnaguti* (FI); Lac du Mantua, 06/1862, *A. Magnaguti* (RO); Lago d'Iseo, s.d., *L. Fenaroli*, (TR); Acque del Ticino, 21/07/1951, *S. Facchetti* (PAV); In "Gravellani" flumine, 07/1896, *G.B. Travero* (PAV); Risaie presso Sabbione e Carbonara Ticino, 22/07/1953, *S. Pignatti* (PAV) *sp. pl.*; Lanche del Ticino, 07/1888, *R. Farneti* (PAV); Canal Morto del Ticino, 07/1884, *R. Farneti* (PAV); In aquis mortui Ticini, 12/07/1884, *R. Farneti* (PAV); Boffalora Ticino, 15/06/1986, *S. Gomasca* (MSNM); Palude di Brabbia, 15/06/1986, *S. Boiandi* (MSNM); Lancone presso Pavia, 06/1886, *F. Cavara* (PAV); Pavia, Lanche del Ticino, 02/05/1954, *A. Piazzoli* (MSNM); Lambrate, 05/1941, *S. Viola* (MSNM); Lago di Annone, 01/06/1956, *A. Piazzoli* (MSNM); Cuggiono, 07/1924, *C. Stucchi* (MSNM); Basiglio, canali, 6/1953, *A. Piazzoli* (in herb. Stucchi) (MSNM); Lago di Brivio (espansione dell'Adda), 10/1864, *V. Cesati* (TO); Lago Alserio, 05/1864, *Ved. Rampoldi* (FI); Lago d'Alserio, lato sud presso Pontenuovo (Erba), 29/05/1919, *M. De Angeli et R. Cobau* (PAV); Nel Lago d'Alserio a Pontenuovo, 19/07/1919, *ill.* (herb. Cobau) (PAV); Lago di Annone, Sala al Barro (CO), 15/07/1910, *R. Cobau* (PAV); Erba, Lago di Annone, 04/07/1956, *A. Chiarugi, R. Corradi, R. Bavazzano* (FI); ; Lago di Piano (CO), 23/09/1983, *R. Gerdol* (PAV); Qua e là nel lago di Pusiano (CO), 29/05/1919, *M. De Angeli et R. Cobau* (PAV); Laghi del Mincio, 07/1888, *A. Vaccari* (FI); Bressana, Paludi del Po, 07/1885, *ill.*, (RO sub *P. fluitans*; Lago d'Endine, pres Ranzanico, valle Cavallina, 02/08/1913, *P. Chenevard* (G); Sarnico (BG), s.d., *s. coll.* (PAV); Pres humides en face de Sarnico, 07/08/1912, *P. Chenevard* (G). **Marche:** Lago di Amandola, 350 m, 12/07/1982, *A. Brillì-Cattarin, L. Gubellini* (PESA); In paludibus maceratense, 04/1877, *Narducci* (FI). **Marche/Umbria:** Piani di Colfiorito, 05/07/1977, *B. Anzalone* (RO). **Piedmont:** Lac du col de la Maddalena, 31/07/1883, *E. Burnat* (G-BU); Col della Maddalena, 1930 m, 13/07/2003, *F. Prosser* (ROV); Lago della Maddalena, 28/8/1881, *ill.* (TO); Flora del Monferrato, 1879, *A. Negri*, (TO); Torino, fossi intorno al lago di Azeglio, 06/1884, *F. Vallino* (TO); Laco di Vivrone (oggi Viverone), *ill.*, *s. coll.* (TO); Lago di Viverone, 1829, ex Bertola in *Herb. Bruno* (TO); Lago di Viverone, 13/07/1989 e 10/08/1989, *L. Guglielmetto*, (TO); ibidem, 10/1864, *Dal Ponte* (FI); ibidem, 07/1897, *E. Ferrari* (RO); Langhe, stagni lungo al Belbo circa al 5° Pozzo, 14/06/1929, *P. Fontana et al.* (TO); Lungo il canale scaricatore del lago di Avigliana, 02/07/1897, *E. Ferrari* (TO); Avigliana, fossi presso l'emissario del Lago, 04/06/1922, *G. Negri, R. Raineri, P. Fontana* (FI); Torbiera del lago grande di Avigliana, 02/07/1897, *U. Valbusa* (TO); Risaie delle case, Bauda di Leccedro (?), Fontaneto Po, 1909, *Herb. Vallino*, (TO); Trecate, nel canale Langosco, 02/08/1980, *G. Abbà*, (TO); Trecate, in canale nei pressi del Ticino, 30/06/1978, *G. Abbà*, (TO); Negli stagni a Balzola, 11/08/1978, *G. Veralda* (TO); Sale delle Langhe - Val Bembo, 02/07/1937, *F. Vignolo-Lutati* (FI); Chieri - Lago d'Arigliano, 27/07/1905, *G. Pellanda*

- (FI); In Verbanò, 08/1861, *Zamboletto* (?) (RO); Lago Maggiore, *s.d.*, *s. coll.* in Herb. Bruno (TO); Fossi a Fontaneto Po, 1870, Negri in Herb. Carestia (TO). **Sicily:** Bosco di Caronia, 03/1842, F. Parlato (FI); Lago di Lentini, 24/04/1898, *P. Baccarini* (FI); Lago di Carcaci, 29/05/1856, *s. coll.* (PAL); Sicilia, *s.d.*, *Tineo* (L). **Tuscany:** Roccastrada-Sticciano, stagno artificiale presso Pian di Muro, 100 m, 01/06/2002, *F. Selvi* (Herb. Selvi); Capalbio, 90 m, 08/08/2004, *S. Sforzi*, *P. Senesi* (Herb. Selvi); Capalbio, lago in loc. La Sdriscia, 50 m, 20/07/2005, *F. Selvi*, *L. Lastrucci* (Herb. Selvi); Lago Acquato, 17/06/1982, *A. Giordani*, *L. Cocchi* (PI); Monsummano, 05/1869, *L. Caldesi* (TO); Massa, nei fossi del padule di Magliano, 10/06/1943, *P. Pellegrini* (PI-PELL); Nelle fosse del padule di Massaciuccoli, 07/1857, *O. Beccari* (TO); Lago di Massaciuccoli, 10/07/1920, *R. Pampanini* (FI); Torre del Lago, 11/06/1871, *T. Caruel* (PI-CAR et PI-ARC); Viareggio sul canale, 1879, *ill.* (FI); Viareggio, 05/1879, *R. Ricci* (FI); Viareggio presso Le Torbiere, 05/1877, *R. Ricci* (FI); Viareggio nel padule, 31/05/1878, *A. Bottini* (PI); Padule d'Asciano, 09/1869, *s. coll.* (*T. Caruel*?) (PI-ARC); Presso le cave di San Giuliano (San Giuliano Terme), 28/11/1913, *M. Savelli* (FI); Via di Palazzetto presso San Giuliano, 05/06/1904, *E. Barsali* (PI); Nel fosso di Fiume Morto a Palazzetto, 06/1887, *P. Pellegrini* (PI-PELL); Nei fossi alla Madonna dell'Acqua, 05/1889, *P. Pellegrini* (PI-PELL); Pisa, Padule di San Rossore, 25/07/1951, *A. Chiarugi*, *R. Corti*, *G. Negri* (FI); Bosco di Migliarino, 09/07/1983, *R. Poli* (PI); Padule di Bientina, 14/06/1843, *A. Tassi* (SIENA); ibidem, 24/06/1846, *A. Tassi* (SIENA); Lago di Bientina, 06/1852, *Bicchi* (PI); ibidem, 07/07/1853, *M. Grilli* (FI); ibidem, 07/07/1855, *T. Caruel* (PI-CAR); Bientina, *s.d.*, *N. Cherici* in Herb. Pichi Sermolli (FI); Altopascio, 03/06/1901, *P. Baccarini* (FI); Sibolla, *P. Fantozzi*, 05/1887 (PI); ibidem, 28/05/1933, *R. Pichi Sermolli* (FI); Altopascio, Lago di Sibolla, 09/1876, *L. Aiuti* (FI); Padule di Fucecchio, 06/1878, *G. Arcangeli* (FI et PI); ibidem, 10/09/1980, *P.E. Tomei*, *A. Giordani*, *G. Ficini* (PI); Poggio a Caiano, 09/1867, *E. Levier* (FI); Cascine di Tavola di Poggio a Caiano, 06/1889, *C. Costa-Reghini* (PI); Lago di Chiusi, 29/06/1951, *R. Pichi-Sermolli*, *R. Corradi* (FI, FIAF, SIENA); Campagna di Lucca, 5/1843, *s. coll.* (SIENA sub *P. crispus*); Salto alle Vecchie, 13/06/1989, *B. Novelli*, *S. Plastino*, *E. Bianucci* (PI); Lago di Chiusi, sponda occidentale, 25/08/1980, *P.V. Arrigoni*, *C. Ricceri* (Herb. Orto Botanico FI); Riserva Naturale Caselli, 29/05/2002, *F. Selvi* (FI); Lago di Montepulciano, 07/1883, *H. Groves* (FI); Lago di Montepulciano, 01/09/1909, *G. Cicioni* (PERU); Bosco ai Frati, laghetto ai Ronchi, 14/08/08, *L. Lastrucci*, *R. Becattini* (FI); Monte Oliveto Maggiore (Siena), 08/06/1896, *F. Tassi* (SIENA). **Trentino-Alto Adige:** Roncafort (Trento), 194 m, 26/07/2004, *A. Cavaagna* (ROV); Monterovere, 31/08/1900, *Gelmi* (TR); Altipiano di Vezzena nel laghetto di Monterovere, 1184 m, 12/07/2002, *F. Prosser* (ROV); Aldeno, Maso Negri, 180 m, 05/05/1997, *F. Prosser* (ROV); Zento Vecchio (tra Mezzocorona e Roverè della Luna), 205 m, 17/04/1997, *F. Prosser* (ROV); Vallagarina, Lago di Cei, 916 m, 03/07/1990, *F. Prosser* (ROV); ibidem, 14/08/1988, *F. Prosser*, (ROV); Pasqualina, presso Zambana Vecchia, 201 m, 20/09/1992, *F. Prosser* (ROV); Maso Nuovo (tra Mezzocorona e Roverè della Luna), 205 m, 26/09/1992, *F. Prosser* (ROV); Dosseni presso Roverè della Luna, 210 m, 27/12/1992, *F. Prosser* (ROV); Castelpietra presso l'idrovora, 176 m, 18/06/1991, *F. Prosser* (ROV); Gardolo, 05/1954, *A. Rizzoli* (TR); Trento, *s.d.*, *Gelmi* (TR); Campotrentino, 05/06/1900, *Gelmi* (TR); Klainer Montiggler See, 590 m, 20/07/2006, *R. Beck* (BOZ); Margreid, 210 m, 06/06/2003, *F. Zemmer* (BOZ); Salurn, 212 m, 30/05/2003, *F. Zemmer* (BOZ); Auer, 226 m, 18/10/2002, *F. Zemmer* (BOZ); Kurtinig, 213, 30/08/2002, *F. Zemmer* (BOZ); ibidem, 06/09/2002, *F. Zemmer* (BOZ); Grosser Montiggler See (Eppan), 480 m, 02/08/2005, *B. Thaler* (BOZ); Flora tridentina, ad zonam vallium in locis paludosis, 09/1849, *Filli Perini* (FI). **Umbria:** Padule di Colfiorito (Foligno), 15/07/1951, *A. Messeri* (FI); Lago di Colfiorito, 06/1887, *A. Batelli* (PERU sub *P. natans*); Passignano sul Trasimeno, 25/07/1990, 255 m, *A. Brillì-Cattarini* & *L. Gubellini* (PESA); Acque del Trasimeno presso S. Feliciano, 05/1887, *G. Cicioni* (TO); ibidem, 26/04/1885, *s. coll.* (PERU); Lago Trasimeno, 04/1886, *A. Batelli*, (FI); ibidem, 05/07/1886, *G. Cicioni*, (RO); In aquis circa Castiglione, 06/1890, *G. Cicioni* (FI); Lago Trasimeno a Castiglione, 06/07/1886, *G. Cicioni* (PERU); Trasimeno, Castiglione 05/1886, *A. Batelli* (PERU); Lago Trasimeno a San Savino, 07/1890, *G. Cicioni* (PERU) Isola Minore, Lago Trasimeno, *s.d.*, *G. Terracciano* (RO); Region of Umbria: Province of Perugia: Lake Trasimeno (Lago Trasimeno) 2 km N of Panicarola (near Panicale), 06/06/2004, *Z. Kaplan* et *J. Štěpánková* 04/56 (PRA); Sponda orientale del lago di Piediluco, 30/07/1953, *A. Chiarugi*, *R. Corradi*, *A. Contardo* (FI); Lago di Piediluco, 06/1832, *E. Fiorini-Mazzanti* (RO). **Aosta Valley:** Lago di Lao a N. di Valtourmenche, 07/1900, *F. Vallino* (TO); ibidem, 1600 m, 21/07/1900, *L. Vaccari* (FI). **Veneto:** Cortina d'Ampezzo, Lago di Pianosè 1100m, 18/09/2004, *C. Argenti* (ROV); Ponte nelle Alpi, Paludi d'Alpago, 380 m, 05/07/1997, *C. Argenti* (ROV); Vallese, presso Torre del Sasso, 25 m, 30/03/2002, *F. Prosser* (ROV); Valle Fiocco, presso la Casona, 9 m, 01/05/2002, *F. Prosser* (ROV); Peschiera, nel Mincio, 65 m, 23/09/2001, *F. Prosser* (ROV); Lazise, 29/06/1953, *A. Focarile* (MSNM); Lago di Pianozes, Cortina, 09/95, *R. Menardi* (PAD sub *P. alpinus*); Lago di Lago (Vittorio), 226 m, 16/07/1899, *R. Pampanini* (TO, FI, RO); Prati del Patriarca, presso Padova, 06/1897, *A. Fiori* (FI); Al Patriarca (Battaglia), 10/06/1897, *P. Bolzon* (FI); Valli di Piave, prov. Padova, 08/06/1894, *A. Fiori* (FI); Lago di Lago, nella tagliata, 226 m, 09/07/1897, *R. Pampanini* (FI); Bagnolo di Po, 14/06/1898, *A. De Bonis* (FI); Valli Veronesi, Tartaro, 1882, *A. Goirano* (FI); Benaco (Lago di Garda), 1848, *A. Bracht* (FI); Campo San Pietro presso Bassano, 08/09/1847, *G. Montini* (FI); La Secca (del Piave), *s.d.*, *M. Minio* (FI); Fiume Brenta, 18/7/1880, *Graziadei* (TR); Arlesega presso Padova, 08/1917, *R. Cucini* (SIENA); Venetia, prov. Verona, in fossis inter Peschiera et Sermione loc. „la Lugana“ fol. calcar. 75-80 m. s. m., 30/06/1897, *Rigo* (M); Venetia, in fossus circa Piscariam prope Veron, 06/1904, *G. Rigo* (G-BU); Prov. Verona, Gardasee-Ausfluß bei Peschiera, 11/06/1977, *H. Wagner* (SZU).
- Potamogeton salicifolius**
Lombardy: Canale lungo la via Filippo Argellati, 02/08/1914, *R. Cobau* (PAV sub *P. lucens*); Darsena di P. Ticinese a Milano, 02/08/1914, *R. Cobau* (PAV sub *P. lucens*).



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