NOBANIS - Invasive Alien Species Fact Sheet

Spiraea tomentosa

Authors of this species fact sheet: Zygmunt Dajdok[1], Arkadiusz Nowak[2], Władysław Danielewicz, Jolanta Kujawa-Pawlaczyk[4] and Waldemar Bena[5]
[1]Institute of Plant Biology, University of Wroclaw, Kanonia Str. 6/8; PL-50-328 Wroclaw, Poland
tel. +48 71 375-40-87, fax. +48 71 375-41-18; E-mail: dajdokz@biol.uni.wroc.pl
[2]Chair of Biosystematics, Opole University, 22, Oleska Str., PL-45-052 Opole, Poland; E-mail: anowak@uni.opole.pl
[3]Chair of Forest Botany, A. Cieszkowski Poznan University of Life Sciences; 71d, Wojska Polskiego Str., PL-60-625 Poznań, Poland. E-mail: danw@au.poznan.pl
[4]Chair of Forest Botany, A. Cieszkowski Poznan University of Life Sciences; 71d, Wojska Polskiego Str., PL-60-625 Poznań, Poland; E-mail: jolapawl@wp.pl
[5] Olszewskiego Str.7, PL-59-900 Zgorzelec; E-mail: waldemarbena@gmail.com

Bibliographical reference – how to cite this fact sheet:
Dajdok, Z., Nowak, A., Danielewicz, W., Kujawa-Pawlaczyk J. and Bena, W. (2011): NOBANIS – Invasive Alien Species Fact Sheet – *Spiraea tomentosa*. – From: Online Database of the European Network on Invasive Alien Species - NOBANIS www.nobanis.org, Date of access x/x/20xx.

Species description

Scientific names: *Spiraea tomentosa* L. Rosaceae

Synonyms: *Sorbaria aitchisonii* - (Hemsley) Hemsley ex Rehder, *Sorbaria tomentosa* (Lindley) Rehder.

Common names: Hardbark spirea, Steeplebush (USA), Gelbfilziger Spierstrauch (DE), Filtet spiræa (DK), Viltjas enelas (EE), nukkapajuangervo (FI), Hærukvistur (IS), Viltige spirea (NL), Filtspirea (NO), Tawuła kutnerowata (PL), Indisk rönnspirea (SE).

Species identification

Spiraea tomentosa is a shrub, it is <1.5–3.0 m tall, profusely suckering and forming large patches. The bark is brown and peeling off in thin stripes. Annual stems are upright, densely brown tomentose, especially in the top. The buds are less than 2 mm long, ovoid, obtuse and brown tomentose. Leaves are short-petiolate, oblong in the lower part of the stems, and more or less ovate above, 3–8 cm long, 2–4 cm wide, beyond the base sharply serrate, dark green, and rugulose, with impressed veins above, and densely yellowish-gray tomentose beneath. The flowers are small (4 mm in diameter) and very numerous (several hundred to more than a thousand), found in dense, narrowly conical panicles up to 25 cm long and up to 7 cm broad. The petals are pale pink to rose-purple, calyx pubescent (Fig.1 and 2). The fruit is composed of five hairy follicles, each with 2–10 very small, light, winged seeds. The time of flowering is July to September.


Fig. 1 and 2. *Spiraea tomentosa*, photos by Zygmunt Dajdok and Waldemar Bena.

Native range
The steeplebush's natural distribution range covers the eastern part of North America, from SE-Canada to the north-eastern regions of the United States (Hereźniak 1992, Erhardt et al. 2002). For a distribution map of the species in its native range see USDA's Natural Resources Conservation Service "Plants Source and Reference Profile".

Alien distribution

History of introduction and geographical spread
In Europe, the first known cultivation of *Spiraea tomentosa* was in England, 1736 (Hardtke and Ihl 2000). In Norway, this species has been known in cultivation in private gardens since 1837. Unlike many other *Spiraea* species, steeplebush is rarely used as a decorative plant due to its specific soil requirements, which are difficult to satisfy in garden circumstances. So far, information on naturalised stands of steeplebush are known from Belgium (Van Landuyt et al. 2006), Denmark (Bruus et al. 2007), Norway (Gederaas et al. 2007), Slovenia (Hegi 1961), Germany (Hardtke and Ihl 2000; Kott, 2009) and Poland. For Germany, no figures regarding first imports are available. Around 1900, *S. tomentosa* was planted along field margins in the Upper Lusatia, Saxony (Kampa, 2000). Within a few years it ran wild and naturalised (Barber, 1911).
Information on distribution of the species in Germany is included, i.e. in Atlas of Plants in Saxony (Hardtke and Ihl 2000), mentioning more than 50 locations within a network of 2 km squares. Only three of the locations were already known in 1950–1989, whereas most observations were recorded in 1990–1999. A large proportion of these stands are found near the Polish boundary. Outside Saxony only one another record is available for Germany. Hegi (1961) mentioned a naturalised stand near Hamburg, which was probably destroyed by construction of streets and buildings in the beginning of the 20th century (S. Nehring, pers. comm.).

In Belgium, the species has been established in the wild in 1870. It has been reported from 37 grid cells, mainly in the Northern part of the country (Kempen). In contrary to the situation in Central Europe, the species is rather declining. Most observations were made between 1940 and 1980.

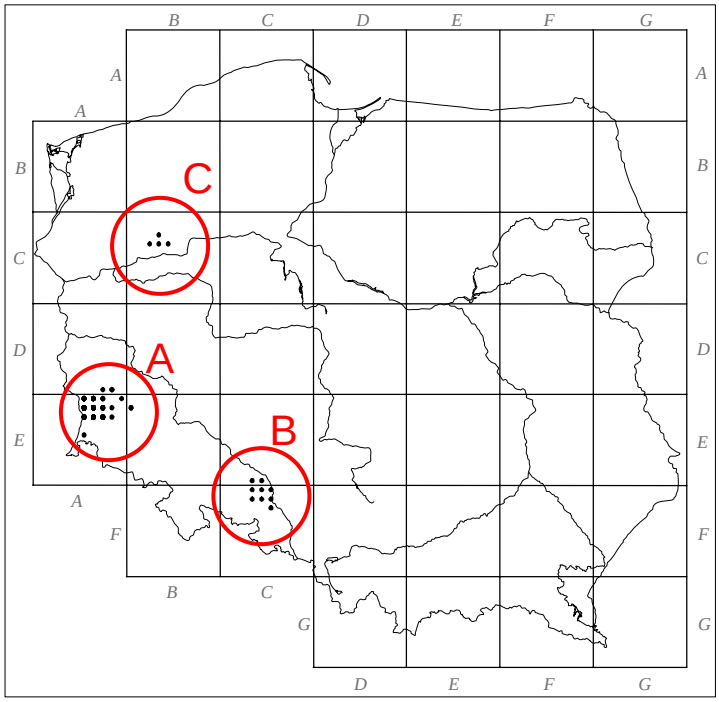

Fig. 3. *Spiraea tomentosa* localities in Poland – one position corresponds to a 10 x 10 km square in the ATPOL square network (Zając, 1978) (A, Lower Silesian forests; B, Niemodlińskie forests; C, Drawska forest).

The first known observation of *Spiraea tomentosa* in Poland is from 1806 in the collection at the Cracow Botanical Garden (Hereźniak 1992). The first naturalised stands were described by Fiek (1881) and Schube (1903) in the Lower Silesian Region [Zgorzelec: Bielawa Dolna – The Stojanów Forest Inspectorate; Luban: Studniska (Jerzmanki) and Niemodlin (Tiergarten, zoological garden established at the village of Lipno)]. Fiek (1881) emphasised just at that time that this species, while planted as a decorative plant, was rarely noted as naturalised and the stand near Niemodlin was an exception. After 1945, data on *Spiraea tomentosa* has been given by Pałczyński (1981), who mentioned it among plants abundantly overgrowing a peatbog near the village of Stojanów, in the Lower Silesian forests. In "Dendrology Manual" (Seneta and Dolatowski 2000) *Spiraea tomentosa* is only mentioned as a plant ”somewhere turned wild in the Lower Silesian area”, whereas Danielewicz and Maliński (2003), put this species in the group of naturalised plants, mainly in the range of the Lower Silesian forests, and following J. Kujawa-Pawlaczyk (unpubl. data) in the Drawska forest (Fig. 3).
In the Niemodlińskie forests, the most abundant stands have been noted after 2000 on marsh sites in the vicinity of Grodziec, Prądy, Kuźnica Ligocka and Tułowice, where this species occupies dozens of hectares forming compact, hardly accessible scrub (A. Nowak, unpubl. data).
In the Drawska forest, the occurrence of steeplebush was first noted in 1998, however it has probably existed there for several years, while several new populations have been found annually. It is difficult to conclude whether this has been the result of species expansion, or of a more thorough survey of the area (J. Kujawa-Pawlaczyk, 2009). In Iceland, *Spiraea tomentosa* is known in cultivation since before 1980, however rare and not known to have spread to natural habitats.

Pathways of introduction

Regarding the abundant stands of the species in south-western Poland (the Niemodlińskie forests), it is likely that the spread of the steeplebush has been caused by a nursery which was operated in Niemodlin in the early 19th century under patronage of the local castle owner in Niemodlin. Many exotic trees and bushes, mostly of American origin, were imported and planted in the area of both the former zoological garden and the newly established arboretum. Steeplebush could have been intentionally imported and planted by then, or casually dragged in together with planting material. In the Lower Silesian forests, the individuals of this species were most likely planted in the vicinity of forest-guard lodges and forester's houses, and they have subsequently started to spread alongside roads and ditches into the neighbouring areas.

In Germany, the species has been spread mainly by planting and subsequently dispersal. However, in the 1990s a distinct increase of new locations of *S. tomentosa* could be observed in Saxony which was probably connected with an increasing passive dispersal of soil and plant fragments by military activities (Kott, 2009).

Alien status in region

The species is now naturalised in several European countries including Denmark, Germany and Poland. In the Netherlands *S. tomentosa* is found as occasional garden escapes while in Belgium it is reported as naturalized (Verloove 2006).

S. tomentosa is very rare in Finland, and is only found in special gardens. So far there is no information on escaped plants. As a whole, species of the genus *Spiraea* are not especially invasive in Finland. Most of the spreading of this species happens by transporting soil (H. Väre, pers. comm.).

For the alien status in different countries of the NOBANIS region see Table 1.

Country	Not found	Not established	Rare	Local	Common	Very common	Not known
Austria	X						
Belgium			X				
Czech Republic	X						
Denmark			X				
Estonia		X					
Finland	X						
Germany				X			
Iceland		X					
Ireland	X						
Latvia	X						
Netherlands		X					
Norway			X				
Poland				X			
Slovakia		X					
Sweden						X	

Table 1. The frequency and establishment of *Spiraea tomentosa*. Legend for this table: **Not found** – The species is not found in the country; **Not established** - The species has not formed self-reproducing populations (but is found as a casual or incidental species); **Rare** - Few sites where it is found in the country; **Local** - Locally abundant, many individuals in some areas of the country; **Common** - Many sites in the country; **Very common** - Many sites and many individuals; **Not known** – No information was available.

Ecology

Habitat description

In both western Poland and south-eastern Germany steeplebush forms the most abundant populations on organic soils. In the Lower Silesian forests it grows mainly on peatbogs subject to draining, on roadsides in forest (Fig. 4), in humid parts of coniferous forests and mixed coniferous forests, on ditch sides, in fragments of alder-ash riverside carrs, on fishpond sides, in abandoned post-managed ponds, as well as on moors under power transmission lines. Moreover, this species encroaches woodland glades and infrequently mown meadows (Fig. 5), and wastelands, with its propagation pathways into those areas that lead alongside roads, ditches or forest fringes (W. Bena 2007, unpubl. data; K. Pender and Z. Dajdok 2007, unpubl. data; Dajdok and Śliwiński, 2009). The circumstances are similar in the Niemodlińskie forests, where the species, apart from degraded peatland, ditches, roadsides and pond-sides, was noted also inside woodland patches with predominating downy birch, black alder and Scotch pine, where it often forms a dense undergrowth layer (A. Nowak, unpubl. data). Moreover, on the fringe of the Niemodlińskie forests, steeplebush is being found on scarps of stream-beds (e.g. The Prószkowski Stream and its tributaries), along their sections running across meadow and rush communities (Dajdok et al. 2004).

In the Drawska forest, where this species appeared latest of all among the naturalised populations known in Poland, it has been found in peat bogs. In over dried peat bogs, it may overgrow even the entire area, whereas in peat bogs with adequate humidity it only includes their margins. It appears also in birch thickets on rotting peat (Kujawa-Pawlaczyk, 2009).

In Belgium, the species occurs on acidic sandy soils, mainly in moorlands and along peaty pools. It is rarely reported to form extensive stands (Van Landuyt et al. 2006).

Impact

Affected habitats and indigenous organisms

Spiraea tomentosa presents a serious threat to peat bog plant communities, moist coniferous forests, meadows and pastures within woodland glades and pond sides. In Poland a large proportion of these habitats are Natura 2000 sites, such as in the Lower Silesian forests, the Pieńska Nysa river valley or the Niemodlińskie forests.

Steeplebush is especially expansive on dry peat bogs. On such sites it has the capability to overwhelm almost all natural or semi-natural vegetation, and to eliminate most peatbog species. An example can be found north-west of the locality of Kuźnica Ligocka, in the Niemodlińskie forests, where in the areas overgrown by steeplebush, only a few other species have been noted (A. Nowak, unpubl. data). The competitive power of the steeplebush in peat bog is overwhelming and capable of radically changing both the original species composition and the community structure.

Spiraea tomentosa has also gained considerable coverage in humid meadows, especially in cases where their former usage has been ceased. This species has also been observed in considerable numbers in humid parts of coniferous forests and in birch woods.

There is a very characteristic example of the impact of steeplebush on native diversity, in three peat bog nature reserve sites (including one still in its design phase) in the Niemodlińskie forests that have been designated with the aim to preserving the most valuable centres of the peat bog vegetation in the Opole region. In the early 1990ies, when a first survey of these sites was done, the appearance of steeplebush was rare with no case of dominance. At present it has almost entirely overwhelmed the area of the planned Topiel ("*Deep Water*") reserve, and it is a significant component of the vegetation in the Prądy ("*Whirlpool*") and Złote Bagna ("*Golden Marshes*") reserves.

Fig. 4 and 5. *Spiraea tomentosa* overgrowing ditches and roadsides, and mid-forest meadows in the Lower Silesian forests. Photos by Władysław Danielewicz and Zygmunt Dajdok.

There is a lack of well documented data on the impact of steeplebush on the fauna. However, the transformation of wet meadows or open peatbogs into solid and hardly accessible steeplebush "thicket" has, within only a dozen years, essentially changed the living conditions of many species, including those of the minor animals. Even for large mammals, such as wild pig *Sus scrofa* or red deer *Cervus elaphus*, this brushwood is an ideal refuge.

Genetic effects
Unknown.

Human health effects
No effects have been detected so far.

Economic and societal effects (positive/negative)
The species is problematic for forest management due to its inflammability. The old, dry plant shoots are often the ultimate cause of forest fires not only in the sole steeplebush patches, but also in adjacent stands (A. Nowak, unpubl. data). Moreover, the species is a problem both for tree regeneration and the afforestation of post-arable land (Danielewicz, 2006).

Management approaches

Prevention methods
Taking into account the fairly ineffective results of direct control of the steeplebush invasions one should concentrate on the educational and preventive actions to be undertaken particularly by the administrative authorities of the State Forests National Holding. The skills to identify this plant and to eliminate initial populations could prevent future expansion of the species. However, in the areas already overwhelmed by steeplebush its underground parts have to be removed, particularly during the initial phases of establishment to avoid propagation into adjacent areas. Wherever possible, attempts should be made to verify the efficiency of at least periodical inundations of the areas occupied by steeplebush in order to weaken its populations.

Eradication, control and monitoring efforts
Given the fire hazard caused by extensive steeplebush communities, attempts have been made in the Niemodlińskie forests to eliminate the species by mowing and uprooting. However, the efficiency of these attempts is rather limited, since the regeneration rate of the species was very high. Moreover, in the area of the Niemodlińskie forests it has been noted that the steeplebush patches have apparently been loosened, and the dimensions of the individuals declined and becoming less vivid in combination with a rise in the groundwater level. Possibly periodical rising of the groundwater level up to the ground elevation, which is rather easy to achieve in peatbog areas and poses no hazard to the local vegetation, could have confined expansion of the species.
Following information provided by foresters in the Lower Silesian forests (Zawadzki 2008), attempts have been made to combat steeplebush both mechanically (uprooting) and chemically (*Roundup* agent). However, such actions have nowhere produced permanent positive effect and thus were stopped after some time. In the Drawska forest, experimental eradication of steeplebush was undertaken in 2008. The most effective method of control of the species so far is uprooting of individuals and removal of the biomass outside of the invaded area (Pawlaczyk and Karaśkiewicz, 2009). In Germany, much earlier attempts have been undertaken to combat the species by uprooting and burning. Good effects were achieved for patches where the bushes had not yet become consolidated, and by repeating this measure each 3–5 years (Brozio, 2004).
Grazing experiments with sheeps, elks and goats were conducted in a nature conservation area in Saxony (Burkart and Konold 2002). The former both species feed on *S. tomentosa* only in a limited manner, corresponding results of the grazing pressure of goats, however, were not published (Burkart and Konold, 2002).

Information and awareness
There are no reports of information or awareness campaigns regarding *Spiraea tomentosa.*

Knowledge and research
To date the occurrence, propagation and impact of *Spiraea tomentosa*, *S. douglasii* and *S. xbillardi* on the vegetation were studied by Kott (2009) in Saxony (Germany). In Poland current research on methods of eradication of *Spiraea tomentosa* is conducted in Drawska forest. Preliminary results of those studies have been published by Kujawa-Pawlaczyk (2009) and Pawlaczyk and Karaśkiewicz (2009).

Recommendations or comments from experts and local communities
No available information.

References and other resources

Contact persons
Stefan Nehring (DE), Federal Agency for Nature Conservation, Konstantinstraße 110, 53179 Bonn, Germany; Phone: +49 228 8491 1444; E-mail: Stefan.Nehring@bfn.de

Hjörtur Thorbjörnsson (IS) Botanic Garden of Reykjavik , Laugardalur, 104 Reykjavík, Iceland, Tel.: +354 411 8650, E-mail: hjortur.thorbjornsson@reykjavik.is

Zygmunt Dajdok (PL) Institute of Plant Biology, University of Wrocław, 6/8, Kanonia Str., PL-50-328 Wrocław, Poland. Phone: +48 71 3754087; E-mail: dajdokz@biol.uni.wroc.pl

Arkadiusz Nowak (PL) Chair of Biosystematics, Opole University, 22, Oleska Str., PL-45-052 Opole, Poland; E-mail: anowak@uni.opole.pl

Władysław Danielewicz (PL) Chair of Forest Botany, A. Cieszkowski Poznan University of Life Sciences; 71d, Wojska Polskiego Str., PL-60-625 Poznań, Poland. E-mail: danw@au.poznan.pl

Jolanta Kujawa-Pawlaczyk (PL) Chair of Forest Botany, A. Cieszkowski Poznan University of Life Sciences; 71d, Wojska Polskiego Str., PL-60-625 Poznań, Poland; E-mail: jolapawl@wp.pl

Waldemar Bena (PL) 7 Olszewskiego Str., PL-59-900 Zgorzelec; E-mail: waldemarbena@gmail.com

Links
http://www.floraweb.de/pflanzenarten/artenhome.xsql?suchnr=7043&
http://ias.biodiversity.be/species/show/140

References
Barber, E. 1911. Flora der Oberlausitz preußischen und sächsischen Anteils einschließlich des nördlichen Böhmens, Teil III. – Abhandlungen der Naturforschenden Gesellschaft zu Görlitz 27: 239-412.

Brozio, F. 2004. Erfahrungen mit der Behandlung von Neophyten im Naturschutzgroßprojekt Niederspree Hammerstädter Teiche am Beispiel von Spirea tomentosa / Gelbfilziger Spierstrauch. In: Seminar materials „Neophyten – nicht einheimische Pflanzen, Möglichkeiten und Notwendigkeiten ihrer Eindämmung“, Naturschutzzentrum Schloß Niederspree (manuscript)

Bruus, M., Damgaard, C., Nielsen, K.E., Nygaard, B. and Strandberg, B. 2007. Terrestriske naturtyper 2006. NOVANA. Danmarks Miljøundersøgelser, Aarhus Universitet. 70 pp.

Burkart, B. and Konold, W. 2002. Elche, Ziegen und Moorschnucken - neue Wege der Offenhaltung feuchter Standorte. – Aktuelle Reihe der BTU Cottbus 8/2002: 55-64.

Dajdok, Z., Kącki, Z. and Hebda, G. 2004. Ochrona stanowiska kotewki orzecha wodnego w Stawie Nowokuźnickim koło Opola. Studium przyrodnicze nieleśnej części zlewni Proszkowskiego Potoku powyżej stawu w Nowej Kuźni. - Conservation of water chestnut stand in the Nowokuźnicki Pond n/Opole. Natural survey of the non-wooded part of the Proszkowski Potok Stream catchment area upstream the pond in the locality of Nowa Kuźnia. Wrocław-Prószków (manuscript).

Dajdok, Z. and Śliwiński, M. 2009. Rośliny inwazyjne Dolnego Śląska. - Invasive plants of Lower Silesia. Polish Ecological Club, The Lower Silesian District, pp. 64, Wrocław.
Danielewicz, W. 2006. Obce gatunki drzew i krzewów we florze Polski Zachodniej. - Alien tree and shrub species of the Western Poland flora. Mat. Zjazdu Sekcji Dendrologicznej PTB, Bogactwo, różnorodności oraz ochrona dendroflory w parkach i lasach Zachodniej Polski. Zielona Góra.
Danielewicz, W. and Maliński, T. 2003. Alien tree and shrub species in Poland regenerating by self-sowing. Dendrology Yearbook 51: 205-236.
Erhardt, W., Götz, E., Bödeker, N. and Seybold, S. 2002. Zander. Handwörterbuch der Pflanzennamen. Verlag Eugen Ulmer, 17 Aufl., Stuttgart. 990 pp.
Fiek, E. 1881. Flora von Schlesien preussischen und österreichischen Antheils, enthaltend die wildwachsenden, verwilderten und angebauten Phanerogamen und Gefäss-Cryptogamen. Unter Mitwirkung von Rudolf von Uechtritz. J.U. Kern Breslau: 571.
Gederaas, L., Salvesen, I. and Viken, Å. (eds). 2007. Norsk svarteliste 2007 (2007 Norwegian Black List). Økologiske risikovurderinger av fremmede arter (Ecological Risk Analysis of Alien Species). Trondheim, 152 pp.
Hardtke, H.J. and Ihl, A. 2000. Atlas der Farn- und Samenpflanzen Sachsens. In: Sächsisches Landesamt für Umwelt und Geologie (Hrsg.) – Materialen zu Naturschutz und Landschaftspflege. Dresden.
Hegi, G. 1961. Illustrierte Flora von Mitteleuropa. Band IV, Teil 2, pp. 254. Carl Hanser Verlag, München.
Hereźniak, J. 1992. Amerykańskie drzewa i krzewy na ziemiach polskich. - American trees and shrubs in the territory of Poland. In: M. Ławrynowicz and A.U. Warcholińska (eds.) Rośliny pochodzenia amerykańskiego zadomowione w Polsce. - America-originating plants domesticated in Poland. Łódzkie Towarzystwo Naukowe. Szlakami Nauki 19: 97-150.
Kampa, E. 2000. Vegetationskundliche Untersuchungen auf dem ehemaligen Truppenübungsplatz Dauban (Oberlausitz). – Berichte der Naturforschenden Gesellschaft der Oberlausitz 9: 97-108.
Kott, S. 2009. Neophytische *Spiraea*-Arten in der Kernzone „Daubaner Wald" des Biosphärenreservates „Oberlausitzer Heide- und Teichlandschaft". – Berichte der Naturforschenden Gesellschaft der Oberlausitz 17: 21–36.
Kujawa-Pawlaczyk, J. 2009. Tawuła Kutnerowata *Spiraea tomentosa*. - Steeplebush *Spiraea tomentosa*. In: Z. Dajdok and P. Pawlaczyk (eds.) Inwazyjne gatunki roślin ekosystemów mokradłowych Polski. – Invasive plant species of wetlands of Poland. pp. 105-113. Wyd. Klubu Przyrodników, Świebodzin.
Lid, J. and Lid, D.T. 2005. Norsk flora. (7. ed. By Reidar Elven.) Det norske samlaget, Oslo, 1230 pp.
Mirek, Z., Piekoś-Mirkowa, H., Zając, A. and Zając, M. 2002. Flowering plants and pteridophytes of Poland. A checklist. Biodiversity of Poland. Institute of Botany Polish Academy of Sciences, Cracow, pp. 442.
Pałczyński, A. 1981. Subkontynentalna odmiana zespołu wrzośca bagiennego *Ericetum tetralicis balticum* Jasn. 68 w Borach Dolnośląskich. - Sub-continental variety of the cross-leaved heath complex *Ericetum tetralicis balticum* Jasn. 68 in the Lower Silesian Forests. Zeszyty Naukowe Akademii Rolniczej we Wrocławiu, Rolnictwo XXXVI, No. 131: 5-13.
Pawlaczyk, P. and Karaśkiewicz, S. 2009. Doświadczenia zwalczania tawuły kutnerowatej *Spiraea tomentosa* na torfowiskach Puszczy Drawskiej. – Experimental control of Steeplebush *Spiraea tomentosa* on peatbogs of Drawska forests. In: Z. Dajdok and P. Pawlaczyk (eds.) Inwazyjne gatunki roślin ekosystemów mokradłowych Polski. – Invasive plant species of wetlands of Poland. pp. 142-151. Wyd. Klubu Przyrodników, Świebodzin.
Rutkowski, L. 1998. Klucz do oznaczania roślin naczyniowych Polski niżowej. – An identification key to vascular plants in lowland Poland. Wydawnictwo Naukowe PWN, Warszawa.
Schube, T. 1903. Die Verbreitung der Gefäßpflanzen in Schlesien preußischen und österreichischen Antheils. Druck von. R. Nischkovsky, Breslau.
Seneta, W. and Dolatowski, J. 2006. Dendrology Manual. Wydawnictwo Naukowe PWN, Warszawa.
Tokarska-Guzik, B. and Dajdok, Z. 2004. Rośliny obcego pochodzenia – udział i rola w szacie roślinnej Opolszczyzny. - Alien-originated plants - their share of and role in the vegetation cover of the Opole Region. In: A. Nowak and K. Spałek (eds.) Ochrona szaty roślinnej Śląska Opolskiego. - Conservation of the vegetation cover of the Silesian Opole Region. pp. 277-303. Uniwersytet Opolski, Opole.
Van Landuyt, W., Hoste, I., Vanhecke, L., Van den Bremt, P. Vercruysse, W. & De Beer, D. 2006. Atlas van de Flora van Vlaanderen en het Brussels gewest. Nationale Plantentuin en het Instituut voor Natuur- en Bosonderzoek i.s.m. Flo. Wer vzw.
Verloove, F. 2006. Catalogue of neophytes in Belgium (1800-2005). Meise National Botanic Garden of Belgium. Scripta Botanica Velgica, vol. 39.
Zawadzki, P. 2008. Rozprzestrzenianie tawuły kutnerowatej *Spiraea tomentosa* w Borach Dolnośląskich, jako problem w ochronie przyrody i gospodarce leśnej. - Distribution of steeplebush *Spiraea tomentosa* in the Lower Silesian Forests as a problem in nature conservation and forest management. Praca licencjacka wykonana w Zakładzie Bioróżnorodności i Ochrony Szaty Roślinnej Instytutu Biologii Roślin Uniwersytetu Wrocławskiego (manuscript).
Zając, A. 1978. Distribution Atlas of Vascular Plants in Poland. Taxon 27: 481-484.

Date of creation/modification of this species fact sheet: 20-03-2011