The *H. sieboldii* Complex = コバギボウシ Part 1

Introduction to Part 1

History and Nomenclature: *H. montana* (オオバギボウシ = Ōba Gibōshi) and *H. sieboldii* (コバギボウシ = Koba Gibōshi) are the only two species spread throughout the Japanese Archipelago. In Japan, *H. montana* is known as Ōba Gibōshi, the “large-leaved hosta” and the Japanese name Koba Gibōshi for *H. sieboldii* translates to “small-leaved hosta.” Both *H. montana* and *H. sieboldii* develop plastogene mutations and adaptive phenotypes over their large habitat. However, *H. sieboldii* has a much higher proclivity for mutations and has developed many variegated forms of the all-green species. The *in situ* wild populations have green leaves and it is the green form known as Koba Gibōshi in Japan. Notwithstanding, it was a white-margined form (rarely seen in the wild), which was the first representative of this species to be validly published by J. Paxton (1838 – see picture page 2). This white-margined sport has served as the taxonomic type for the *H. sieboldii* complex for many years, albeit under the illegitimate name *Funkia albomarginata*. As with all the other mutants, this white-margined form does not come true from seed and is nonperpetuating in the wild. It is important taxonomically having served as the type and basionym for the entire complex and *H. sieboldii* Part 2 is detailing its taxonomic importance. In horticulture, this white-margined mutant was named *H. sieboldii* ‘Sieboldii’ following the ICNCP (1995). The 2004 edition of

![H. sieboldii var. sieboldii (コバギボウシ = Koba Gibōshi in situ)](image-url)

Typical in situ population competing with tall wetland grasses
Loc. cit.: Saragamine Wetland (皿ケ嶺湿地) in Ehime-ken (愛媛県); Shikoku (湿地)
Court.: © plala/saragamine
Hemerocallis Sieboldii =
Hosta sieboldii ‘Albomarginata’
By J. Paxton, March 1838. Magazine of Botany 5:25–26
(Original in the author’s collection)
ICNCP (Art. 19.8; Ex.14.), corrected the name to *H. sieboldii* ‘Albomarginata’ and original name and basionym of this cultivar is *Funkia albomarginata* (orig. *Funckia albomarginata*) of Hooker (in Bot. Mag. tab. 3567; May, 1938►). Stearn (1931), Stearn pointed out that the epithet *sieboldii* has priority over *albomarginata*. Revision to reflect this priority was formally proposed by Ingram (1967) and validated by Hara (1984). However *H. sieboldii* ‘Albomarginata’ is a plastogene mutation that seldom occurs in wild populations of the species. The appearance of white leaf margins is rare and cannot be inherited by normal propagation cycles (Yasui, 1929; Vaughn, 1978). Selfed offspring of the variegated mutant has morphometric features identical to those of the non-variegated taxon found in the wild. For this reason, in this Species Update, the wild species referred to by the Japanese as コバギボウシ = Koba Gibōshi is here considered *H. sieboldii* var. *sieboldii* and the white-margined mutation has been reduced to cultivar status as *H. sieboldii* ‘Albomarginata’ (per ICNCP 2004; Art. 19.8; Ex. 14 by Schmid (1991). It states: “*Hosta sieboldii* published by Ingram (Baileya 15(1): 29. 1967) was based on the name *Hemerocallis sieboldii* of Paxton (Mag. Bot. 5: 25. March, 1838) which was itself based on a variegated (mutated) plant. Should Paxton's plant be considered referable to a cultivar being grown today, the cultivar is not to be referred to as *Hosta sieboldii* 'Sieboldii' but is to be given the epithet “Albomarginata,” based on the next validly published name under the *ICBN, Funckia albomarginata* of Hooker (Bot. Mag. tab. 3567. May, 1938).
1838).” The association of the all-green endemic populations of コバギボウシ (= Koba Gibōshi) with H. ‘Lancifolia’ as H. sieboldii var. sieboldii forma lancifolia as proposed by Hara (1984) is not confirmed since the name “lancifolia” is assigned to another hosta. In addition my own proposal (Schmid, 1991) to solve this significant nomenclatural confusion by validating H. sieboldii var. sieboldii f. spathulata (Miquel) W.G. Schmid 1991 as a comb. nov. is here also not confirmed in order to simplify the nomenclature of this taxon per the autonym rules. Therefore, in this Species Update, the following taxonomic order is maintained:

Part 1 deals with: H. sieboldii var. sieboldii (in Japan コバギボウシ = Koba Gibōshi), the wild, non-variegated plant growing in the natural habitat (formerly H. sieboldii var. sieboldii f. spathulata Schmid 1991.

Part 2 deals with: H. sieboldii ‘Albomarginata’ (formerly known as H. albomarginata) is used for the plastome mutation with white margins.

Part 3 deals with: H. sieboldii and its variegated, chloroplast mutant culta given botanical names by F. Maekawa (1940) and other named mutants (sports).

H. ‘Lancifolia’ = Saji Gibōshi (= サジギボウシ = 匙擬宝珠)
Typical leaves with 4-6 (7) vein pairs; tepals: pale lavender; anthers purple.
Court.: © Hana Vymazalová

The H. ‘Lancifolia’/H. sieboldii Confusion and Differentiation:

The taxonomic problem caused by the association of the binomial H. lancifolia and all of its historic synonyms with H. sieboldii is still troubling to Hosta nomenclature. To understand how this confusion came about, a brief history is in order: H. lancifolia, known today as the cultivar H. ‘Lancifolia’ (Schmid; 1991) is in Japan called Saji Gibōshi (= “spoon-[shaped] hosta” = サジギボウシ = 匙擬宝珠). It was the first pictorial representation of a member of the genus Hosta introduced to Western botany. It appeared under the name Giboosi altera (nom. nud.) on a drawing published by Kaempfer in 1692. In 1780, Thunberg collected the herbarium lectotype of
Many historic taxonomists have identified this type specimen to be a hosta known as *Hosta* ‘Lancifolia’, which is a sterile hybrid cultigen of ancient Japanese origin and is represented by a number of very similar looking clones. Thunberg changed the name of this taxon several times: In 1784 to *Hemerocallis japonica* and in 1794 to *Hemerocallis lancifolia*. The latter became the basionym for *Funkia lancifolia* (Sprengel; 1825), which was changed to *Hosta lancifolia* after the generic name *Hosta* Trattinick was conserved over *Funkia* Sprengel in 1905 (International Botanical Congress (IC) of Vienna in accordance with Article 20 (cfr. IR 1935) and Article 24 (ICBN 1952)). In 1829, von Siebold (Hensen 1985; Schmid 1991) brought the first living specimens of the *Hosta sieboldii* complex from Japan. It was fertile and listed in von Siebold’s catalog in 1830, named by him as *Funkia spathulata foliis albomarginatis* (= *Hosta albomarginata* = *H. sieboldii* ‘Albomarginata’), namely the white-marginated mutation. Von Siebold experimented by planting seeds of this plant and he reported the appearance of all-green plants. Further research showed them to be the species *H. sieboldii* var. *sieboldii* (= コバギボウシ = Koba Gibōshi). After his return from his second stay in Japan in 1860, von Siebold named the species *Funkia spathulata* (= *Hosta sieboldii* f. *spathulata* Schmid 1991 = *H. sieboldii* var. *sieboldii* = Koba Gibōshi), representing the Japanese wild populations of *H. sieboldii*. Von Siebold’s many plant imports between 1829 and 1862 and after his return on to 1879, gave rise to a monograph published by Friedrich Miquel in 1869. Von Siebold did not provide
botanical descriptions for his many plant imports (including his hostas) so his names were taxonomically *nomina nuda* and as such not legitimate names. Miquel sought to correct this, but was ignored by other contemporary botanists as well as horticulturists. Thus, instead of citing Miquel’s work, later authors continued to use von Siebold’s listings and catalogs and the names appearing there. This gave rise to considerable confusion in the nomenclature of many of Siebold’s species and varieties.

*H. ‘Lancifolia’ = Saji Gibōshi (=サジギボウシ = 舟擬宝珠)*

Typical cultivated specimen showing typical leaves 5-7 Vein Pairs

Hosta Hill R.G. • © 2007 W.G. Schmid; 1988.04.08

It was during this time that *H. ‘Lancifolia’* began to be incorrectly associated with *H. sieboldii*. Von Siebold had always maintained separate names, namely *Funkia spathulata* for *Hosta sieboldii* and *Funka lancifolia* for *Hosta ‘Lancifolia’*. Miquel was the first to combine them under one taxon and classified *H. sieboldii* as a variety under *H. ‘Lancifolia’*. Most major authors dealing with the taxonomy of *H. sieboldii* (=コバギボウシ = Koba Gibōshi) followed Miquel’s inaccurate placements. In 1940, Maekawa followed this basic arrangement but muddled the placement further by adopting Stearn’s *H. lancifolia thunbergii* (Stearn; 1931), using it changed to *H. lancifolia var. thunbergiana*. Also, while citing many of the correct synonyms for *H. ‘Lancifolia’*, Stearn described morphological features pertinent to Koba Gibōshi, namely *H. sieboldii var. sieboldii*. The lack of field-collected vouchers also contributed to the confusion. In Japan the differences between *H. ‘Lancifolia’* (Saji Gibōshi (=サジギボウシ = 舟擬宝珠; by Inunuma, 1874) and *H. sieboldii var. sieboldii* (Koba Gibōshi (=コバギボウシ; fide Makino; Somoku Dzusetzu, 2nd to 3rd ed.) were recognized early on and (above) separate Japanese academic names assigned. Trying to match the already confused European nomenclature to Japanese plants was barely possible. That is why Maekawa (1940) assigned the cultivated hybrid *H.*
‘Lancifolia’ as the type for the *H. sieboldii* complex, naming the wild Japanese species (i.e., Koba Gibōshi) *H. lancifolia* var. *thunbergiana*. He also included in this placement a number of variegated plastome mutant forms of *H. sieboldii* (Yasui, 1929; Vaughn, 1978; Schmid, 1991, 2010).

*H. sieboldii* var. *sieboldii*  
(in situ) ►►► ▼▼▼  
Koba Gibōshi - コバギボウシ  
(小葉擬宝珠)  
Loc.cit.: 千葉県 柏市 水田 湿地  
関東地方  
Wetland near Kashiwa-shi,  
Chiba-ken, Kantō  
Note: Color of anthers yellowish white posterior and yellowish anterior with darker sides  
(compare to *H. ‘Lancifolia’* see Page 8) Court.: © nopasakura

This classification was finally recognized as erroneous and corrected by Ohwi (1942), who identified *H. sieboldii* (using the synonym *H. albomarginata*) as a species distinct from the cultigen *H. ‘Lancifolia’*. Only two years later Maekawa (1944) recognized the priority of the name *H. sieboldii* and published the species name *H. lancifolia* var. *thunbergiana* f. *sieboldii* (as a nomen nudum), thereby continuing its connection to *H. ‘Lancifolia’*. Stearn corrected his earlier position in 1953 (in adnot.), and Hylander (1954) followed this arrangement. Ohwi (1953, 1965), recognized *H. sieboldii* (also as
H. albomarginata) as a distinct taxon and reversed the placements, listing H. ‘Lancifolia’ as a synonym. J. Ohwi (1953) published Flora of Japan (日本植物誌; 1953 in Japanese; and in 1965 in English translation). It is important to note, Ohwi in his Flora described the wild species with all-green(!) leaves, clearly referring to wild populations of Koba Gibōshi (now considered H. sieboldii var. sieboldii). Ohwi made only a very brief reference to the plastome mutant i.e., the white-margined H. sieboldii ‘Albomarginata’ stating: “A variegated-leaved phase of the species is in cultivation” (Ohwi 1965; p. 291). Thus, Ohwi confirmed that the white-margined form is an anomalous mutant cultivar. Ingram (1969) proposed a transfer from H. albomarginata to H. sieboldii on grounds of priority. Fujita (1976) submerged H. lancifolia (= H. ‘Lancifolia’) into H. sieboldii (still under the synonym H. albomarginata) based on contrasting vein coloration on the inside of the perianth. H. Hara (1984) made a valid name transfer of the binomial H. albomarginata to H. sieboldii and included all of the associated varieties and forms named by Maekawa (1940). He named the white-margined mutant cultivar H. sieboldii var. sieboldii f. sieboldii and the green-leaved species H. sieboldii var. sieboldii f. lancifolia. For the latter, Hara cited as the lectotype Aletris Japonica Thunberg ex Houttuyn (1780) so there can be no doubt that he meant to classify the near-sterile Hosta ‘Lancifolia’ as a forma under the fully fertile H. sieboldii. This is supported by Chung and Jones (1989), who state that “H. lancifolia (= H. ‘Lancifolia’) appears to be of hybrid origin because of its female sterility and purple-colored anthers; it possibly represents a cultivar.” Chung and Jones also determined that the pollen grains of H. ‘Lancifolia’ and H. sieboldii H. (as H. albomarginata) are rugulate-granulate (subtype II-B), but have different shapes (SO vs. OS) indicating a relationship, but the shape difference means they are not synonymous taxa. Schmid (1991) considered H. ‘Lancifolia’ a culton of hybrid origin and not consequential to the taxonomy of natural Japanese populations of H. sieboldii so reduced it to cultivar form. The hybrid nature of H. ‘Lancifolia’ was also confirmed

H. ‘Lancifolia’ (cult.) ►
(Хоста ланцетолистная)
Loc. cit.: Petersburg • 2006
Mikhailovsky Garden
Санкт-Петербург
(Михайловский сад)
© 2006 Daniil_Naumoff
Russia

Morphological Note: ►►
The Anther color is uniformly purple and the tepal veins inside perianth are of pale color. A thin, transparent white margin surrounds each tepal peripherally.
by Zonneveld (2001) who tested the stainable pollen percentage to be 40% (vs. 97% for *H. sieboldii*) confirming hybridity. Zilis (2000) added to the controversy surrounding the nomenclature of *H. ‘Lancifolia’*. He claims that the “true form” is native to China without indicating a valid habitat reference nor listing any vouchered specimens that may have given credence to his assertion. None of the Chinese sources investigated, including the *Flora of China* (2004; Vol. 24:204, 205 (中國植物誌 – Chinese Ed.), confirm China as the native habitat of this cultivar. Unfortunately, Zilis in his 2009 Hostapedia compounds the error, stating: “My views on this subject have not changed. Maekawa (1940) listed *H. lancifolia*, but he was referring to the green-leaved form of *H. sieboldii* in that case. His *H. cathayana*, however, is what we now call Hosta lancifolia. Schmid (1991) made a strong case for *H. lancifolia* being reduced to cultivar status. He further stated that *H. lancifolia* was very similar to *H. cathayana*, the major difference being the latter's good fertility and *H. lancifolia* being pod-sterile…” It has been proven scientifically that the placement of the sterile *H. ‘Lancifolia’* with the fertile *H. sieboldii* var. *sieboldii* (as *H. albomarginata*) is incorrect, but as demonstrated above, its erroneous use can still be found in some garden literature.
Funkia ovata Spreng. α fl. violacea Maximowicz = H. ‘Lancifolia’
No. 2(?) in LE (V.L. Komarov Botanical Institute; Russ. Acad. Sc.;
St. Petersburg, Russia) • Determinavit 1984 in schedula = H. lancifolia
### COMPARATIVE MACROMORPHOLOGY

<table>
<thead>
<tr>
<th><strong>H. ‘Lancifolia’</strong></th>
<th><strong>H. sieboldii var. sieboldii</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>サジギボウシ (匙擬宝珠)</td>
<td>コバギボシ (小葉擬宝珠)</td>
</tr>
<tr>
<td>Anthesis: August/September</td>
<td>Anthesis: July/August</td>
</tr>
<tr>
<td>Near Sterile (stainable pollen ± 40%*)</td>
<td>Fertile (stainable pollen ± 97%*)</td>
</tr>
<tr>
<td>Anthers blue/violet posterior/anterior**</td>
<td>Anthers whitish yellow/spotted sides**</td>
</tr>
<tr>
<td>Petiole green purple spotted near base</td>
<td>Petiole green and unspotted at base</td>
</tr>
<tr>
<td>Petiole cuneate to rounded leaf base</td>
<td>Petiole winged attenuate to leaf base</td>
</tr>
<tr>
<td>Veins: 5 to 6 (7) principal full veins</td>
<td>Veins: 3 to 4 (5) full principal veins</td>
</tr>
<tr>
<td>Leaf larger; surface shiny***</td>
<td>Leaf smaller; surface dull***</td>
</tr>
<tr>
<td>Bracts: large, leafy sterile bracts below raceme</td>
<td>Bracts: small stem-clasping sterile bracts below raceme</td>
</tr>
</tbody>
</table>

*) B.J.M. Zonneveld and F.Van Iren (2001). Total sterility has been observed.


***) Counted on mature voucher specimens ± 7 years old (W.G. Schmid 1991).

---

**H. ‘Lancifolia’ = Saji Gibōshi (=サジギボウシ =匙擬宝珠)**

Typical cultivated landscape specimens

Mitchell’s Perennial Garden; 1987 AHS NC

© 1987 W.G. Schmid; 27 June 1987
**H. sieboldii var. sieboldii f. sieboldii**

[Hort. short H. sieboldii]

Following are principal synonyms since 1940 (see the section on Botanical Synonyms for synonyms before 1940):

- *H. lancifolia var. thunbergiana* (Hooker) Maekawa 1940
  - *J. of the Faculty of Science*, Sect. 3 Botany, Vol. 5:399-401, ic. 81
- *H. albomarginata f. viridis* (Hooker) Hylander 1945
  - *Delectus semen hortus botanicus Gotoburgensis*, Göteborg, p. 3, pls. 4, 17 and 18
- *H. albomarginata f. spathulata* Hensen 1963
- *H. sieboldii var. sieboldii f. spathulata* (Miquel) W.G. Schmid 1991


**コバギボウシ = 小葉擬宝珠 = Koba Gibōshi** (fide Makino in Iinuma)

**History and Nomenclature:** A nomenclatural history and details of the confusion of *H. `Lancifolia' with H. sieboldii* are on pages 4 to 10 in this section. A comparative macromorphological analysis is featured on page 11 to support the differentiation of these taxa. In addition, the confusing historical nomenclature placements are explained and a correction of taxonomic placements made.

**Habitat and Biology:** The naturally occurring species *H. sieboldii* var. *sieboldii* (formerly *H. sieboldii* var. *sieboldii f. spathulata*) is endemic to the entire Japanese archipelago, being particularly abundant in central and western Honshu, Shikoku and Kyushu. It is also endemic in northern habitats, including northern Honshu and Hokkaido, but it is not as prevalent there. Populations of this taxon are widespread and their habitat extends over several climatic zones from northern to southern regions of the Japanese archipelago. The species is endemic in ecologies ranging from lower elevation wetlands and moors to subalpine meadows, as well as the lower vegetation belt on mountains and montane forest margins. Adapting to such dissimilar local conditions, wild populations develop a number of diverse leaf forms and sizes, including leaves with a distinct petiole transition and some with margins decurrent to the petiole. Some leaves are short, as in the typical form, others are elongated, as in *H. sieboldii* var. *angustifolia*, and, in rare cases, approaching the morphology *H. longissima* var. *brevifolia*. Differentiated local modifications form populations of hybrid swarms by interbreeding and consequently intergrading with other phenotypical variants of the species. Some have developed into distinct phenotypes. Specimens in herbaria give evidence of this process and confirm that many different forms of Koba Gibōshi exist in the wild. The more divergent and distinct morphological varieties have been given botanical rank. Hara (1984) and Fujita (1976) recognized that in all of these variations, the flower morphology remains relatively constant. For this reason, they treated many of the named
botanical variants as close phenotypical forms of the species, which yield the same conglomeration of all-green forms when selfed. As pointed out earlier, in the past, this taxon has been incorrectly associated with H. ‘Lancifolia’ and this taxonomic confusion has been analyzed on pages 3 to 11. The Japanese formal (academic) name Koba Gibōshi (コバギボウシ = 小葉擬宝珠) should be applied only to the populations found in the wild and identified as H. sieboldii var. sieboldii (formerly H. sieboldii var. sieboldii f. spathulata Schmid 1991). Maekawa (1940, 1969) classified it under the erroneous name H. lancifolia var. thunbergiana, following the incorrect application most European botanists gave to the name H. ‘Lancifolia’ until recently. Consequently, Part 1 of H. sieboldii complex, outlines only the endemic species and its various phenotypical forms. But note that H. sieboldii f. alba (= H. sieboldii ‘Alba’ Schmid 1991) is included in the following list. Although reclassified a cultivar, it does occur in the wild, but sporadically so. The white-flowered form is present among the wild populations so inclusion as part of the following taxa is advisable (see photo page 21). Part 1 of the H. sieboldii complex includes the following taxa:

H. sieboldii var. sieboldii (コバギボウシ = Koba Gibōshi in situ flowering) 
Small population with native grasses in wetland meadow
Loc. cit.: Hakone Botanical Wetland Garden (箱根湿性花園)
Kanagawa-ken (神奈川県) Kantō-chihō (関東地方)
Court.: © hanamist sakura yuri • 1986.08.13
**H. sieboldii** var. *sieboldii* = コバギボウシ = 小葉擬宝珠 = Koba Gibōshi (small-leaved hosta); in horticulture = *H. sieboldii*.

**H. sieboldii** f. *angustifolia* = ホソバコバギボウシ = 細葉小葉擬宝珠 = Hosoba Koba Gibōshi (narrow-leaved small-leaved hosta) now *H. sieboldii* ‘Angustifolia’.

**H. sieboldii** f. *campanulata* = ツリガネギボウシ = 釣鐘擬宝珠 = Tsurigane Gibōshi (temple bell hosta ≈ campanulate hosta) now *H. sieboldii* ‘Campanulata’.

**H. sieboldii** f. *okamii* = ムラサメギボウシ = 村雨擬宝珠 = Murasame Gibōshi (purple shower hosta) now *H. sieboldii* ‘Okamii’.

**H. sieboldii** f. *polycarpellata* = やつぶさギボウシ = 変形した擬宝珠 = Yatsubusa Gibōshi (“deformed carpel” hosta) [not in cultivation].

**H. sieboldii** f. *alba* = シロバナコバギボウシ = 白花小葉擬宝珠 = Shirobana Koba Gibōshi (white-flowered small-leaved hosta) = *H. sieboldii* ‘Alba’.

**Comparative Plant Morphology:** Note: In the following, macro-morphological details of *H. sieboldii* var. *sieboldii* f. *sieboldii* forma typica (formerly *H. sieboldii* var. *sieboldii* f. *spathulata* Schmid 1991) are provided. In addition, a comparative morphological analysis of the phenotypes named above is included:

**H. sieboldii** var. *sieboldii* f. *sieboldii* (= formerly *H. sieboldii* var. *sieboldii* f. *spathulata* Schmid 1991): Plant size (medium) 25-40 cm dia. by 20-25 cm high (10-16 by 8-10 in.). Petiole 10–15 cm by 0.5 cm wide (4–6 by 0.20 in. wide), erect, forming a vase-shaped plant, green with no purple dots at the base. Leaf 10–15 cm by 5 cm wide (4–6 by 2 in.), erect and in line with petiole, lanceolate to ovate-lanceolate, petiole transition gradual, decurrent or attenuate, margins entire, sometimes slightly undulate, erect, smooth, shiny light, dull medium to dark green above, glossy lighter green below, tip acute, sometimes slightly acuminate. Venation 3–4, very lightly impressed above, smooth below. Scape 25–60 cm long (10–24 in.), straight and erect, not bending, light green, terete, no purple marks. Sterile bracts 2–3, tightly clasping stem and persistent; fertile bracts short, navicular, membranous, thin, green, withering at anthesis, but not falling away. Raceme 6–12 flowers, widely spaced. Flowers 5 cm long and 3.5 cm broad (2 by 1.50 in.), Type C Tepal coloration (Schmid 1991) ▲; purple-striped, purple, thin narrow tube, perianth expanding, lily-shaped, lobes spreading, recurving, widely open, short pedicels, projecting stamens and style. Anthers before dehiscence whitish yellow with spotted sides (appearing yellow). Blooms July to early August. Very fertile (95 - 97%).
**Pollen:** *H. sieboldii* var. *sieboldii* has a Pollen Subtype RG (II-B) (= rugulate granulate; subtype II-B) with shape OS (oblate-spheroidal) (Pollen shape after Erdtman, 1966). *H. sieboldii* var. *sieboldii* (UGA Vouchers as *H. albomarginata* ex BH) is in the range of P 77.3 to 77.6 ± 3.3 × E 65.4 ± 3.2. Sizes given in µm polar axis (P) × equatorial axis (E). This taxon has a distinct pollen grain sub-type, which allows for differentiation: Fujita (1976) and Hara (1984) placed *H. rectifolia* in synonymy with *H. albomarginata* (= *H. sieboldii* var. *sieboldii*). Pollen morphology does not support this taxonomic treatment. *H. ‘Lancifolia’* (BH Bailey Vouchers) is here determined to be a related putative, near sterile hybrid with similar pollen grain size but having a differentiated pollen shape SO (sub-oblate) [not OS (oblate-spheroidal!)] (Chung and Jones, 1989).

**Karyotype-Chromosomes:**
Sporophytic Count 2N = 60; 12 large, 48 small.

**Genome Size:** DNA content (2C) average for *H. sieboldii* var. *sieboldii* in pg (10^-12 gram) was determined to be 22.5 with a ratio of PI/DAPI of ± 1.12 (Zonneveld, B.J.M. and F. Van Iren. 2001). This result is close but not equal to *H. rectifolia* forma typica (= 21.3 ± 1.14). This is another data set allowing for differentiation of *H. sieboldii* var. *sieboldii* and *H. rectifolia* and so does not support the synonymy of these taxa as suggested Fujita 1976 and Hara 1984.

**DNA Banding:** Recent RAPD analysis (Yu (2002) and Sauve, R.J., S. Zhou, Y. Yu, and W.G. Schmid; did not include *H. sieboldii* var. *sieboldii*. Its taxonomic position has been otherwise established by macro- and micromorphological analysis, including genome weight and pollen viability (Zonneveld, B.J.M. and F. Van Iren. 2001), palynology (M.G. Chung and S.B. Jones, 1989), and genomic DNA (Ito, M. et al 1999)

---

2010-12-03 - 15 -
Phenotypical variations in *H. sieboldii* var. *sieboldii* (formerly *H. sieboldii* var. *sieboldii* f. *spathulata*): In wild populations, a large number of differentiated phenotypes exist. Due to its large distribution ranging over the entire Japanese archipelago, this established and prevalent species varies slightly from habitat to habitat. Japanese botanists have isolated some of the more divergent and distinct macromorphological varieties and given them botanical rank. While flower morphology remains constant, one variant with a distinct, bell-shaped (campanulate) perianth was named *H. sieboldii* f. *campanulata* (page 18). Another flower variant has unusually dark-colored tepals, named *H. sieboldii* f. *okamii* (*H. okamii* Araki 1942) is differentiated by dark tepal color alone. A white-flowered form is occasionally found in the wild among typical populations and its botanical name *H. sieboldii* f. *alba* (page 19) has been previously reduced to cultivar status as *H. sieboldii* ‘Alba’ (Schmid 1991). Most noticeable are a number of differentiated leaf forms and sizes. In the typical form of the species, most leaves are short, but others are elongated, approaching the leaf morphology of *H. longissima* var. *brevifolia* and this phenotype is named *H. sieboldii* f. *angustifolia* (see illustrations page 17). In 1944, Maekawa illustrated and validly published *H. sieboldii* f. *polycarpellata*. The type is in TI. The specific epithet is derived from *poly* = many and *carpellum* = fruit. This name seems strange because the normal state of fruit in *Hosta* is polycarpellate, specifically a dry, dehiscent, polycarpellary round or triangular siliqua (fruit capsule), which normally contains three double rows of seeds. Seeds are released by way of the capsule splitting loculicidally into three, recurving shells. All taxa in the genus *Hosta* are normally polycarpellate. Aside from normal development, Maekawa discovered *abnormal* carpel connation and carpellar stamina and pistils (*A, B, and C*), which should be considered monstrosities and Maekawa named this *H. lancifolia* var. *thunbergiana* f. *monstr. polycarpellata*. He also indicated occurrence of 30° deviation of floral symmetry in these monstrosities (*D*). Maekawa used several synonyms listed later. Hara (1984) validly transferred this forma monstr. to *H. sieboldii* as *H. sieboldii* var. *sieboldii* f. *polycarpellata*. This taxon is considered a deviant, which is of scientific interest but of no taxonomic nor horticultural importance.

![Diagram](image)

- **A** = Carpel connation (fusion)
- **B** = Carpellar stamina and pistil
- **C** = Detail cross-section of carpellar stamina
- **D** = Floral asymmetry

**H. sieboldii** f. *polycarpellata* = *H. sieboldii* var. *sieboldii* (forma monstr.)
(Drawing by WGS ex Maek. original (1944))
Above, leaf photographs of Japanese vouchers (in situ) indicate the most commonly seen W/L ratios seen in wild populations. As illustrated, leaf margins are usually entire, but wavy/undulate margins can also be found (see photo page 18). Also encountered are unusually small leaf sizes and some of these have been selected and named in horticulture. Taxonomically, they represent a dwarf phenotypical variant of the species (see Schmid 1991; page 105). Fujita (1976) submerged some of the above infraspecific taxa belonging to the *H. sieboldii* complex by declaring

\[ A = H. sieboldii \text{ var. } sieboldii \text{ (in situ)} \]
\[ B & C = H. sieboldii \text{ f. angustifolia } \text{ (in situ)} \]

Width/Length ratios of leaves
A = shape ratio 2 (width) by 4 (length)
B = shape ratio 2 (width) by 6 (length)
C = shape ratio 2 (width) by 8+ (length)

Court.: © hao.big.ous.ac/plantsdic
them synonymous to *H. sieboldii* ‘Albomarginata’, although Fujita used the invalid synonym *H. albomarginata* for his placements. Hara (1984) made similar changes, submerging the infraspecific taxa under the cultivar (cultron) *H. ‘Lancifolia’. In Hara’s taxonomy *H. sieboldii* var. *sieboldii* f. *sieboldii* replaced the species name *H. albomarginata*, namely the white-margined culton, which does not represent the wild populations. Unfortunately, both Fujita and Hara also considered taxa belonging to the *H. rectifolia* complex as being synonymous to *H. sieboldii* (as *H. albomarginata*). However, these placements have not been confirmed by genome weight (Zonneveld, B.J.M. and F. Van Iren. 2001) nor by palynology (M.G. Chung and S.B. Jones, 1989). Both Fujita and Hara placed the near-sterile *H. ‘Lancifolia’* culton to serve as the type of the wild populations of the all-green species in Japan known as Koba Gibōshi (= コバギボウシ = 小葉擬宝珠 = 小葉擬宝珠 = *H. sieboldii* var. *sieboldii* (formerly *H. sieboldii* var. *sieboldii* f. *spathulata*). This incorrect placement is discussed starting on page 4, above.

*H. sieboldii* ‘Campanulata’ =
*H. sieboldii* f. *campanulata* = ツリガネギボウシ = 釣鐘擬宝珠 = Tsurigane Gibōshi (temple bell hosta ≈ campanulate flower hosta). This taxon was first described as *H. campanulata* (Araki 1942). It has natural populations in south-central Honshu, in Kyoto and Hyogo Prefectures. The type was collected by Araki in Taki-gun (多気郡; near Kumobe-mura) in Mie Prefecture (Mie-ken; 三重県). It colonizes wetlands and meadows in open mountain valleys and has a habitat very similar to that of *H. sieboldii* var. *sieboldii*. The only notable difference is the bell-shaped perianth. The typical species has a funnel-shaped, wide open perianth with recurving lobes, while *H. sieboldii* f. *campanulata* has a more bell-shaped perianth which opens partially. Fujita (1976) included it in the synonymy of *H. sieboldii* in a broad sense. In this 2007 Species Update it is treated as a cultivar of the species. The campanulate perianth (page 19) and slightly different leaf shape (see holotype No. 14562b in KYO, page 20) are very minor and not considered important enough to warrant species rank.
(Fujita “small-flowered temple bell hosta”). Following Fujita (1976) and Schmid 1991 and per in schedula determinavit, this Species Update considers listed phenotypes of the species as synonyms. Some of these variants are rarely found in the wild and so seldom seen in cultivation but names have been assigned (page 14) to identify these phenotypes in horticulture.

**H. sieboldii var. sieboldii** (in situ)

- Perianth detail flaring type of forma typica
- *H. sieboldii* ‘Campanulata’
- Perianth detail campanulate type

**H. sieboldii var. sieboldii** (in situ) Kodashiro Wetland (小田代ケ原)
Loc. cit.: Tateiwa-mura (舘岩村); Fukushima-ken (福島県)
Court.: © omodihiro/hp/co 2004.07.12
H. campanulata (Holotype) = H. sieboldii ‘Campanulata’

H. albomarginata (Fujita 1976)

H. sieboldii f. campanulata (W.G. Schmid 1991)

Coll. in Tamba-no kuni (丹波国) in 1939 by Y. Araki

Holotype KYO No. 1 University Herbarium (京都大学総合博物館)
H. sieboldii var. sieboldii f. alba = H. sieboldii ‘Alba’ (in situ Kantō)
White-flowered variant growing among typical population
Loc. cit.: Tsukubasan (筑波山) near Tsukuba-shi (つくば市); Ibaraki-ken (茨城県)
Court.: © 5c biglobe ne ogm yasou

H. sieboldii ‘Alba’ = H. sieboldii var. sieboldii f. alba = シロバナコバギボウシ = 白花小葉擬宝珠 = Shirobana Koba Gibōshi (white-flowered small-leaved hosta). This white-flowered phenotype is occasionally found in the wild among typical populations (see photo above). Although its floral morphology and white tepal color is stable, the leaves feature the same divergent leaf shapes found the typical H. sieboldii var. sieboldii populations. The existence of several academic Japanese names also points to polymorphism: Shirobana Koba Gibōshi Maekawa (1969), Shirobana Ko Gibōshi Maekawa (1950), and Shirobana Mizu Giboshi Makino (1910). Its botanical name H. sieboldii f. alba has been previously reduced to cultivar status H. sieboldii ‘Alba’ (Schmid 1991). This is done to differentiate the wild plants from several distinct forms found in cultivation and given cultivar names, for example H. ‘Snow Mound’ and H. ‘Weihenstephan’. The phenotypes, upon which the synonyms listed are based, belong in part to white-flowered forms of H. sieboldii f. angustifolia and may include other types listed earlier. Occasionally in gardens, white-flowered forms of H. ‘Lancifolia’ are labeled as H. sieboldii ‘Alba’. The original European white-flowered form was discovered in von Siebold's garden in 1868 and named Funkia japonica flore albo. Often referred to Hosta albomarginata ‘Alba’, it is now correctly H. sieboldii ‘Alba’ (reduced to cultivar status). This special form of H. sieboldii has long been cultivated under the incorrect name of
“H. minor alba.” The true H. minor f. alba has longitudinal ridges on the scape, whereas H. sieboldii ‘Alba’ has a terete (smooth) scape. In Japan, the white-flowered form is occasionally found as a rare mutation with an unstable number of tepals, between four and six, with the anthers projecting from unopened flowers, known as Shirobana Kika Koba Gibōshi (white-flowered, small curiosity hosta = きかシロバナコバギボウシ = 奇貨白花小葉擬宝珠. The Kanji 奇貨 means “curiosity” or rarity. Aside from the names derived from botanical binomials listed earlier, the variable white-flowered H. sieboldii var. sieboldii has a number of cultivar names. One of the best known European derivations is H. ‘Weihenstephan’ and a popular North American cultivar is H. ‘Snow Mound’.

H. ‘Weihenstephan’ = H. sieboldii ‘Alba’
In full bloom showing some reversions to purple tepal color
RHS Wisley Garden © W.G. Schmid; July 1988.07.21
Taxonomic Type and Synonymy:


_Hemerocallis sieboldii_ (Paxton) Ingram pro nomen (basionym) tantum; sed differt ab _Hemercocallis sieboldii_ (basionym) lamina foliis pure viri dis = _Hosta sieboldii_ var. _sieboldii_ f. _spathulata_ (Miquel) W.G. Schmid comb. nov. (1991) at nom. nov. (2010) _Hosta sieboldii_ var. _sieboldii_ f. _sieboldii_ (based on type/autonym method ex ICBN). Excluded is the white-margined, non-perpetuating phenotype formerly associated with this taxon, i.e., _Funckia albo-marginata_ Hooker: Curtis's Botanical Magazine, 65, tab. 3567 May 1838 (ic. S. Curtis, Glazenwood, Essex, March 1838, W. Fitch, Del., Swan Sc.) and _Hosta albo-marginata_ f. _viridis_ (Hooker) Hylander 1945 Delectus seminum hortus botanicus Gotoburgensis, Göteborg, p. 3, pls. 4, 17 and 18; also excluded are all of the synonyms for the lectotype _Aletris japonica_ in UPS = _H. ‘Lancifolia’_.

_H. sieboldii_ f. _alba_ has been reduced to cultivar status as _H. sieboldii_ ‘Alba’ W.G. Schmid (1991) in The genus Hosta: Gisbōshi Zoku (ギボウシ属); P: 100, 326.

Type: In BH, No. BH63-318/9327 (lectotype); Places of collection are recorded in most of the regions of the Japanese archipelago: Kyūshū (九州) with exception of the Ryukyu Islands (also Nansei Islands: Nansei-shotō; 南西諸島); Shikoku (四国); Chūgoku region (中国地方; Chūgoku-chihō); Kansai region (関西地方; Kansai-chihō); Chūbu (中部地方; Chūbu-chihō); Kantō (関東地; Kantō-chihō); Tōhoku Region (Tōhoku-chihō; 東北地方); and Hokkaidō (北海道; also Ezo, Yezo) and associated islands.

Hab.: Ecologies ranging from lower elevation wetlands and moors, including Satoyama (里山 = undeveloped woodland near populated areas); including subalpine meadows and wetlands, as well as in the lower vegetation belts on mountains and montane forest margins.

Botanical Synonyms: (Note: Synonyms for the white-flowered phenotype and other named phenotypes are included here):

_Funkia japonica_ flore albo nom. nud. Siebold 1868.
_Funkia japonica_ foliis viridimarginatis Rodigas 1864.
_Funkia lancifolia_ γ angustifolia Regel 1876
_Funkia ovata_ f. lusus _spathulata_ Miquel 1869.
_Funkia ovata_ _spathulata_ β floribus subalbidis Miquel 1869 pp.
_Funkia ovata_ var. (f). _spathulata_ Miquel 1869.
_Funkia ovata_ var. _lancifolia_ Miquel 1869
_Funkia spatulata_ nom. nud. Siebold 1860.
_H. albomarginata_ f. _viridis_ Hylander 1954.
_H. albomarginata_ var. _alba_ Hylander 1952.
_H. cærulea_ var. minor _albiflora_ Nobis 1951.
**H. haruanensis** Honda 1935 in part.

**H. japonica** var. *angustifolia* Ascherson and Gräbner 1905


**H. japonica** var. *angustifolia* Makino in Iinuma 1910

**H. lancifolia** [var.] *alba* Irving 1903.


**H. lancifolia** var. *angustifolia* Koidzumi 1936


**H. lancifolia** var. *thunbergiana* Maekawa 1940.

**H. okamii** Maekawa 1940

**H. sieboldii** var. *sieboldii* f. *alba* (Irving) H. Hara 1984

**H. sieboldii** var. *sieboldii* f. *polycarpellata* (Maekawa) H. Hara 1984


**Japanese Synonyms:** (Note: Synonyms for the white-flowered phenotype and other named phenotypes are also included):

コバギボウシ = 小葉擬宝珠 = Koba Gibōshi
ホソバコバギボウシ = 細葉小葉擬宝珠 = Hosoba Koba Gibōshi
ツリガネギボウシ = 釣鐘擬宝珠 = Tsurigane Gibōshi
ムラサメギボウシ = 村雨擬宝珠 = Murasame Gibōshi
やつぶさギボウシ = 変形した擬宝珠 = Yatsubusa Gibōshi
シロバナコバギボウシ = 白花小葉擬宝珠 = Shirobana Koba Gibōshi

**Horticultural Synonyms:** (Note: Synonyms for the white-flowered phenotype and other named phenotypes are also included):

*Funkia lancifolia* var. *alba* hort. incorrect.


*H. albomarginata* ‘Alba’ hort.

*H. albomarginata* ‘Thunbergiana’ hort incorrect.

*H. albomarginata* *alba* hort. Grenfell 1981.

*H. albomarginata* f. *alba* hort.

*H. albomarginata* *spathulata* hort. incorrect.

*H. albomarginata* var. *alba* hort. incorrect.

*H. lancifolia* ‘Alba’ hort. incorrect.

*H. lancifolia albomarginata* *alba* hort. incorrect.

*H. lancifolia* f. *alba* hort. incorrect.

*H. lancifolia* thunbergiana hort. incorrect.

*H. lancifolia var. angustifolia* hort. incorrect
**H. minor alba grandiflora** Foerster 1956 **incorrect.**
**H. minor alba** hort. **incorrect.**
**H. minor** hort. **incorrect.**
**H. sieboldii** ‘Alba’ hort.
**H. sieboldii** ‘Spathulata’ hort. **.**
**H. sieboldii** ‘Viridis’ hort. **incorrect.**
**H. sieboldii alba** hort. **incorrect.**
**H. sieboldii thunbergiana** hort. **incorrect**
**H. sieboldii var. alba** incorrect.
**H. sieboldii viridis** hort. **incorrect.**
**H. thunbergiana** hort. **incorrect.**
**H. thunbergii** hort. **incorrect.**

**Hosta albiflora** Mack.
**H. ‘FRW No. 537’.**
**H. ‘Mack No. 15’.**
**H. ‘Beatrice Green Form’** hort. **incorrect.**
**H. ‘Craig No. C-2’.**
**H. ‘Davidson No. 75’** and **H. ‘Davidson No. 90’**

**H. ‘Thunbergiana’** hort. **incorrect.**
**H. ‘Thunbergii’** hort. **incorrect.**

Dwarf White Plantain Lily Mack
Narrowleaf Plantain Lily

Schmalblattfunkie Hansen et al., 1964 sim (German)
Weissblühende Zwergfunkie Foerster 1956 (German) = **H. sieboldii** ‘Alba’

---

**H. sieboldii ‘Albomarginata’**
Cult. vouch. 1087.84.04 at Hosta Hill R.G. © W.G. Schmid; 1988.07.09
1 At anthesis: In situ Satoyama (里山); Gunma-ken (群馬県); Kanra-gun (甘楽郡);

2 Early bud stage; Hosta Hill R.G. Sp1023.83.05 © 1984.06.19 W.G. Schmid

3 Early spring shoots; Hosta Hill R.G. Sp 1023.83.05 © 1987.05.02 W.G. Schmid
References:


Kaempfer, E., 1692. *Yoksan, vulgo Gibboosi*, original drawing No. 52; *Gibboosi altera*, original drawing No. 166. Sloane Collection, British Museum (Bloomsbury), London.


Maekawa, F., 1940. *J. of the Faculty of Science*, Sect. 3 Botany, Vol. 5:398-404, ic. 77-82.


© W.G. Schmid 2007/2010: The text and illustrations are copyrighted and are available for personal reference only. Other contributors retain their copyright of featured photographs as noted in captions. The content may not be published in printed form without the author’s written permission. Web quote reference:

W. George Schmid, Hostalibrary.org/species/.

---

**H. sieboldii var. sieboldii** (in situ)

Competing with mountain grasses in submontane wetland (山麓の湿原)

Hosshouzan (星生山); Makinoto Pass (牧の戸峠); Kyūshū (九州)