**Hosta Species Update**

**The Hosta Library**

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**H. yingeri** S.B. Jones 1989  

흑산도비비추 = Heuk-san-do-bi-bi-chu = Huksan Island Hosta  
フギレギボウシ = Fugire Gibōshi

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**History and Nomenclature:** This new species was published in 1989 by S.B. Jones and named for the collector Barry R. Yinger. In autumn 1985, Yinger was on a collection trip in the Huksan Archipelago, several island off the south-western coastal province of South Cholla Province (Cholla-nam-do; 전라남도). On the island of Taehuksan-do (흑산도), he discovered this species on the east side of Yeri Village at 34.40° N, 125.6° E. Upon his return, he supplied collected seeds to S.B. Jones., who named and established this species as a taxon. The holotype is in NA, No. 3616 by B.R. Yinger, T.R. Dudley, J.C. Raulston, A.P. Wharton, and Y.J. Chang. Its Korean common name 흑산도비비추 ( = Heuk-san-do-bi-bi-chu = Taehuksan Island Hosta) reflects its place of discovery. Accessions in 1988 by M.G. Chung located populations on Taehuksan Island, Sohuksan Island, and Hong

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H. *yingeri* (흑산도비비추) = Huksan Island Hosta  
Taehuksan-do, near coast in pine forest, 15m (50 ft) AMSL; UGA Voucher 1383  
© M.G. Chung 1988.08.05

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Island. Although described only recently, according to M.G. Chung (1989, personal communication) a herbarium specimen from an earlier 1919 collection by T. Ishidoya and T. H. Chung on Hong Island (Hong-do) exists in SNU (No. 3374) labeled Hosta japonica Ascherson. Maekawa assigned a Japanese name フギレギボウシ (= Fugire Gibōshi).

The southwest coast of Korea located off shore opposite the province of Chollanam-do. (See Habitat Map). H. yingeri remained unknown to botany due to its remote habitat. Apparently removed from contact with other populations of the genus Hosta, it developed macromorphological features that are differentiated from those exhibited by any of the other species groups in the genus. Although limited to small population sizes, this species has developed a breeding system that has contributed to its successful existence and continued survival in a small and remote habitat. As a result the anthers are uniquely grouped 3 + 3 with the inner set close to the pistil, making self-fertilization a possibility. Also and typically, Hosta species have a subsecund raceme, meaning all the flowers are pointed more or less to one side (in one direction). H. yingeri has a short raceme with the flowers evenly spaced around
the central shaft, pointing 360 degrees in all directions, perhaps leading to better pollinator attraction and wind dispersal. The flowers are atypical of others in the genus in having lobes which spread in “spider-flower” fashion and it shares this characteristic with *H. laevigata*. This species is common, rock-dwelling on shady, northwest-facing talus slopes and cut-over hillsides at elevation 2 to ± 150m (7–500 feet) above sea level. It also occurs on adjacent islands in the Huksan Islands Group (see map on page 1 and History). Its habitat includes pine forests where it shares the habitat primarily with grasses and ferns. It is distinct from other species in its thick, succulent leaves, which have a very shiny, flat, upper surface with inconspicuous veins and have a “polished” surface on the back. Some variation exists in leaf-color from dark green to light green and in surface polish, which is very glossy in some forms and barely glossy in others, depending on sun exposure and microclimate. Due to its significantly morphological differentiation and ecological isolation its proposed placement with subgenus Bryocles, section Tardantheae is not accepted here. It flowers much earlier and has a distinct differentiation in its perianth morphology so has been placed in a new section Arachnantheae (Schmid 1991). M.G. Chung (1990)

**Projections of 47 Operational Taxonomic Units of 7 Korean Species**

Principle Coordinate Analysis (PCO) (M.G. Chung 1990)

CLA = *H. clausa*; CAP = *H. capitata*; MIN = *H. minor*; VEN = *H. venusta*;
TSU = *H. tsushimensis*; YIN = *H. yingeri*; JON = *H. jonesii*.
OTU = operational taxonomic unit = species sampled
determined that aside from the closely related species pair of *H. minor* and *H. venusta*, all of the other Koran species, including *H. yingeri*, indicate considerable allozyme divergence. The morphological divergence suggests that these species have been isolated for long periods of time and that is substantiated by the fact that *H. yingeri* occurs only in a very limited insular habitat, indicating a probable geographic mode of Speciation (Grant 1981). Chung (1990) also determined that the *H. yingeri* populations on Hong (HIC) and Taehuksan Island (TIC) are growing in close proximity, while those on Sohuksan (SIC) grow further apart. As a result, HIC and TIC populations had greater gene flow (and/or less genetic drift) than the SIC populations during their evolutionary history. Obviously, the remoteness of these populations did not allow gene flow between populations on the Korean peninsula so the HIC, TIC, and SIC populations developed a unique morphological character (phenotype). Chung (1990) detected several unique species-specific bands. The quantitative and qualitative characters could be used to differentiate between species. However, based on the available data sets, four groups could be easily recognized among the Korean *Hosta*
species: 1) *H. minor*, *H. venusta*, with *H. jonesii*, and *H. tsushimensis*; 2) *H. yingeri*; 3) *H. capitata*; and 4) *H. clausa*. Chung proposed that these four groups be elevated to the sectional level. In fact, *H. yingeri* together with *H. laevigata* have been grouped in Arachnanthae (Schmid 1991).

**Plant Morphology:** Due to its limited natural environment, *H. yingeri* shows little morphological differentiation. The seed collected in several places resulted in plants that were quite uniform and all exhibited unique characters, such as the stamens showing 3-long and 3-short pairing. This uniformity is due to this species evolving in a very limited insular environment resulting in considerable inbreeding.

Plant size 40 cm dia. by 15 cm high (16 by 6 in.). Petiole 3–7 cm by 0.5 cm wide (1.5–3 by 0.25 in. wide), semi-erect, V-shaped, green, some purple spots. Leaf 10–15 cm long by 5–7 cm wide (6 by 2.75 in.), elliptic, rigid, thick and with very heavy substance, very shiny above, medium to dark green, polished light grey-green below, decurrent to the petiole and becoming V-shaped, elongated, tip acuminate. Venation 3–5 (6), not sunken above, projected, smooth below. Scape to 65 cm long (25 in.), straight, smooth, round, erect, mostly perpendicular to the ground, sometimes bending slightly, green. Sterile bracts, 1–4, linear-lanceolate, 1–2 cm long by 0.25 cm wide (0.5–1 by 0.1 in.), navicular, green; fertile bracts, flat, green with papillose apex, to 1.2 cm long by 0.3 cm wide (0.5 by 0.1 in.); bracts not withering. Pedicels: Very long, green, purple spotted, slender, horizontal, to 2 cm (1 in.). Raceme 25–30 cm (10–12 in.) 15–25 flowers. Flowers 4 cm long and 4 cm broad (1.5 by 1.5), equally arranged around the stem, held erect in ±horizontal position on strong pedicels, lobes pale purple suffused with slightly darker veins, white throat, expanding, funnel-shaped, spider-flowered (see illustration). Capsules blunt tipped. Stamens conspicuously exserted, 3 short and 3 long with filaments attached to narrow tube. July/August. Anthers purple. Fertile.

*H. yingeri* (left) *H. laevigata* (right)
Spider-flowered tepals (no tepal type assigned in W.G. Schmid 1991)
Karyotype-Chromosomes: Sporophytic Count = 60; 12 large, 48 small; (2n).

Pollen: Pollen shape was not included by M.G. Chung and S.B. Jones in 1989 because this palynology study was published prior to the establishment of the taxon *H. yingeri*. This species has a number of unique morphological features and determination of its exact palynology is as yet not determined.


DNA Banding: RAPD analysis (Y. Yu, 2002), did not include *H. yingeri*. However the banding patterns of *H. laevigata* were compared in the 2002 study to 4 other species accessions from Korea (as shown by number in the Primer B10 analysis): 3- *H. venusta*; 4- *H. minor*; 5- *H. capitata*; 6- *H. nakaiana*. *H. laevigata* is shown as No. 8. *H. laevigata* originated from Taehuksan Island and is closely related to *H. yingeri*. As can be seen for Primer B10, the banding pattern for the *H. laevigata* is differentiated from the other Korean species, as expected and may approach *H. yingeri*. While it can be estimated that *H. yingeri* will show similar banding, future RAPD analysis will be required to determine the exact data sets.
Taxonomic Type and Synonymy:


_H. japonica_ Ascherson (herbarium annotation), T. Ishidoya and T. H. Chung, No. 3374 in SNU on the faith of M.G. Chung.

Botanical Synonyms:

_H. japonica_ Ascherson (herbarium annotation), T. Ishidoya and T. H. Chung, No. 3374 in SNU on the faith of M.G. Chung.

Japanese Language Synonyms:

_H. yingeri_ = フギレギボウシ = Fugire Gibōshi

Korean Language Synonyms:

_H. yingeri_ = 흑산도비비추 = Heuk-san-do-bi-bi-chu

Horticultural Synonyms:

_H. yingeri_ = 萌芽苗 = Good的发展芽苗

*Hosta Hill R.G. UGA Voucher 1383
Hosta Hill R.G. © W.G. Schmid 1989.06.03*
**Figure 1.** *Hosta yingeri.* — A. Habit. — B. Downward view of the raceme axis showing the flowers spread evenly around the central axis of the inflorescence. — C. Flower viewed from front. — D. Flower viewed from the side. (Drawing prepared by Carol L. Gubbins Hahn from fresh material of garden-grown seedlings of holotype collection.)

*H. yingeri* (Holotype drawing)

Court.: © Carol L. Gubbins Hahn and *Annals of the Missouri Botanical Garden*
H. yingeri in Cultivation:
In the early autumn of 1985, plant collector Barry R. Yinger discovered *H. yingeri* on a collecting trip in the Huksan Archipelago, composed of several island off the south-western coastal province of South Cholla Province (Chollanam-do; 전라 남도). The place of the original discovery was on the island of Tae-huksan-do (흑산도). It was realized that this was a new species and Jones validly established the new taxon naming it for B.R. Yinger, then at the National Arboretum. The new species has been used as the genetic basis for a number of new cultivars, which are listed later. *H. yingeri* makes a low, attractive mound of thick,
glossy leaves and a multitude of flowers with a spider-shaped perianth. Accessions in 1988 by M.G. Chung located populations on Taehuksan Island, Sohuksan Island, and Hong Island, thus establishing that the endemic habitat to be limited to the several named islands in the Huksan Archipelago. In 1987 W.G. Schmid obtained seeds from Yinger and S.B. Jones, then in charge of the Department of Botany, University of Georgia and in 1988, M.G. Chung (then at UGA) provided seed following his 1988 research and collecting trip to Korea. Several clones of *H. yingeri* exist, but indicate that there is little differentiation in the endemic populations. In 2011, *H. yingeri* was generally available in the hosta trade.

Due to the fact that *H. yingeri* comes true from seed when carefully selfed, many like seedlings have been seen in gardens. Occasionally, the seedlings may incorporate other genetic material, but have the outward appearance of *H. yingeri*. This may account for reports that this species grows much larger in gardens. Nevertheless, some very large specimens I have seen, with leaves 30 cm by 14 cm (11 in by 5.5 in) and a vein count of 9 pairs, may in fact be genetically mixed plants. Zilis (2000; 2009) also lists a maximum leaf size within these parameters. I have not

![H. yingeri](source unknown)

*H. yingeri* (source unknown)

Showing overall leaf surface corrugations and dimpling (see comments page)

Photo © S. Chamberlain
seen any voucher specimens showing anything close to these dimensions. The original description by S.B. Jones, Jr. of leaf sizes 10–15 cm long by 5–7 cm wide (6 by 2.75 in. max.) with a vein pair count of 3-6 pairs comes much closer to wild collected material that has grown at Hosta Hill for almost two decades now. It is understood that hosta species grow to somewhat larger dimensions in cultivation, but these very large cultivated specimens may need further examination. I have seen and examined specimens that have the overall heavy corrugations and dimpling, such as found in the cultivar *H. ‘Tokudama’*. While species in their native habitat will occasionally have some irregular and sparse dimples as seen in the *in situ* photograph on page 10, a uniform and overall corrugation or dimpling pattern has not been observed. The close-up of of *H. yingeri* on page 10 (taken on Taehuksan Island in close proximity to the coast) has some slight, irregular dimpling. The populations at higher elevations and away from close proximity to the coast line show a uniformly flat, smooth leaf surface. Chung (1990) has shown that the populations on the northern island of the Huksan Group are very uniform, The origin of these atypical, very large plants and those with uniform dimpling over the entire top surface of the leaves may be from unknown sources and are here not considered as representative of the endemic species.

*H. yingeri* （흑산도비비추 = Huksan Island Hosta）
Taehuksan-do, near coast in pine forest, 15m (50 ft) AMSL • UGA Voucher 1383 © M.G. Chung 1988.08.05 • Color label = 3 inches (7.6 cm)
*H. yingeri* Floral details
Left: Side view showing stamens showing with 3-long and 3-short arrangement.
Right: Frontal view of perianth showing long, excerted style with stigma
© Toyozo Nakayama (not a voucher)
Horticultural Notes:
Occasionally, selfed seedlings of a species are selected and given a unique cultivar name. Shown to the left is such an example: It was registered by R. Solberg and is *H. ‘Lily Pad’* = ♀ *H. yingeri* × ♂ *H. yingeri* (selected) It is a representative selection of *H. yingeri* that has the typical 3 long + 3 short stamen set. It is one of good examples of the species available and true to the wild forms studied.

*H. ‘Lily Pad’* (R. Solberg 2000)
Leaves and raceme
♀ *H. yingeri* × ♂ *H. yingeri*.
Photo © K. Sisson/HL.
Horticultural Progeny:
Note: Only direct species progeny is shown in List 1 and List 2. If a *H. yingeri* hybrid is involved in a sport (*H. yingeri* is part of the sport indirectly), or the cultivar is a sport of a *H. yingeri* hybrid, List 3 will include the cultivar name. The following code abbreviations are used:

♀ = the species as a pod parent directly = List 1
♂ = the species as a pollen parent directly = List 2
All other cultivars in which *H. yingeri* is involved = List 3

**List 1: Cultivars with *H. yingeri* ♀ as a pod parent:**

*H. ‘Blue Haired Lady’ = ♀ *H. yingeri* × ♂ unknown by G. Johnson 2004
*H. ‘Gosan Leather Strap’ = ♀ *H. yingeri* × ♂ (*H. laevigata* × *H. longipes sparsa*) by W.G. Schmid 2009
*H. ‘Chrystral Chimes’ = ♀ *H. yingeri* × ♂ unknown by J. Springer 2000
*H. ‘Korean Snow’ = ♀ *H. yingeri* × ♂ unknown by G. Johnson/Solberg 1999
*H. ‘Lakeside Looking Glass’ = ♀ *H. yingeri* × ♂ unknown by M. Chastain 1997
*H. ‘Lily Pad’ = ♀ *H. yingeri* × ♂ *H. yingeri* by R. Solberg 2000
*H. ‘Mystic Star’ = ♀ *H. yingeri* × ♂ *H. ‘Dorset Blue’* by G. Johnson 2004
*H. ‘Potomac Pride’ = ♀ *H. yingeri* × ♂ *H. ‘Blue Umbrellas’* T. Avent 1995

**List 2: Cultivars with *H. yingeri* ♂ as a pollen parent:**

*H. ‘City Slicker’ = ♀ *H. ‘Yellow Splash’* × ♂ *H. yingeri* by J. Dishon 1996
*H. ‘Jaz’ = ♀ *H. ‘Sum and Substance’* × ♂ *H. yingeri* by G. Johnson 2004
*H. ‘Old Coot’ = ♀ *H. ‘Sum and Substance’* × ♂ *H. yingeri* by G. Johnson 2004
*H. ‘Qill’ = ♀ *H. pycnophylla* × ♂ *H. yingeri* by R. Herold/Walek 2009
*H. ‘Swamp Thing’ = ♀ ((*H. sieboldiana* blue seedling) × seedling) × ♂ *H. yingeri* by T. Avent 2005
*H. ‘Sun Catcher’ = ♀ *H. ‘Ogon Tsushima’* × ♂ *H. yingeri* by R. Solberg 2004

**List 3: Cultivars that are *H. yingeri* sports:**

*H. ‘Gentle Spirit’ = ♀ *H. yingeri* sport by M. Zilis 2009
References:


Maekawa, F. 1940. The genus Hosta. J. of the Faculty of Science, Imperial University Tokyo, Section 3 Botany, Vol. 5:317–425.

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