# Is it 'Formosa' or is it 'Formosum'?—the System, the Codes, a Resource, and the Historical Background

By William C. Miller III — Bethesda, Maryland

Taxonomy or systematic botany is the scientific endeavor which seeks to organize plants into logical groups based traditionally on morphology (form and structure) and more recently, phylogenetic relationships. It also provides an orderly naming system, binomial nomenclature, which was used by Swedish botanist and scholar Carolus Linnaeus. A major improvement over the confusion of multiple common and regional names that existed before, all plants are divided and subdivided beginning with "kingdom" and ending with "species" utilizing Latin, then the basic language of science. Plant professionals everywhere thus have a universally accepted means for identifying and distinguishing between specific plants.

#### The Codes

Under Linneaus' system, all plants have a generic name (genus) and a specific epithet (species), and the rules and recommendations that govern are promulgated in the International Code of Nomenclature for algae, fungi, and plants (ICN).<sup>2</sup> Since our understanding of the world continually improves, these rules and recommendations are periodically reviewed and sometimes changed.

Some plants are given cultivar names. Cultivars (CULTIvated VARietieS) are plants which exhibit some remarkable characteristic (e.g., size, color, bloom period, fragrance, and ease of propagation, to name a few) that make them more desirable than other members of the same species. In the genus *Rhododendron*, cultivars usually have to be multiplied (propagated) by asexual means (e.g., taking cuttings, air layering, ground layering, or tissue culture) to capture and maintain the desired characteristics. The naming of cultivars is governed by the International Code of Nomenclature for Cultivated Plants (ICNCP).<sup>3</sup> In its eighth edition, it too is reviewed periodically, and occasionally those rules change.

# The IRRC, the Invaluable Resource

The International Rhododendron Register and Checklist (IRRC), currently in its second edition with ten supplements, is published by the Royal Horticultural Society in its role as the International Cultivar Registration Authority (ICRA) for the genus *Rhododendron*.<sup>4</sup> The first nine supplements include azalea, azaleodendron, rhododendron, and vireya names registered from January 1, 2003 to December 31, 2013. The tenth supplement includes all those registered in 2014, so it is reasonable to assume that there will be an eleventh supplement in the near future if the number of registrations continues at its present rate.

Consonant with the codes, the IRRC was initially a list of registered cultivar names with descriptions and historical information submitted during the plant registration process.

Over time, names of unregistered plants but known to exist, were added, and today there are more than 15,000 entries in the IRRC.<sup>5</sup>

Unfortunately, not all developers register their introductions or are sufficiently familiar with the industry to avoid assigning existing names to new introductions. Here are three examples: the IRRC lists five evergreen azaleas by the name of 'Akebono', which is Japanese for daybreak or dawn; 'Tricolor' has been applied to three evergreen azaleas, five deciduous azaleas, and one rhododendron; and finally, 'Macranthum' is shared by one evergreen azalea, three deciduous azaleas, and one elepidote rhododendron. One of the functions and benefits of the registration process is to provide a mechanism for ensuring that existing names are not used again. Obviously, a lot of names were duplicated prior to the existence of the formal registration process. Nevertheless, the IRRC is an essential reference for hybridizers and people who write about azaleas and rhododendrons. It can be a life saver, if you don't remember whether or not there is a terminal "e" in the Anne of cultivar 'Betty Anne Voss' or if you are unsure of the spelling or the use of hyphens with Japanese cultivar names. The IRRC is a resource that can save you a lot of embarrassment.

# **Essential Historical Background**

All azaleas belong to the genus *Rhododendron*. But it wasn't always so. When Linnaeus published his Species Plantarum in 1753, he created the genus *Azalea* which consisted of six species: *Azalea indica*, *A. lutea*, *A. pontica*, *A. viscosa*, *A. lapponica*, *and A. procumbens* (now *Kalmia procumbens*). One of the rules in binomial nomenclature is

▼ Figure 1 - 'Formosum', the immensely popular, mid-season blooming, violet red [RHS 74B], evergreen azalea in Southern gardens.



**Table 1-** Comparison of four 'Formosum' entries listed in IRRC, P. 462. Row 3 is the plant of interest.

	Cultivar Name	Category of Plant	Parentage	Flower Color	Synonyms	Informal IRRC Group
1.	'Formosum'	Deciduous azalea	Unknown	pale cerise red w/ orange blotch		Ghent
2.	'Formosum'	Evergreen azalea	Unknown	salmon rose	'Conqueror', 'Lateritium Formosum'	Indian
3.	'Formosum'	Evergreen azalea	Unknown, possibly a 'Phoeniceum' hybrid	violet red w/ red blotch		
4.	'Formosum'	Elepidote rhododendron	Unknown, possible arboreum hybrid	rose cerise		

that the ending of an adjectival specific epithet or Latinized cultivar name has to agree with the Latin gender of the genus. Another rule involves specific epithets derived from modern (i.e., not "classical") personal names. In this case, the ending would be based on the gender of the person for whom the plant was named (e.g., Dr. George Vasey and Rhododendron vasevi). Azalea is feminine, so Azalea formosa or 'Formosa' would ordinarily be correct. In 1834, however, when George Don, the Scottish botanist, published his A General History of Dichlamydeous Plants, the genus Azalea was subsumed under the genus *Rhododendron*. <sup>6</sup> At that point, the azaleas he listed became rhododendrons and the rules for gender endings came into play, since rhododendron species and Latinized cultivar names require neuter endings.<sup>7</sup> It is not known who developed the highly popular mid-season blooming, violet-red, evergreen azalea cultivar we know as 'Formosum' or when it first appeared.

### The Provenance of 'Formosum'

No consideration of 'Formosum' would be complete without attempting to uncover its provenance (origin). Turning initially to the IRRC, one discovers that there is not only one deciduous azalea, but also two evergreen azaleas, one elepidote rhododendron named 'Formosum' (see Table 1), and seven others (two rhododendrons, four azaleas, and one azaleodendron) that are "Formosum ... something else" (e.g., 'Formosum Aurantium' and 'Formosum Elegans'). While it is easy to identify which of the four 'Formosum' hybrids in the IRRC is our purple azalea in question, there is no indication in the record where it came from or who developed it. The chief clue is the comment that our 'Formosum' is "perhaps a 'Phoeniceum' hybrid." While we

may eventually discover that 'Formosum' is Pacific rim in origin, the name is derived from *formosus*, *formosa* which is Latin for finely formed, handsome, or beautiful. If a reference to Taiwan was intended, the specific epithet would have been *formosanum*.<sup>8</sup>

The Internet is a marvelous resource that enables a user to access historical literature from long ago and far away — like 19th century Europe. Occasionally, one happens upon period pieces that reveal the story or at least provide additional pieces to the "who, what, and where" puzzle. Online searching for "Formosa" results in hits on Chinese restaurants, cafes, and buffets, and references to Taiwan. By adding the word "azalea" to the search scheme, you get mostly contemporary nursery catalogs and advertisements, magazine articles, and university Web pages that mention 'Formosa' while discussing Southern Indian hybrids. Searches on "Formosum" result in hits on other members of the plant kingdom, especially orchids. The only references to Rhododendron formosum have to do with Nathaniel Wallich's rhododendron which is unrelated to and clearly bears no resemblance to a purple azalea.

In an 1852 publication The Florist, Fruitist, and Garden Miscellany, I found a reference to "Lateritia formosa (Ivery's), large, bright red, and fine shape." Returning to the IRRC, I found 'Lateritium Formosum' (Syn. of 'Formosum' and 'Conqueror'), which was the first evergreen azalea listed under the IRRC's four 'Formosum' hybrids (See row 2 in Table 1). There was no other relevant reference to 'Formosa' in this document.

Curiosity led me to reach back a little further to George Don's 1834 publication, A General History of Dichlamydeous Plants, which I found online in pdf format. Using the search



▲ Figure 2 - 'Omurasaki' and 'George Lindley Taber'. 'George Lindley Taber is a sport of 'Omurasaki'. For more information about 'George Lindley Taber', see: The Azalean. Winter 2007. 29(4): 87-92.

capabilities of Adobe Acrobat Reader, I made three separate searches of the 867 pages for any occurrences of "azalea," "rhododendron," and "Formosa." There was no reference to an azalea called 'Formosa'.

Since I didn't find anything useful in the literature looking back, I set my sights the other way and found Paxton's Botanical Dictionary... "comprising names, history, and culture of all plants known in Britain," in 1868. The subtitle sounded absolutely encouraging. There were lists of azaleas, lists of rhododendrons, only a few names that I recognized, and none of them was 'Formosa'.

I wondered if there might be a clue in any of the writings of the diverse but select group of reputable experts available on my library shelf: Wilson and Rehder, Bowers, Hume, Morrison, and Galle. <sup>10</sup> The substance of what I found is summarized in Table 2.

Two conclusions that one draws from surveying the experts are that 'Formosum' is probably a derivative of 'Phoeniceum', and conveying color was as much of a problem then as it is today.

Wilson remarked that Rhododendron phoeniceum f. smithii is still (1921) cultivated in the Magnolia Gardens, South Carolina. That seemed like too good a connection to pass up, so I sent an email to Tom Johnson, the Director of Gardens at "Magnolia on the Ashley" and president of the ASA's Rev. John Drayton Chapter asking for what he might be able to tell me about 'Formosa'. Tom replied "My understanding is that 'Formosa' was one of the azaleas imported as Belgian Indian azaleas. In the 1933 journal of The Azalea, Camellia Society of America, there is a category "Azalea Indica" that lists varieties and another heading "Hardy Indians" in which 'Formosa' is listed. 'Iveryana' and 'President Claeys' are the two other varieties listed that are common today. Magnolia, we are now discovering, has many of the early varieties, but being a public garden and not a true botanical garden, the varieties were not tagged and no maps of plantings were ever produced. Since I have been



▲ Figure 3 - 'Maxwellii' or 'Maxwell'. Described as a form of 'Phoeniceum' [RHS 57C]. It is hardy in the author's Maryland garden (Zone 7).

Figure 4 - 'Judge Solomon', a sport of 'Formosum'. The color is described as watermelon pink.



hybridizing, I have noticed about seven varieties that we have always called 'Formosa' are, upon close investigation, not the same. My guess is that as the Belgian Indians were first being hybridized, if a seedling looked like a 'Formosa', it just received that name. Again, from what I have noticed, the true 'Formosa' is hard to get to set seeds."

Wilson opined that 'Omurasaki' is a "glorified form" of *R. phoeniceum*, and Morrison suggested that 'Omurasaki', 'Formosa', 'Praestantissima', 'Pride of Mobile', 'Vicomte de Nieuport', 'Violacea', and 'William Bull' were derived from *R. phoeniceum*.

On page 166 of Galle's (revised and enlarged) Azaleas, the line items for 'Formosa' and 'Phoenicea' that appear in the copy of a page from P.J. Berckman's Spring 1883 catalog describe them as "Lilac pink, large" and "Lilac pink, large, early," respectively.

Table 2 - Opinions Regarding 'Formosum' from Leading Plant Professionals

	Authority	Source	Comments
1.	Wilson and Rehder	A Monograph of Azaleas. 1921.	Substantive discussion of <i>R. phoeniceum</i> which is not found in the wild no mention of 'Formosa'
2.	C. G. Bowers	Rhododendrons and Azaleas. 1936.	"Formosa, mallow purple, early, robust, best of its color — R. pulchrum hybrid."
3.	H. H. Hume	Azaleas. 1949.	In a descriptive list of Indian hybrids — "Perhaps the finest in its color. A robust, strong-growing azalea with good foliage and large flowers, freely produced. It blooms early and is one of the easiest to grow. Rosepurple."
4.	B. Y. Morrison (1)	Article: Notes on Old Varieties of Indian Azaleas, 1950. The National Horticultural Magazine. January 1950. See The Azalean. March 1985. 7(1): 12-15.	Mentions <i>R. phoeniceum</i> , that 'Omurasaki' is a <i>phoeniceum</i> derivative and that 'Formosa', 'Praestantissima', 'Pride of Mobile', 'Vicomte de Nieuport', 'Violacea' and possibly the double 'William Bull' are 'Phoeniceum' hybrids.  "Formosa. Very large and vigorous shrub usually a little broader than tall but tall enough in time. Foliage heavy and persistent, leaves large and coarse; flowers 1 to 3 in heads, very freely produced, Mallow Purple of
			the color chart, the dots of blotch Tyrian Red, but effective only as warming the color of the whole flower. Stamens 8-10, short filaments."
5.	B. Y. Morrison (2)	Thirty-six page, undated list of cultivar names: "Azalea Varieties Originally at Magnolia Gardens, near Charleston, South Carolina." Obtained from Magnolia Gardens with Buddy Lee's help.	This list of names was generated by Morrison from a book of plantings kept by Mr. Drayton at Magnolia Gardens.  Under 'Formosa Van Houtte', a reference to three names in the Tuinbouw Encyclopedie:  'Formosa' (Ivery) 1846  'Formosa' (Knight & Perry) 1839 or 1939  'Formosa Grandiflora' (Schulz) 1885
6.	F. C. Galle	Azaleas. 1987. <sup>10</sup>	Galle does not list 'Formosa' with the forms commonly attributed to 'Phoeniceum' which he characterizes as either a form of <i>scabrum</i> or a hybrid between <i>scabrum</i> and 'Mucronatum'. Galle shows 'Formosa' with his list of Southern Indian hybrids.  Elsewhere he states: "'Formosa' (probably a 'Phoeniceum' hybrid): deep purplish red, 74B, blotch darker, 3", midseason' tall, upright."



In Morrison's list of cultivars from Magnolia Gardens (see row 5 of Table 2), three cultivar names warranted further investigation: 'Formosa' (Ivery), 'Formosa' (Knight & Perry), and 'Formosa Grandiflora' (Schulz). In some cases, Morrison provided page number references to The Tuinbouw Encyclopedie. 11 Abe Books, an online marketplace for books, described The Tuinbouw Encyclopedie as an "exhaustive study on the history and the cultivation of azaleas. This cultivation took place in the Flemish region of Ghent (Gent) from the beginning of the 19th century onwards. (Text in Dutch)." All of that was good until it got to the part about the text being in Dutch. Even if I was lucky enough to find a copy, I wouldn't be able to read it. Again, resorting to the Internet, I shot a quick email to Hendrik Van Oost, a friend in Belgium. Hendrik looked up the references and translated the information. On the basis of color, none of the three were candidates for our deep purplish red 'Formosum' of Southern gardens.

Since there was general agreement that 'Formosum' is a 'Phoeniceum' derivative, what do we know about 'Phoeniceum'? Like 'Mucronatum', 'Phoeniceum' was stripped of its species status because it seemed to be a garden form that was not known to exist in the wild. Table 3 surveys how my experts characterized 'Phoeniceum'. Curiously, Morrison described 'Phoeniceum' as borderline hardy at Glenn Dale, Maryland. The author's 'Maxwellii' and 'George Lindley Taber' weathered back-to-back record cold winters (2013 and 2014) in Bethesda, Maryland, with no ill effect.

We have failed in our effort to discover when and where 'Formosum' came from, although I believe we can assume that, as some have suggested, it is likely a hybrid between *scabrum* 

▼ Figure 5 - 'Red Formosum' (from Magnolia Gardens, 2014) The IRRC states that it is a reddish purple sport of 'Formosum' and perhaps the same as 'Ray's Rubrum' and 'Ray's Ruby'. According to Galle, other cultivars assumed to be sports of 'Formosum' are 'Judge Solomon' (watermelon pink) and 'Southern Charm' (deep cherry pink).

**Table 3** - What is 'Phoeniceum'?

	Expert	Expert Opinion
1.	Wilson and Rehder. A Monograph of Azaleas. 1921. P. 62.	Commonly used as root stock for grafting Indian azaleas habit, size of flower, and shyness of blossoming resembles <i>R. scabrum</i> calyx and character of pubescence suggests <i>R. mucronatum</i> . It could be a hybrid between the two, or just an extreme form of <i>R. scabrum</i> . Lists six forms of phoeniceum (e.g, <i>R. phoeniceum</i> f. <i>smithii</i> ).
2.	C. G. Bowers Rhododendrons and Azaleas their origins, cultivation, and development. 1921. Pp. 266-267.	R. pulchrum is equated to R phoeniceum. 'Phoenicea' is a clone of R. pulchrum. "Low shrub, sometimes up to 6 ft. or more, but often dwarfish. Flowers 2 ½ inches across, rosy purple, spotted dark purple. In some varieties rose-red or carmine. Ten stamens. China and Japan, unknown in the wild. Possibly a hybrid between scabrum and mucronatum. Variable.
3.	H. H. Hume. 1949. Azaleas. P. 63.	R. phoeniceum is also known as R. pulchrum. Widely grown in Japanese gardens, but unknown as a wild plant. Used as grafting root stock. Usually cataloged as 'Phoenicea'. Makes a large compact shrub, leaves are ovate-lanceolate to lanceolate, flowers are large with rather narrow separated petals, magenta in color. Here belong 'Omurasaki' and 'Maxwellii'. Suggests that it is a hybrid with scabrum as one of the parents.
4.	B. Y. Morrison. 1996. The Glenn Dale Azaleas Revised. West and Miller. Pp. 10-11.	Borderline hardiness at Glenn Dale, Maryland. Generally resembles <i>mucronatum</i> , with the difference that the less hairy leaves appear longer and more drooping. The flowers are lilac or light purple. 'Omurasaki' and 'Maxwellii' are clonal selections. Tends to produce only one or two flowers to an inflorescence so that the display is less showy than the Kurumes. At Glenn Dale, it comes into flower as <i>mucronatum</i> is waning.
5.	F. C. Galle. 1987. Azaleas, revised and enlarged. Pp. 128-129.	Introduced from China in 1824 under the name of <i>A. indica</i> . Named <i>Azalea phoeniceum</i> by George Don for its phoeniceus (dark red) flowers that are actually purplish red. Known only as a garden form, it is probably a form of <i>scabrum</i> or a hybrid of <i>scabrum</i> and 'Mucronatum'. Six forms are listed including 'Omurasaki' and 'Maxwell'. Regarding 'Omurasaki', 'Formosum' has larger and less rounded flowers, and is tall, spreading. [Don Voss said, "Stearn at different times describes phoeniceus as purple-red and bright red."]

and 'Mucronatum', and that it was probably discovered in a garden in Japan and eventually found its way to Europe by way of the European plant explorers who combed Japan and China.

How do we know which is the "true" 'Formosa'? After absorbing Tom Johnson's comments and in the absence of any kind of paper trail, we probably don't know which is the "true" 'Formosa'. It is likely, however, that there is one plant that was selected by the "blind hand" of the trade, which has survived the contractions of the market over time to be multiplied in the millions, and which may or may not be "original."

You will continue to see 'Formosa' on tags at your community garden center, in garden catalogs, on plants available at the local big box stores, or on educational signage at your favorite public garden or park, because old habits are hard to break. In conclusion, and to answer the specific question posed in the title, the correct spelling of our highly popular mid-season blooming, violet red, evergreen azalea cultivar of Southern gardens is —'Formosum'.

#### **Notes and References**

- 1. For our purposes this kingdom-to-species generalization is accurate, but this is not entirely correct, since you will run into still lower taxa like subspecies, form, and variety.
- The title of the code is correct as shown. They don't capitalize algae, fungi, and plants in the title. The Melbourne Code was adopted by the Eighteenth International Botanical Congress. Melbourne, Australia. July 2011.
- 3. Brickell, C. D., et al. 2009. International Code of Nomenclature for Cultivated Plants, Proceedings of the meeting of the I.U.B.S. Commission for the Nomenclature of Cultivated Plants. Eighth Edition. Acta Horticulturae.
- 4. Leslie, A. C. (comp). 2004. International Rhododendron Register and Checklist (2nd ed.). London: Royal Horticultural Society. The ten IRRC

- Supplements to the 2nd edition are available on the Internet in pdf format and can be searched using Adobe Acrobat Reader.
- 5. Leslie, A. C. "How Many Azalea Cultivars Have Been Named?" The Azalean. Fall 2014. 36 (3): 55.
- 6. I had to look it up myself. A dichlamydeous plant is one whose flower has both a calyx and a corolla. Azaleas and maples are examples. A monochlamydeous flower is one in which the perianth does not consist of a separate calyx and corolla, and mistletoe and fig are examples. An achlamydeous flower, which is said to be "naked," has neither a calyx nor a corolla, and willows and poplars are examples.
- 7. For more information on gender endings see Voss, D. H., "Rhododendron indicum and Indicus, -a, -um: A Slippery Slope." The Azalean, Summer 2007. 29(2): 28-29. See also Voss, D. H. "How Personal Names Become Epithets." Journal American Rhododendron Society. Fall 2011. 65(4): 193-194.
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- 9. Hereman, S. 1868. Paxton's Botanical Dictionary. London. Bradbury, Evans, & Co. 623 p.
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William C. Miller III is a recipient of the Brookside Gardens Chapter's Frederic P. Lee Commendation (1988), and is twice the recipient of the ASA's Distinguished Service Award (1995 and 2002). He was chairman of the ASA's Glenn Dale Preservation Project, and a co-chairman of Dick West's Ten Oaks Glenn Dale Project. He is past president of the Brookside Gardens Chapter, a former vice president of the ASA, a past member of the ASA board of directors, past co-chairman of the ASA's membership committee, past chairman of the ASA's public information committee, a long-time ASA member, and a frequent contributor to The Azalean.

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