

# A Guide to the PACIFIC COAST IRISES

VICTOR A. COHEN

*with line drawings by the author*

*Foreword*

*by*

E.B.ANDERSON, V.M.H., M. Sc.



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## ADDENDUM

In 1989, *Iris thompsonii* which had previously been regarded as a form of *I. innominata*, was given full specific status as a result of work in the field and the laboratory. (Carol A. Wilson, Alfred Levinson and Richard Petersen at Portland State University, Oregon. Madrono, vol. 37, no.2, 1990; reprinted by the Species Group of North America, SIGNA no. 49. Autumn 1992.)

In general size and shape, *Ii. innominata* and *thompsonii* are very similar and so the description of *I. innominata* can be generally applied to *I. thompsonii*. However, the population of *I. thompsonii* is to be found south of Powers, in Coos County, Oregon and southward into northern Del Monte County, California. *I. thompsonii* was believed to be a hybrid between *I. douglasiana* and *I. innominata*.

The more widely distributed *I. innominata* varies in colour from cream through shades of buff, gold, yellow, orange and red-brown.

V.A.D-C.



Photos: Examples of unnamed PCI seedlings taken by Alun & Jill Whitehead

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## FOREWORD

To those who are not trained taxonomists what may be called a Gardeners Monograph with accurate descriptions of the genus represented can be of great value in attempts to name our plants and more particularly so when accompanied by such accurate drawings as in this example.

To those who garden on acid or neutral soils the Pacific Coast irises are well worth attention for their exquisite beauty and general ease of cultivation. Except for *I. douglasiana* those with gardens on alkaline soils must admire them elsewhere but when one realises that a lime tolerant strain of *I. ensata* has been evolved it would not appear impossible for someone with the energy, time and space to do the same for this group or at least its more decorative members. If I were not so old and much concerned with other plants I should be inclined to try myself as I recall the pleasure they have given me in the past when gardening on acid or neutral soils. This is a chance for someone to be a benefactor to iris enthusiasts. The members of the Iris Society are indeed indebted to Mr. Cohen for producing such a comprehensive, interesting and valuable a monograph.

E.B. ANDERSON

## Introduction

My interest in these irises started some twenty years ago, when I bought a copy of "Dykes on Irises". Popularly known as the "Californians", they were obviously of great interest to Dykes who cultivated most of the species known up to about 1925. There were seven species recognised in those days; *Iris bracteata*, *I. douglasiana*, *I. hartwegii*, *I. macrosiphon*, *I. purdyi*, *I. tenax*, and *I. tenuissima*. This last named species was described by Dykes himself. Dykes knew of, but would not recognise, *I. hartwegii* subsp. *australis*, and also confused this with *I. munzii*, which was known but not described until 1938. *I. chrysophylla* was grown by Dykes, and mentioned in his articles, but in his monograph he made it synonymous with *I. macrosiphon*. Since his day, further species and subspecies have been found and recognised, including that splendid and popular species *I. innominata*.

In those days my main concern was trying to obtain some of these irises. Apart from *I. douglasiana*, *I. tenax* and *I. innominata*, most of them were unobtainable or if offered proved untrue to name. This was partly due to a lack of understanding and, in particular, an ignorance of the probability of hybridization occurring when several species were in flower at the same time. It is now nine years since Dr. Lee W. Lenz published his "Revision of the Pacific Coast Irises", and our knowledge and understanding has been greatly increased as a result.

During November and December of 1963 I was in California for the first time, and my brief study of some of these irises during this off season period encouraged me to pay a further visit to America. In 1965 I spent the months of April and May studying, photographing, and collecting most of the species and subspecies on a 5,000 miles tour of California and Oregon. This work is therefore the result of all the foregoing searching and study, and it is hoped that it will help others to understand and enjoy these interesting irises.

## Acknowledgements

I should like to pay special tribute to Dr. Lenz. As Director of the Rancho Santa Ana Botanic Garden in southern California, he devoted nearly ten years to the study of the Pacific Coast irises, and his published work on the subject is today regarded as completely authoritative. Without this, much of our subsequent studies would have been difficult, if not impossible. I must thank Dr. Lenz for his kindly interest and advice, and for generously allowing me to study specimens in the Herbarium and Experimental Garden.

Members of the Species Group of the British Iris Society have encouraged me to undertake this work and I would like to thank them for their interest and support. Mr. E.W. Petts and Mrs. Angela Marchant have been particularly helpful. Without their valuable inspiration and tireless efforts on my behalf this work would not have been achieved. Finally, I owe a special debt of gratitude to Mr. Patrick Synge for all his kind help and advice with this book.

## Distribution

As would be implied by their title, the Pacific Coast irises are found not only in California but also in Oregon, and one species, *Iris tenax*, extends northwards into Washington. Within these three states a series of mountain ranges form a gigantic letter H; on the western side towards the coast are the Olympic Mts. of Washington, the Oregon Coast Range, the Klamath Mts. in southwestern Oregon and northern California, and the Coastal Range of California. To the east lie the Cascades of Washington, Oregon and northern California, with the Sierra Nevada running southwards and constituting a great part of the eastern Californian border. Linking the two sides of this letter H is a part of the Klamath system; the Siskiyou Mts. of southern Oregon and northern California, the crests of which run part of the way in an east-west direction and lie along the state-line between Oregon and California.

These irises are for the most part distributed through the mountainous and wooded areas within these great ranges, westwards from the western slopes of the Cascades and Sierra Nevada to the Coast Ranges. They do not go north of the Puget Sound lowland and none are found in the Great Valley of California. An isolated subspecies is found in the San Bernardino and San Gabriel Mts. of southern California.

The species generally occur in lightly wooded situations usually on sloping ground that is well drained. The soil is neutral to slightly acid, often full of stones or grit, and usually contains a certain amount of humus. The mean annual temperature of the area is 50° F. The summers are long and dry with occasional showers in the mountains and the main period of rainfall occurs during the winter, falling as snow over high ground. The conditions stated above apply to the great majority of the species and subspecies. The exceptions will be singled out under the treatment of individual species, where appropriate.

## General description

Before dealing with individual species a more general appraisal is needed. The series *Californicae* is a grouping within the sub-section Apogon, the beardless and rhizomatous irises. They are generally small and compact with slender wiry rhizomes and narrow grasslike leaves, though at least two of the species can assume much larger proportions and produce leaves which are long, broad and swordlike. With one exception the stems are unbranched. Length of leaves and height of flower stems within each species can be extremely variable. The majority of species produce one or two flowers to each stem. *Iris munzii* can have spathes bearing up to four flowers, and *I. hartwegii* subsp. *columbiana* usually has three flowers per stem. *I. douglasiana* often produces three flowers from within the spathes and is unique in forming branched stems on mature plants which can carry up to eight or nine flowers per stem.

The flowering season in the Pacific Coast States extends from about mid-March until mid-June, with the peak season occurring around the end of April and beginning of May. The Californian species tend to flower earlier than those in Oregon, but both latitude and altitude have quite a bearing on this aspect.

As would be expected, the earliest to flower are usually the first in fruit, and ripened seed capsules can be found from about the end of May onwards, with the later species ripening seed in June, July and August.

For the size of the plants which bear them, the flowers of this series are comparatively large. The standards and falls are well developed, and often distinctively veined and marked with rich colours. Most of the species possess style crests which are rounded, or deltoid, and often toothed on the upper edge, but two species form extremely long and narrow crests. With one exception (*I. purdyi*), the stigmas are triangular or tongue-shaped.

Colour can be an extremely variable factor. Several of the species have quite a range of colours, from lavender through purple to cream and yellow. Even where a species is known to have a restricted range of colour, this can vary from plant to plant and between one colony and the next. For instance, where a colour for a species is described as pale yellow, I have found it to vary from pale cream to light buff-yellow, and I suspect that there may even be slight changes of colour from season to season. Dr. Lenz has reported that wild plants of *I. munzii* transferred to the garden have shown a range of blue colours more intense than those observed in the wild.

This same variability and even apparent change of colour from season to season can be expected on other parts of the plant, especially the leaves. I have noticed, for instance, that leaves on collected plants of *I. bracteata* were glaucous and dull grey-green in appearance during 1966. The new season's leaves at the time of writing (March 1967) are green and glossy. Basal colouring of leaves can also be variable. This indicates that some caution must be exercised in approaching this question of colour.

The chromosome count for all the species and subspecies of the series *Californicae* is  $2n = 40$  (somatic). They are all fertile, and hybridization within the series is not only possible but is highly probable when different species are within range and in flower at the same time. Observations in the field and experimental studies carried out by Dr. Lenz and other workers have proved this. The series *Sibiricae* appears to contain the nearest relatives to the *Californicae*, particularly Chinese members such as *I. chrysographes* and *I. forrestii*, which have the same chromosome count. Inter-series hybrids have been produced in the garden: 'Margot Holmes' is a famous example, and one of the more recent hybrids is Mrs. Osborn's 'Royal Pretender'. These inter-series hybrids are all sterile.

## Treatment of the species

Eleven species and five subspecies are recognised, in accordance with Dr. Lenz's reclassification of the series. It has been found possible to split the series into two main groupings, with three species remaining outside. They separate naturally not only by virtue of perianth tube length but also through the spathe formation. The short-tubed group all have open spathes; that is, the spathe-

valves diverge from each other at the top like the letter V, and are separated at the base where they clasp the stem. The long-tubed group all have closed spathes (open only a small distance at the top where the flowers are emerging) with the bases of the spathe-valves clasping the stem opposite each other.

Specific differences of tube-shape, proportions of spathe-valves, and presence or lack of presence of bracts on the stem all play a vital part in the identification of each species and subspecies. I have prepared a set of drawings which have been specially treated to show the vital characteristics as clearly as possible. The spathes are indicated in grey, and are superimposed to show the structure within. To show its proportion and delineation the perianth tube is drawn in solid black. Where they occur, stem-bracts are also shown in grey.

Floral segments and general flower-shape can be variable, but the examples shown have been selected to present an average appearance. The drawings are approximately life-size. This will help to avoid a multiplicity of measurements. Measurements, where given, are average.

The drawings of species and subspecies appear in order of grouping, not alphabetically. The text also follows this order:

	<i>I. tenax</i>
	<i>I. tenax</i> subsp. <i>klamathensis</i>
	<i>I. hartwegii</i>
Short-tubed group	<i>I. hartwegii</i> subsp. <i>australis</i>
	<i>I. hartwegii</i> subsp. <i>columbiana</i>
	<i>I. hartwegii</i> subsp. <i>pinetorum</i>
	<i>I. munzii</i>
	<i>I. macrosiphon</i>
	<i>I. fernaldii</i>
Long-tubed group	<i>I. chrysophylla</i>
	<i>I. tenuissima</i>
	<i>I. tenuissima</i> subsp. <i>purdyiformis</i>
	<i>I. purdyi</i>
The three remaining species:	<i>I. douglasiana</i>
	<i>I. bracteata</i>
	<i>I. innominata</i>

Reference for drawings taken from living material, photographs, or herbarium material.

## IRIS TENAX Douglas 1829

First noted by David Douglas nearly 150 years ago and recorded in his journal as he travelled through what was then largely Indian territory. *Iris tenax* is distributed through the southwestern part of the state of Washington, and is widespread throughout most of Western Oregon. It does not go north into the Olympics nor eastwards beyond the lower western slopes of the Cascades; in the south it is not found in Curry County or Josephine County. It is seldom found in shaded areas and is most abundant on the open hillsides of the Willamette and Umpqua Valleys. With quite a wide range of colour it usually varies by locality, though I have seen an area where on one hillside lavender, purple-red, orchid-pink and pure white blossoms can be seen together in riotous profusion. In the southwestern area of its distribution it was usually deep blue-purple and northwest of Portland I could only find pale lavender forms.

West of Portland, following Scoggin Creek up towards the crests of the Coast Mts. one can find a yellow form known in the past as *I. gormanii*. Gabrielson in "Western American Alpines" thought this "the most dainty and appealing of all native irises. Resembling *I. tenax* in form, the fine blossoms are soft yellow or creamy white with a golden throat".

The leaves of *I. tenax* are light green, narrow and deciduous, forming dense grassy clumps, with purple-pink staining often showing at the base. Flower-stems are usually shorter than the leaves and produced in great profusion on the mature plants. It was Dykes' experience that "after two or three such lavish displays the plants tend to exhaust themselves".

*I. tenax* is usually single flowered, though it can produce two flowers to a stem. It has a smooth barrel-shaped ovary with a very short perianth tube. The flower is elegantly poised over the narrow, open spathes, the large upright standards and ample curving falls giving it a perfect proportion. The style crests are rounded and toothed. Stigmas are triangular.

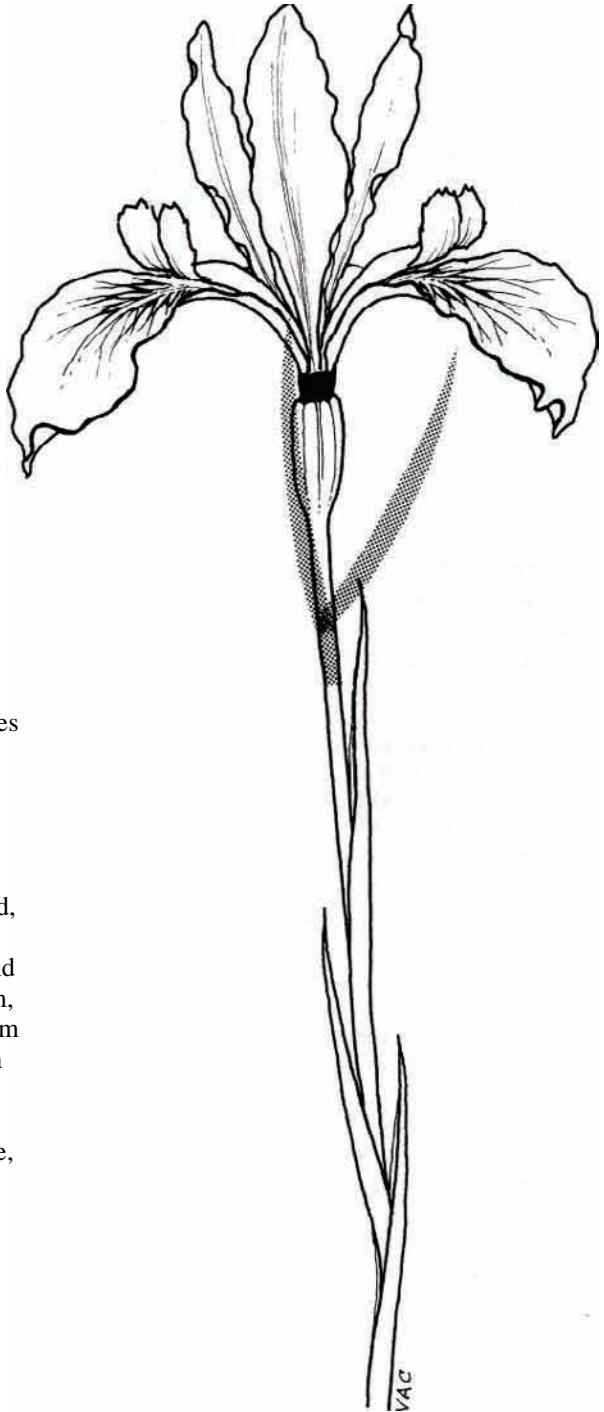
This iris has been in cultivation for a longer period than any other in this series, though it is seldom seen in gardens. Dr. Lenz told me it would not survive in cultivation in the Botanic Garden in southern California. Possibly the situation was too hot. I have seen it at Kew over a number of years in the species bed and on the rock garden.

## IRIS TENAX subsp. KLAMATHENSIS Lenz 1958

This subspecies is endemic to a small area around the village of Orleans, in Humboldt County, California. On April 30th, 1965, I visited this area and found many plants in flower. They were growing in somewhat shaded situations on the wooded hillsides and in clearings alongside the fast-flowing Klamath River. It could also be found almost in the village, near the steel and concrete bridge which had been destroyed by floods during the winter.

*Iris tenax* subsp. *klamathensis* is a member of the short-tubed, open-





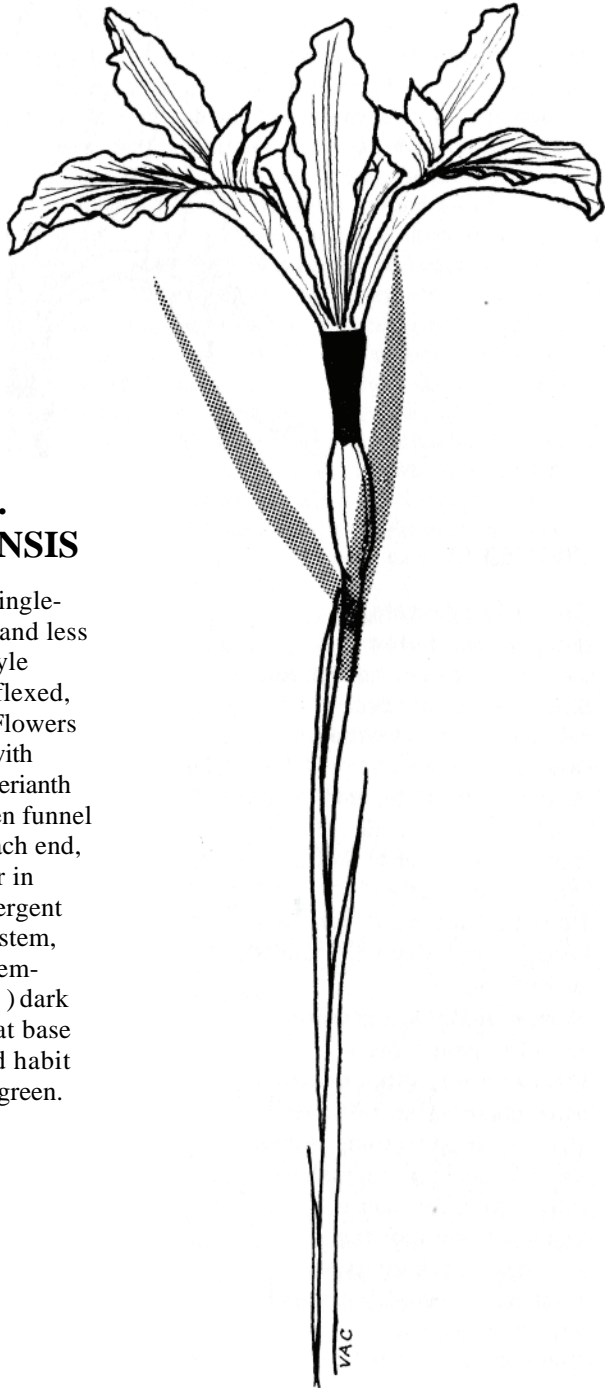
## IRIS TENAX

One or two flowers, usually single-flowered. Large standards, held erect. Style crests rounded, reflexed, edges toothed. Stigmas triangular. Wide colour range, from deepest purple-blue through lavender to white, cream and yellow. Perianth tube short (ave.  $\frac{1}{4}$ "). Ovary barrel-shaped, rounded in section.

Narrow spathes, separated and divergent (open). Slender stem, with one or more clasping stem-leaves. Narrow, grassy-green leaves, up to  $\frac{1}{4}$ " wide and usually longer than the stems, abundant and growing in dense, tight clumps. Leaf bases usually stained with pink or red. Deciduous.

**IRIS TENAX subsp.  
KLAMATHENSIS**

One or two flowers, usually single-flowered. Standards smaller and less erect than in the species. Style crests rounded to deltoid, reflexed, toothed. Stigmas triangular. Flowers pale buff or creamy-apricot, with maroon or red-brown veins. Perianth tube  $\frac{1}{2}$ " to  $\frac{3}{4}$ " long, stout, often funnel-shaped. Ovary tapering at each end, slightly rounded or triangular in section. Narrow spathes, divergent and often separated. Slender stem, with one or more clasping stem-leaves. Leaves narrow (ave.  $\frac{1}{8}$ " ) dark green, often glossy, stained at base with pink or red. Leaves and habit similar to *I. innominata*. Evergreen.



## IRIS TENAX *subsp.* KLAMATHENSIS (*cont.*)

spathed group, though its perianth tube is longer than some of the others. The separated and divergent spathe-valves are similar to those of *I. tenax* but otherwise it differs to a considerable extent. The floral segments are generally smaller, especially the standards, which are shorter and more wide-spreading than in the species. Its colour is restricted; most of the plants I studied had flowers of a very pale shade of creamy-apricot, some were pale cream, but all had a patch of golden yellow running into the throat, and they were all beautifully lined across the falls with red-brown veins. This is a charming and graceful little iris and I was immediately captivated by its beauty.

The perianth tube is about half an inch in length and it is somewhat funnel-shaped, tapering down to the point where it joins the ovary. The slender stems, with a few clasping leaves along part of their length, range between six and twelve inches in height. The very narrow leaves are about an eighth of an inch wide and slightly longer than the stems, but curve away gracefully to show the flowers. These leaves are dark green, slightly glossy on the upper surface, dull green beneath and deep pinkish-red at the base. They are very reminiscent of the narrow dark green leaves of *I. innominata*, and not at all like those soft grassy leaves found on *I. tenax*.

In my opinion this little endemic is quite distinct and deserving of specific status. It is well isolated from all other members of the short-tubed group, its nearest neighbour being *I. tenuissima*, a long-tubed species.

## IRIS HARTWEGII Baker 1876

This Californian species is fairly common on the western slopes of the Sierra Nevada, from Butte County in the north where it is found at about two thousand feet, to Kern County in the south where it is found at five or six thousand feet. Ecologically, *Iris hartwegii* is a plant of the fringe and sunny clearings of the Yellow Pine Forests. It is not found far into the shaded areas.

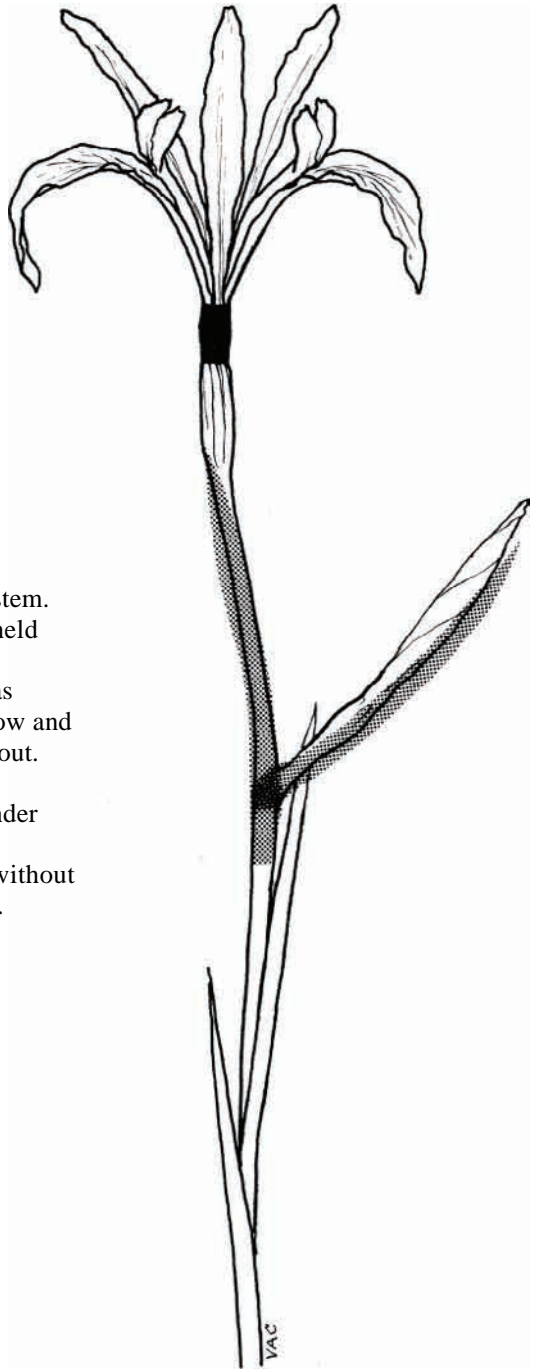
It produces relatively few leaves and plants often present a somewhat scattered, loose appearance. The leaves are deciduous, narrow (up to  $\frac{1}{4}$ " wide), light green and usually colourless at the base. The colour range is from lavender through cream to yellow, sometimes sketchily or thinly veined with gold. Most writers from the turn of the century onwards have dismissed it as worthless. Dykes, who was very discerning, wrote - "The somewhat insignificant plant that goes by the name of *I. hartwegii* has pale straw-coloured flowers of no great merit".

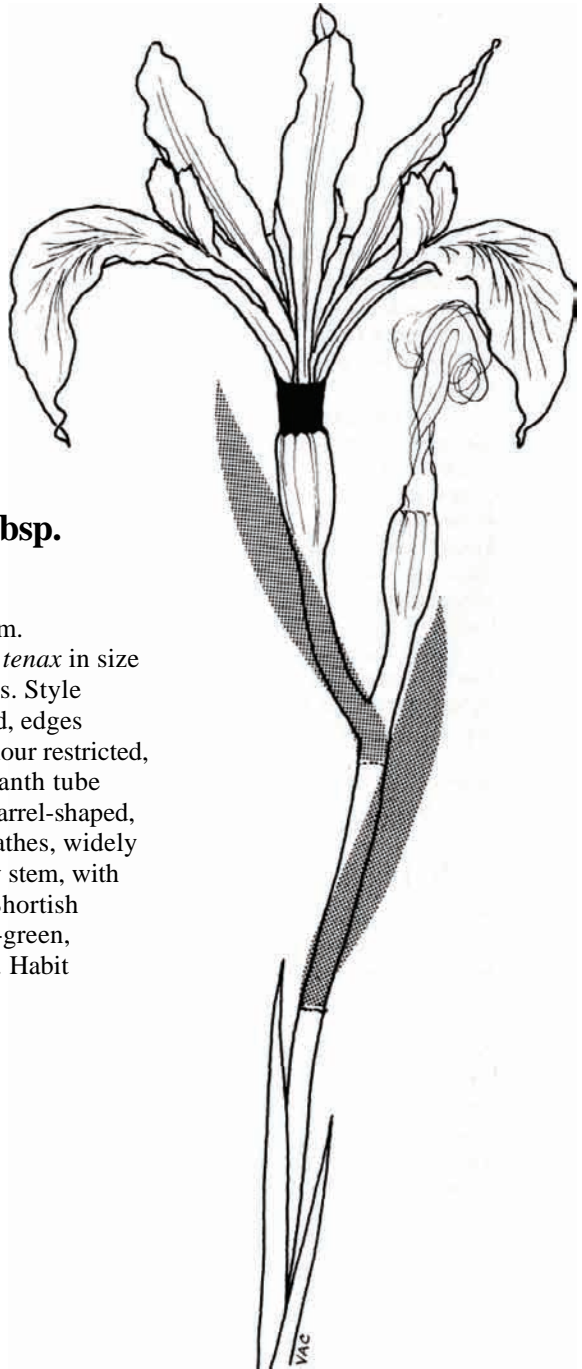
I think that the effect of a rather small, thin-looking flower perched on top of a structure which has excessively long pedicels makes it look rather gawky and ungainly. Would that one could love it!

The perianth tube is short, and about as wide as the ovary when the flower opens. It usually produces two flowers from spathes which are widely divergent and separated.

## IRIS HARTWEGII

Small flowers, usually two to each stem. Slender floral segments, standards held erect. Style crests narrow, reflexed, rounded and toothed at edge, stigmas triangular. Colour range cream, yellow and lavender. Perianth tube short and stout. Ovary cylindrical. Narrow spathes, separated and widely divergent. Slender stem, with one or more stem-leaves. Narrow, pale green leaves, usually without colour at base, sometimes glaucous. Rather loose habit, deciduous.





## **IRIS HARTWEGII subsp. AUSTRALIS**

Usually two flowers to each stem. Flowers somewhat similar to *I. tenax* in size and shape of standards and falls. Style crests slightly rounded, reflexed, edges toothed. Stigmas triangular. Colour restricted, from purple to violet-blue. Perianth tube short and rather broad. Ovary barrel-shaped, tapering into pedicel. Broad spathes, widely separated and divergent. Sturdy stem, with one or more sheathing leaves. Shortish leaves, up to ¼" wide, dull grey-green, glaucous and pale pink at base. Habit somewhat open and loose.

## **IRIS HARTWEGII subsp. AUSTRALIS (Parish) Lenz 1958**

This subspecies is isolated geographically from all the other species and subspecies. It is found in the San Bernardino Mts. and San Gabriel Mts. of southern California, and has the most southerly distribution. A good deal of confusion and misunderstanding surrounded this iris from about 1897 onwards. Parish, who found it, Foster, Purdy, and Dykes appear to have been involved in the most confusing correspondence concerning its description and status. Dykes would not recognise it as separate from *Iris tenax*. Writing of *I. hartwegii* he commented - "It is possible that it is only a local form of *I. tenax*, at any rate a purple-flowered form of it is said to grow in the San Bernardino Mountains in southern California, and I have failed so far to distinguish dried specimens of this from typical *I. tenax*".

It is a pity that Dykes did not see living plants; whilst it is true that the flowers are very similar in appearance, he would have seen quite a difference in the respective habits and the look of the leaves. Instead of the closely tufted clumps of *I. tenax*, the subspecies tends to form a wider, looser ring of leaves, and the leaves are somewhat greyer and harder looking. The ecological situation is also quite different. *I. hartwegii* subsp. *australis* is found on partially shaded slopes on the fringe of pine-woods at altitudes of five thousand to seven thousand feet. Geographically they are over a thousand miles apart.

The range of colour for this subspecies is purple to violet-blue. The perianth tube is short and very stout, and the spathes, which are widely separated and divergent, are also considerably broader than in the species or *I. tenax*. Two flowers are usually produced per stem.

This can be an attractive iris. Some years ago it was grown in the species bed at Kew under the name of *I. hartwegii*. The plant bore large violet-blue flowers, but I have not seen it of recent years.

## **IRIS HARTWEGII subsp. COLUMBIANA Lenz 1957**

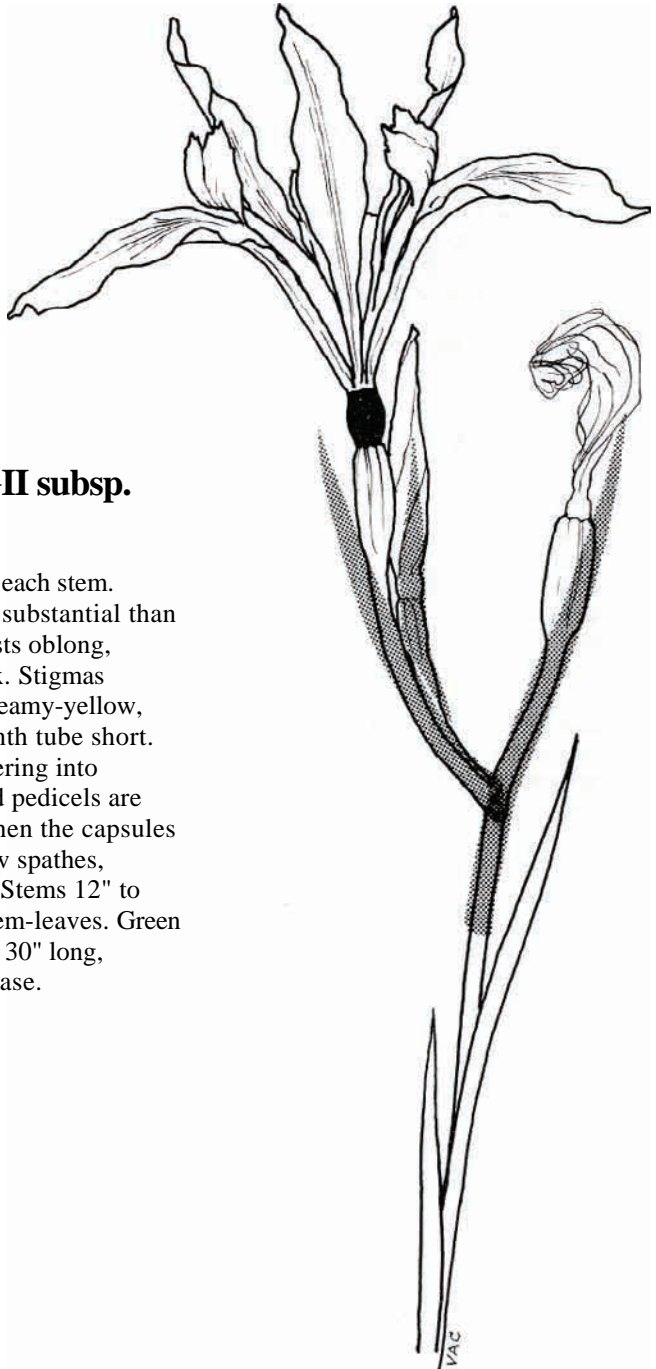
This subspecies is narrowly endemic to a small area of a square mile or so in Tuolumne County, California. With mixed woodland and Yellow Pine Forest as background, *Iris hartwegii* subsp. *columbiana* is found growing on hillsides a few miles from the old historic mining town of Columbia.

I first saw this iris under winter conditions. It did not appear to be deciduous. Indeed, the leaves looked as if they would persist right through the winter, though I have noticed a tendency to be deciduous in my garden. The leaves were rather long, many of them being up to thirty inches in length and I saw a few nearly a yard in length. In the spring of 1965 I was able to see some in flower and they appeared more compact with shorter leaves. The leaves are nearly half an inch wide, sometimes glaucous, and colourless, or faintly pink at the base.

The flower stems were twelve to fourteen inches high and they often produce three flowers, occasionally two. As with the other species and

## **IRIS HARTWEGII subsp. COLUMBIANA**

Usually three flowers to each stem. Flowers larger and more substantial than in the species. Style crests oblong, reflexed, toothed at apex. Stigmas triangular. Colour pale creamy-yellow, with golden veins. Perianth tube short. Ovary barrel-shaped, tapering into pedicel. Second and third pedicels are quite long, especially when the capsules are ripening. Long narrow spathes, separated and divergent. Stems 12" to 15" high, two or three stem-leaves. Green leaves, ½" wide and up to 30" long, sometimes pale pink at base.



## **IRIS HARTWEGII subsp. COLUMBIANA (cont)**

subspecies in this group, the spathe-valves are separated and divergent. The perianth tube is short, and the rather slim ovary is somewhat barrel-shaped. Pedicels are rather long, particularly on the later flowers.

The flowers are pale creamy-yellow lined with a few golden veins. This is a much more attractive plant than the species. Some fine specimens were to be seen at the Rancho Santa Ana Botanic Garden, growing fully exposed to the hot sun. It has been suggested that this subspecies originated as a cross between *I. hartwegii* and *I. munzii*, and Dr. Lenz has produced plants in the garden from such a crossing which look remarkably like subsp. *columbiana*. How this could have arisen is something of a mystery; although *I. hartwegii* is found in the neighbourhood of the subspecies, the nearest plants of *I. munzii* are 140 miles away.

## **IRIS HARTWEGII subsp. PINETORUM**

(Eastwood) Lenz 1958

An unusual little iris which is confined to Plumas County, California, where it is, according to Dr. Lenz, fairly abundant in some places. It is found in some shade in the Yellow Pine Forest between 4,000 and 5,000 feet, near the northern end of the Sierra Nevada. Hybrid origin or stabilized segregate has been postulated for this subspecies, and there is no doubt of its many similarities to the possible parents: *Iris hartwegii* and *I. tenuissima*

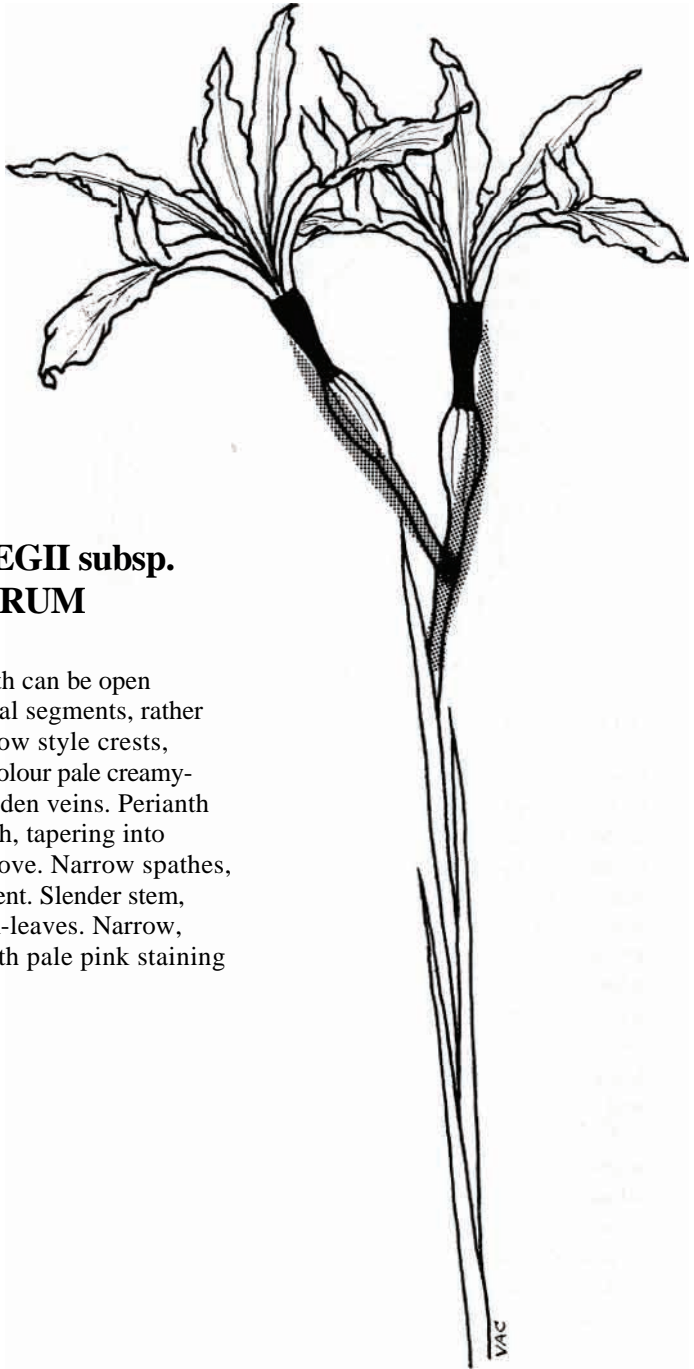
A most unusual feature is that it can open both flowers at the same time. In all other members of the *Californicae* where more than one flower is produced from the spathes, the flowers open consecutively. The wide-spreading and rather narrow floral segments are somewhat similar to *I. tenuissima*, as are the long narrow style branches and style crests. The perianth tube is short, though much longer than in *I. hartwegii* and is funnel-shaped. The narrow spathes, separated and divergent, and the formation of ovary and pedicels are also nearer to the species.

The flowers are pale creamy-yellow with a number of golden veins lining the falls. The stems are slim and closely covered with several narrow stem-leaves. Basal leaves are narrow, pale green and faintly pink at the base.

## **IRIS MUNZII R.C. Foster 1938**

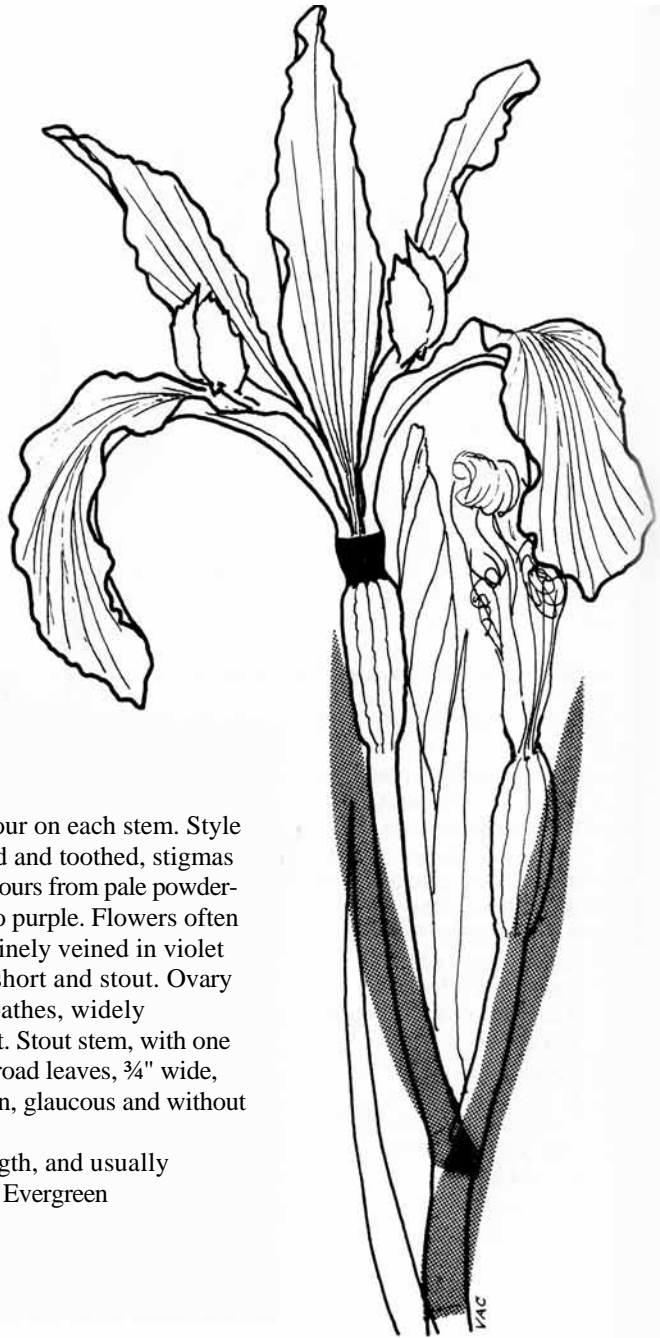
Bearing the largest flowers in the series, this handsome species is found in Tulare County, California. Much of the eastern half of this County is occupied by the southern Sierra Nevada. In April 1965, I drove to Coffee Creek Camp, an attractive locality in the foothills, where Foster collected the type in April, 1937. As I approached Springville, a few miles west of the area, the scent of orange blossom from nearby citrus groves was almost overpowering. In his paper, Dr. Lenz drew attention to these groves as an indication of the mildness of the area, and mentioned that *Iris munzii* is less tolerant of cold than other species in the *Californicae*.





**IRIS HARTWEGII subsp.  
PINETORUM**

Two flowers, and both can be open together. Slender floral segments, rather wide-spreading. Narrow style crests, stigmas triangular. Colour pale creamy-yellow, with deep golden veins. Perianth tube over  $\frac{1}{2}$ " in length, tapering into ovary, and dilated above. Narrow spathes, separated and divergent. Slender stem, with two to four stem-leaves. Narrow, pale green leaves, with pale pink staining on leaf bases.



## IRIS MUNZII

Large flowers, two to four on each stem. Style crests reflexed, rounded and toothed, stigmas triangular. Range of colours from pale powder-blue through lavender to purple. Flowers often frilled and fluted, and finely veined in violet or blue. Perianth tube short and stout. Ovary barrel-shaped. Large spathes, widely separated and divergent. Stout stem, with one or more stem-leaves. Broad leaves,  $\frac{3}{4}$ " wide, grey-green or blue-green, glaucous and without colour at the bases.

Leaves up to 20" in length, and usually shorter than the stems. Evergreen

## IRIS MUNZII (cont.)

I found a good number of plants in flower on the hillside above the rapids, where they were growing mainly on ledges overhung by trees, and the shade was quite considerable in places. I was immediately impressed by the size and proportion of these plants. The flowers are relatively enormous, standing proudly erect on stout, rigid-looking stems. From two to four flowers are carried in the spathes, which are separated and divergent. The perianth tube is short and stout, funnelling slightly into the ovary. The flowers are well-proportioned and quite elegant despite their size, with a range of colours from pale powder-blue through lavender to purple. They are most delicately veined in violet or turquoise-blue, and many of them are beautifully frilled and fluted in the manner of classical drapery.

Most of the growth appears to be upwards; there is no great spread to the plants. The evergreen leaves are broad ( $\frac{3}{4}$ " wide) blue-green or grey-green and glaucous, with colourless bases. One unique feature which I have observed both on wild plants and here in the garden is the thin white membranous edge along the entire length of leaves and also on the spathes. I do not know if this is a constant and permanent feature.

Protected from frosts, *I. munzii* could be a splendid plant in cultivation. At the Rancho Santa Ana Botanic Garden, Dr. Lenz has raised a number of exciting new hybrids, with *I. douglasiana* as the other parent. Many of these plants bear large expanded flowers in shades of blue; some are a brilliant turquoise-blue and some a light sky-blue.

## IRIS MACROSIPHON Torrey 1857

*Iris macrosiphon* is one of the most confusing and perplexing species in the *Californicae*; not only is it found over a large part of northern and central California, it is also extremely variable. In the past, such synonyms as *I. californica* and *I. amabilis* have been applied to forms of *I. macrosiphon*. *I. chrysophylla*, a species well separated geographically, has often been bracketed or confused with it.

*I. macrosiphon* is distributed over eighteen Counties of California and is found on both sides of the Great Valley. In the east, through the foothills of the Sierra Nevada, only lavender forms are found, but in the west, over a spread of three hundred miles, a range of colours as great as any within the series can be found. In addition, it can vary from almost stemless forms to plants with stems of ten inches. This species can be taken as archetypal of those in the long-tubed group. It produces a long perianth tube, up to three inches in length or even longer. The tube is very slim for the greater part of its length, and then is abruptly bulged or bowl-shaped at the top where it meets the floral segments. Usually an inch or so of the upper portion of the tube emerges from the spathes to carry the flower. The long slim spathes are closed, and the base of the valves are opposite each other where they join the stem.

One or two flowers, usually two, are produced from the spathes and

## IRIS MACROSIPHON

Usually two flowers to each stem.

Style crests spear-shaped somewhat toothed and reflexed  
Stigmas triangular.

Wide colour range, from deep indigo-blue through lavender and purple, to cream, white and yellow.

Long perianth tube, up to 3", bowl-shaped at the top.

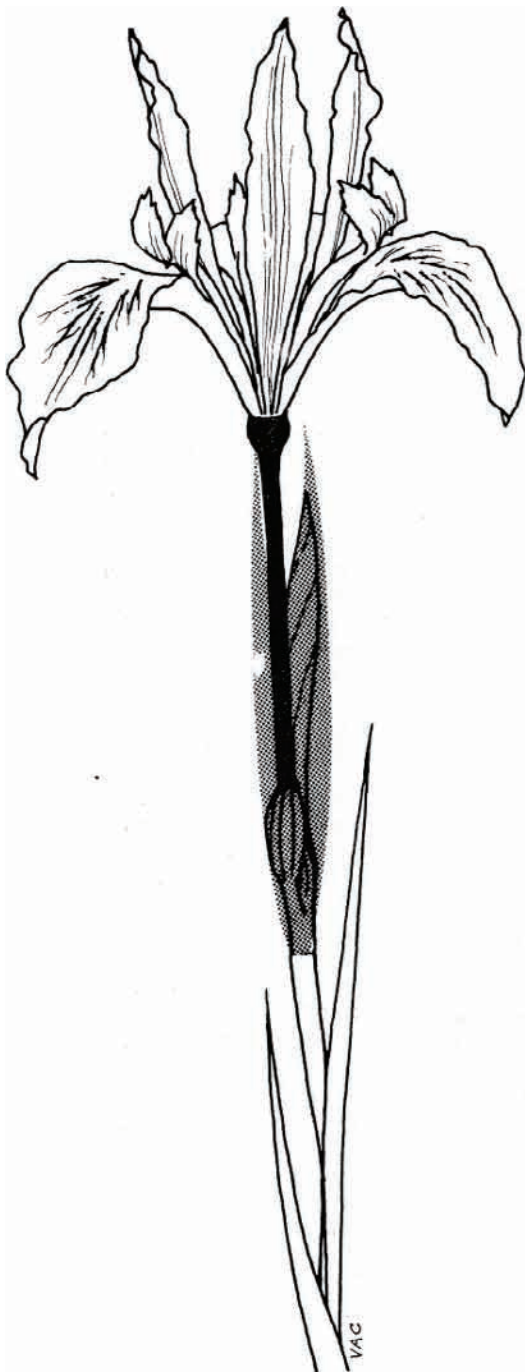
Long, narrow spathes, closed.

Ovary ovoid, pedicels short.

Slender stem, up to 10", but there are stemless forms.

One or more stem-leaves.

Narrow blue-green leaves, glaucous, colourless at base.  
Evergreen.



## IRIS MACROSIPHON (*cont.*)

can range in colour from a dark indigo-blue to a rich but soft yellow. In the hills of Mendocino County many deep blue forms exist, and in Lake County one can find a form with golden-yellow blossoms. Also in Lake County I found a deep violet-blue form which was deliciously scented. Colour not only varies from one district to the next, but also in terms of time. In early April in a certain area I first observed dark violet-blue forms. In the same area a month later I found powder-blue forms, a couple of white flowered plants, and a colony bearing cream-coloured flowers. Carl Purdy in "The Garden" 1898 wrote, "At my home (Ukiah) and for 120 miles south, only the lilac or purple form is found. 8 miles east they suddenly give way to the creamy form and then for 60 miles by the road the white again is found. In a canyon on another route a few miles from here the yellow form is found on a single hillside with every conceivable variation from sky-blue to yellow".

The leaves are longer than the stems, up to a quarter of an inch wide, never glossy but often blue-green and glaucous. Most forms are colourless at the base of the leaves but the yellow form sometimes shows the faintest tinge of pink. Spathes and stems are often glaucous but basically always green.

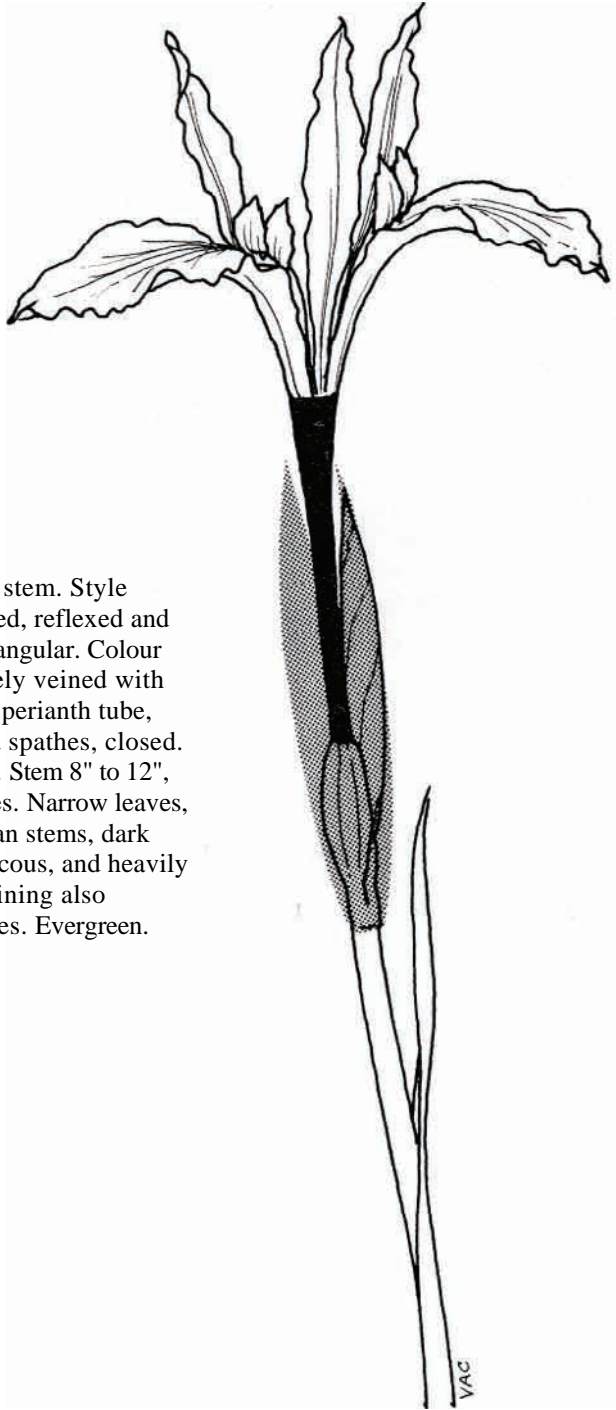
I have usually found this species growing in sunny situations on lightly wooded slopes, roadside banks, in grassy clearings and on the fringe of woods. It seldom goes far into the shade. It has hybridized intensively in places with several other species, especially where disturbance of the natural terrain has taken place. Many of the irises in the Bay area particularly, and in Counties near San Francisco generally, are to be looked upon as hybrids.

*I. macrosiphon* is seldom seen in cultivation. This is rather surprising considering it has been known for over a hundred years, is most attractive and is fairly abundant in places not difficult to reach. The reason must be an inability to stay in cultivation. It is certainly not very vigorous in the garden.

## IRIS FERNALDII R.C. Foster 1938

The vicinity of the Petrified Forest in Sonoma County, California, is the type area for *Iris fernaldii*. It can be found in a number of Counties but is seen in its purest form around the Petrified Forest. The plants are usually growing under slightly shaded conditions, often in the tangled undergrowth and in grass under trees. I first saw this iris before it was in flower. Most of the plants bore buds which were well up, some of the best specimens being in the grounds of the Petrified Forest. Here, fairly large colonies showed all the typical characteristics of *I. fernaldii*; dark grey-green leaves heavily stained with beetroot-red at the base, this pigmentation often extending up the stems and onto the spathes, which are comparatively broad.

Some two weeks later I again visited the area and found quite a



## IRIS FERNALDII

Usually two flowers to each stem. Style crests oblong to spear-shaped, reflexed and slightly toothed. Stigmas triangular. Colour pale creamy-yellow, delicately veined with gold or lavender-grey. Long perianth tube, funnel-shaped above. Broad spathes, closed. Ovary ovoid, pedicels short. Stem 8" to 12", with two or more stem-leaves. Narrow leaves, up to  $\frac{1}{4}$ " in width, longer than stems, dark grey-green, dull. Often glaucous, and heavily stained with purple-red. Staining also appears on stems and spathes. Evergreen.

## IRIS FERNALDII (cont.)

number of plants bearing typical pale creamy-yellow flowers. To my surprise many of the "good" specimens inside the Petrified Forest showed flowers with considerable traces of pale lavender suffusing the falls. In some cases it was slight, a mere washing over, but on quite a few plants the pale lavender wash covered the entire flower.

Perhaps we should regard these forms as being within the range of *I. fernaldii*; for on the same basis as Dr. Lenz's assessment of *I. purdyi* under similar circumstances, flower colour alone does not give a complete indication or otherwise of a true species. Several species have shown a greater range of colour than was at first thought possible.

Certainly these pale lavender-washed forms show every other characteristic of *I. fernaldii*, particularly in the most vital character; the perianth tube. Here, the tube is funnel-shaped in the upper part to form a wide throat to the base of the flower. As with the other long-tubed species, two flowers are usually produced on each stem.

A few miles away from the Petrified Forest, on the road from Mark West Springs to Kellogg, I found a fascinating colony of *I. fernaldii* hybrids. They were young, compact and vigorous. Many plants had leaves no more than seven or eight inches in length, and the short, sturdy stems carried the flowers up to the same height. Leaves, stems, and spathes showed a fair amount of purple-red staining, and though the spathes were broad, the perianth tube shape was often midway between those of *I. fernaldii* and *I. macrosiphon*. The colours ranged from white through lavender, mauve and purple to red-purple and deep violet-blue. Some bore white flowers veined and striped all over in various colours including cobalt blue. Most had golden signal patches. The process of hybridization around all *I. fernaldii* territory goes on apace and this species in its pure form may soon be in danger of extinction.

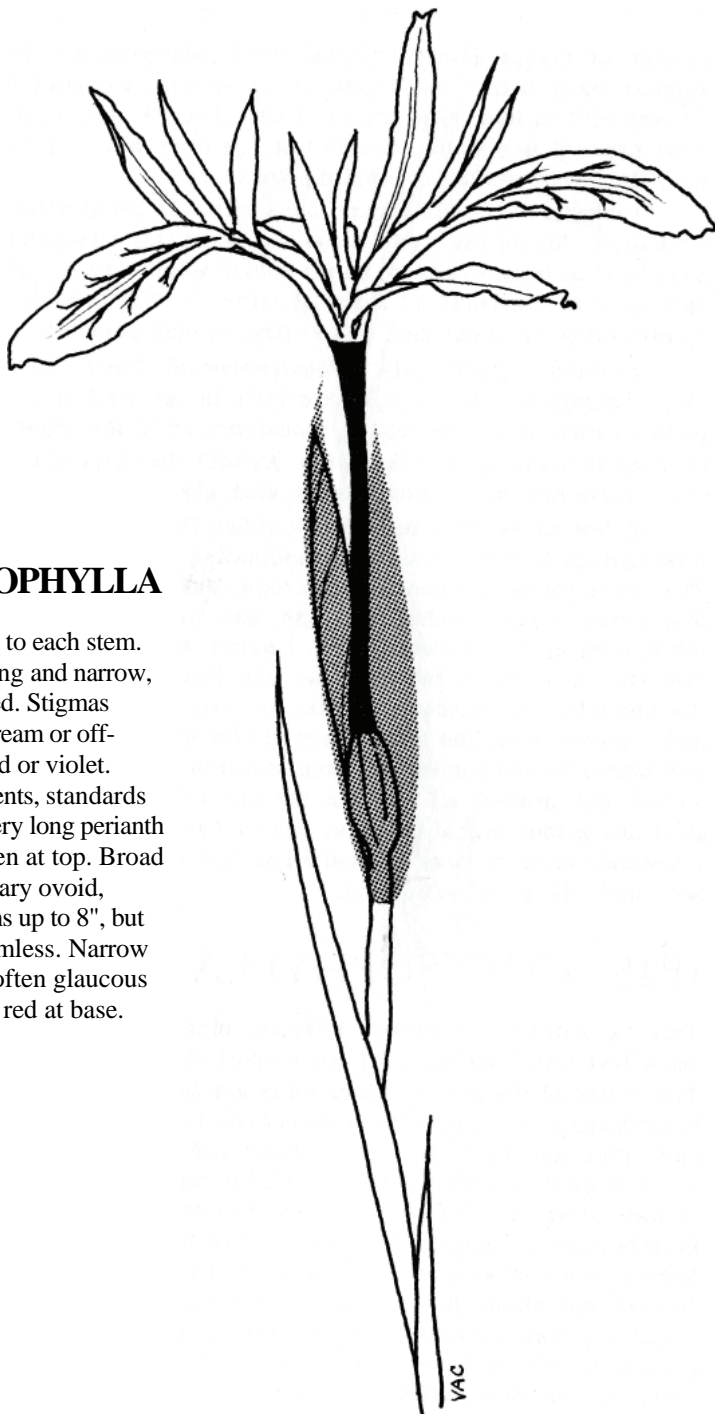
## IRIS CHRYSOPHYLLA Howell 1902

This is virtually an Oregon species, since it technically crosses the state line into California for but a short distance and in only one area. The crests of the Siskiyou Mountains act as an effective barrier to keep it northwards in Oregon. *Iris chrysophylla* is found within or near the dry, open pine and fir forests of southern and mid-western Oregon. I often found it growing on the tops of roadside banks and steep slopes, where it was never far from the shade of conifers. I must confess to a great disappointment when I first saw it. The flowers tend to look thin and fragile, and carried over spathes which look too heavy for them. These flowers are often produced among a mass of leaves which hide them. Perhaps I was unlucky in seeing mainly short-stemmed forms, as this iris can be very variable in this respect. The flowers were usually a pale cream colour, or an off-white shade, and often marked with dark golden veins.

*I. chrysophylla* is nearer to *I. tenuissima* in appearance than the other

## IRIS CHRYSOPHYLLA

Usually two flowers to each stem. Style crests very long and narrow, only slightly reflexed. Stigmas triangular. Colour cream or off-white, veined in gold or violet. Narrow floral segments, standards often spreading. Very long perianth tube, slightly swollen at top. Broad spathes, closed. Ovary ovoid, pedicels short. Stems up to 8", but many forms are stemless. Narrow light-green leaves, often glaucous and stained pink or red at base. Evergreen.





## IRIS CHRYSOPHYLLA (cont)

members of the long-tubed group. They both produce flowers with rather slender floral segments and extremely long, narrow style crests, but they are identified through the character of their respective perianth tubes. In *I. chrysophylla* the long and slender tube is not dilated or enlarged in the upper portion. It sometimes shows a slight swelling at the very top where the floral segments meet. Tubes as long as four inches have been recorded. The rather heavy spathes are closed and sometimes stained with red or purple. Usually two flowers are produced on each stem. The narrow, light green leaves are often glaucous and stained with red at the bases.

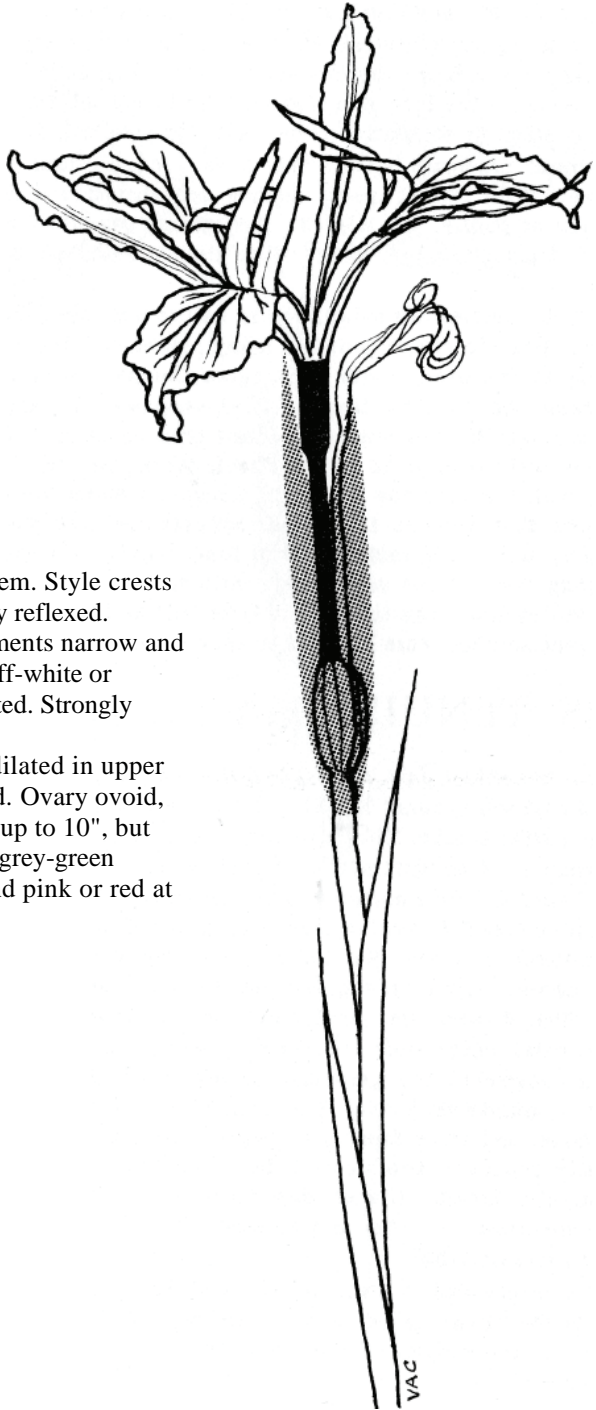
This species has hybridized in nature with other species, particularly *I. tenax*. Hybrids are recorded in many places in Oregon and I have found hybrids in two areas, both in Douglas County. In an area south-west of Roseburg the hybrids favoured *I. chrysophylla* in appearance, but the slender, pale blue flowers had tubes only an inch in length, whilst the spathes were tending to be divergent. About two miles west of Canyonville, within a roadside colony of *I. tenax*, I found several hybrids which favoured that species in general appearance. One was quite tall, with stems up to sixteen inches. It had long, narrow, creamy-white standards, and long falls of the same basic colour, strongly veined and striped in deep violet-blue. The tubes were over half an inch long, and the slightly divergent spathes were larger than on typical *I. tenax*.

## IRIS TENUISSIMA Dykes 1912

Dykes described *Iris tenuissima* from dried herbarium material, which would perhaps account for the failure to mention the distinctive character of the perianth tube. This tube is abruptly dilated in the upper portion, in the manner of an upturned long-necked bottle. Dykes made comparisons with *I. purdyi*, *I. douglasiana* and *I. macrosiphon*. The specimens he examined were long-stemmed (twelve inches high) but this species can also produce short-stemmed forms. He did, however, draw attention to the elongated and narrow style crests, almost as long as the styles themselves.

The flowers are usually pale cream, though light yellow stemless forms exist which were described by Miss Eastwood in 1942 as *I. citrina*. Floral segments are generally narrow, with distinctive veining on the falls in purple or brown. The narrow, grey-green leaves are sometimes glaucous, and some forms are stained with pink at the base. *I. tenuissima* usually produces two flowers from spathes which are closed and comparatively broad. Dykes described this species as differing from *I. macrosiphon* ----- "by the broader, shorter spathes and comparatively short perianth tube".

*I. tenuissima* is found in northern California, from around the northern end of the Great Valley to the southern part of the Siskiyou and eastwards to the slopes of the Cascades, growing in dry, sunny woodland situations.



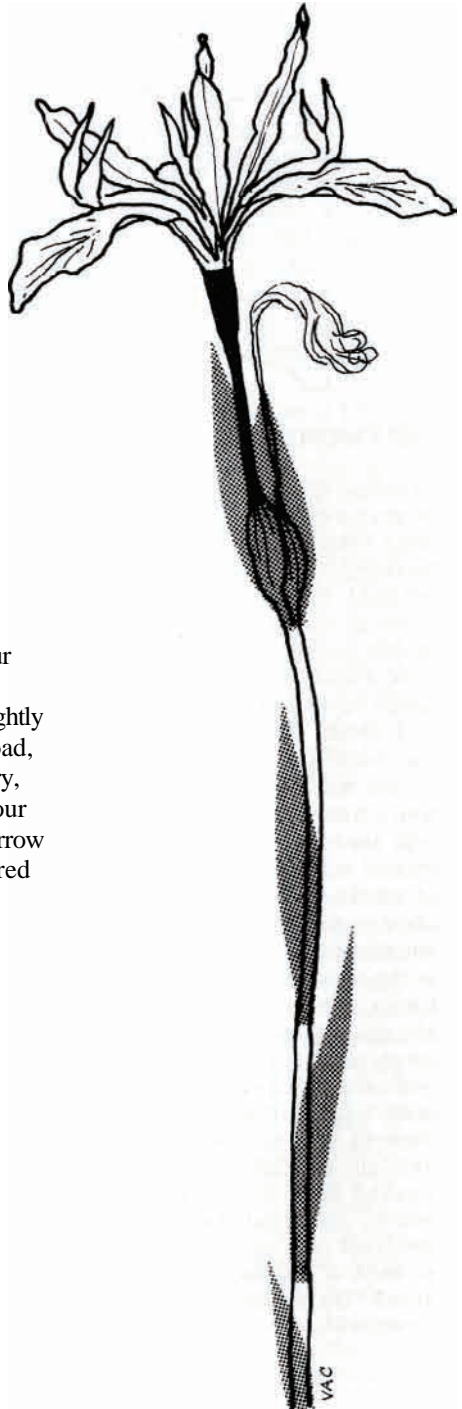
## **IRIS TENUISSIMA**

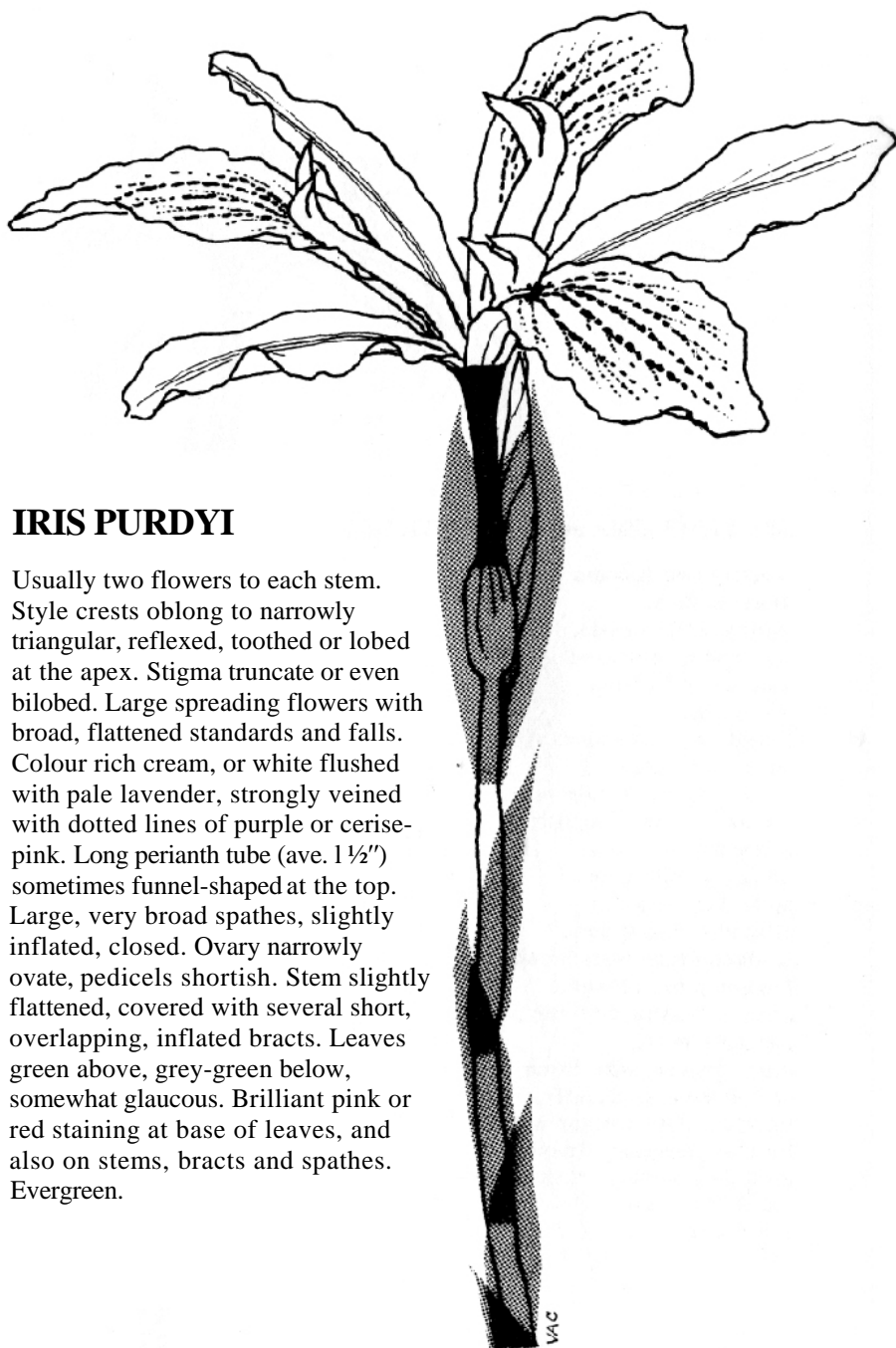
Usually two flowers to each stem. Style crests very long and narrow, strongly reflexed. Stigmas triangular. Floral segments narrow and somewhat spreading. Colour off-white or cream, pale yellow form reported. Strongly veined in purple or red-brown. Long perianth tube, abruptly dilated in upper section. Broad spathes, closed. Ovary ovoid, pedicels short. Stems slender, up to 10", but stemless forms exist. Narrow grey-green leaves, sometimes glaucous and pink or red at base. Evergreen.

**TENUISSIMA subsp.**  
**PURDYIFORMIS**

Usually two flowers to each stem. Narrow style crests, rather long, reflexed. Stigmas rounded or triangular.

Floral segments narrow and spreading. Colour cream or pale yellow, sometimes with a few purple veins. Long perianth tube, up to ½", slightly dilated in upper part. Spathes short, very broad, flushed pink, closed. Small oval-shaped ovary, pedicels short. Stem slender, with three or four bracts, slightly inflated, not overlapping. Narrow grey-green leaves, slightly glaucous, pink or red at the base. Evergreen.





## IRIS PURDYI

Usually two flowers to each stem. Style crests oblong to narrowly triangular, reflexed, toothed or lobed at the apex. Stigma truncate or even bilobed. Large spreading flowers with broad, flattened standards and falls. Colour rich cream, or white flushed with pale lavender, strongly veined with dotted lines of purple or cerise-pink. Long perianth tube (ave.  $1\frac{1}{2}$ "') sometimes funnel-shaped at the top. Large, very broad spathes, slightly inflated, closed. Ovary narrowly ovate, pedicels shortish. Stem slightly flattened, covered with several short, overlapping, inflated bracts. Leaves green above, grey-green below, somewhat glaucous. Brilliant pink or red staining at base of leaves, and also on stems, bracts and spathes. Evergreen.

## IRIS TENUISSIMA subsp. PURDYIFORMIS

(R.C. Foster) Lenz 1958

This little subspecies is found in the area of the Feather River Canyon in Plumas County, California, and has been reported from Sierra County. It is not known outside these areas of the northern Sierra Nevada, where it grows under pine trees at an elevation of about 2,000 feet.

*Iris tenuissima* subsp. *purdyiformis* shows many features found on *I. tenuissima* and *I. purdyi*: narrow floral segments and slender perianth tube, abruptly dilated in the upper portion. This tube is only 1½ " long and the dilated throat is not as obvious as in *I. tenuissima*. In its resemblance to *I. purdyi* it has very broad spathes, slightly stained with pink, and a number of short bracts clasping the stem. They do not, however, overlap and they are not inflated to the extent found in *I. purdyi*. The narrow leaves are slightly glaucous and stained with red at the bases.

It has been suggested that this subspecies originated as a hybrid between *I. tenuissima* and *I. purdyi*. From the many characters it appears to share with these two species it would be difficult not to agree with this, but *I. purdyi* has never been found in this part of California. In places where the two species meet, as in Humboldt County, west of Willow Creek, the resulting hybrids are rather different to this subspecies. I saw a number of hybrids in this area, and most of them favoured *I. purdyi* in general appearance. The large flowers were pale cream in colour, or white, with quite prominent veining in purple and a suffused golden patch on the falls. The style crests were as long and narrow as some of those on *I. tenuissima*, and the stigmas were sharply triangular. The leaves were broad, (nearly half an inch wide) and they were a rich glossy green with red staining at the bases. The short stems were stout and covered with closely over-lapping, inflated bracts. The spathes were large, broad and slightly inflated.

## IRIS PURDYI Eastwood 1897

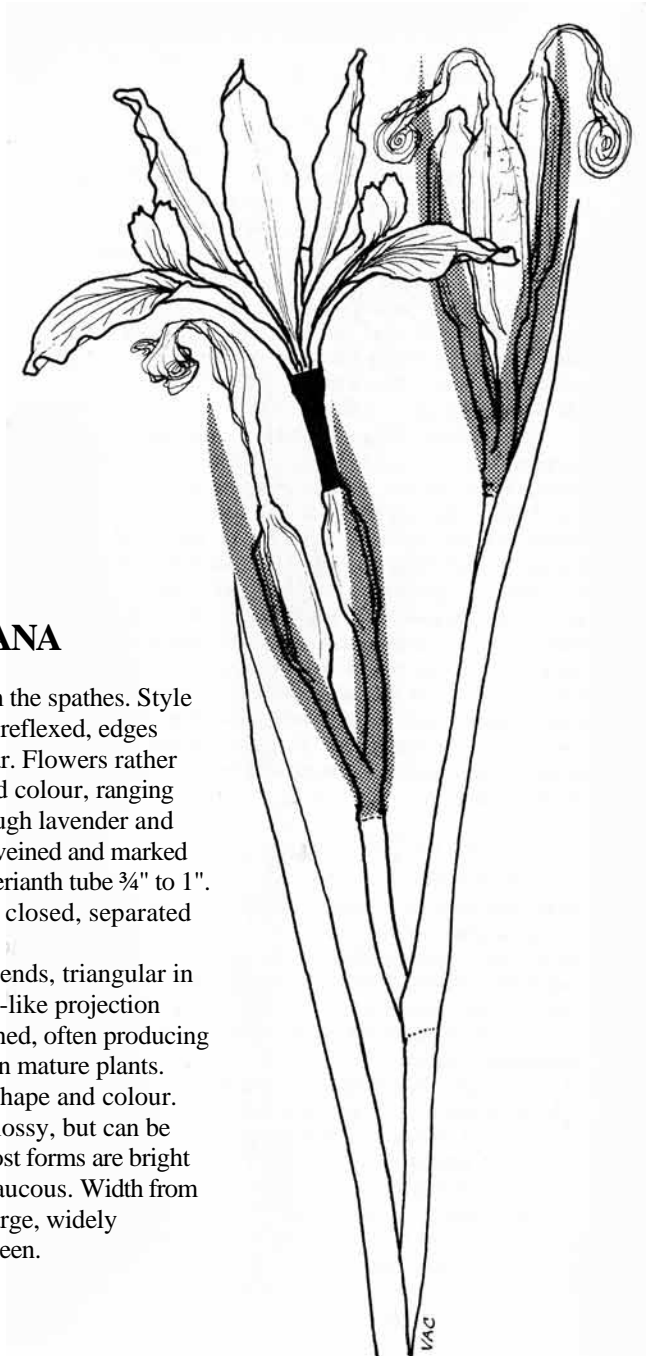
When Carl Purdy found this iris, it was common in the woods and the Redwood region of northern California. In correspondence in "The Garden" Purdy wrote, -----"Occurring in the Redwood region of Sonoma and Mendocino Counties, *Iris purdyi* can be recognised by its very broad and rather flat creamy flowers, lined with purple; shiny leaves, rosy at base, but still more readily by the fact that along the stem, instead of short leaves sheathing at the base, there are several brownish, short, closely sheathing bracts".

In fact, its distribution was not limited to these two Counties; it also went northwards and eastwards into Humboldt and Trinity Counties. Today, this species is extremely rare in its pure form, and is in great danger of extinction. Disturbance of the land, mainly by man, is one of the principal factors responsible for this replacement by hybrids. Logging, and the creation of highways has opened the way for other species, such as *I. douglasiana* and *I. macrosiphon*, to move in and hybridize with *I. purdyi*. In places these hybrids are abundant. Established colonies, bearing lavender flowers can be seen from the road north of Ukiah in Mendocino County, on the approaches to Richardson's Grove, and then on through a

## IRIS DOUGLASIANA

Two or three flowers from the spathes. Style crests rounded to oblong, reflexed, edges toothed. Stigmas triangular. Flowers rather variable in size, shape and colour, ranging from deep red-purple through lavender and blue to shades of cream, veined and marked in gold, blue or purple. Perianth tube  $\frac{3}{4}$ " to 1". Spathes variable; open or closed, separated or opposite.

Ovary oblong, tapering at ends, triangular in cross-section, with nipple-like projection above. Stem can be branched, often producing up to four side-branches on mature plants. Leaves variable in size, shape and colour. Usually dark green and glossy, but can be yellow-green and dull. Most forms are bright red at base, sometimes glaucous. Width from  $\frac{1}{4}$ " to 1". Usually forms large, widely spreading tussock. Evergreen.



## IRIS PURDYI (*cont.*)

large area of Humboldt County. Going east towards the Trinity border I found colonies of red-flowered irises showing most of the characteristics of *I. purdyi* except colour.

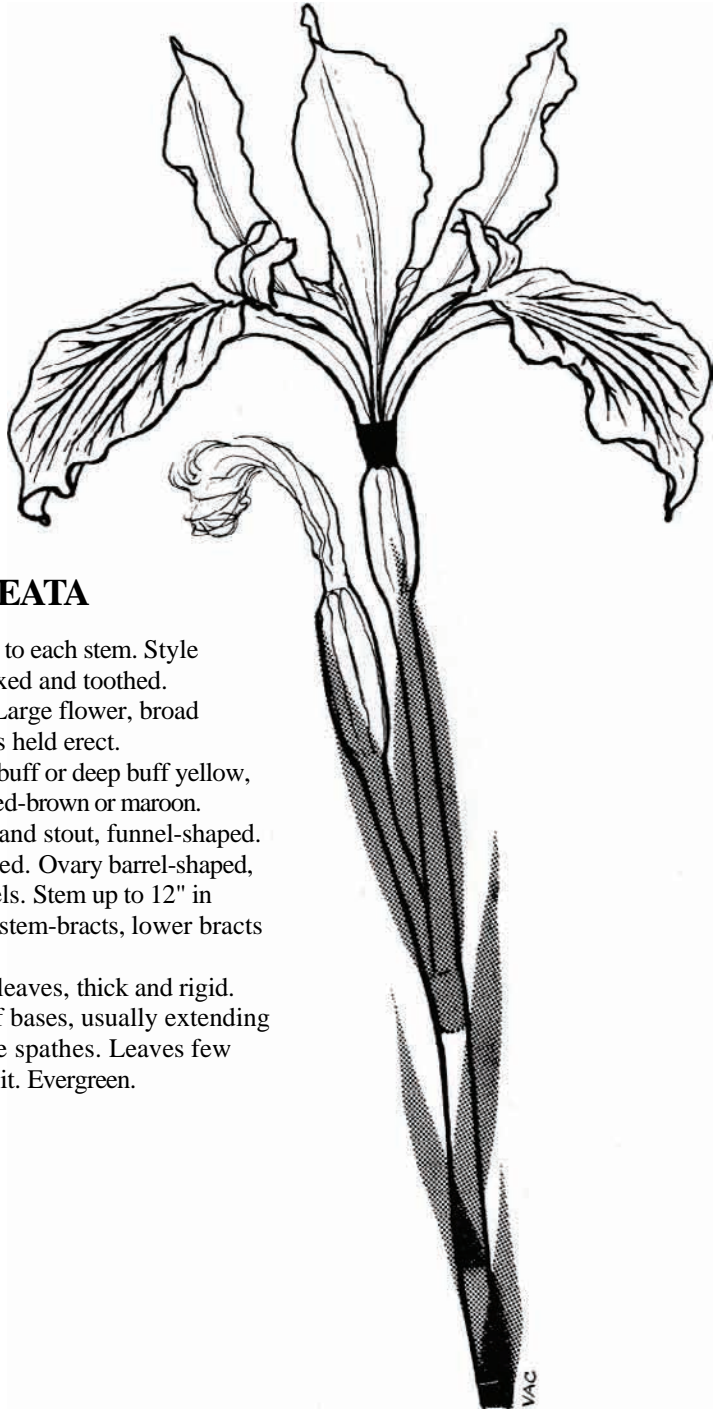
Dr. Lenz has given a most interesting account of the way in which this hybridization has been taking place. He studied the irises in these areas over a number of years, and it was due to his advice that I was able to see *I. purdyi* in a fairly pure and true state. Quite a number of plants were in flower on a hillside, growing in considerable shade. The flowers were rather pale, at best a rich cream colour, but they were all very large and flat, somewhat reminiscent of some large-flowered Clematis hybrids. The falls were distinctively veined with dotted lines of purple-red or cerise-pink, and together with the wide-spreading standards were long and very broad through their entire length. With most other species the floral segments narrow down quite considerably towards the perianth tube. Against these rather large falls the style branches and style crests appeared comparatively small and slim. All the flowers showed that unique character of *I. purdyi*, the truncate stigma. Perianth tubes averaged an inch and a half in length, and they were slightly dilated at the top.

The stems were usually two-flowered and were ten to fourteen inches in length. At the top of the stems the large, broad inflated-looking spathes were closed, and the stems were covered by closely over-lapping, short, inflated bracts, all these parts being so heavily stained with anthocyanin pigment as to impart an impression of mahogany-red colour throughout. The leaves were rather variable in width and length, most of them varying between a quarter-inch and half-inch in width. They were all stained red or cerise-pink at their bases.

## IRIS DOUGLASIANA Herbert 1841

This species cannot be placed within the two main groups; it has a perianth tube of medium length (average length  $\frac{3}{4}$ "-) and the spathes can be open or closed. It can produce three flowers from the spathes, and is unique in forming branched stems on strong, mature plants, which can carry a total of eight or nine flowers per stem. Extremely variable in size, *Iris douglasiana* can produce leaves up to an inch in width and three feet in length. A large form was at one time described as *I. watsoniana*, but apart from its very large leaves it differs only very slightly from the more typical form; these large leaves are rather stiff and spread out horizontally from bases which often lack the deep red staining generally associated with *I. douglasiana*. They are dull green compared with the glossy green leaves often found on some other forms.

*I. douglasiana* has a distribution pattern which is very long and narrow, being confined to the coastal areas of southern Oregon and California, from Coos County in Oregon to Santa Barbara County in southern California, a stretch of almost 700 miles. It seems to be tolerant of a wide range of conditions, though it is usually found on grassy hillsides and cliff-tops within sight of the Pacific Ocean. It will often grow right down to the beaches. North of Eureka in Humboldt County, California, where the highway runs along the coast, *I. douglasiana* is aggressively abundant, covering the adjacent pastures with



## **IRIS BRACTEATA**

Usually two flowers to each stem. Style crests oblong, reflexed and toothed. Stigmas triangular. Large flower, broad segments, standards held erect. Colour rich creamy-buff or deep buff yellow, strongly veined in red-brown or maroon. Perianth tube short and stout, funnel-shaped. Large spathes, closed. Ovary barrel-shaped, tapering into pedicels. Stem up to 12" in height, with several stem-bracts, lower bracts tightly overlapping. Dark, glossy green leaves, thick and rigid. Red staining on leaf bases, usually extending to the bracts and the spathes. Leaves few and scattered in habit. Evergreen.



## IRIS DOUGLASIANA (*cont*)

enormous plants which have grown into each other much in the manner of heathers on the moors. Where logging and other works of man have opened up the territory, this iris has spread inland to hybridize quite extensively with other species.

The flowers are variable in shape, size and colour. Gabrielson in "Western American Alpines" writes of *I. douglasiana* as "----apt to show all the possible colours in a single field----" but also states, "Its usual colour is blue or purplish, the outer segments often being white, veined with purple. There is an ivory-white form of unbelievable purity, with a splotch of clear golden-yellow on each petal, and a soft blue of a peculiar but pleasing tone that I have yet to see duplicated by any other flower". Dr. Lenz in his work on these irises has drawn attention to the shape of the ovary and capsule. The formation is oblong, tapering at each end, with a nipple-like projection at the top and is sharply triangular in cross-section. This appears to be a reliably constant character in *I. douglasiana*.

## IRIS BRACTEATA S. Watson 1885

*Iris bracteata* is an attractive species from the dry pine forests of the Siskiyou Mountains in southern Oregon. Usually described as yellow-flowered, I found the colour varied from deep cream to a rich buff-yellow, but all the flowers were most beautifully veined or netted over the blade of the falls with red or purple-brown lines, with a deep golden zone in the centre. The form usually encountered has very large flowers, with spreading falls and wavy standards held well aloft. The leaves are broad and stiff, few in number and somewhat scattered in the way they grow. There is, however, a small form of *I. bracteata*, which does not differ in any way apart from its size. One can also find intermediate forms between this and the large type.

This species is excluded from the two main groups. The perianth tube is short and stout, similar to those in the first group, but the spathes are closed as in the second group. *I. bracteata*, as its name would imply, has stems covered with short, overlapping bracts, which are often stained with red, this pigment appearing on the spathes and bases of leaves. *I. purdyi* also has bracts on its stems, but is easily separated or identified by its long perianth tube.

Apart from some small points of similarity, *I. bracteata* is a very distinct species. In places it has hybridized with *I. chrysophylla*. At Waldo, the type area, I collected seedlings of hybrids which looked rather like *I. bracteata*. Today, the first flowers have opened, and the effect is rather strange, as the flowers bear a remarkable resemblance to *I. chrysophylla*, though the general look of the plant is similar to *I. bracteata*. The stems are very short, but completely covered by short, stout, overlapping bracts. Near the coast in the extreme northern part of California, one can find the hybrid combination of *I. douglasiana* x *I. innominata* (*I. thompsonii*). These hybrids have spread along the Smith River Canyon towards the Oregon border, and as they approach *I. bracteata* territory they assume more and more the colouring and look of that species.



## IRIS INNOMINATA

One or two flowers, usually single-flowered. Style crests rounded, reflexed, edges toothed or minutely lobed. Stigmas triangular. Floral segments usually broad and rather rounded. Colour range from pale creamy-buff, through yellow to orange, and from orchid-pink to very deep blue-purple. Perianth tube medium length (ave.  $\frac{3}{4}$ "), slender, slightly funnel-shaped at the top.

Ovary oblong to oval, rounded in section, pedicels short. Small, comparatively broad spathes, closed. Slender stem, with several clasping stem-leaves. Very narrow leaves (ave.  $\frac{1}{8}$ "), very dark green and glossy, usually stained purple-red towards the bases. Habit dense and compact, with leaves bending over outwards.

Evergreen



## IRIS INNOMINATA Henderson 1930

This is a very distinct species, separate from the two main groups. The slim perianth tube is of medium length, averaging three-quarters of an inch, and the short, broad spathes are closed. It can produce two flowers from these spathes but is usually single-flowered. The extremely narrow leaves are dark green, glossy, and purple-red towards the bases. They soon form dense, compact tussocks, and the evergreen leaves are maintained through the winter snows until the new leaves and flower-buds have made their appearance in the spring.

*Iris innominata* is probably the most attractive species in the *Californicae*, and it has achieved tremendous popularity in a comparatively short space of time. In its best known form from the Rogue River area of southwestern Oregon, it produces brilliant, deep golden flowers but it has a much wider range of colour than was at first assumed; from pale cream and apricot, through beige, buff and various shades of yellow to a rich, deep orange, and from orchid pink to a deep blue-purple. Many of these flowers are gorgeously veined and netted with burnt sienna, red, or purple lines. The deep purple forms are found in northern Del Norte County, California, near High Divide in the western extremities of the Siskiyou, in company with a number of beautiful alpines, including species of *Phlox* and *Viola*. In the interior of southwestern Oregon it is often found in the company of *Rhododendron macrophyllum*, *R. occidentale* and *Xerophyllum tenax*.

The little pioneer settlement of Agness, about twenty-five miles up the Rogue River from its mouth at Gold Beach, proved to be a good base from which to explore *I. innominata* territory. Here, one was well inland and away from *I. douglasiana*, which has hybridized intensively with *I. innominata* in stretches near the coast.

On the hillside just above Agness I found colonies of orchid coloured *I. innominata*, but travelling up the 'old road' towards the Iron Mt. I was soon finding golden forms. On the rich, well-drained wooded slopes, riding ever higher above the Rogue, this iris was most abundant, displaying beautiful large flowers in rich golden-yellow and orange. As I travelled further north, towards the Iron Mt. and beyond it to the Coquille River, the flowers became pale apricot or light creamy-buff, still richly veined in red-brown. On the banks of the Coquille River the flowers again changed to a deep golden yellow.

Apart from the *I. douglasiana* x *I. innominata* combination, this species has hybridized in nature with *I. tenax* to a limited extent in the north-eastern part of its territory. In cultivation, *I. innominata* has been deliberately used to a great extent in producing garden hybrids, mostly with *I. douglasiana* as the other parent, but many of the plants bearing the name *I. innominata* are of hybrid origin. These are very vigorous and floriferous, but the true species has proved to be most accommodating in gardens.

## Notes on cultivation

Possibly the most important single factor in the cultivation of these irises is drainage. As would be expected with an area covering a large portion of the Pacific Coast States, the composition of the soil in which the species are found is rather variable, but one fact impressed itself upon me during my extensive travels; with the exception of some situations in which *Iris douglasiana* is found, the species almost invariably grow on sloping ground where the drainage is effective and rapid. The soil itself is usually neutral to slightly acid in nature, a fact proclaimed by local plant association, and is often full of grit and stone. The soil is sometimes well mulched with humus from natural leaf-fall, though in some places it appears sandy, or even scree-like.

The majority of species are found growing in light shade, but this aspect of sunlight and shade in terms of cultivation must vary considerably with the geographical situation of the garden. In London, the conditions prevailing in my small town garden are far from ideal. Though somewhat sheltered, this garden sees the sun only during the summer months from April to September, and while some species tolerate this others are not too happy.

*I. douglasiana*, it seems, will grow almost anywhere in any soils and in sun or shade. I believe it will tolerate a certain amount of lime in the soil, and it certainly does not object to salt spray. *I. innominata* is an excellent garden plant and is very tolerant of a wide range of conditions, from long, hot summers as in southern California, to the rather cool situations of English gardens. *I. tenax* usually does well in southern Britain and I suspect it would take to the north if given a sunny aspect. It will apparently not survive in southern California. A big question mark hangs over *I. munzii* in Great Britain; as yet it is hardly known in cultivation outside southern California, and its ability, or otherwise to survive our winters has yet to be proved. Generally, it would seem that the Oregon species take more easily to cultivation in Great Britain, and that would include

*I. bracteata*. Dykes found it easy until it reached maturity, and then the greatest danger was disturbance of the root system.

The Californian species, particularly the long-tubed group, appear to be unhappy during the winter and early spring in my garden. They appear at their best in summer and autumn. Dykes eventually grew *I. macrosiphon* but never told us how it behaved in the garden. During the winter of 1965/1966 most of the collected species were being tried in the open in my garden, and it was amongst the long-tubed that losses took place. The *I. hartwegii* clan survive but do not exactly prosper; I have just been told that the fine specimen of *I. hartwegii* subsp. *australis* which used to grow at Kew was killed during the 1962 winter. *I. tenax* subsp. *klamathensis* looks more hopeful, but the two precious plants are in pans, and have received protection from frost. So far, they look happy and are producing flower buds.

All the species will come true from seed, providing the necessary controls are used. Dykes used to sow his seed in pans, which were plunged in the open ground and exposed to all weathers. If there had been a fall of snow, he

rolled enormous snowballs onto the pans, where they were allowed to stay and gradually melt. Small seedlings can be moved at almost any time, but I prefer to lift them when they have formed two or three leaves.

I have tried to provide a well-drained, lime-free soil for my plants. It is not too rich; indeed, there may be danger in a very rich soil under these conditions. Where I grow the species in pans I keep most of them plunged. This avoids the danger of overwatering. Plants are moved on, or repotted during the early summer, or else at the end of September. During both periods new roots are often observed. During these operations great care is exercised to avoid much disturbance of the roots.

There are many places in the average garden where these irises could be grown. A sloping, sunny bank, a raised bed or the higher slopes of a rock garden could all be suitable, if the soil is lime-free and reasonably well drained. Even where the garden soil contains lime, it is possible to create pockets or raised beds filled with a suitable soil mixture. If this is impossible, then boxes, troughs or pans may provide the answer.

In conclusion, I should like to ask gardeners who grow any of the species to communicate their experiences and findings. In this way it may be possible at a later date to issue something in the nature of a post-script on cultivation. This would surely help in our desire to grow these lovely irises.

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