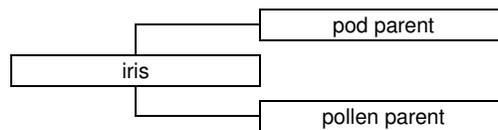


Working with Iris Pedigrees

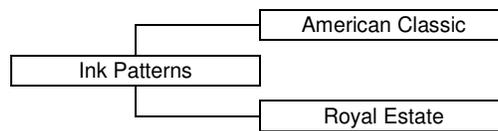
Pedigree research can be interesting and informative, revealing the background of an iris and giving clues about the genes it may carry. Sometimes complicated pedigrees can be confusing or intimidating. This document explains how to unravel a complicated pedigree and represent it as a family tree.

The Basics

In iris pedigrees, the pod parent is listed first, followed by the pollen parent: pod parent X pollen parent. We can present this as a family tree like this:



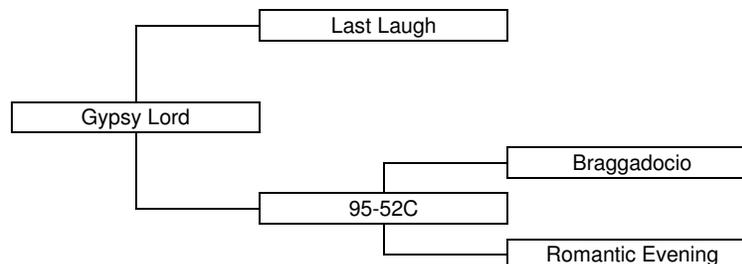
So, for example, the published parentage of Ink Patterns is American Classic X Royal Estate:



The diagram makes for an attractive presentation, but it takes up more space than the text version.

Unnamed Seedlings in Pedigrees

The next level of complexity occurs when a parent is not a named cultivar, but rather an unnamed seedling, identified in the pedigree by its own parentage. For example, the parentage of Gypsy Lord is Last Laugh X 95-52C: (Braggadocio x Romantic Evening). 95-52C is the hybridizer's seedling number (Properly, one should place the hybridizer's name before the number: Keppel 95-52C. But the name is usually omitted in parentages, where it is assumed that all seedlings are those of the hybridizer, unless otherwise noted.) Sometimes these seedling numbers are given in the parentage, but it is also common for them to be omitted. So the parentage of 'Gypsy Lord' could also be written simply Last Laugh X (Braggadocio x Romantic Evening). In a family tree diagram, it looks like this:

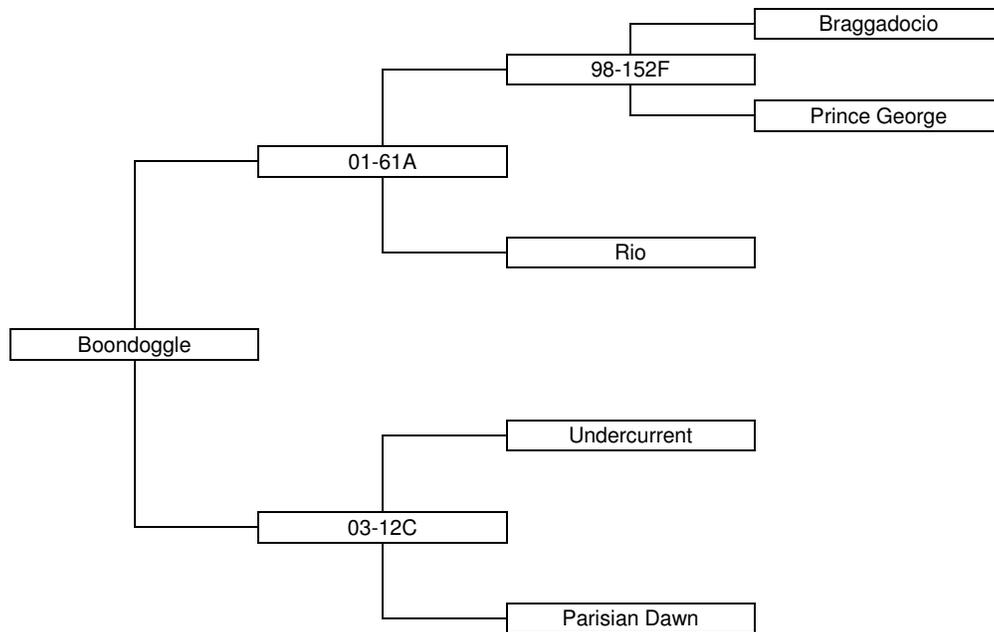


I've used the seedling number 95-52C in the pollen parent block because it was provided in the published pedigree. If it were not given, we could leave that block blank or just put the word "seedling" there as a placeholder.

Note the use of capital "X" to separate the pod parent from the pollen parent, and the use of lower case "x" for parentages embedded deeper in the pedigree. Although this is conventional, it is not required: no information is lost by using "x" in both places. It just helps guide the eye through a complicated pedigree. Note how the parentheses are used. They enclose the parentage of an unnamed seedling that appears in the pedigree. If the parentage of an unnamed seedling involves further unnamed seedlings, we can have nested parentheses.

Nested Pedigrees

The parentage of Boondoggle is 01-61A: (98-152F: (Braggadocio x Prince George) x Rio) X 03-12C: (Undercurrent x Parisian Dawn). Here the pod parent is seedling 01-61A, and the pollen parent is seedling 03-12C. The parentage of 01-61A is 98-152F x Rio, and the parentage of 98-152F is Braggadocio x Prince George. The parentage of 03-12C is Undercurrent x Parisian Dawn. This parentage is complicated enough that there is a real advantage in using the family tree to present it:



A Text-Only Tree

A family tree can be presented more succinctly, without using boxes and lines, like this:

Boondoggle	01-61A	98-152F	Braggadocio
			Prince George
		Rio	
	03-12C	Undercurrent	
		Parisian Dawn	

This is a useful compromise between the clarity of a fully rendered tree diagram and the ease and compactness of a text parentage. This is how I keep my pedigree records.

These examples so far have been relatively simple, just going back two or three generations. If you know how the parentheses work, it is not too difficult to “take in” the whole pedigree at once and render it into a tree. Some pedigrees, though, are much more complicated, going back many more generations, and one can get lost in a sea of parentheses and have great difficulty untangling them. There are several approaches to help with this; which you choose is a matter of personal preference and what you find easiest.

Outside-In

One way is to work from the outside in. This is where the capital “X” comes in handy. I know everything left of the capital “X” is the pod parent, and everything to the right is the pollen parent. So for ‘Boondoggle’, we have

Pod parent: 01-61A: (98-152F: (Braggadocio x Prince George) x Rio)

Pollen parent: 03-12C: (Undercurrent x Parisian Dawn)

Let’s unravel the pod parent first. 01-61A is just its seedling number. Its parentage is everything following the colon, inside the outer parentheses:

98-152F: (Braggadocio x Prince George) x Rio

Here, it is not hard to see that the pod parent of 01-61A is 98-152F and the pollen parent is Rio. The parentage of 98-152F is everything within the parentheses following the colon. That is,

Braggadocio x Prince George.

So we’ve fully unraveled Boondoggle’s pod parent. The pollen parent is easier. Its seedling number is 03-12C, and its parentage is everything within the parentheses that follow the colon:

Undercurrent x Parisian Dawn

This method works by separating pod parent from pollen parent, recursively, until you reach the named cultivars in the ancestry. The process looks like this:

Boondoggle = 01-61A X 03-12C

01-61A = 98-152F x Rio

98-152F = Braggadocio x Prince George

03-12C = Undercurrent x Parisian Dawn.

Inside-Out

The trouble with the outside-in method is that once you get past the large “X” in the main pedigree, it can be hard to tell which “x” separates pod parent from pollen parent in the sub-pedigree you are working on. Another approach is to start at the lowest level: pull out any simple parentages that look like A x B, with no parentheses nested inside them. There are two of these in the parentage of ‘Boondoggle’. The first is Braggadocio x Prince George. That is a seedling; its seedling number is outside the parentheses, just before the colon, 98-152F. Knowing that, we can just call it 98-152F and not worry about its parentage any more. That gives us 98-152F x Rio as another simple parentage, which we see is the parentage of seedling 01-61A, the pod parent of ‘Boondoggle’. The second simple parentage inside the full pedigree is Undercurrent x Parisian Dawn, which is 03-12C, the pollen parent of ‘Boondoggle’. The process looks like this:

Braggadocio x Prince George = 98-152F

98-152F x Rio = 01-61A

Undercurrent x Parisian Dawn = 03-12C

01-61A x 03-12C = Boondoggle

Parentheses and Tabs

A third useful method, which I find particularly easy because it allows you to work straight through a pedigree from beginning to end, is to use tabs to mark how many levels deep you have gone in the pedigree. Every time I see an opening parenthesis, I use a tab to increase the indentation level. Every time I see a closing parenthesis, I back out one level. Every time I type the name of a named iris, I start a new line at the same indentation. Here’s how this looks:

```
01-61A:      98-152F:      Braggadocio
                x Prince George
                x Rio
X 03-12C:      Undercurrent
                x Parisian Dawn
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By just changing parentheses into tabs this way, you can easily produce a compact text-only tree like the one described earlier.

A Word of Warning

In an ideal world, all published pedigrees would be perfect, in both accuracy and format. This is not always the case, however. It can be frustrating to discover that a pedigree has been formatted incorrectly, usually because needed parentheses have been dropped or superfluous ones have been added. In a correctly formatted pedigree, the number of opening parentheses must be identical to the number of closing parentheses, and that number must be one less than the total number of “x”s in the pedigree. Here are some examples of pedigrees gone bad:

Anne x Betsy x Candace

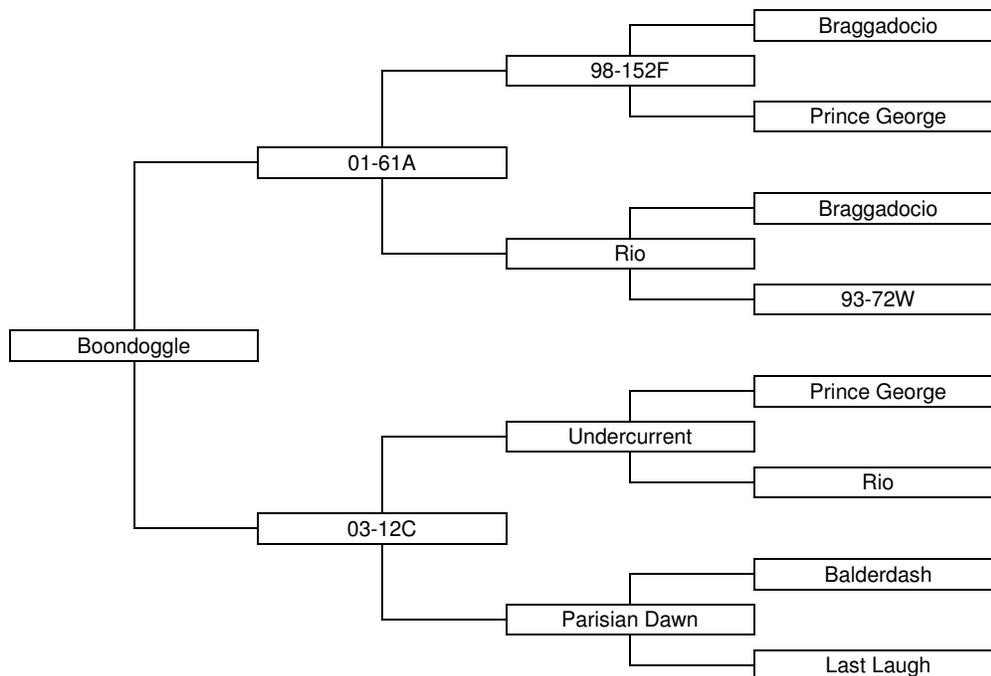
((Anne x Betsy) x Candace

(Anne x Betsy) x Candace)

None of these can be interpreted with confidence, although one might make an educated guess. Although these simple examples are obvious, a typo in a long and complicated pedigree can go unnoticed until you have put a lot of work into sorting it out.

Filling In

If you really want to learn the ancestry of an iris, there is no reason to stop when you reach named cultivars in the pedigree. After all, the difference between a named cultivar and a numbered seedling is just whether the hybridizer decided to register or not. The ancestry of the named cultivars is just as informative as the ancestry of the numbered seedlings, and a thorough family tree will include both. Let's look at 'Boondoggle' again, but fill in the ancestry of the named cultivars as well as the numbered seedlings.



To make this tree, I had to look up the parentages of Rio, Undercurrent, and Parisian Dawn. It is interesting; we can see that Rio, Prince George, and Braggadocio appear more than once in the full pedigree. We could go back another generation, or two, or a dozen. In fact, we could be utterly thorough and trace the ancestry all the way back to the original species (or, more often the case, to early cultivars of unknown parentage). Here is a pedigree of Boondoggle going back two more generations, presented as a text-only tree:

Boondoggle	01-61A	98-152F	Braggadocio	88-144A	Gallant Rogue	
				88-140A	Ever After x Impressionist seedling	
				Prince George	Parisian Flight	Gallant Rogue seedling
			Rio	Bragaddocio	Condotiere	Falbala seedling
					88-144A	Gallant Rogue
					88-140A	Ever After x Impressionist seedling
	03-12C	Undercurrent	Prince George	93-72W	89-79D	Gallant Rogue
					Romantic Evening	Witches' Sabbath
						Gallant Rogue seedling
						seedling
		Parisian Dawn	Balderdash	Rio	Parisian Flight	Falbala seedling
					Condotiere	88-144A
					88-140A	89-79D
					89-79G	Romantic Evening
	Last Laugh		Bragaddocio	Witches' Sabbath		
			Bragaddocio	Gallant Rogue		
		Shoop 87-37A	88-144A	88-140A		
		Parisian Flight	seedling	seedling		

What You Can Learn from Pedigree Research

Aside from curiosity about the history of iris breeding, what can one learn from doing pedigree research?

A pedigree can let you know if an iris carries genes for a recessive color or pattern, such as pink or plicata. For example, an iris that carries plicata genes can give plicatas if you cross it with a plicata, whereas an iris without plicata genes will not produce plicata offspring no matter what you cross it with.

Note, however, that you can only be sure an iris carries recessive genes if one of its *parents* shows the recessive trait. Grandparents or deeper ancestors showing the trait are no guarantee that the genes are still present, although it at least opens the possibility.

Another use of the pedigree is to identify which breeding lines are behind the iris in question. Many hybridizers undertake long-term projects with specific goals in mind, and the irises they register from these lines are related and often show similar characteristics. So if hybridizer A introduces an iris that has an iris from hybridizer B in its parentage, I know I may expect some similarities to hybridizer B's irises, even though that connection may not be apparent without doing the pedigree research. One application of this idea is in evaluating climate adaptability. If hybridizer B worked in a climate similar to my own, I might expect the iris to fare better here than others that hybridizer A has produced, if A's climate is very different from mine.

When different types of irises are involved (say medians, arilbreds, and TBs), the parentage can provide information about the chromosome configuration, and hence expected fertility and compatibility with other irises in crosses.

Another consideration is inbreeding. Many hybridizers work with rather inbred lines, so the parents they use are often related in some fashion. ('Boondoggle' shows a typical example of the parentage of an iris from an extended line of breeding.) If you use an iris from one hybridizer's breeding line, you may want to use it with an iris from an unrelated line. Why? One reason is physiological; crossing unrelated irises may often produce seedlings with "hybrid vigor", whereas crossing to closely related irises can compound weaknesses. The other reason is that hybridizers usually make lots of crosses to explore the potential of their own lines, often years before those irises are commercially available for others to acquire and use. So crossing two Keppel irises is not likely to produce something much different from seedlings Keppel was looking at some years ago; crossing with a completely unrelated iris may give something more novel.

Or maybe the real value of pedigree research is that it gives obsessive hybridizers something to do indoors over winter!

"Family Tree" Pedigree Template

The graphical families trees used in this article were made using an MSWord template, which is available in the group files. Please use as you like!

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Iris Hybridizing Facebook group
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