



*D. affinis* x 2



*D. borrieri* x 3



*D. lacunosa* x 3



*D. robusta* x 3



*Dryopteris  
paleaceolobata* x 2

## Sell and Murrell 2018

Published descriptions of 8 taxa at species level, and mentioned a 9<sup>th</sup> plus 4 hybrids



*D. pseudocomplexa* x 4



*D. kerryensis* x 2



*D. pseudodisjuncta* x 3



*D. cambrensis* x 3

# *Dryopteris affinis*, Western scaly male fern



Lowest 1<sup>st</sup>  
basiscopical  
pinnules  $\frac{1}{4}$  to  $\frac{1}{2}$   
adnate



Tall, thick indusia,  
tucked under at the  
edges



Indusia lift, may split  
radially, and usually  
persist after spores  
have dehisced



Glossy, rather  
leathery,  
impressed veins,  
flattish frond



Clear veins,  
usually reaching  
the margin, teeth  
mostly obtuse

# *Dryopteris borrieri*, Borrer's scaly male-fern



The lowest first basispic pinnules are less than a quarter adnate to the costa



Immature sori – edges of the indusia not tucked under



Mature indusia – shrivelled to upturned cones



Mid-frond pinnae - usually not glossy, thin textured, flat frond.



Veins terminate short of the margin. Acute teeth, apex may be truncate or rounded in different clones.

# *Dryopteris cambrensis*, Welsh male-fern.



Lowest 1<sup>st</sup> basiscopic pinnule usually stalked, marked dark spot



Immature indusia appear to be tucked under



Mature indusia can rise, split, or invert to cone



Untidy clump, fronds twist and pinnae rotated upwards



Veins indistinct in places, not quite reaching the margin. Blunt teeth.

# *Dryopteris kerryensis*, Irish male-fern



Crowded  
small  
pinnules



Lowest  
pinnae  
usually very  
short



Flabellate  
teeth. Veins  
indistinct in  
places



Indusia lifting,  
some splitting

# *Dryopteris paleaceolobata*, Greater scaly male-fern



Lowest 1<sup>st</sup>  
basiscopic  
pinnule stalked



Indusia may  
rise or split to  
form 'butterfly  
wings'



Regular crimping  
of pinnules



Veins mostly  
not reaching  
the margin,  
teeth mostly  
obtuse

*Dryopteris* 'atrosquama'  
Chater's scaly male fern?



*Dryopteris* 'Glengarriff'  
Trewren's scaly male fern?



# *Dryopteris pseudocomplexa*, Scottish male-fern



Lowest 1<sup>st</sup>  
basiscopic pinnule  
stalked, 'plain'  
pinnules



Indusia lift and  
shrivel



Teeth small and  
sometimes acute,  
veins usually  
stop short of the  
margin

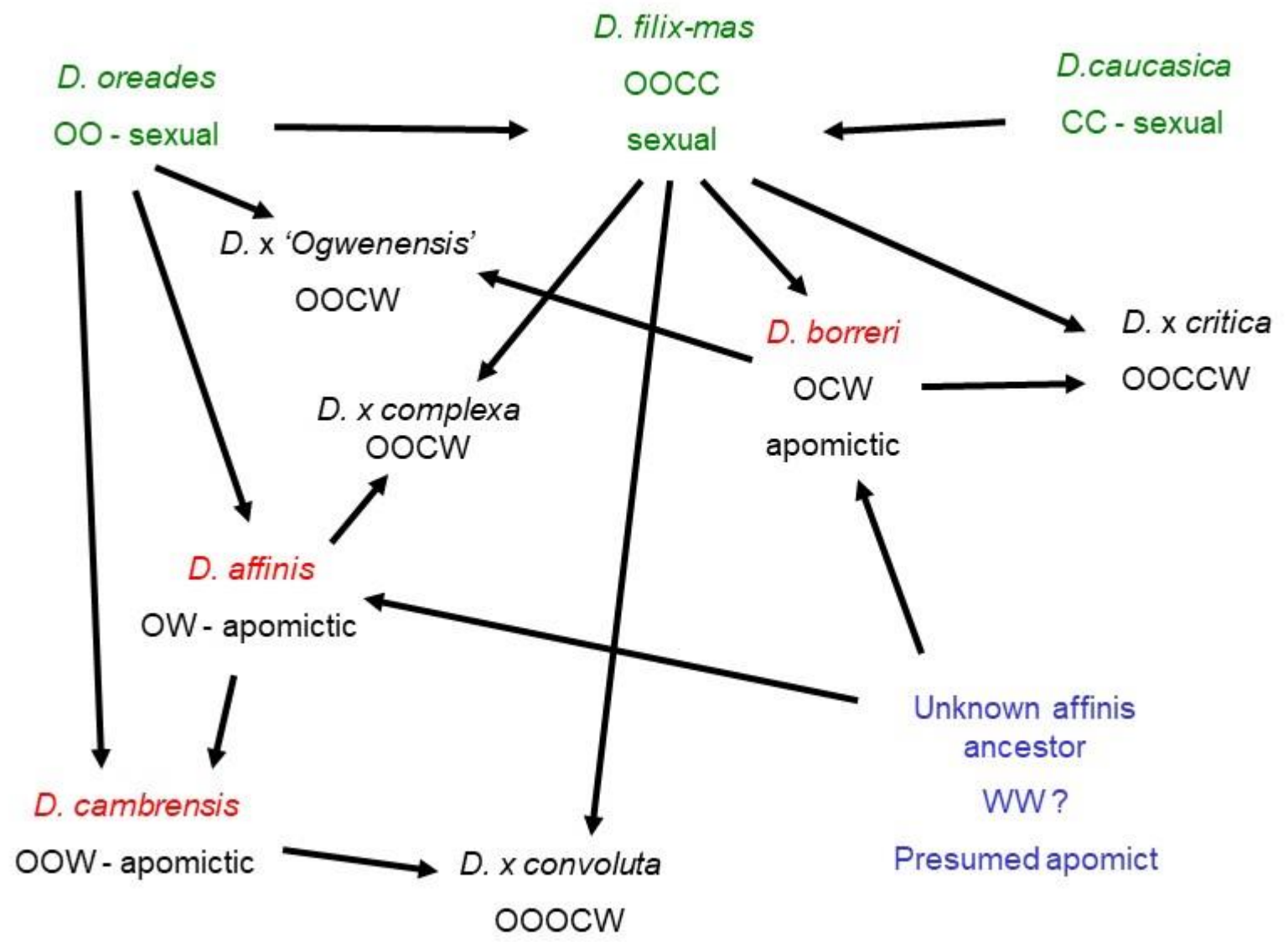


# *Dryopteris x complexa* (*D. affinis* x *D. filix-mas*)



Spores abortive, pale 'dark spot'. Often very large, can look like *D. borrieri*.





Possible hybrid origins of taxa in the *Dryopteris affinis* complex

# Average stomatal length – a useful taxonomic feature?

Taxon	Average stomatal length (microns)	Ploidy level
<i>Dryopteris affinis</i>	45	2 x
<i>D. borrieri</i>	50.4	3 x
<i>D. cambrensis</i>	51	3 x
<i>D. pseudodisjuncta</i>	51	3 x
<i>D. x complexa</i>	56 - 58	4 x
<i>D. x critica</i>	61	5 x
<i>D. x convoluta</i>	61	5 x
<i>D. x complanata</i>	61	5 x

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Please let me know if you would like me to look at specimens for you. Good photos that include the lowest 1<sup>st</sup> basiscopic pinnules, the mid-frond pinnae, the scales, and the sori, can be very helpful.

If you would like to contribute specimens to the study, send me your address and I will send you a collection pack with instructions. Fronds have to be dried before sending to the UK. Thank you!

