



# ***Phytophthora* diversity in UK gardens**

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# Detection Methods

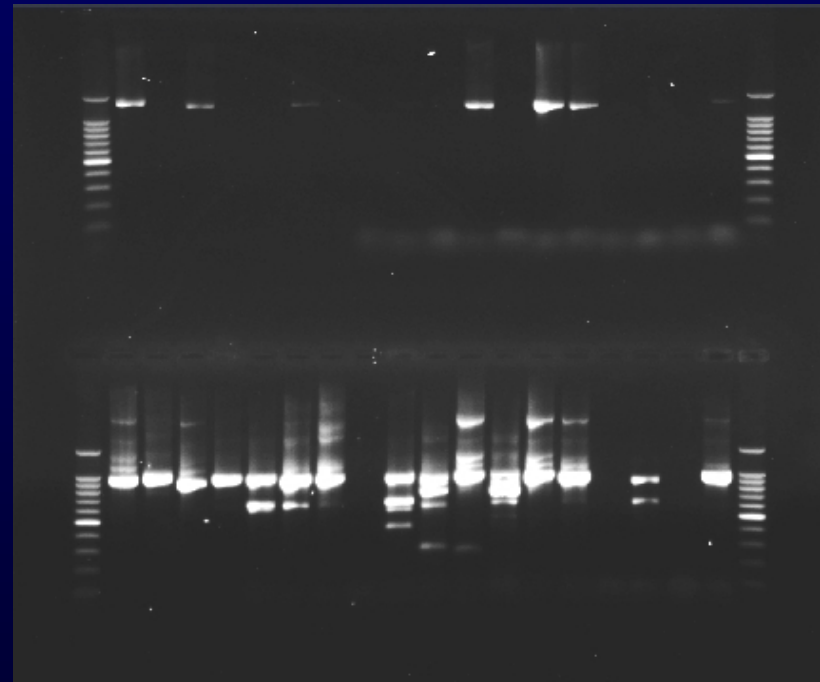
Apple Baiting



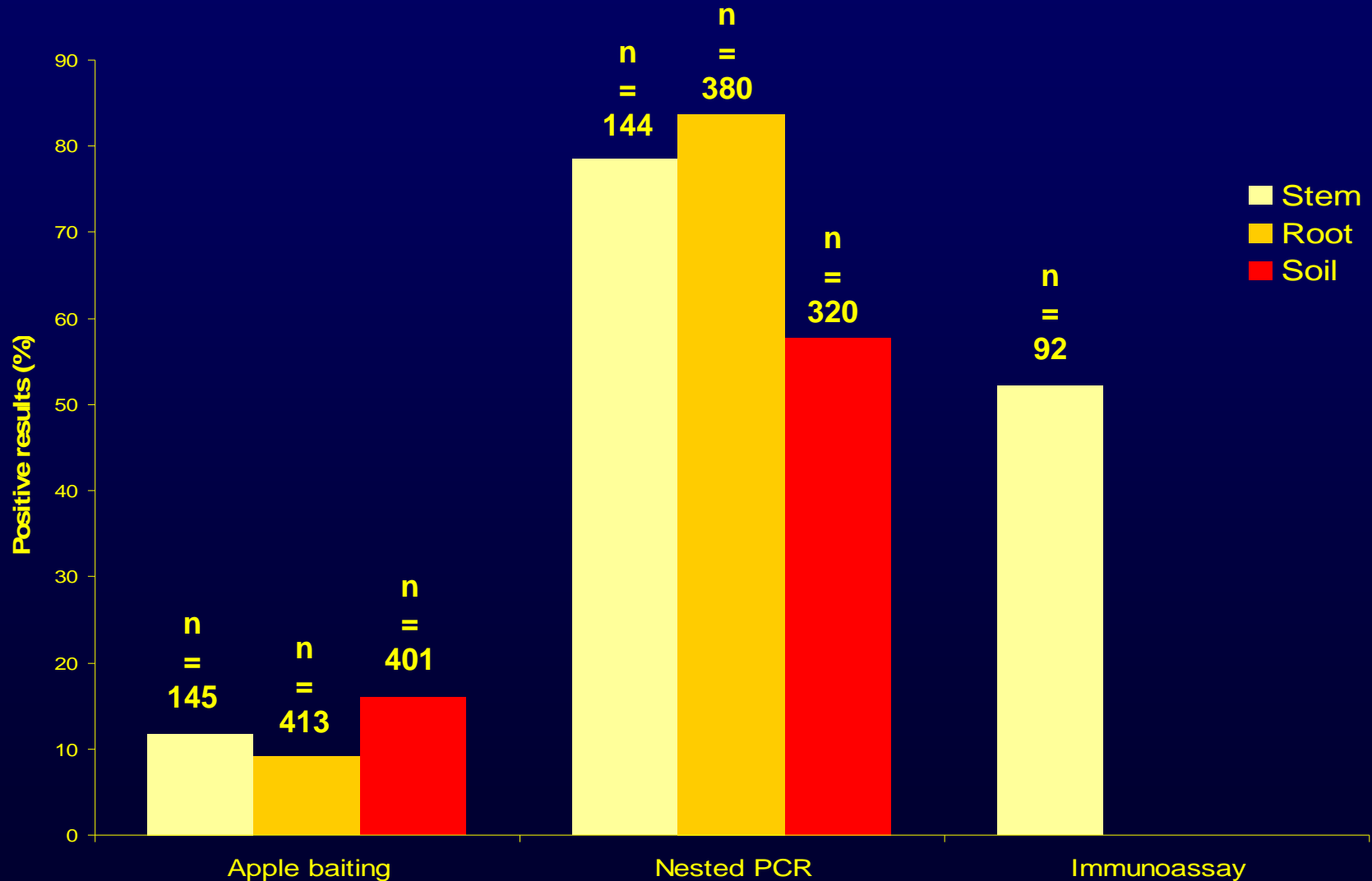
Immunoassay



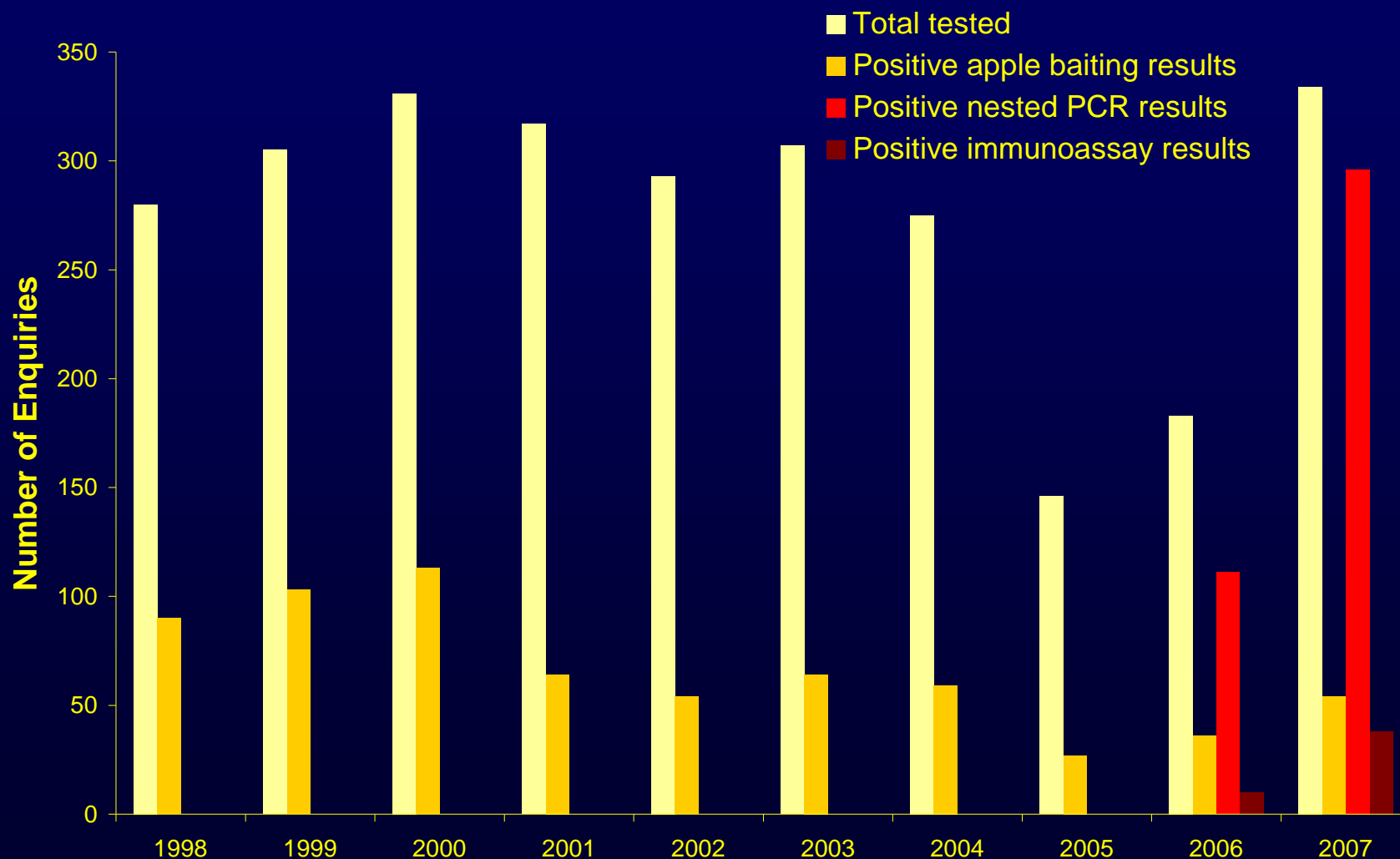
Nested PCR



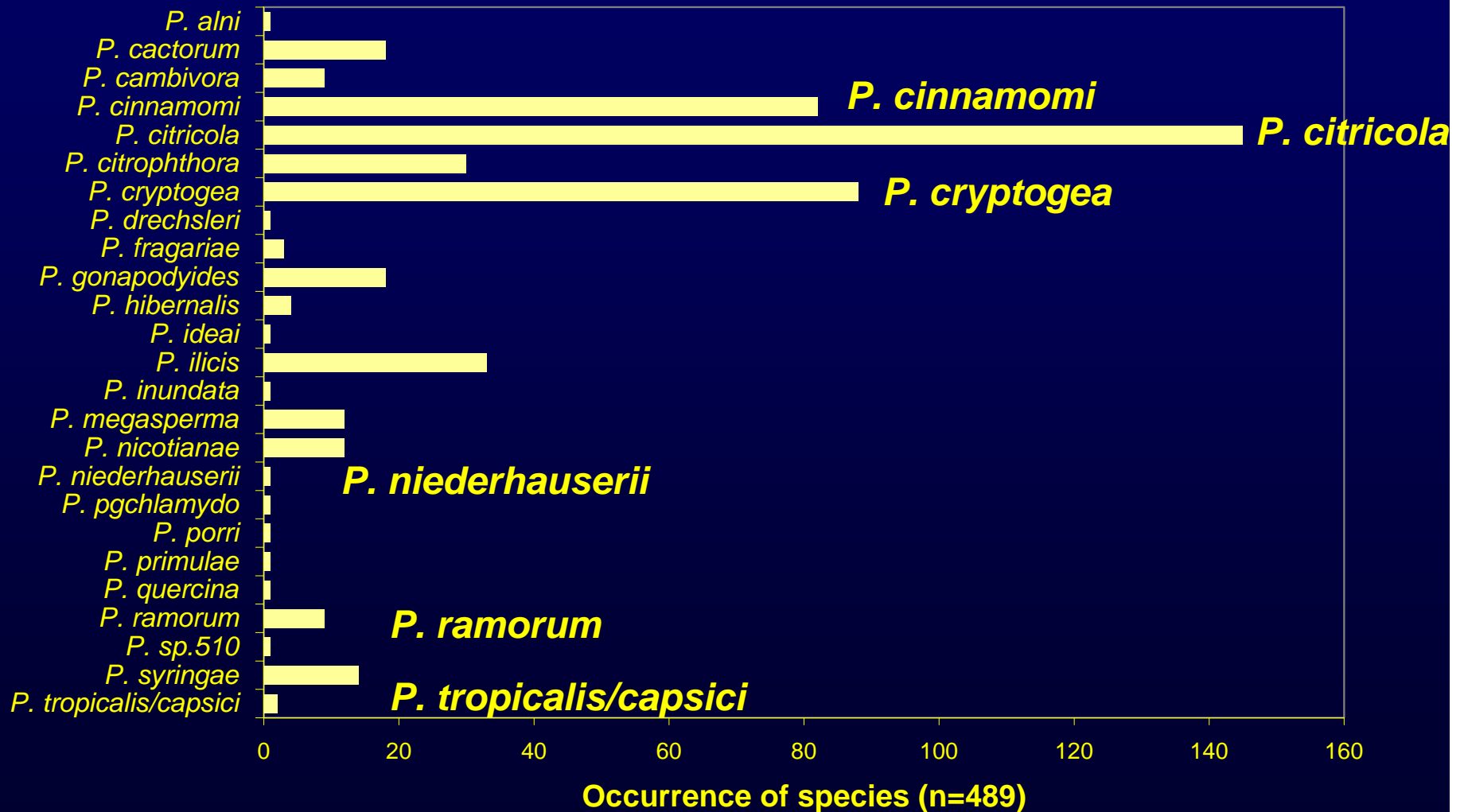
# Comparison of positive results from 2006 and 2007 from apple baiting, nested PCR and immunoassay



# Positive results for the last 10 years from apple baiting, nested PCR and immunoassay



# Phytophthora species identified through sequencing ITS



## *Phytophthora* diversity

- In total 25 *Phytophthora* species have been recorded in UK gardens
- During 2006 and 2007 alone we recorded 87 different host genera
- Top hosts are; *Taxus* (19%), *Rhododendron* (5.6%), *Rubus* (4.2%) and *Viburnum* (4.2%)

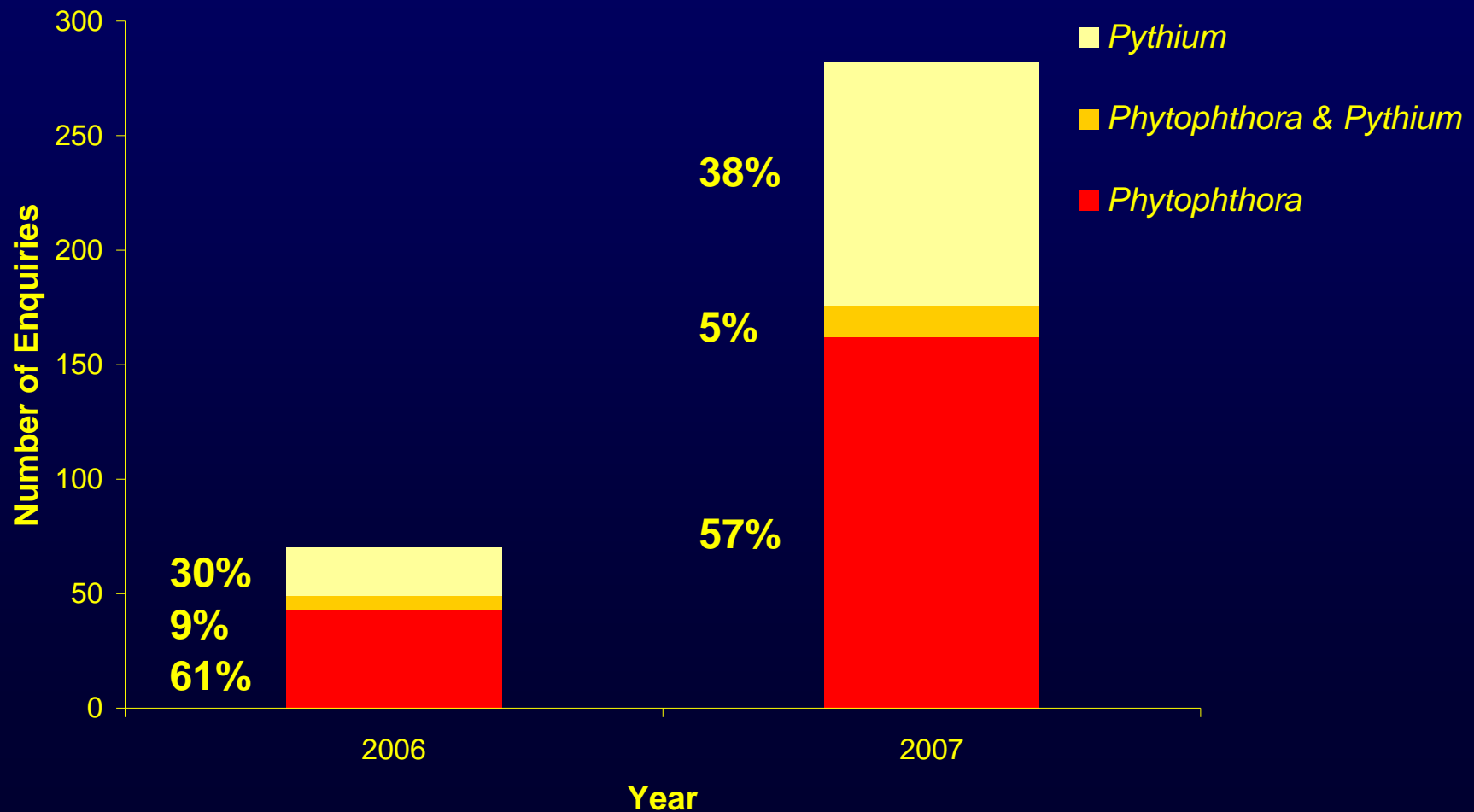
	<i>Taxus</i>	<i>Rubus</i>	<i>Rhododendron</i>	<i>Viburnum</i>
<i>P. cactorum</i>	-	1	-	-
<i>P. cinnamomi</i>	32	-	2	2
<i>P. citricola</i>	20	9	4	2
<i>P. citrophthora</i>	6	-	-	-
<i>P. cryptogea</i>	7	2	2	-
<i>P. fragariae</i>	-	3	-	-
<i>P. gonapodydies</i>	3	-	-	2
<i>P. megasperma</i>	1	-	-	-
<i>P. nicotianae</i>	-	-	-	1
<i>P. syringae</i>	2	-	-	-
<i>Phytophthora</i> sp.	-	-	-	1



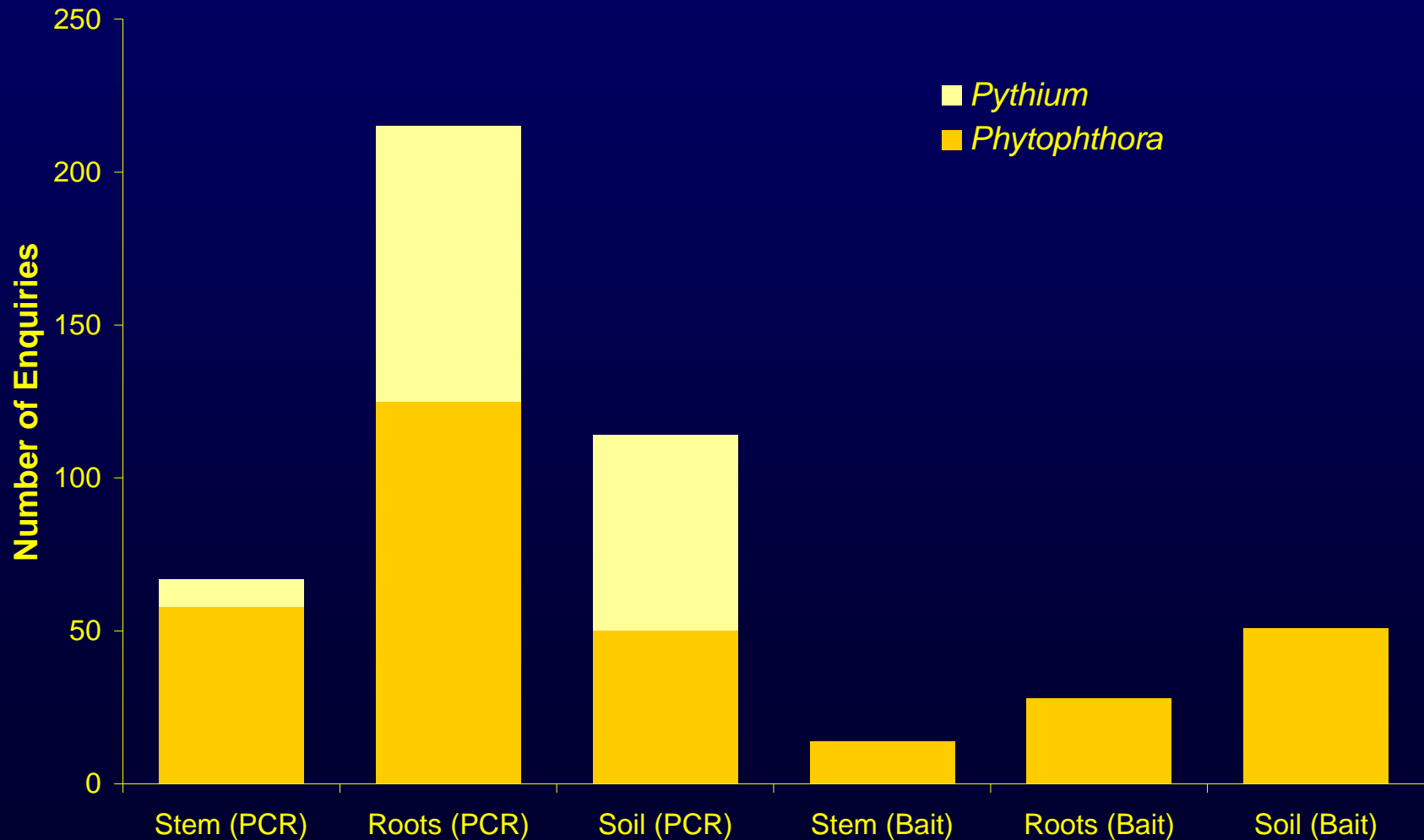
Following the identification of the *Phytophthora* species, potential new hosts for the following species have been found:

- ***P. cactorum***: *Phylliopsis*
- ***P. cambivora***: *Prunus laurocerasus*
- ***P. citricola***: *Abutilon*, *Aesculus*, *Buddleja*, *Ceanothus*, *Convolvulus*, *Cornus*, *Enkianthus*, *Fothergilla*, *Fremontodendron*, *Helleborus*, *Lavendula*, *Pieris*, *Sorbus*, *Santolina*, *Symphoricarpus*, *Taxus*, *Trachelospermum*, *Wisteria*
- ***P. citrophthora***: *Ceanothus*, *Daphne*, *Heuchera*
- ***P. cryptogea***: *Anemone*, *Araucaria*, *Calluna*, *Caryopteris*, *Choisya*, *Cistus*, *Delphinium*, *Heliopsis*, *Heuchera*, *Prunus laurocerasus*, *Tilia*, *Polemonium*, *Ribes*, *Rosmarinus*, *Ruta*, *Taxus*, *Thuja*
- ***P. gonapodyides***: *Rubus*, *Sorbus*, *Taxus*
- ***P. hibernalis***: *Hebe*
- ***P. megasperma***: *Hedera*

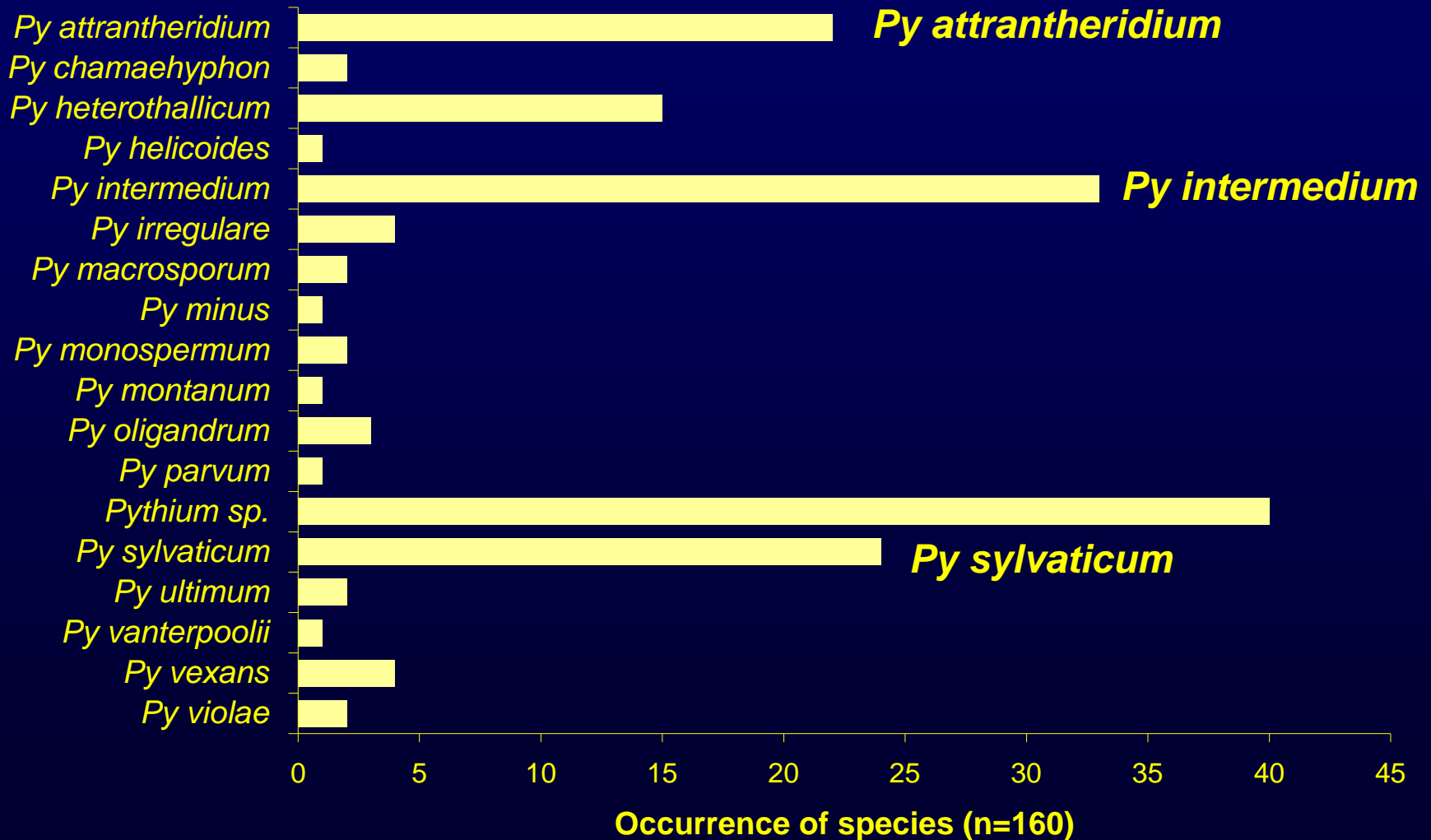
# Proportion of *Pythium* and *Phytophthora* identified by sequencing of ITS region, through all detection methods



# Comparison of total *Phytophthora* and *Pythium* identified, by method and sample



# *Pythium* species identified through sequencing ITS



## *Pythium* diversity

- In total 17 *Pythium* species have been recorded in UK gardens
- During 2006 and 2007 alone we recorded 72 different host genera
- Top hosts are; *Taxus* (12.6%), *Prunus* (4.9%), *Rubus* (4.2%) and *Cornus* (3.5%)

	<i>Taxus</i>	<i>Prunus</i>	<i>Rubus</i>	<i>Cornus</i>
<i>Py attrantheridium</i>	3	1	2	2
<i>Py heterothallicum</i>	2	1	2	-
<i>Py intermedium</i>	2	3	1	-
<i>Py irregulare</i>	1	-	-	-
<i>Py macrosporum</i>	1	-	-	-
<i>Py monospernum</i>	1	-	-	-
<i>Py montanum</i>	1	-	-	-
<i>Py oligandrum</i>	-	-	1	-
<i>Py sylvaticum</i>	3	1	-	2
<i>Py vexans</i>	-	-	-	1
<i>Pythium sp.</i>	7	4	-	-

