



Visual Field Guide
To woody ornamental diseases:
shrubs, trees, palms and bamboos

J.L. Andrés Ares
LAND'S ENDS EDITIONS
CONSULTORÍAS NOROESTE S.C.

I.S.B.N. 978-84-608-3721-3

Legal Deposit: PO 507-2015:

This edition is published digitally by:

Land's Ends Editions: Consultorías Noroeste

Year: 2015

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VISUAL FIELD GUIDE TO WOODY
ORNAMENTAL DISEASES: SHRUBS, TREES,
PALMS AND BAMBOOS

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PREFACE

The author would like to thank all the ornamental agents in Galicia that have collaborated either directly or indirectly in the preparation of this book: these are technicians and managers of plant production enterprises and nurseries, plant pathologists, plant quarantine inspectors, researchers and extension agents.

Ph.D. José Luis Andrés Ares

1. INTRODUCTION

The present book is the summary of a 27 year career as independent consultant, offering plant protection services to the ornamental enterprises in Galicia. It is not a Plant Pathology Manual but a Field Guide that might be employed as a useful tool by the technicians of the ornamental enterprises as well as by the plant protection managers of gardens and public green areas. It is designed to help these agents with the challenge of the correct identification of the problems that develop in their crops. Early detection is the most important key to plant disease control.

Most of the photographs included in the book have been done by the author on ornamental enterprises in northwest Spain, previous diagnostic of the plant pathogens either by the author, in his private Plant Pathology Laboratory, or by the official Plant Pathology Laboratories. Certain photographs have been carried out in public green areas and the identification of the pathogen was based on the experience of the author. The private plant pathology analysis were based in classical Plant Pathology methods. The photographs of *Phytophthora ramorum* have been carried out by the author in ornamental enterprises where the Galician Plant Quarantine Service had been taking the correct quarantine measures.

The book does not offer photographs of all of the diseases of each of the ornamental hosts included but only the most important. The reading of this book may lead to a precise knowledge of the symptoms of the most important diseases that infect ornamental plants in Northwest Spain.

The author

2.3. *AESCULUS HIPOCASTANEUS*



Photo 20. Brown necrosis with yellowish halo in *Aesculus hippocastaneus* leaves caused by *Guignardia bidwelli* infection

2.9. AZALEA



Photo 35. Container grown azalea with dry brown necrosis caused by *Phytophthora ramorum* infection on new leaves



Photo 36. Container grown azalea with dry brown necrosis caused by *Phytophthora ramorum* infection on new leaves



Photo 80. Cedrus shoot with necrosis and yellows caused by *Botrytis cinerea* infections

2.40. HEDERA



Photo 116. *Hedera helix* leaves infected by *Colletotrichum gloeosporioides*: irregular spots with reddish margins



Photo 153. *Arbutus unedo* leaf covered by *Phytophthora ramorum* conidia



Photo 154. *Arbutus unedo* plants with shoots infected by *Septoria unedonis*: leaves covered by tiny redish spots



Photo 226. *Prunus* leaf infected by *Taphrina deformans*: leaf parenchyma distorted by the pathogen



Photo 227. *Prunus* leaf infected by *Taphrina deformans*: leaf parenchyma distorted by the pathogen

2. 82. SALIX



Photo 254. *Salix* leaves infected by *Drepanopeziza*: young leaves are covered with dark irregular spots at first and finish with the complete necrosis of the leaf surface



Photo 322. *Pseudosasa japonica* root system with general rots produced by *Rhizoctonia solani*



Photo 323. *Pseudosasa japonica* plants with yellows and general wilts produced by root rots caused by *Rhizoctonia solani*

4.9. *DYPSIS*



Photo 381. *Dypsis decari* plant infected by *Bipolaris sp.*: palm with yellow spots that finish turning to a brown colour



Photo 382. *Dypsis decari* plant infected by *Bipolaris sp.*: palm with yellow spots that finish turning to a brown colour



Photo 391. *Dypsis sp.* plant infected by *Pestalotia sp.*: leaves with dry zonate lesions on the apex



Photo 392. *Dypsis sp.* plant infected by *Pestalotia sp.*: leaves with dry zonate lesions on the apex



Photo 440. *Phoenix canariensis* plant infected by *Graphiola phoenicis*: fungi fruiting bodies sporulating



Photo 441. *Phoenix canariensis* plant infected by *Graphiola phoenicis*: fungi fruiting bodies sporulating

5. DISEASE INDEX (BY PHOTO NUMBER)

Disease	Photo number
Algae	340, 341, 447–449
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<i>Apiognomonia veneta</i>	202, 203
<i>Apiognomonia errabunda</i>	228, 229
<i>Armillaria mellea</i>	78
<i>Bipolaris</i> sp.	332–334, 342, 343, 348–350, 381–383, 412–414, 467–469
<i>Botryotinia fuckeliana</i>	105, 108, 148, 192, 193
<i>Botrytis cinerea</i>	23, 79, 80, 87, 95, 96, 128, 246
<i>Briosia azaleae</i>	234, 235
<i>Cercospora</i> sp.	54, 74, 117, 136, 141, 159, 166, 178, 179, 195, 220
<i>Ciborinia camelliae</i>	63
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<i>Colletotrichum</i> sp.	359–361, 450, 451
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Hail injury	304, 305
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6. HOST INDEX (BY PHOTO NUMBER)

Host	Photo number	Host	Photo number
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Acer	9–19	<i>Dracaena</i>	367–380
Aesculus hippocastaneum	20–22	<i>Dypsis</i>	381–397
<i>Alberta magna</i>	23	<i>Escalonia</i>	102
<i>Alnus glutinosa</i>	24–26	<i>Euonymus japonicum</i>	103, 104
<i>Aralia nervosa</i>	27, 28	<i>Gardenia</i>	105–108
Araucaria	29–32	<i>Ginkgo</i>	109, 110
Aucuba japonica	33–34	<i>Grevillea</i>	111–114
<i>Brahea</i>	332–335	<i>Kunzea erocoides</i>	131
<i>Buddleia</i>	55, 56	<i>Lagerstroemia</i>	132, 133
<i>Butia</i>	336–339	<i>Laurus nobilis</i>	134
<i>Callistemon</i>	57–60	<i>Lavandula</i>	135
<i>Camellia</i>	61–73	<i>Leucothoe</i>	136, 137
<i>Caryota</i>	340–347	<i>Leylandi</i>	138–140
<i>Citrus</i>	84	<i>Magnolia soulangiana</i>	155–158
<i>Coprosma</i>	85	<i>Magnolia grandiflora</i>	159–161
<i>Cornus</i>	86–89	<i>Mahonia aquifolium</i>	162
<i>Correa</i>	90	<i>Malus</i>	163–165
<i>Cotinus</i>	91	<i>Metrosideros</i>	166–173
<i>Dianthus</i>	96–99	<i>Padhophylum</i>	409–411

7. PLANT PATHOGEN CHECK-LIST (BY HOST)

Host	Pathogen
<i>Acacia sp.</i>	<i>Phytophthora sp.</i>
<i>Acer sp.</i>	<i>Dydimasporina aceris</i> <i>Marssonina acerina</i>
<i>Aesculus hippocastaneum</i>	<i>Guignardia bidwelli</i>
<i>Alberta magna</i>	<i>Botrytis cinerea</i>
<i>Alnus glutinosa</i>	<i>Phyllosticta maculiformis</i>
<i>Aralia nervosa</i>	<i>Phytophthora sp.</i>
<i>Araucaria sp.</i>	<i>Phytophthora nicotianae</i> <i>Sphaeropsis sp.</i>
<i>Aucuba japonica</i>	<i>Phytophthora sp.</i>
<i>Azalea (Rhododendron)</i>	<i>Phytophthora ramorum</i> <i>Septoria sp.</i>
Bamboos	<i>Alternaria sp.</i> <i>Phoma sp.</i> <i>Drechslera rostrata</i> <i>Pythium perillum</i> <i>Rhizoctonia solani</i> <i>Fusarium moniliforme</i>
<i>Beaucarnea</i>	<i>Alternaria sp.</i>
<i>Berberis</i>	<i>Septoria sp.</i>
<i>Betula</i>	<i>Marssonina sp.</i>
<i>Rhapis</i>	<i>Colletotrichum sp.</i> <i>Pestalotia sp.</i> <i>Rhizoctonia solani</i>