



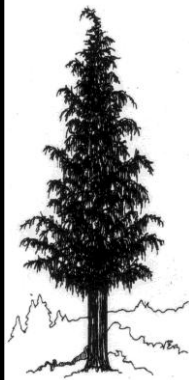
FIFTH IUFR0 WORKING PARTY 7.02.09 MEETING ON

PHYTOPHTHORA

Diseases in Forests and Natural Ecosystems

7-12 MARCH 2010 • ROTORUA, NEW ZEALAND

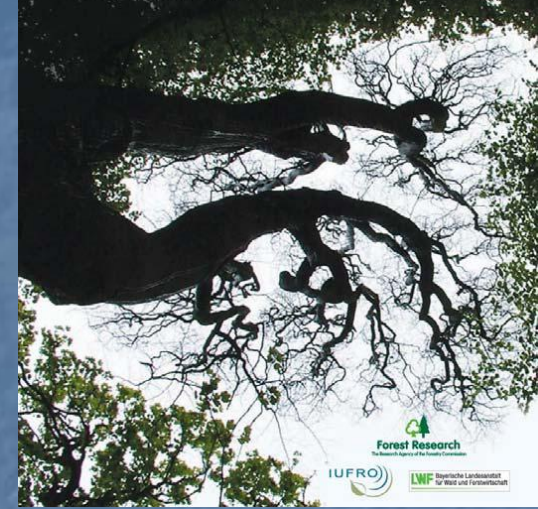




IUFRO ALBANY 2001

Progress in Research on *Phytophthora* Diseases of Forest Trees

Edited by Clive Brasier, Thomas Jung and Wolfgang Olwald



Grants Pass, Oregon USA
August 30 - September 3,
1999



IUFRO - MONTEREY 2007







Centre for *Phytophthora* Science and Management

Pacific Northwest Region
Oregon / Washington

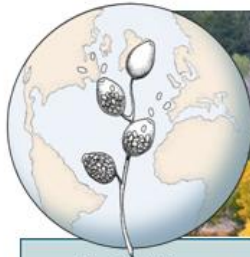
Pacific Southwest
Research Station



CALIFORNIA
OAK MORTALITY TASK FORCE



**Action FP0801: Established and Emerging *Phytophthora*
Increasing Threats to Woodland and Forest Ecosystems in Europe**



Forest Phytophthoras of the World

Photo: Tom Adams

Phytophthora Species

P. alni

P. austrocedrae

P. cactorum

P. cambivora

P. cinnamomi

P. citricola

P. cryptogea

P. europaea

P. gonapodyides

P. ilicis

P. kernoviae

P. lateralis

P. megasperma

P. multivora

P. nemerosa

P. pinifolia

P. plurivora

P. pseudosyringae

P. pseudotsugae

P. ramorum

P. sansomeana

P. siskyouensis

P. syringae

"*Pg chlamydo*"

[Home](#)

[Disease Finder](#)

[Key to species](#)

[Phytophthora basics](#)

[Glossary](#)

[References](#)

[Photo Gallery](#)

Welcome to Forest Phytophthoras of the World

Plant pathogens in the genus *Phytophthora* threaten the biodiversity and sustainability of forest ecosystems worldwide. The overall aim of the website is to provide science-based information to aid in the understanding and management of the world's forest *Phytophthora* species. While newly emerging, damaging species are the highest priority, information on other *Phytophthoras* is included in an attempt to gradually elucidate *Phytophthoras*' diverse roles in terrestrial and aquatic ecosystems.

Website features:

- [Key to Species](#)
- [Disease Finder](#)
- [Interactive map](#)
- [Reference section with abstracts and pdfs](#)
- [Glossary](#)
- [Photo Gallery](#)



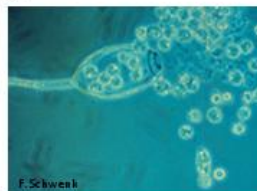
P. Rees et



J. Parke

Pages for individual species will include:

- Morphology descriptions and photos
- Genetic information and links to DNA sequence data
- Disease hosts and symptoms
- Impacts of the disease
- Maps displaying current know locations
- Management and Educational Materials
- References with pdf available files when possible



F. Schwenk

Join the discussion!

Create a topic or join an ongoing discussion here.



IUFRO Forest
Phytophthoras
work group

View meeting
proceedings
archives

Links to forest
Phytophthora
labs worldwide

View upcoming events in the
Events Calendar



PROGRAMME

- **1 - Regional Roundups**
- **2 - Invasion and Adaptation**
- **3 - New Diseases**
- **4 – Surveying for Phytophthora**
- **Evening Session 1 – Phytophthora Evolution and Speciation**
- **5 –Managing Phytophthoras in Forests**
- **6 –Natural Ecosystem Management**
- **7 –Phytophthora Control**
- **Evening Session 2: Phytophthora Pathogenesis and Control**
- **8 –Systematics and Diagnostics**
- **9 –Host / Pathogen Interactions**
- **10 –Pathogen Ecology and Novel Control Approaches**



New pathogens/diseases



Phytophthora taxon Agathis (PTA)

Kauri Dieback



Auckland
Regional Council
TE RAUHĪTANGA TAIAO

***Phytophthora ramorum*-spreading to Larch
plantations, SW England.
New behaviour defoliating larch, and
causing bleeding stem lesions
Forest Research UK**





Phytophthora pinifolia- Chile





**WE ARE NOT
ALONE:
P. lateralis in
FRANCE AND
TAIWAN**



September 2009



Aerial Infections



CADUCOUS
SPORANGIA



***Phytophthora lateralis* discovered in an old growth *Chamaecyparis* forest in Taiwan**

**C. M. Brasier, A. M. Vettraino, T. T. Chang and
A. Vannini**

Forest Research, Alice Holt Lodge, Farnham, Surrey UK

Department of Plant Protection, University of Tuscia, Italy

**Division of Plant Protection, Taiwan Forestry Research
Institute, Taipei**

Phytophthora leaf blight – a new disease of California wax-myrtle

Phytophthora

"close to syringae"

Melodie Putnam - Oregon State University



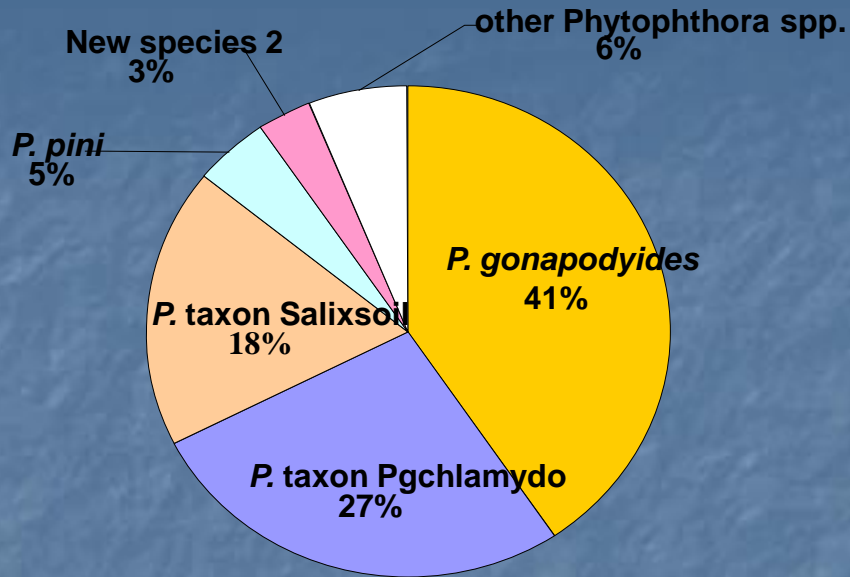
PHYTOPHTHORA ECOLOGY

- Is Phytophthora “a genus of plant pathogens?”

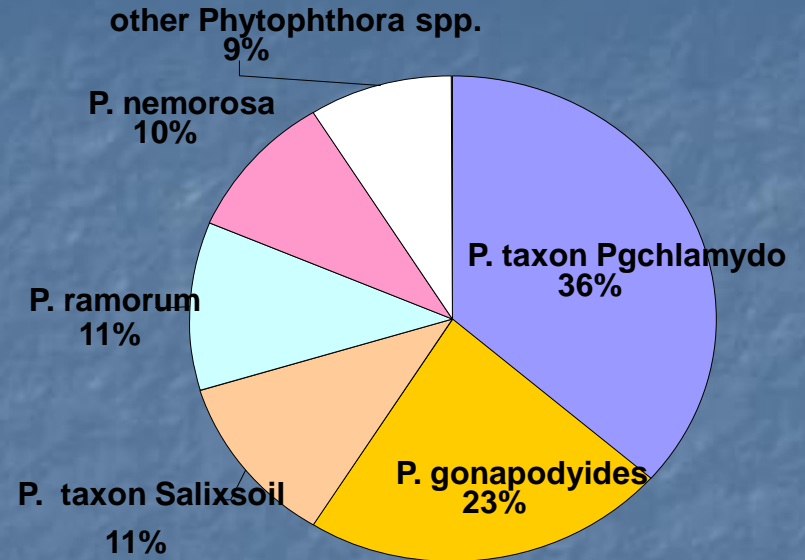
Or.....

- Are there saprophytic species as well as facultative pathogens and near biotrophs?

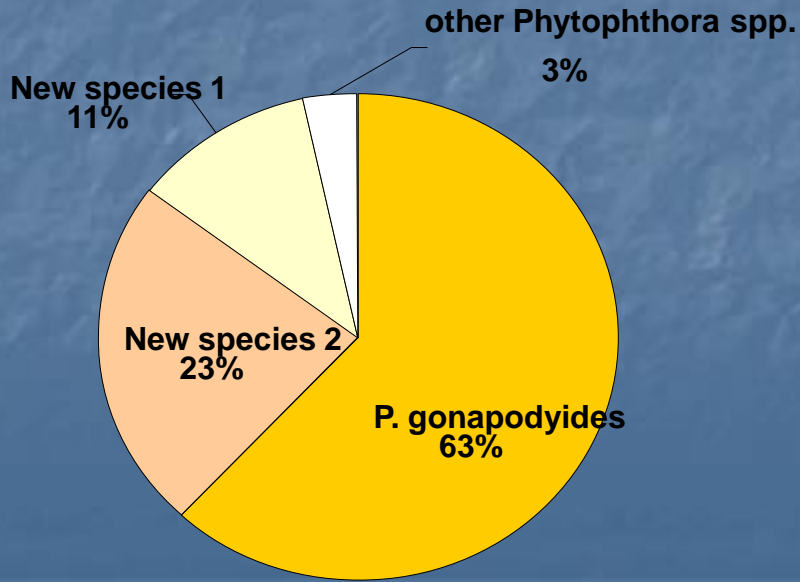
WESTERN OREGON.



SOUTHWEST OREGON



ALASKA



CLADE 6

SW OREGON 70%

W OREGON 89%

ALASKA 97%

CAN WE DISTINGUISH EXOTIC FROM INDIGENOUS *PHYTOPHTHORA* SPECIES?

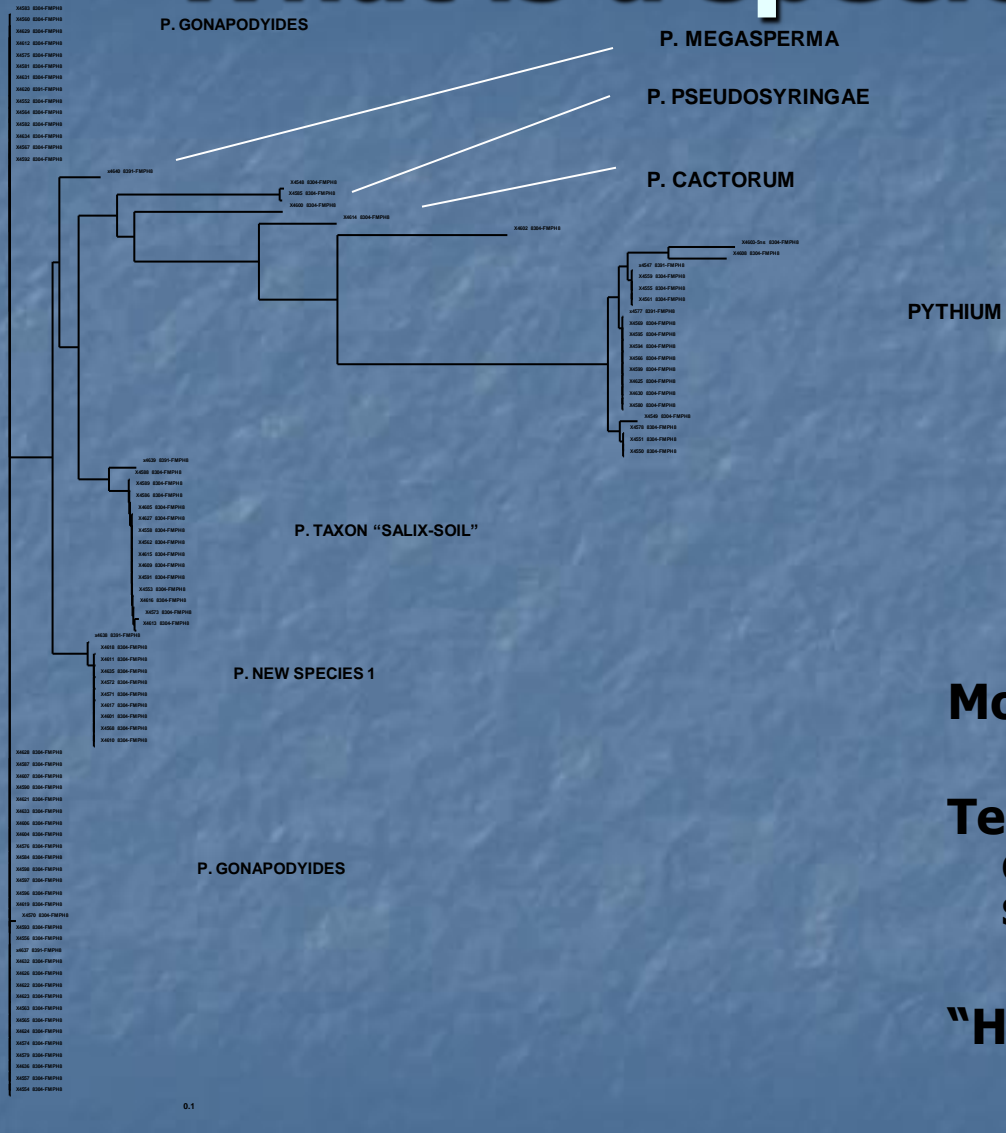
“Variable population”



“Coevolution”



What is a species?

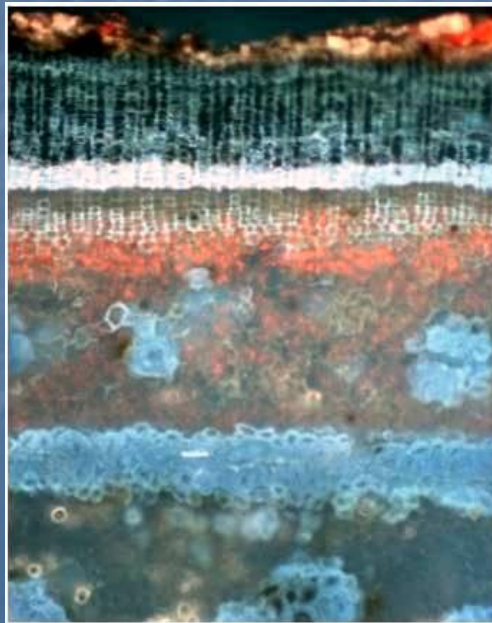


Morphology

Terminal clades
Cox spacer
Single strand ITS
or
“Hybrid Swarms”

How does Phytophthora kill trees?

- E. Davison
- T. Jung, T. Burgess
- W. Osswald



← Phellem
← Phellogen
← Phelloderm



Outer bark

← Inner bark parenchyma
← Sclereids
← Fibers
← Inner bark parenchyma



Inner bark

Disease Management

- Fungicides
 - Phosphonates: Oregon, Italy, Portugal, Australia
- Integrated
 - Australia, Italy, Port Orford cedar
- Community
 - New Zealand,
 - Australia

