

## **Biogeography and hosts of poroid wood decay fungi in North Carolina: species of *Ceriporia*, *Ceriporiopsis* and *Perenniporia***

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**Abstract** – Distribution and host plants in North Carolina are given for 6 species of *Ceriporia*, 2 of *Ceriporiopsis* and 10 of *Perenniporia*. A county distribution map is provided for each of the taxa with seven reported for the first time in North Carolina. Numerous new fungus-host plant associations are reported. Species checklists and figures can be accessed at:  
[http://www.cals.ncsu.edu/plantpath/Personnel/Faculty/Grand/mycotaxon\\_2.pdf](http://www.cals.ncsu.edu/plantpath/Personnel/Faculty/Grand/mycotaxon_2.pdf)

**Keywords** – fungus distribution, polypores.

### **Introduction**

The importance of biodiversity and biogeography of fungi was addressed by Grand & Vernia (2004). Previous studies of poroid wood decay fungi in North Carolina provided information on the occurrence and host plants (Vernia & Grand 2000, Grand & Vernia 2002, 2003, Jung 1987). Grand and Vernia (2004) recently reported on the occurrence and host plants of species of *Phellinus* and *Schizopora*. This report is the second in a continuation of a long-term study of poroid wood decay fungi in North Carolina and deals with species of *Ceriporia*, *Ceriporiopsis* and *Perenniporia*.

### **Materials and methods**

Details of study sites, collection and identification procedures were presented in Grand & Vernia (2004).

Species of fungi on plant hosts were intensively collected from 1997-2003 by the authors. Data from other studies (Grand et al. 1975, Jung 1987), collections in the Mycological Herbarium (NCU), North Carolina State University, records of the Plant Disease and Insect Clinic, Plant Pathology Department, NCSU were used in developing the distribution maps. Likewise, data from the BPI website (Farr et al. n.d.) provided some county data.

Collections were made of all uncommon species of *Ceriporia*, *Ceriporiopsis* and *Perenniporia*, unusual forms of these species and species on new or unusual hosts. Specimens were identified using existing taxonomic treatments (Breitenbach & Kraenzlin 1986, Gilbertson & Ryvardeen 1986, 1987, Jung 1987, Lowe 1966, Lowe & Gilbertson 1961, Overholts 1953). Nomenclature and authorities are from Gilbertson & Ryvardeen (1986, 1987) and Kirk & Ansell (1992) for fungi and Kartesz & Kartesz (1980) for host plants.

The majority of collection sites were in state parks, game lands and natural areas, Nantahala, Pisgah, Croatan and Uwharrie National Forests, the Blue Ridge Parkway and the Great Smoky Mountains National Park. A county distribution map is provided for each species (Figs. 1-18).

## Results and discussion

*Ceriporia reticulata* (Pers.:Fr.) Domanski, *C. viridans* (Berk. & Broome) Donk, *Ceriporiopsis gilvescens* (Bres.) Domanski, *Perenniporia ellipsospora* Ryvardeen & Gilb., *P. phloiophila* Gilb. & M. Blackwell, *P. robiniophila* (Murrill) Ryvardeen and *P. tephrophora* (Mont.) Ryvardeen are reported for the first time in North Carolina.

Only *Ceriporia alachuana* (Murrill) Hallenb. (Fig. 1), *Perenniporia medulla-panis* (Jacq.:Fr.) Donk (Fig. 12), *P. subacida* (Peck) Donk (Fig. 16) and *P. tenuis* (Fig. 17) were collected frequently enough to establish a distributional pattern in North Carolina.

The ranges of *C. reticulata* and *C. viridans* are extended considerably south and east, respectively, of those previously reported for these species (Gilbertson & Ryvardeen 1986). The range of *Ceriporiopsis gilvescens* is extended considerably south of previous reports (Gilbertson & Ryvardeen 1986). *Perenniporia tephrophora* was previously reported only from Louisiana.

Fifty-five new hosts are reported for the 18 species of *Ceriporia*, *Ceriporiopsis*, and *Perenniporia*. See list of species for specific fungus-host combinations.

## List of species

Species of fungi reported for the first time in North Carolina are indicated by an asterisk and new fungus-host associations for the United States are indicated by a double asterisk. Counties are in parenthesis following host species.

*Ceriporia alachuana* (Murrill) Hallenb. (Fig. 1)

Substrate: \*\**Acer rubrum* L. (Granville, Swain), \*\**Ilex decidua* Walt. (Granville), \*\**Liriodendron tulipifera* L. (Graham), *Oxydendrum arboreum* (L.) DC. (Transylvania), \*\**Pinus echinata* Mill. (Halifax), \*\**P. taeda* L. (Beaufort, Moore, Wake), \*\**P. virginiana* Mill. (Rowan).

*Ceriporia reticulata*\* (Pers.:Fr.) Domanski (Fig. 2)

Substrate: \*\**Cornus florida* L. (Wake), \*\**Ilex opaca* Ait. (Carteret), \*\**Ilex vomitoria* Ait. (New Hanover), \*\**Liriodendron tulipifera* (Wake), \*\**Pinus taeda* (Johnston).

***Ceriporia spissa*** (Schwein.:Fr.) Rajchenb. (Fig. 3)

\*\**Cornus florida* (Gaston), \*\**Quercus laevis* Walter (Columbus), \*\**Q. rubra* L. (Buncombe), unknown hardwood (Haywood) (Jung 1987).

***Ceriporia tarda*** (Berk.) Ginns (Fig. 4)

*Cornus florida* (Gaston), \*\**Quercus nigra* L. (Wake), \*\**Q. prinus* L. (Orange)

***Ceriporia viridans***\* (Berk. & Broome) Donk. (Fig. 5)

\*\**Acer rubrum* (Wake)

***Ceriporia xylostromatoides*** (Berk.) Ryvar den & I. Johans. (Fig. 6)

\*\**Fagus grandifolia* Ehrh. (Swain), *Juniperus virginiana* L. (Robeson),

\*\**Liriodendron tulipifera* (Graham), *Pinus taeda* (Beaufort), \*\**Rhododendron maximum* L. (Macon).

***Ceriporiopsis gilvescens***\* (Bres.) Domanski (Fig. 7)

*Fagus grandifolia* (Wake), \*\**Picea rubens* Sarg. (Swain), \*\**Pinus echinata* (Pasquotank), \*\**P. taeda* (Carteret).

***Ceriporiopsis subvermispora*** (Pilat) Gilb. & Ryvar den (Fig. 8)

*Quercus* sp. (Granville), \*\**Pinus echinata* (Wake), \*\**P. taeda* (Franklin, Halifax),

*Rhododendron* sp. (Yancey) (Jung 1987), \*\**Tsuga canadensis* (L.) Carr. (Macon).

***Perenniporia compacta*** (Overh.) Gilb. & Ryvar den (Fig. 9)

*Liquidambar styraciflua* L. (Wake), *Quercus coccinea* Muench. (Transylvania), *Q. prinus* (Wilkes), *Quercus* sp. (Buncombe).

***Perenniporia ellipsospora***\* Ryvar den & Gilb. (Fig. 10)

\*\**Fagus grandifolia* (Graham), \*\**Pinus taeda* (Franklin, Wake), \*\**P. virginiana* (Stokes), \*\**Rhododendron catawbiense* (Macon).

***Perenniporia fraxinophila*** (Peck) Ryvar den (Fig. 11)

*Fraxinus americanus* L. (Yadkin), \*\**Quercus phellos* L. (Granville).

***Perenniporia medulla-panis*** (Jacq.:Fr.) Donk (Fig. 12)

\*\**Acer rubrum* (Burke, Macon), *Cornus florida* (Durham), \*\**Liriodendron tulipifera* (Graham), \*\**Oxydendrum arboreum* (Wake), \*\**Pinus taeda* (Johnston, Wake), \*\**P. virginiana* (Orange), \*\**Prunus serotina* Ehrh. (Wake), *Quercus alba* (Wake), \*\**Q. incana* W. Bartram (Richmond), \*\**Q. prinus* (Surry, Transylvania), \*\**Rhododendron maximum* (Macon), *Robinia pseudoacacia* L. (Wilkes).

***Perenniporia ohiensis*** (Berk.) Ryvar den (Fig. 13)

*Castanea dentata* (Marsh.) Borkh. (Grand 1985), *Robinia pseudoacacia* (Avery, Surry), unidentified hardwood (Avery, Haywood).

***Perenniporia phloiophila***\* Gilb. & M. Blackwell (Fig. 14)  
*Quercus virginiana* Mill. (New Hanover).

***Perenniporia ronbiniophila***\* (Murrill) Ryvar den (Fig. 15)  
*Robinia pseudoacacia* (Buncombe, Haywood).

***Perenniporia subacida*** (Peck) Donk. (Fig. 16)  
*Abies fraseri* (Prush) Poir. (Grand, 1985), *Cornus florida* (Chatham), \*\**Elaeagnus pungens* Thunb. (Surry), *Juniperus virginiana* (Wake), \*\**Liriodendron tulipifera* (Swain), \*\**Pinus echinata* (Wake), \*\**P. rigida* Mill. (Graham), *P. taeda* (Anson, Durham), *P. virginiana* (Transylvania), *P. sp.* (Orange), \*\**Quercus alba* L. (Durham, Wayne), \*\**Q. rubra* (Randolph), *Q. sp.* (Wake), undetermined substrate (Yancey) (Jung 1987).

***Perenniporia tenuis*** (Schwein.) Ryvar den (Fig. 17)  
\*\**Acer saccharum* Marsh. (Graham), *Fagus grandifolia* (Graham), \*\**Liquidambar styraciflua* (Anson), \*\**Liriodendron tulipifera* (Stokes), \*\**Pinus taeda* (Wake, Wayne), \*\**Quercus alba* (Wake), \*\**Q. marilandica* Muench. (Moore), \*\**Q. prinus* (Orange), \*\**Q. rubra* (Wake), *Tsuga canadensis* (Graham).

***Perenniporia tephrophora***\* (Mont.) Ryvar den (Fig. 18)  
\*\**Platanus occidentalis* L. (Wake).

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**Fig. 1. Distribution of *Ceriporia alachuana* in North Carolina**



**Fig. 2. Distribution of *C. reticulata* in North Carolina**



**Fig. 3. Distribution of *C. spissa* in North Carolina**



**Fig. 4. Distribution of *C. tarda* in North Carolina**



**Fig. 5. Distribution of *C. viridans* in North Carolina**



**Fig. 6. Distribution of *C. xylostromatoides* in North Carolina**



**Fig. 7. Distribution of *Ceriporiopsis gilvescens* in North Carolina**



**Fig. 8. Distribution of *C. subvernispota* in North Carolina**



**Fig. 9. Distribution of *Perenniporia compacta* in North Carolina**



**Fig. 10. Distribution of *P. ellipospora* in North Carolina**



**Fig. 11. Distribution of *P. fraxinophila* in North Carolina**



**Fig. 12. Distribution of *P. medullapanis* in North Carolina**



**Fig. 13. Distribution of *P. ohiensis* in North Carolina**



**Fig. 14. Distribution of *P. phloiophila* in North Carolina**



**Fig. 15. Distribution of *P. robiniophila* in North Carolina**



**Fig. 16. Distribution of *P. subacida* in North Carolina**



**Fig. 17. Distribution of *P. tenuis* in North Carolina**



**Fig. 18. Distribution of *P. tephrophora* in North Carolina**