

## Biogeography and hosts of poroid wood decay fungi in North Carolina: species of *Coltricia*, *Coltriciella* and *Inonotus*

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**Abstract** – Distribution and host plants are given for 4 species of *Coltricia*, 1 species of *Coltriciella* and 8 species of *Inonotus*. Species checklists and figures can be accessed at: [http://www.cals.ncsu.edu/plantpath/Personnel/Faculty/Grand/mycotaxon\\_3.pdf](http://www.cals.ncsu.edu/plantpath/Personnel/Faculty/Grand/mycotaxon_3.pdf)

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### Introduction

Grand & Vernia (2004a,b) previously addressed the importance of biodiversity and biogeography of fungi. Studies of poroid wood decay fungi in North Carolina have provided information on the occurrence and host plants (Grand and Vernia 2002, 2003; Jung 1987; Vernia & Grand 2000). In continuing studies of poroid wood decay fungi in North Carolina, Grand and Vernia reported on the occurrence and host plant species of *Phellinus* and *Schizopora* (2004a) and *Ceriporia*, *Ceriporiopsis* and *Perenniporia* (2004b). This report is the third in a study of this group of fungi in North Carolina and evaluates species of *Coltricia*, *Coltriciella* and *Inonotus*.

### Materials and methods

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

Briefly, 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 (NCSC), 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 *Coltricia*, *Coltriciella* and *Inonotus*, unusual forms of these species and species on new or unusual hosts. Specimens were identified using existing taxonomic treatments (Gilbertson & Ryvardeen 1986, 1987; 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. 1-13).

### Results and discussion

Four species of *Coltricia*, one species of *Coltriciella* and eight species of *Inonotus* were found in North Carolina.

*Coltricia cinnamomea*, *C. foccicola*, *C. montagnei* and *C. perennis* appear to occur primarily in the mountains of North Carolina with very few collections made in the Piedmont of any species. No species of *Coltricia* were found in the Coastal Plain (Figs. 1-4).

*Coltriciella dependens* appears to be distributed in the Piedmont and Coastal Plain of North Carolina but may be more widely distributed (Fig. 5). Gilbertson and Ryvardeen (1986) indicated it is a rare species in the eastern United States but easily overlooked because of its small size, color and habitat. We confirm this statement having found specimens in all five sites under or in well-decayed pine logs. Abundant ectomycorrhizae of pine were associated with the decayed logs and basidiocarps in all collections.

*Inonotus radiatus* and *I. tomentosus* were found only in the mountains of North Carolina (Figs. 12, 13) while *I. dryadeus* and *I. dryophilus* were found in the Piedmont and Coastal Plain (Figs. 7, 8). *Inonotus hispidus* (Fig. 9) appears to occur in the mountains, Piedmont and Coastal Plain provinces. *Inonotus andersonii*, *I. ludovicianus*, and *I. obliquus* (Figs. 6, 10, 11) were not collected sufficiently to establish a distribution pattern. It does appear, however, that *I. ludovicianus* (Fig. 10) may reach its northern limits in North Carolina (Gilbertson & Ryvardeen, 1986).

### 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 parentheses following host species.

#### *Coltricia cinnamomea* (Pers.) Murrill (fig. 1)

*Acer* sp. (Graham); on the ground or well-rotted wood (Buncombe, Chatham, Henderson, Macon, McDowell, Swain, Transylvania, Yancey); *Pinus taeda* L. (Wake); *P. virginiana* Mill. (Gaston); *Tsuga canadensis* (L.) Carr. (Graham).

#### *Coltricia foccicola* (Berk. & M.A. Curtis) Murrill (fig. 2)

On the ground or well-rotted wood (Durham, Haywood, Macon).

***Coltricia montagnei* (Fr.) Murrill (fig. 3)**

On the ground or well-rotted wood (Buncombe, Clay, Graham, Henderson, Macon, McDowell, Mitchell, Transylvania, Wake); *Pinus strobus* L. (Swain).

***Coltricia perennis* (Fr.) Murrill (fig. 4)**

On the ground or well-rotted wood (Buncombe, McDowell, Wake, Watauga); *Pinus taeda* (Wake).

***Coltriciella dependens* (Berk. & M.A. Curtis) Murrill (fig. 5)**

*Pinus palustris* Mill. \*\* (Richmond); *P. taeda* (Anson, Dare, Wake); *P. virginiana* \*\* (Orange).

***Inonotus andersonii* (Ell. & Everh.) Cerny (fig. 6)**

*Acer rubrum* L. \*\* (Granville, Wake); *Platanus occidentalis* L. \*\* (Wake); *Quercus alba* L. (Wake).

***Inonotus dryadeus* (Pers.:Fr.) Murrill (fig. 7)**

*Quercus alba* (Wake); *Q. falcata* Michx. (Montgomery, Wake), *Q. nigra* L. (Wake); *Q. phellos* L. (Alamance, Montgomery, Orange, Union); *Q. prinus* L. (Wake); *Q. rubra* L. \*\* (Wake); *Q. stellata* Wang. (Wake); *Q. virginiana* Mill. \*\* (New Hanover); *Q. sp.* (Craven, Nash); unidentified substrate (Henderson).

***Inonotus dryophilus* (Berk.) Murrill (fig. 8)**

*Acer barbatum* Michx. \*\* (Wake); *Quercus alba* (Wake); *Q. falcata* (Wake); *Q. phellos* \*\* (Granville); *Q. prinus* \*\* (Wake); *Q. sp.* (Durham, Robeson); *Q. virginiana* \*\* (Dare, Henderson, New Hanover).

***Inonotus hispidus* (Bull.:Fr.) P. Karst. (fig. 9)**

*Cornus florida* L. \*\* (Northhampton); *Quercus coccinea* Muench. \*\* (Transylvania); *Q. falcata* (Dare, Jackson, Wake); *Q. laurifolia* Michx. (Columbus); *Q. nigra* (Craven, Pender, Robeson, Wayne, Wilson); *Q. phellos* (Johnston); *Q. rubra* (Madison, Wake); *Q. stellata* \*\* (Wake); *Q. sp.* (Moore); unidentified substrate (Durham, McDowell).

***Inonotus ludovicianus* (Pat.) Murrill (fig. 10)**

*Carya sp.* (Franklin); *Liquidambar styraciflua* L. [Wake (Vernia & Grand, 2000)]; *Quercus coccinea* \*\* (Wake); *Q. phellos* \*\* (Pender).

***Inonotus obliquus* (Pers.:Fr.) Pilat \* (fig. 11)**

*Betula nigra* L. \*\* (Halifax)

***Inonotus radiatus* (Sowerby: Fr.) P. Karst. (fig. 12)**

*Betula alleghaniensis* Brit. (Jackson, Watauga, Yancey); unidentified substrate [Buncombe, Swain (Jung, 1987)].

***Inonotus tomentosus* (Fr.:Fr.) Teng (fig. 13)**

On the ground or well-rotted wood (Buncombe, Macon, McDowell, Mitchell, Swain); *Picea rubens* Sarg. \*\* (Haywood); *Pinus strobus* [Caldwell, Macon (Grand et al., 1975)].

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**Fig. 1. Distribution of *Coltricia cinnamomea* in North Carolina**

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



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

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



**Fig. 5. Distribution of *Coltriciella dependens* in North Carolina**

**Fig. 6. Distribution of *Inonotus andersonii* in North Carolina**



**Fig. 7. Distribution of *I. dryadeus* in North Carolina**

**Fig. 8. Distribution of *I. dryophilus* in North Carolina**



**Fig. 9. Distribution of *I. hispidus* in North Carolina**

**Fig. 10. Distribution of *I. ludovicianus* in North Carolina**



**Fig. 11. Distribution of *I. obliquus* in North Carolina**



**Fig. 12. Distribution of *I. radiatus* in North Carolina**



**Fig. 13. Distribution of *I. tomentosus* in North Carolina**