



## Andorran Pyrenees Fungi

In the high slopes of the Andorran Pyrenees, climate change has already begun to alter the landscape and biodiversity. Some species are moving to higher latitudes, and some have begun to decline. Human land uses also causes shifts in the natural order of things, but little research has been done on how people have impacted this particular place.

Wildlife in the Changing Andorran Pyrenees is an Earthwatch Institute project led by Dr. Bernat Claramunt López that seeks to answer some of these questions and share the outcomes to address these pressing issues. This deck covers the threats, adaptability, and population trends of 17 fungi species from this area.

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Deck created by Zoe Foster  
Title Image Credit: Martin Mitchell CC BY-NC-SA 2.0

### Project Description

#### Common Name

#### Scientific Name

#### Taxon Group

##### Food Web Roles

DECO	Decomposer: Energy from dead material
AUTO	Autotroph: Energy from sun, water, CO <sub>2</sub>
HERB	Herbivore: Energy from plants
OMNI	Omnivore: Energy from plants, animals
CARN	Carnivore: Energy from animals
APEX	Apex Predator: Top predator
DETR	Detritivore: Energy from dead vegetation
SANG	Sanguinivore: Energy from blood
MULT	Multiple: Energy from multiple sources

Habitat (where species is found)  
+ (indicates species is also found in other habitats)

##### Species Conservation Status

###### IUCN Redlist™

International Union for  
Conservation of Nature

	Not Evaluated
	Least Concern
	Data Deficient
	Near Threatened
	Endangered

NE Not Evaluated

VU Vulnerable  
 CR Critically Endangered

EW Extinct in Wild  
 EX Extinct

## Red Cracking Bolete *Boletus chrysenteron*

Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO  
Foodweb Role

Cap Size	2 - 7 cm	NE
Growth Habit	Central stem	
Spore Surface	Tubes	
Cap Color	Red/brown	
Spore Print	Brown to dark olive	IUCN Redlist™

#### Threats + Adaptability

Major threats: Habitat destruction  
Adaptability: Specialized spore air transport for dispersal  
Population trend: Globally unknown

Image: Jörg Hempel CC-BY-SA

## Crab Brittlegill *Russula xerampelina*

Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO  
Foodweb Role

Cap Size	4 - 30 cm	NE
Growth Habit	Central stem	
Spore Surface	Gills	
Cap Color	Brown to violet	
Spore Print	Cream to orange	IUCN Redlist™

#### Threats + Adaptability

Major threats: Farming, commercial trade  
Adaptability: Specific habitat requirements  
Population trend: Globally unknown

Image: Biopix CC-BY-NC

## Matt Knight *Tricholoma imbricatum*

Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO  
Foodweb Role

Cap Size	6 - 16 cm	NE
Growth Habit	Central stem	
Spore Surface	Gills	
Cap Color	Dark brown	
Spore Print	White	IUCN Redlist™

#### Threats + Adaptability

Major threats: Habitat destruction, climate change  
Adaptability: Able to survive in various soil conditions  
Population trend: Globally unknown

Image: Biopix CC-BY-NC



## Pine Bolete

*Boletus pinophilus*

eol  
Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO

Foodweb  
Role

Cap Size	8 - 22 cm
Growth Habit	Central stem
Spore Surface	Tubes
Cap Color	Red/brown
Spore Print	Olive to brown



### Threats + Adaptability

Major threats: Climate change, habitat loss  
Adaptability: Survive in wide range of soils and climates  
Population trend: Globally unknown, fragmentation

Image: František ŠARŽÍK

## Woolly Milkcap

*Lactarius torminosus*

eol  
Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO

Foodweb  
Role

Cap Size	5 - 15 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	Pinkish buff
Spore Print	Pale yellow/cream



Major threats: Climate and temperature change  
Adaptability: Able to survive in acidic soil  
Population trend: Globally unknown

Image: 2001 California Academy of Sciences CC-BY-NC-SA

## Funeral Bell

*Galerina marginata*

eol  
Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO

Foodweb  
Role

Cap Size	2 - 5 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	Orange to brown
Spore Print	Rust brown



### Threats + Adaptability

Major threats: None  
Adaptability: Easily grows on new mycorrhizal hosts  
Population trend: Globally unknown

Image: Eric Smith CC-BY-NC-SA

## Peppery Bolete

*Chalciporus piperatus*

eol  
Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO

Foodweb  
Role

Cap Size	2 - 7 cm
Growth Habit	Central stem
Spore Surface	Tubes
Cap Color	Dull red/brown
Spore Print	Red/brown



### Threats + Adaptability

Major threats: Habitat destruction, commercial trade  
Adaptability: Thrive on native and introduced tree species  
Population trend: Globally unknown

Image: H. Krisp CC-BY

## King Bolete

*Boletus edulis*

eol  
Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO

Foodweb  
Role

Cap Size	7 - 30 cm
Growth Habit	Central stem
Spore Surface	Tubes
Cap Color	Reddish brown
Spore Print	White



### Threats + Adaptability

Major threats: Pollution, agricultural development  
Adaptability: Survive in saline and alkaline environments  
Population trend: Globally unknown

Image: Biopix CC-BY-NC

## Pearly Powdercap

*Cystoderma carcharias*

eol  
Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO

Foodweb  
Role

Cap Size	2 - 4 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	Pale yellow to brown
Spore Print	White



### Threats + Adaptability

Major threats: Woodland depletion, agricultural changes  
Adaptability: Able to survive in various habitats  
Population trend: Globally unknown

Image: Irene Andersson CC-BY-SA



## Bloody Brittlegill

*Russula sanguinaria*

eol  
Agaricomycetes



WWF Ecoregion  
Temperate coniferous forest



DECO

Cap Size	2 - 10 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	Dark to bright red
Spore Print	Cream to orange



NE  
IUCN  
Redlist™

### Threats + Adaptability

Major threats: Deforestation, urbanization  
Adaptability: Survive in various soil types  
Population trend: Globally unknown

Image: Malcolm Storey CC-BY-NC-SA

## Olive Brittlegill

*Russula olivacea*

eol  
Agaricomycetes



WWF Ecoregion  
Temperate coniferous forest



DECO

Cap Size	8 - 16 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	Dull olive/brown
Spore Print	Pale yellow



NE  
IUCN  
Redlist™

### Threats + Adaptability

Major threats: Habitat destruction, climate change  
Adaptability: Enter dormant period in low temperatures  
Population trend: Unknown

Image: Ryane Snow CC-BY-SA

## Aniseed Cap

*Clitocybe odora*

eol  
Agaricomycetes



WWF Ecoregion  
Temperate coniferous forest



DECO

Cap Size	2 - 11 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	White to blue/green
Spore Print	White



NE  
IUCN  
Redlist™

### Threats + Adaptability

Major threats: Toxic metallic elements from other fungus  
Adaptability: Widespread with few habitat requirements  
Population trend: Globally unknown

Image: Biopix CC-BY-NC

## Downy Milkcap

*Lactarius pubescens*

eol  
Agaricomycetes



WWF Ecoregion  
Temperate coniferous forest



DECO

Cap Size	3 - 10 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	White to pale orange
Spore Print	White to cream



NE  
IUCN  
Redlist™

### Threats + Adaptability

Major threats: Woodland depletion, agricultural changes  
Adaptability: Vigorously colonize many species of trees  
Population trend: Globally unknown

Image: greenschist CC-BY-NC

## Carrot Milkcap

*Lactarius quieticolor*

eol  
Agaricomycetes



WWF Ecoregion  
Temperate coniferous forest



DECO

Cap Size	3 - 11 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	Spotted grey to pink
Spore Print	Pale pink to buff



NE  
IUCN  
Redlist™

### Threats + Adaptability

Major threats: Farming, commercial trade  
Adaptability: Survive in wide range of climates  
Population trend: Globally unknown

Image: Eco-mus CC-BY

## Fly Agaric

*Amanita muscaria*

eol  
Agaricomycetes



WWF Ecoregion  
Temperate coniferous forest



DECO

Cap Size	5 - 26 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	Red, white warts
Spore Print	White



NE  
IUCN  
Redlist™

### Threats + Adaptability

Major threats: Commercial trade  
Adaptability: Thrive in acidic soils  
Population trend: Globally unknown

Image: Noah Siegel CC-BY-NC-SA



## The Entire Russula

*Russula integra*

eol

Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO  


Cap Size	7 - 13 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	Variable browns
Spore Print	Deep yellow

IUCN  
Redlist™

NE

### Threats + Adaptability

Major threats: Increased soil carbon

Adaptability: Survive in nutrient limited conditions

Population trend: Globally unknown

Image: H. Krisp CC-BY

## Sooty Milkcap

*Lactarius picinus*

eol

Agaricomycetes



WWF Ecoregion  
+ Temperate coniferous forest

DECO  


Cap Size	4 - 12 cm
Growth Habit	Central stem
Spore Surface	Gills
Cap Color	Pinkish brown
Spore Print	Pinkish buff

IUCN  
Redlist™

### Threats + Adaptability

Major threats: Climate and habitat change

Adaptability: Specific habitat requirements

Population trend: Globally unknown

Image: H. Krisp CC-BY

eol species cards

**Adaptability:** The ability of an organism to adjust to new environmental conditions

**Agaricomycetes:** The class of fungi that produce mushrooms

**Fragmentation:** Habitat loss due to division of large, continuous habitats into smaller, more isolated land

**Growth Habit:** Describes the growth structure of mushrooms

**Habitat:** The area an organism lives and can find its resources

**Mycorrhizal (hosts):** Symbiotic relationship between a fungus and the roots of a host plant

**Spore Print:** powdery deposit produced by the spores of a fungi

**Spore Surface:** The spore-bearing structures on the underside of a mushroom cap, can be gills or tubes

## Vocabulary

