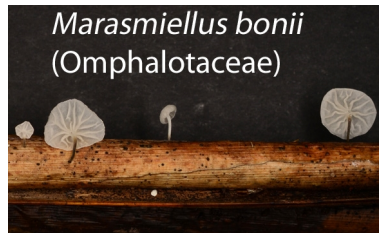


New Zealand flax – *Phormium tenax* (dead plant leaves and stems)

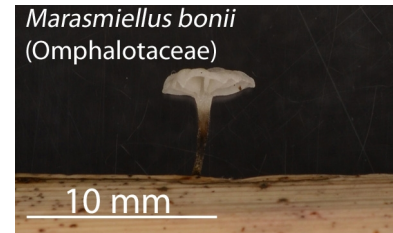
Dead leaf



Small, white, delicate cap with long, thin, dark stalk, gills. On dead leaves in winter. Dead *Phormium* leaves break easily.
Fungus (Ascomycota) **52 F**



Small, white, delicate cap with long, thin, dark stalk, gills. On dead leaves in winter. Dead *Phormium* leaves break easily.
Fungus (Ascomycota) **52 F**



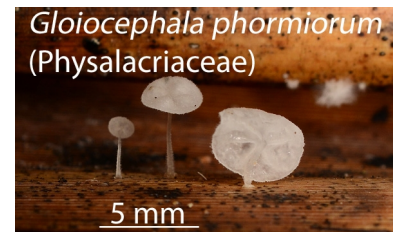
Small, white, delicate cap with long, thin, dark stalk, gills. On dead leaves in winter. Dead *Phormium* leaves break easily.
Fungus (Ascomycota) **52 F**



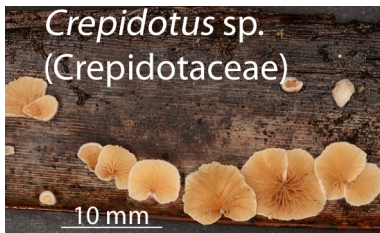
Small, white, delicate cap with long, thin, white hairy stalk, gills. On dead leaves in winter. Dead *Phormium* leaves difficult to cut.
Fungus (Basidiomycota) **37 F**



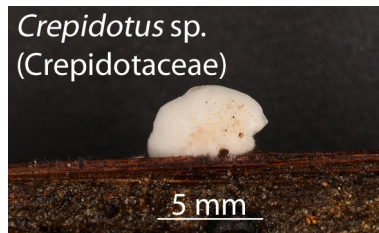
Small, white, delicate cap with long, thin, white hairy stalk, gills. On dead leaves in winter. Dead *Phormium* leaves difficult to cut.
Fungus (Basidiomycota) **37 F**



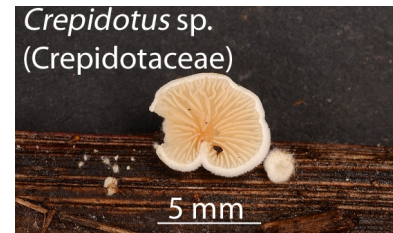
Small, white, delicate cap with long, thin, white hairy stalk, gills. On dead leaves in winter. Dead *Phormium* leaves difficult to cut.
Fungus (Basidiomycota) **37 F**



White or tan coloured, with gills but no stalk, lives on dead stems and leaves often with little space underneath. Present in winter.
Fungus (Basidiomycota) **59 F**



White or tan coloured, with gills but no stalk, lives on dead stems and leaves often with little space underneath. Present in winter.
Fungus (Basidiomycota) **59 F**



White or tan coloured, with gills but no stalk, lives on dead stems and leaves often with little space underneath. Present in winter.
Fungus (Basidiomycota) **59 F**



White cap with white gills, on short stout stalk, usually in groups. Present in winter.
Fungus (Basidiomycota) **53 F**

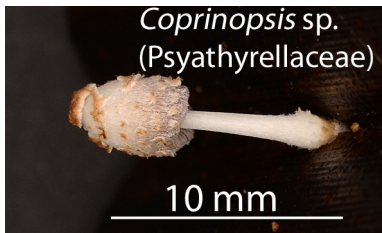


White cap with white gills, on short stout stalk, usually in groups. Present in winter.
Fungus (Basidiomycota) **53 F**



White cap with white gills, on short stout stalk, usually in groups. Present in winter.
Fungus (Basidiomycota) **53 F**

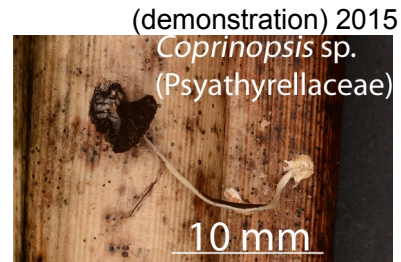
More on next page



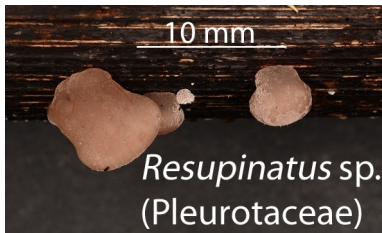
Large white cap, mealy on top, tall thick stalk, black gills. Usually only open for one night. Present in winter.
Fungus (Basidiomycota) **79 F**



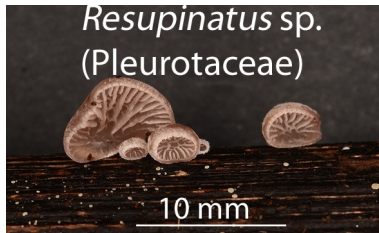
Large white cap, mealy on top, tall thick stalk, black gills. Usually only open for one night. Present in winter.
Fungus (Basidiomycota) **79 F**



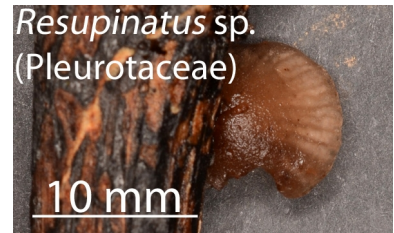
Large white cap, mealy on top, tall thick stalk, black gills. Usually only open for one night. Present in winter.
Fungus (Basidiomycota) **79 F**



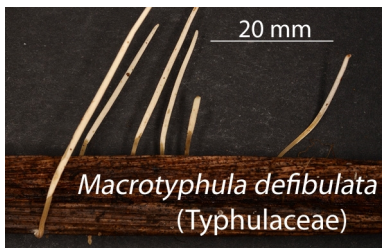
Grey stalkless fungus, hemisphere with gills, lives on dead stems and leaves. Present in winter.
Fungus (Basidiomycota) **60 F**



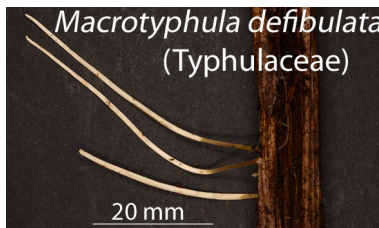
Grey stalkless fungus, hemisphere with gills, lives on dead stems and leaves. Present in winter.
Fungus (Basidiomycota) **60 F**



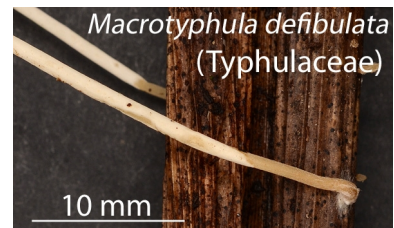
Grey stalkless fungus, hemisphere with gills, lives on dead stems and leaves. Present in winter.
Fungus (Basidiomycota) **60 F**



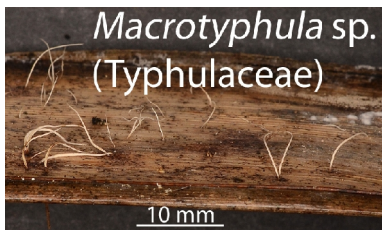
Long, thin, fruiting bodies coming from wet, dead leaves. More than 20 mm long. Present in winter.
Fungus (Basidiomycota) **54 F**



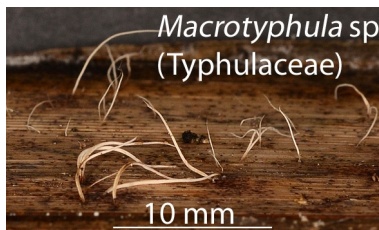
Long, thin, fruiting bodies coming from wet, dead leaves. More than 20 mm long. Present in winter.
Fungus (Basidiomycota) **54 F**



Long, thin, fruiting bodies coming from wet, dead leaves. More than 20 mm long. Present in winter.
Fungus (Basidiomycota) **54 F**



Long, thin, fruiting bodies coming from wet, dead leaves. Less than 20 mm long. Present in winter.
Fungus (Basidiomycota) **124 F**



Long, thin, fruiting bodies coming from wet, dead leaves. Less than 20 mm long. Present in winter.
Fungus (Basidiomycota) **124 F**



Hard orange bobbles with varied rounded shapes and powdery interior; immature bobbles white. Present in winter.
Slime mould. **88 F**



Hard orange bobbles with varied rounded shapes and powdery interior; immature bobbles white. Present in winter.
Slime mould. **88 F**



Hard orange bobbles with varied rounded shapes and powdery interior; immature bobbles white. Present in winter.
Slime mould. **88 F**

More on next page

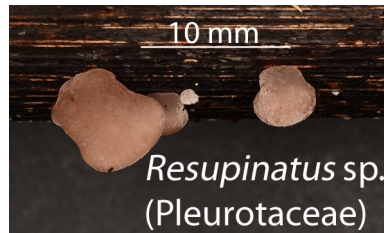
Dead flower/seed stalk



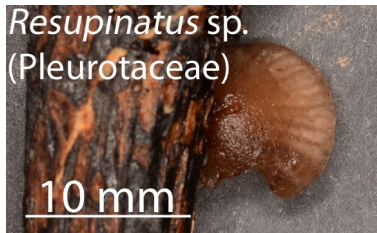
Brown cap with brown gills, on short stout stalk,. Usually in groups. Present in winter. Fungus (Basidiomycota) **125 F**



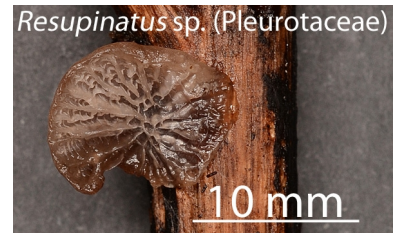
Brown cap with brown gills, on short stout stalk,. Usually in groups. Present in winter. Fungus (Basidiomycota) **125 F**



Grey stalkless fungus, hemisphere with gills, lives on dead stems and leaves. Present in winter. Fungus (Basidiomycota) **60 F**



Grey stalkless fungus, hemisphere with gills, lives on dead stems and leaves. Present in winter. Fungus (Basidiomycota) **60 F**



Grey stalkless fungus, hemisphere with gills, lives on dead stems and leaves. Present in winter. Fungus (Basidiomycota) **60 F**



Pale, raised, elliptical shapes and pale irregular grooves. Present in autumn and winter. Fungus not identified. **103 F**



Pale, raised, elliptical shapes and pale irregular grooves. Present in autumn and winter. Fungus not identified. **103 F**



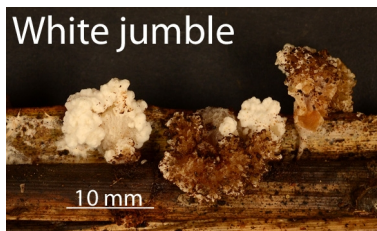
Pale, raised, elliptical shapes and pale irregular grooves. Present in autumn and winter. Fungus not identified. **103 F**

Other plant damage symptoms, fungi and invertebrates that may be seen

Dead leaf



White messy looking mounds with short stout stalks underneath. Present in winter. Fungus not identified. **76 F**



White messy looking mounds with short stout stalks underneath. Present in winter. Fungus not identified. **76 F**



Tiny, solid, tan caps, short stalks. Present in winter. Fungus (Ascomycota) **65 F**



Tiny, solid, tan caps, short stalks. Present in winter. Fungus (Ascomycota) **65 F**

More on next page

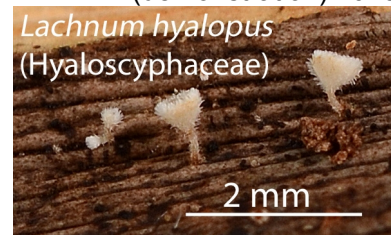
(demonstration) 2015



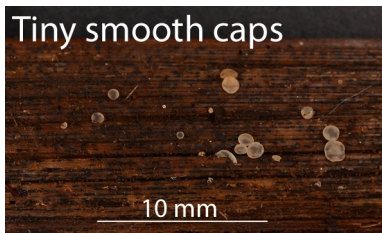
Tiny white/off-white caps on short hairy stalk, starting ball-like with white hairy underside exposed. Present in winter. Fungus (Ascomycota) **75 F**



Tiny white/off-white caps on short hairy stalk, starting ball-like with white hairy underside exposed. Present in winter. Fungus (Ascomycota) **75 F**



Tiny white/off-white caps on short hairy stalk, starting ball-like with white hairy underside exposed. Present in winter. Fungus (Ascomycota) **75 F**



Tiny, solid, off-white, smooth caps, short stalks. Present in winter. Fungus not identified. **38 F**



Tiny, solid, off-white, smooth caps, short stalks. Present in winter. Fungus not identified. **38 F**



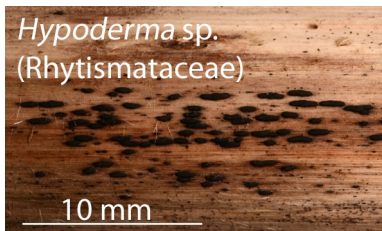
Tiny, solid, off-white, smooth caps, short stalks. Present in winter. Fungus not identified. **38 F**



Fuzzy oval spots on live and dead leaves. Present all year. Cause unknown. **10 F**



Fuzzy oval spots on live and dead leaves. Present all year. Cause unknown. **10 F**



Black elliptical fruiting bodies with longitudinal dark split, Present in winter. Fungus (Ascomycota) **100 F**



Black elliptical fruiting bodies with longitudinal dark split, Present in winter. Fungus (Ascomycota) **100 F**



Black elliptical fruiting bodies with longitudinal dark split, Present in winter. Fungus (Ascomycota) **100 F**



Elliptical fruiting bodies with long pale slit, some may have crossways slits. Present in winter. Fungus (Ascomycota) **108 F**

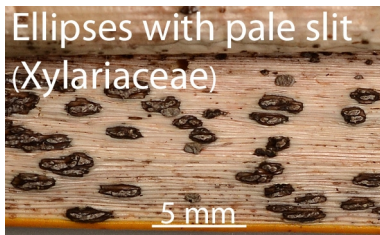


Elliptical fruiting bodies with long pale slit, some may have crossways slits. Present in winter. Fungus (Ascomycota) **108 F**

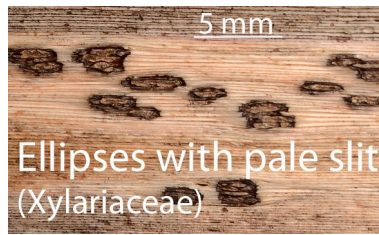


Elliptical fruiting bodies with long pale slit, some may have crossways slits. Present in winter. Fungus (Ascomycota) **108 F**

More on next page



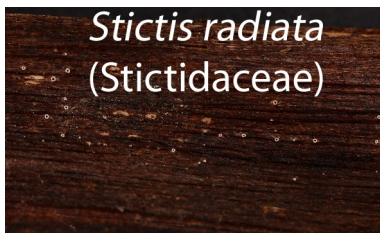
Ellipses with pale slit
(Xylariaceae)
5 mm
Elliptical fruiting bodies with long pale slit, some may have crossways slits. Present in winter.
Fungus (Ascomycota) 108 F



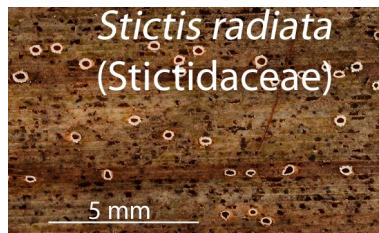
5 mm
Ellipses with pale slit
(Xylariaceae)
Elliptical fruiting bodies with long pale slit, some may have crossways slits. Present in winter.
Fungus (Ascomycota) 108 F



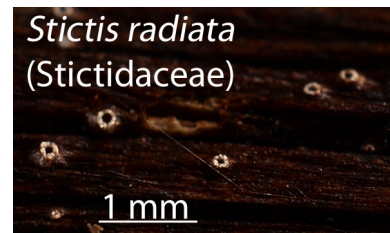
Ellipses with pale slit
(Xylariaceae)
5 mm
Elliptical fruiting bodies with long pale slit, some may have crossways slits. Present in winter.
Fungus (Ascomycota) 108 F



Stictis radiata
(Stictidaceae)
Tiny white-lipped surrounding a smooth cavity. Present in winter.
Fungus (Ascomycota) 74 F



Stictis radiata
(Stictidaceae)
5 mm
Tiny white-lipped surrounding a smooth cavity. Present in winter.
Fungus (Ascomycota) 74 F



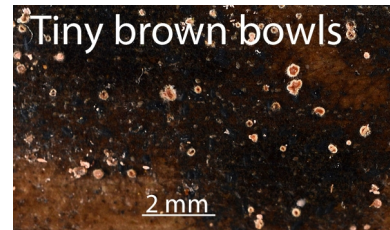
Stictis radiata
(Stictidaceae)
1 mm
Tiny white-lipped surrounding a smooth cavity. Present in winter.
Fungus (Ascomycota) 74 F



Tiny brown bowls
10 mm
Tiny brown bowls with white 'hairy' edges. On dead leaves. Present in winter.
Fungus not identified 57 F



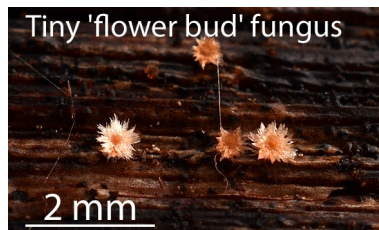
Tiny brown bowls
2 mm
Tiny brown bowls with white 'hairy' edges. On dead leaves. Present in winter.
Fungus not identified 57 F



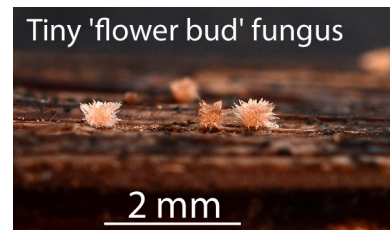
Tiny brown bowls
2 mm
Tiny brown bowls with white 'hairy' edges. On dead leaves. Present in winter.
Fungus not identified 57 F



Tiny 'flower bud' fungus
10 mm
Tiny, white and bud-like with hairy scales on the outside. Present in winter.
Fungus not identified 113 F



Tiny 'flower bud' fungus
2 mm
Tiny, white and bud-like with hairy scales on the outside. Present in winter.
Fungus not identified 113 F



Tiny 'flower bud' fungus
2 mm
Tiny, white and bud-like with hairy scales on the outside. Present in winter.
Fungus not identified 113 F



Tiny balls on stalks
2 mm
Tiny white balls on thin stalk; black inside. Present in winter.
Slime mould not identified. 77 F

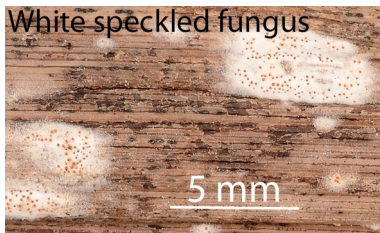


Tiny balls on stalks
2 mm
Tiny white balls on thin stalk; black inside. Present in winter.
Slime mould not identified. 77 F



Tiny balls on stalks
2 mm
Tiny white balls on thin stalk; black inside. Present in winter.
Slime mould not identified. 77 F

More on next page



White speckled fungus
White fluffy mycelium coating plant surface, with tiny brown fruiting bodies. Present in winter. Fungus not identified. **63 F**



White speckled fungus
White fluffy mycelium coating plant surface, with tiny brown fruiting bodies. Present in winter. Fungus not identified. **63 F**



Split skin grey bowl
Skin splits opening to expose smooth grey tissue surrounded by white hairy 'lips'. Present in winter. Fungus not identified. **102 F**



Split skin grey bowl
Skin splits opening to expose smooth grey tissue surrounded by white hairy 'lips'. Present in winter. Fungus not identified. **102 F**



Split skin grey bowl
Skin splits opening to expose smooth grey tissue surrounded by white hairy 'lips'. Present in winter. Fungus not identified. **102 F**



Newsteadia sp. (Ortheziidae)
Ensign scale insect, white wax plates covering body, long legs and antennae. Present in winter and spring. Scale (Ortheziidae) **4890 H**



Newsteadia sp. (Ortheziidae)
Ensign scale insect, white wax plates covering body, long legs and antennae. Present in winter and spring. Scale (Ortheziidae) **4890 H**



Newsteadia sp. (Ortheziidae)
Ensign scale insect, white wax plates covering body, long legs and antennae. Present in winter and spring. Scale (Ortheziidae) **4890 H**

Dead flower/seed stalk



Hypoderma sp. (Rhytismataceae)
Black elliptical fruiting bodies with longitudinal dark split, Present in winter. Fungus (Ascomycota) **100 F**



Hypoderma sp. (Rhytismataceae)
Black elliptical fruiting bodies with longitudinal dark split, Present in winter. Fungus (Ascomycota) **100 F**



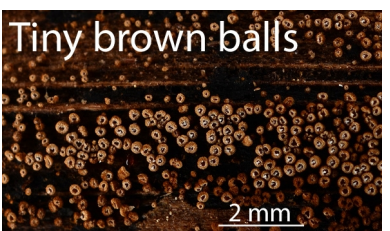
Hypoderma sp. (Rhytismataceae)
Black elliptical fruiting bodies with longitudinal dark split, Present in winter. Fungus (Ascomycota) **100 F**



Tiny brown balls
Mass of tiny brown balls, each with opening at top. Present in winter. Fungus, not identified. **83 F**



Tiny brown balls
Mass of tiny brown balls, each with opening at top. Present in winter. Fungus, not identified. **83 F**



Tiny brown balls
Mass of tiny brown balls, each with opening at top. Present in winter. Fungus, not identified. **83 F**

* = adventive species (organisms from other countries)

Other host associations are in the Plant-SyNZ database (August 2015)

All plant-herbivore host associations are recorded in the database plant-synz.landcareresearch.co.nz/SearchForm.aspx.

Plant-predator or parasitoid association are not yet available on the internet.

New associations

The host associations illustrated and listed here are those known when this identification guide was compiled. New host associations are likely to be discovered. If invertebrates and/or plant damage are found that may be a new association, send specimens of the insects and plants to Dr Nicholas Martin, Landcare Research,

By post to: Private Bag 92170, Auckland 1142, or

Courier to: Landcare Research, 231 Morrin Road, St Johns, Auckland 1072

If possible contact (0-9-574 4105, email: martinn@landcareresearch.co.nz) before sending.

Level of expertise

This version is suitable for students. A 10x hand lens is useful but not essential to confirm the presence of some invertebrates and fungi. Versions of this identification guide that are suitable for experts (botanists and entomologists) and non-experts are available. The identification guide and the accompanying recording sheets can be obtained from Dr Martin (see above) or the Plant-SyNZ web site, <http://plant-synz.landcareresearch.co.nz/index.asp>.

Identification of *Phormium tenax* J.R.Forst. & G.Forst. (Hemerocallidaceae)

This information is provided on the assumption that the plant species in the habitat are known and that the species of interest can be distinguished from closely related species in the habitat being surveyed. The most reliable way to distinguish the two *Phormium* species is the form of the seed pods.



Phormium tenax seed pods point upwards



Phormium cookianum seed pods hang down

Information about herbivores associated with *Phormium tenax*

Separate internet factsheets have been produced about some of the invertebrate herbivores associated with each plant species. These will have pictures of the different life stages, more pictures of the damage to plants, and information about their life cycle and distribution in New Zealand. Information about natural enemies (parasites, pathogens and predators) will be included if known.

The factsheet series, Interesting Insects and other Invertebrates, is available at nzacfactsheets.landcareresearch.co.nz/Index.html.

Acknowledgements

Please send feedback to:

Dr Nicholas Martin, Landcare Research,
By post to: Private Bag 92170, Auckland 1142, or
Email: martinn@landcareresearch.co.nz