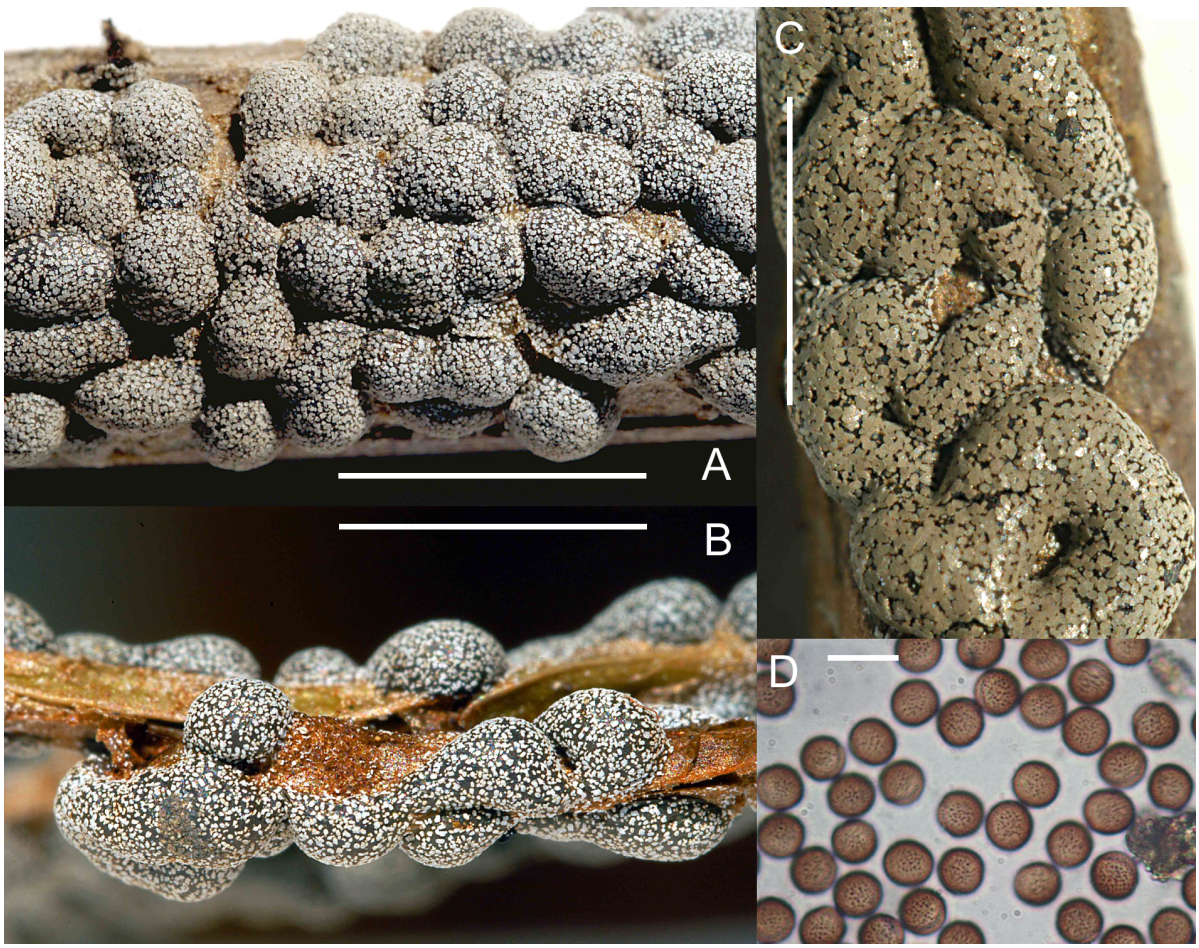
**IMI Descriptions of Fungi and Bacteria**
**No. 1837**

# LEPIDODERMA CHAILLETII




**A**. Sporocarps (bar = 5 mm). **B**. Sporocarps, side view (bar = 5 mm). **C**. Sporocarps (bar = 5 mm). **D**. Spores (bar = 20 µm) [Photographs: A. Michaud].

**Lepidoderma chailletii** Rostaf., *Śluzowce (Mycetozoa) Monografia* Paris: 189 (1874, publ. 1875). [*Index Fungorum* 182570]

*Lepidoderma carestianum* var. *chailletii* (Rostaf.) G. Lister, *Monograph of the Mycetozoa* Edn 2: 140 (1911). [*Index Fungorum* 243220]

*Lepidoderma didermoides* Kowalski, *Mycologia* **63**(3): 503 (1971). [*Index Fungorum* 316484]

*Lepidoderma aggregatum* Kowalski, *Mycologia* **63**(3): 511 (1971). [*Index Fungorum* 316483]

*Diagnostic features*. The clearly defined lime scales on the sporocarp surface are characteristic of the genus *Lepidoderma*. This species, which is facultatively nivicolous, produces sessile sporocarps often so closely clustered as to have the appearance of plasmodiocarps, the clusters sometimes forming convoluted or almost serpentine structures on the substratum surface.

*Sporocarps* as individual sporangia, clustered, sessile, on a broad base and hemispherical or occasionally subglobose, often ± flat, 1·5–3 mm diam., smooth, dark brown, dull to slightly iridescent, bearing numerous

tan to buff lime scales which are occasionally tinted yellow or red, 30–50 µm diam., circular to slightly angular, densely aggregated, often united laterally to form a crust that is remote from the peridium. *Hypothallus* well developed, thin, transparent or rarely opaque, continuous, often impregnated with concolorous lime scales. *Peridium* single, membranous, thin, opaque, very variable. *Columella* usually occupying *c*. 33% diam. of the sporocarp, pulvinate, hemispherical or rarely subglobose, filled with large lime scales, cream or concolorous with the peridial lime scales. *Capillitium* abundant, firmly attached to the columella and peridium, composed of long, straight, smooth, fine, violet-brown threads, the threads rarely branching, colourless only at the extremities, laterally connected by small transverse bars, rarely bearing enlarged nodules, not tapered at the tips. *Spores* in mass purple-brown, individually violet-brown, uniformly coloured, globose, sparsely spinulose, 11–15 µm diam.

**ASSOCIATED ORGANISMS & SUBSTRATA**: **Plantae**. *Empetrum nigrum* L.; *Gramineae* indet. (stem); *Ilex* sp. (leaf); *Larix* sp.; *Nardus stricta* L.; *Pinopsida* indet. (wood); *Pinus* sp. (litter); *Plantae* indet. (twig); *Populus tremula* L. (wood); *Rubus* sp.; *Vaccinium myrtillus* L.

**INTERACTIONS & HABITATS**: The ecological rôle played by myxomycetes (see Notes below) remains poorly understood. In general, these organisms are thought to be mainly saprobic, feeding only during their vegetative (also called 'plasmodial') state, and not feeding when in their fruiting state. They may be encountered on living plant material (e.g. leaves and twigs) in both vegetative and fruiting states, but in such cases the plant material is only a substratum, not a source of nutrition. When myxomycetes are found in their vegetative state specifically on dead plant material, that material may be both a substratum and a source of nutrition. It is also possible that, in their vegetative state, myxomycetes feed on dead animal remains, living and dead bacteria, fungal hyphae and spores, and other organic material. Nothing is known about interactions between the present species and other organisms, but its associated organisms, ecological preferences and geographical distribution suggest that, in interactions, it is similar to this general picture. *Lepidoderma chailletii* is one of the so-called 'nivicolous' or snowline myxomycetes, found on both living and dead plant material next to melting snow patches in mountainous habitats, typically where there is high insolation in spring. In the 'nivicolous' habitat, snow cover prevents abrupt soil temperature changes between night and day, provides free water and a ground-level microclimate beneath or near the melting snow favourable for development of vegetative and fruiting stages. RONIKIER & RONIKIER (2009), reviewing this ecological group, found they were typically montane, i.e. upland forest zone, in distribution rather than subalpine or alpine. This species has been repeatedly observed in abundance in spring and represents an important component of myxomycetes in glades and shrub communities of less high elevations. There are records varying in altitudinal range from 765 to 3000 m above mean sea level.

**GEOGRAPHICAL DISTRIBUTION**: NORTH AMERICA: USA (California, Colorado, Utah, Washington). ASIA: China, Japan. AUSTRALASIA: Australia (New South Wales). EUROPE: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Poland, Slovenia, Spain, Sweden, Switzerland, UK, Ukraine.

**ECONOMIC IMPACTS**: Lack of information makes it impossible to place a monetary value on the ecological rôle of this species. There are no reports of it causing economic damage to crops or other organisms of value to humans, or of its use by humans. Each year, a few field meetings are organized in Europe devoted to the study of nivicolous myxomycetes, which therefore collectively generate low levels of nature tourism.

**INFRASPECIFIC VARIATION**: None reported. In many publications, however, information about this species can be found under the name *Lepidoderma carestianum* var. *chailletii* (Rostaf.) G. Lister.

**DISPERSAL & TRANSMISSION**: By spores. Insects may play a significant rôle in dispersal, as myxomycete spores are regularly found in their faeces. Other forms of spore dispersal probably include wind and melt water.

**CONSERVATION STATUS**: **Information base**. Over 500 records from August 1875 to 2009. The species has been recorded in March, April, May, June, July, August, September, October, November. This species is the most common member of the genus *Lepidoderma* in nivicolous conditions (KUHNT, 2008). **Threats**. This species is threatened by climate change. The strong association between 'nivicolous' myxomycetes and melting snow patches suggests that their distribution is likely to be strongly and negatively affected by global warming as winter snow cover diminishes in mountain regions. This is likely to result in these species gradually moving to higher altitudes and then becoming isolated at the tops of high mountains with no opportunity to move to higher latitudes. **Evaluation**. Using IUCN criteria (IUCN SPECIES SURVIVAL COMMISSION. *2006 IUCN Red List of Threatened Species*, *www.iucnredlist.org*. Downloaded on 15 May 2006), the species is assessed globally as near threatened. **In situ**. There are no known conservation plans or activities specifically prepared for this species. **Ex situ**. No preserved living strains of this species are listed by the *World Federation of Culture Collections* (*http://wdcm.nig.ac.jp/wfcc/datacenter.html*).

**NOTES**: The list of synonyms follows the taxonomy in *http://eumycetozoa.com*. *Lepidoderma chailletii* is a myxomycete, i.e. a member of the protozoan phylum *Mycetozoa*. Although not strictly fungi, myxomycetes (also known as 'slime moulds') have been studied traditionally by mycologists.

**LITERATURE & OTHER SOURCE MATERIAL**: BJØRNEKÆR, K. & KLINGE, A.B. Die Dänischen Schleimpilze. Myxomycetes Daniae. *Friesia* **7**(2): 149–296 (1964). GAO, W., LI, Y. & CHEN, S. Taxonomy of *Didymiaceae* from northeast of China. *Journal of Jilin Agricultural University* **22**(3): 10 (2000). HAGELSTEIN, R. Notes on the *Mycetozoa*. *Mycologia* **35**(3): 363–380 (1943). ING, B. *The Myxomycetes of Britain and Ireland* An Identification Handbook (Slough, UK: Richmond Publishing): 374 pp. (1999). KOWALSKI, D.T. The genus *Lepidoderma*. *Mycologia* **63**(3): 490–516 (1971). KUHNT, A. Nivicole Myxomyceten aus Deutschland (unter besonderer Berücksichtigung der bayerischen Alpen). Teil III [Nivicolous myxomycetes from Germany (with special attention to the Bavarian Alps). Part III]. *Zeitschrift für Mykologie* **74**(1): 147–180 (2008). MARTIN, G.W. & ALEXOPOULOS, C.J. *The Myxomycetes* (Iowa City, IO: Iowa University Press): 560 pp. (1969). MAY, T.W., MILNE, J., SHINGLES, S. & JONES, R.H. *Catalogue and Bibliography of Australian Fungi* 2. *Basidiomycota* p.p. & *Myxomycota* p.p. *Fungi of Australia* (Melbourne, Australia: CSIRO Publishing) **2**B: 452 pp. (2003). MORENO, G., SÁNCHEZ, A., CASTILLO, A., SINGER, H. & ILLANA, C. Nivicolous myxomycetes from the Sierra Nevada National Park (Spain). *Mycotaxon* **87**: 223–242 (2003). MORENO, G., SINGER, H. & ILLANA, C. *Diacheopsis spinosifila*, a synonym of *Lepidoderma didermoides*. *Mycotaxon* **88**: 123–128 (2003). MUELLER, G., FOSTER, M. & BILLS, G. (eds), *Biodiversity of Fungi* Inventory and Monitoring (Amsterdam, Netherlands: Academic Press): 777 pp. (2004). POULAIN, M., MEYER, M. & BOZONNET, J. Les espèces du genre *Lepidoderma*. *In* J. Rammeloo & A. Bogaerts (eds), Abstracts, ICSEM4. *Scripta Botanica Belgica* **22**: 73 (2002). POULAIN, M., MEYER, M. & BOZONNET, J. Deux espèces nouvelles de myxomycètes: *Lepidoderma alpestroides* et *Lepidoderma perforatum*. *Bulletin Trimestriel de la Fédération Mycologique Dauphiné-Savoie* **165**: 5–18 (2002). RONIKIER, A. & RONIKIER, M. How 'alpine' are nivicolous myxomycetes? A worldwide assessment of altitudinal distribution. *Mycologia* **101**(1): 1–16 (2009). RONIKIER, A., RONIKIER, M. & DROZDOWICZ, A. Diversity of nivicolous myxomycetes in the Gorce mountains – a low-elevation massif of the Western Carpathians. *Mycotaxon* **103**: 337–352 (2008). ROSTAFIŃSKY, J.T. *Śluzowce (Mycetozoa) Monografia* (Paris, France: Nakładem Biblioteki Kórnickiej): 432 pp. (1874, publ. 1875). STEPHENSON, S.L., LAURSEN, G.A. & SEPPELT, R.D. *Myxomycetes* of subantarctic Macquarie Island. *Australian Journal of Botany* **55**(4): 439–449 (2007). STEPHENSON, S.L., MORENO, G. & SINGER, H. Notes on some nivicolous myxomycetes from Australia and New Zealand including the description of a new species of *Lamproderma*. *Österreichische Zeitschrift für Pilzkunde* **16**: 11–23 (2007). STEPHENSON, S.L. & SHADWICK, J.D.L. Nivicolous myxomycetes from alpine areas of south-eastern Australia. *Australian Journal of Botany* **57**(2): 116–122 (2009).

Sources additional to those already cited from literature and the internet include:

- **On-line databases**. *Fungal Records Database for the British Isles*, *http://194.203.77.76/fieldmycology/*, 6 records.
  *Global Biodiversity Information Facility*, *http://data.gbif.org*, 797 records.
  *USDA Fungal Database*, *http://nt.ars-grin.gov/fungaldatabases/index.cfm*, 2 records.
- **Personal communication**. M. Meyer.

See also the following internet pages:

- *http://eumycetozoa.com*;
- *http://slimemold.uark.edu*;
- *www.discoverlife.org/mp/20m?kind=Lepidoderma+chailletii*.

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