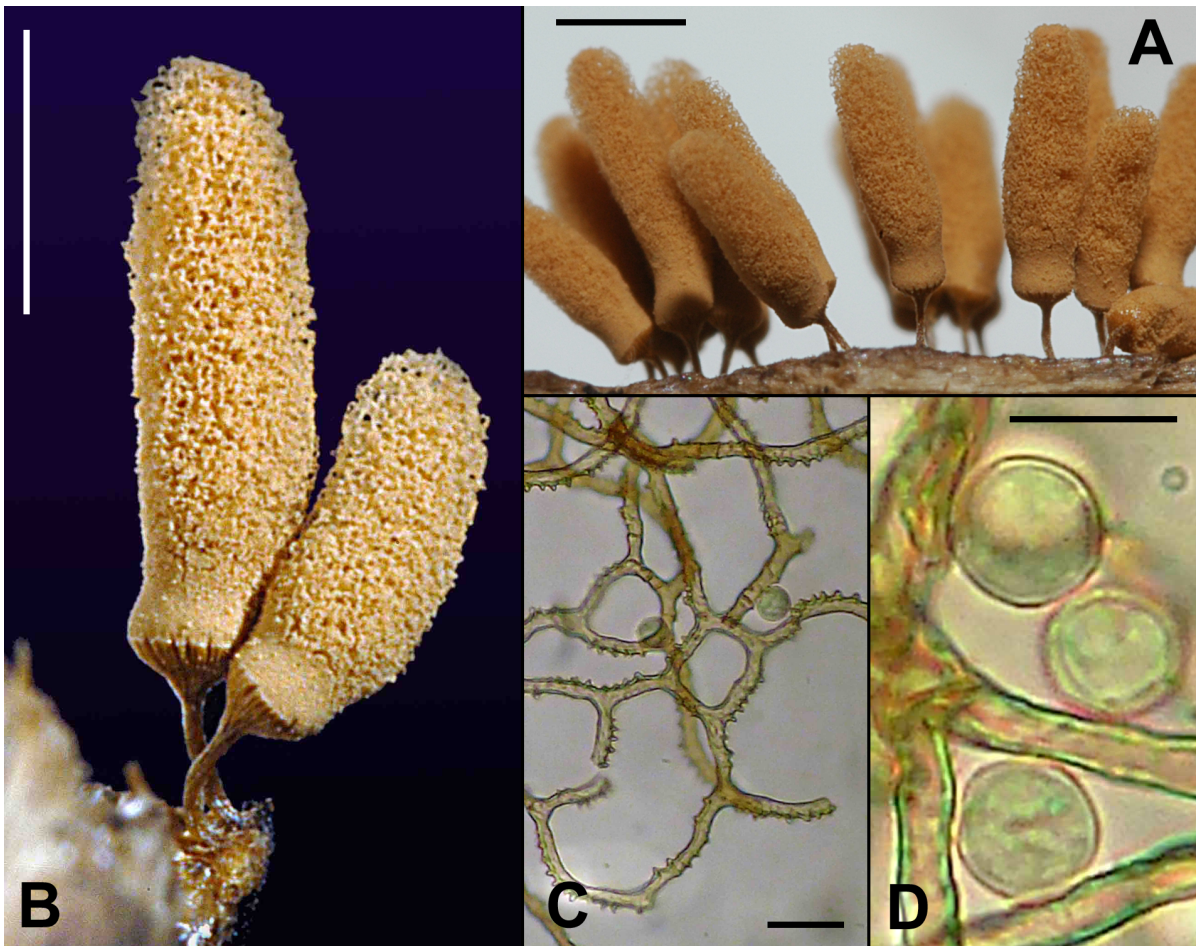

A. Sporocarps, habit (bar = 1 mm). **B**. Sporocarps, detail (bar = 1 mm). **C**. Capillitium (bar = 20 µm). **D**. Spores (bar = 10 µm). [Photographs: A. Michaud]

Arcyria minuta Buchet, in PATOUILLARD, *Mémoires de l'Académie Malgache* **6**: 42 (1927). [*IndexFungorum* 253365]

Arcyria cinerea var. *carnea* G. Lister, in A. LISTER, *A Monograph of the Mycetozoa* Edn 2: 236 (1911). [*IndexFungorum* 174708]

Arcyria carnea (G. Lister) G. Lister, *Journal of Botany, British and Foreign* **59**: 92 (1921), *nom. illegit.*, *ICBN* Art. 53·1, non *A. carnea* Wallr. (1833). [*IndexFungorum* 259876]

Arcyria gulielmae Nann.-Bremek., *Proceedings of the Koninklijke Nederlandse Akademie van Wetenschappen* **74**(4): 358 (1971). [*IndexFungorum* 308916]

Diagnostic features. Flat-topped, pink sporangia, each with a fixed capillitium, and capillitium thread marking more or less limited to cogs. Poorly developed sporocarps, or those with a non-expanded capillitium resemble *A. cinerea* (Bull.) Pers., but in *A. cinerea* sporangium colour is grey, and capillitium markings are densely spinulose. Sporangium colour in *A. minuta* is similar to that of *A. pomiphomis* (Leers) Rostaf., but *A. minuta* has larger sporocarps and cylindrical rather than subglobose sporangia.

Habit. On dead wood and bark. *Plasmodium* white. *Sporocarps* short-stalked, crowded to scattered, salmon-pink, or dark orange-yellow to yellowish brown, fading to beige or olive-brown, 1–2 mm tall, becoming 2–3·5 mm after expansion of the capillitium. *Hypothallus* thin, membranous, inconspicuous, common to a group of sporocarps. *Stalk* cylindrical, erect, longitudinally striate, pink, dark orange-yellow to yellowish brown, olive-brown or light yellow by transmitted light, 0·2–0·5 mm long, the base filled with round cells 12–30 µm diam. *Sporangia* cylindrical but flat-topped, sometimes obpyriform, 0·8–1·5 × 0·3–0·5 mm, becoming 1·8–1·2 × 0·5–1 mm after expansion of the capillitium, with a small, shallow funnel-shaped, almost flat, pleated, rose-coloured calyculus, with radial wrinkles, the inside with a few irregular papillae, smooth or densely decorated with large rounded or elongated warts especially near the rim and partly united to form a broken net with irregular meshes. *Peridium* single, membranous, dehiscence irregular and slightly circumscissile, remaining as a basal cup. *Capillitium* with a dense net, not very elastic, expanding to 1·5 times original size, pale yellow to colourless by transmitted light, firmly connected to the cup, with large meshes and few free ends, attached to the calyculus; tubes (2–)3–5(–8) µm diam., densely warted, decorated with cogs, rarely with spines, half-rings or reticulations, sometimes with bifid tips, up to 1·5 µm high, the basal threads almost smooth. *Spores* pale salmon-pink or light orange-yellow in mass, individually free, subglobose, pale greenish yellow to almost colourless by transmitted light, densely and very minutely warted (visible in oil immersion), with scattered groups of large warts, (6–)8–10(–12) µm diam.

ASSOCIATED ORGANISMS & SUBSTRATA: **Fungi**: *Eutypa* sp. (stroma). **Plantae**: *Alnus glutinosa* (L.) Gaertn. (wood); *Corylus avellana* L. (branch); *Eucalyptus camaldulensis* Dehnh. (wood); *Fagus sylvatica* L. (wood); *Pinus pinaster* Aiton (wood); *Plantae* indet.; *Platanus hybrida* Brot.; *Populus tremula* L. (bark, wood); *Quercus ilex* L. (wood), *Q. petraea* (Matt.) Liebl. (bark), *Q. robur* L. (wood), *Q. suber* L. (wood); *Sorbus torminalis* (L.) Crantz (bark); *Tamarix* sp. (bark); *Ulmus* sp. (wood).

INTERACTIONS & HABITATS: Nothing specific is known about interactions between *Arcyria minuta* and other organisms, but myxomycetes in general, in their plasmodial state, are known to feed on bacteria, yeasts and other single-celled organisms, and they themselves provide food for insects, particularly beetles, and other animals. Some beetle species are known only from myxomycetes, and for some of these there may be a close symbiosis. Myxomycetes may also be found in association with fungi, and some fungi have been found only on myxomycete sporocarps and, presumably, derive their nutrition from them either as parasites or as saprobes. *Arcyria minuta* sporocarps are generally observed on dead parts of plants, using the plant material as a substratum, but probably not as a nutrient source. The species is widely distributed, but rather uncommon. It is found on dead wood and fallen branches, mainly of angiosperms, occasionally of gymnosperms. It has also been recorded from moist chamber cultures of bark of living trees. In Europe the species is widespread but uncommon, showing a strong Mediterranean influence in Spain, where it occurs particularly near the southeast facing coast. Elsewhere the distribution of this species is uncertain because of confusion with other pink species, but records from Australia, New Zealand and the USA have been confirmed.

GEOGRAPHICAL DISTRIBUTION: AFRICA: Malawi, Morocco, Réunion, Rwanda, Sudan. ASIA: Israel, Japan, Kazakhstan, Russia (Altaiskyi krai, Sverdlovsk oblast), Turkey. CENTRAL AMERICA: Costa Rica. NORTH AMERICA: Canada (Ontario, Québec), USA (Tennessee, Texas). SOUTH AMERICA: Venezuela. AUSTRALASIA: Australia (Western Australia), New Zealand. EUROPE: Belgium, Denmark, France, Germany, Italy, Lithuania, Montenegro, Netherlands, Poland, Russia (Astrakhanskaya oblast, Kalmykia republic, Komi autonomous republic, Tverskaya oblast, Volgograd oblast), Spain, Ukraine, United Kingdom.

ECONOMIC IMPACTS: No evaluation has been made of any possible positive economic impact of this myxomycete (e.g. as a source of useful products, as a provider of checks and balances within its ecosystem, or of other ecosystem services such as recycling, etc.). No reports of negative economic impacts have been found.

INFRASPECIFIC VARIATION: None reported.

DISPERSAL & TRANSMISSION: Nothing specific is known about *Arcyria minuta*. Myxomycete spores are produced in dry dusty masses inside sporocarps. The sporocarp outer wall fragments to expose the spores which are then, most probably, primarily dispersed by wind. This dispersal is likely to be totally random unless there is a strong prevailing wind in the vicinity. Insects are known to graze on myxomycete sporocarps, and spores have frequently been found in their faeces. This is therefore also likely to be an important part of their dispersal mechanism. Insect dispersal has the potential to be less random than wind dispersal, but there seem to be no studies of how long spores may remain in an insect digestive tract or of insect movements in relation to myxomycete spore dispersal. After the spores have landed on plant material, each may germinate to produce a single-celled zoospore with one or two flagella. This zoospore may then use its flagella to disperse locally. The zoospores subsequently transform into amoeba-like cells which reproduce by mitosis and aggregate, forming groups which are sometimes sufficiently large as to be seen with the unaided eye. These groups, which are called plasmodia, can also migrate, often in response to light. For almost the whole life cycle, therefore, myxomycetes are mobile organisms, with only the sporocarp stage being fixed in a single location. Unlike members of the kingdom *Fungi*, myxomycetes do not form hyphae, and do not derive nutrition from the plant substrata on which they are found. As a result, it is not meaningful to describe them in terms of transmission. There is no infection stage, and no colony formation inside plant material. Instead, the individual amoebae derive their nutrition by engulfing bacteria, yeasts and other single-celled organisms.

CONSERVATION STATUS: **Information base**. More than 500 records (specimens, databases, bibliographic sources and field observations combined, excluding duplicates) from 1911 to 2008, with observations in April, May, June, July, August, September and November, with the main fruiting season in the northern hemisphere from June to September. The species is regarded as uncommon, but most if not all of its known associated organisms are common and likely to be classified as Least Concern by the IUCN. **Estimated extent of occurrence** [calculated using *http://geocat.kew.org*]. Nearly 18·2 million km^2 (Africa: 7·8 million km^2; Central America: insufficient data; North America: 1·6 million km^2; South America: insufficient data; Asia: 3·1 million km^2; Australasia: insufficient data; Europe: 5·7 million km^2). **Estimated area of occupancy** [calculated using *http://geocat.kew.org*]. About 116 km^2. The method for estimating area of occupancy has probably produced an artificially low figure. **Population trend**. Not reported, but sufficient records exist for some analysis to be possible. **Threats**. No specific threats have been identified. **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 Least Concern. ***In situ* conservation actions**. None noted. Some recent records, however, originate from protected areas. ***Ex situ* conservation actions**. No sequences were found in a search of the NCBI GenBank database [*www.ncbi.nlm.nih.gov*]. No living strains of this species were found in a search of the ATCC, CABI, CBS and ICMP culture collection on-line catalogues.

NOTES: This species has been observed fruiting on incubated bark from living *Tamarix* sp. In collections from the Iberian peninsula, the salmon-pink hues observed in sporocarps from other parts of the world are not present. The Iberian collections are characterized by sporocarps which are yellowish orange, or yellowish brown. The distribution map of this species on the *Eumycetozoan Project* website [*http://slimemold.uark.edu*] provides further georeferenced records.

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& BAUMANN, K. *Die Myxomyceten Deutschlands und des Angrenzenden Alpenraumes unter Besonderer Berücksichtigung Österreichs* **1**: *Ceratiomyxales*, *Echinosteliales*, *Liceales*, *Trichiales* (Gomaringen, Germany: Karlheinz Baumann Verlag): 340 pp. (1993). POULAIN, M., MEYER, M. & BOZONNET, J. *Les Myxomycètes* (Sévrier, France: Fédération Mycologique et Botanique Dauphin-Savoie) **1**. *Guide de Détermination*: 568 pp., 15 pls; **2**. *Planches*: 544 col. pls (2011). ROSING, W.C. Myxomycetes of Long Hunter State Park, Davidson County, Tennessee. *Castanea* Southern Appalachian Botanical Society, Knoxville **73**(3): 210–213 (2008).

See also the following internet pages:

- *Checklist of Fungi of the British Isles* [*www.fieldmycology.net/GBCHKLST/gbchklst.asp*].
- *Cybertruffle* [*www.cybertruffle.org.uk*].
- *GBIF* [*http://data.gbif.org/welcome.htm*].
- *Google* [*www.google.co.uk*].
- *Landcare Research New Zealand* [*http://nzfungi.landcareresearch.co.nz*].
- *Myxomycetes of Ukraine* [*www.myxomycet.com.ua/eng*].
- *National Center for Biotechnology Information* [*www.ncbi.nlm.nih.gov*].
- *Nomen.eumycetozoa.com* [*www.nomen.eumycetozoa.com*].
- *The Eumycetozoan Project* [*http://slimemold.uark.edu*].
- *USDA Fungal Databases* [*http://nt.ars-grin.gov/fungaldatabases/index.cfm*].

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