

SUMMARY

Natural hybridization between *Encelia farinosa* and *Geraea canescens* is reported and the hybrids are described in terms of their morphology, chromatographic features, and their capacity for gene exchange. From the F_1 hybrids, spontaneous tetraploids were derived, which had normal chromosome pairing and restored fertility, indicating that the parent species have fundamentally different chromosome arrangements. The ease with which polyploid derivatives were experimentally obtained from the F_1 hybrids, suggests that they are produced in nature also, but are at a selective disadvantage, and hence have not become established. The taxonomic implications of these findings are considered.

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NEW RECORDS OF MYXOMYCETES FROM
CALIFORNIA II.

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The new records of slime molds listed in my first paper (Kowalski, 1966) brought the total number of Myxomycetes recorded in print for California to 165. Since then, two new species have been described from the state (Brooks and Kowalski, 1966; Kowalski, 1966a). Ten new records are reported in this paper. This brings the total number of slime molds found in California to 177 species. This investigation was supported by the National Science Foundation (Grant GB-3865).

The species listed in my first paper were collected exclusively in Butte Co. Since that time, I have collected extensively in Northern California on a line north of Chico. Although a few of the species to be reported are from the Sacramento Valley, and a few from the North Coast, the majority are from alpine regions. The great majority of montane Myxomycetes are found only near the melting snow, but, if no rain has fallen,

they may be found a few hundred yards from any snowbanks. It appears that most species actually form their fruiting bodies under the snow and that as the snow melts back, they are then exposed. This belief is based on the fact that the discovery of plasmodia in the mountains is very rare. They may be found inside or under rotten logs, but practically never out in the open where most of the fruiting bodies are found. The fact that many collections are found part way up shrubs and trees and on top of fallen twigs also reinforces this view.

All collections have been deposited in the Herbarium of the University of Michigan. The names of the organisms are those accepted by Martin (1949) and the numbers are my own.

LICEACEAE

Licea kleistobolus G. W. Martin. On decayed wood, Lower Bidwell Park, Chico, Butte Co., 2156, Nov. 21, 1965. The sporangia are sessile, bright coppery-brown, and dehisce by a circumscissile performed lid. They are exceedingly tiny, averaging about 0.1 mm in diameter. This species has been found as far west as Colorado and is considered rare. This, however, is undoubtedly due to its inconspicuousness and it may occur throughout the United States.

Licea variabilis Schrad. Three collections, all on decayed wood: 5 miles east of Stirling City, 4000 ft., Butte Co., 2063, Aug. 19, 1965; Inskip, 4000 ft., Butte Co., 2082, Oct. 22, 1965; Eagle Lake, 5000 ft., Lassen Co., 2662, April 8, 1966. This taxon is very easy to identify because it is the only truly plasmodiocarpus form in the genus. Most of the plasmodiocarps are black, but a few are light brown in color. It is fairly common at higher elevations and has been reported previously from Washington and Oregon.

CRIBRARIACEAE

Cribraria purpurea Schrad. On decayed wood, MacKerricher Beach State Park, Mendocino Co., 2385, Jan. 25, 1966. This is a handsome species being bright-reddish-purple in color. This collection is somewhat atypical in that the fruiting bodies are extremely robust, some reaching 5 mm in total height. Most descriptions give 2.5 mm as the maximum total height. However, it is easily determined by its color and the plasmodic granules which are soluble in water. It is not common, but is known from scattered localities across the United States.

Lindbladia effusa (Ehrenb.) Rost. On decayed wood, Well's Cabin Campground, 6300 ft., Tehama Co., 1607, July 2, 1965. The fructification is an aethalium in which the individual sporangia are quite distinct. No other member of the family is aethalioid. It is probably closely related to *Cribraria argillacea* (Pers.) Pers., which is practically identical to *L. effusa* except that it does not form an aethalium. It may even be that *L. effusa* is simply a variation of *C. argillacea*. *L. effusa* is relatively common throughout North America in coniferous regions.

DIANEMACEAE

Dianema depressum (List.) List. Three collections, two on decaying bark, 5 miles west of Childs' Meadows, 5100 ft., Tehama Co., 2852, 2856, April 30, 1966, and one on duff, 4 miles east of Stirling City, 4000 ft., Butte Co., 2687, April 9, 1966. This species is distinct in the genus because it is the only member with reticulate spores. These collections vary from most descriptions because the capillitial threads are not penicillate. It is uncommon but has been reported from Washington and Oregon.

STEMONITACEAE

Lamproderma cribrarioides (Fries) R. E. Fries. Four collections, all on decaying bark, 5 miles east of Mineral, 5800 ft., Tehama Co., 2946, 2947, 2950, 2963, May 15, 1966. The spores of this taxon separate it from every other member in the genus. They are distinctly reticulate, the reticulations consisting of raised bands up to $1.5\ \mu$ high. The spores in these collections are larger than what is given in most descriptions, often being up to $18\ \mu$ in diameter. It is an exceedingly rare species, being known previously in the United States only from Colorado.

Lamproderma gulielmae Meylan. Two collections, both found 4 miles E. of Inskip, 5500 ft., Butte Co., 2806 on decaying leaf and 2813 on decayed twig, April 23, 1966. This species has a silvery-blue peridium with black depressed spots which gives it a netted appearance. Unlike other montane *Lamproderma*'s, which tend to form massive collections, collections of this form usually consist of just a few scattered sporangia. Until now, it also was only known in this country from Colorado.

PHYSARACEAE

Physarum crateriforme Petch. Five collections, four on bark of live oak, Lower Bidwell Park, Chico, Butte Co.: 2089, Nov. 19, 1965; 2111, Nov. 20, 1965; 2152, 2163, Nov. 21, 1965; and on persimmon bark, Lower Bidwell Park, Chico, Butte Co., 2230, Dec. 4, 1965. Typically, the sporangium has a large columella which can vary from white to dark brown, and a dark stripe. These collections are frequently sessile and the columella may be absent. It is thought to be rare, being reported only from Iowa and Kansas in this country. This, however, may be due to the fact that it grows on the bark of living trees and, thus, simply is not found often because few collectors search this type of substrate. During the winter in the Sacramento Valley it was abundant. When conditions were right, practically every rough-barked tree that I searched had this slime mold in great abundance.

Physarum diderma Rost. Four collections, all on decaying bark, Lower Bidwell Park, Chico, Butte Co.: 2320, Jan. 2, 1966; 2338, Jan. 8, 1966; 2351, Jan. 15, 1966; 2465, Feb. 7, 1966. The sporangia are sessile, crowded, pure white and have a double wall. Perhaps its most outstanding characteristic, which is not mentioned in most species descriptions, is the presence of a large, globose, hollow, calcareous columella,

situated directly in the center of the sporangium. It has been reported from scattered localities across the United States and on the west coast from Oregon.

DIDYMIACEAE

Diderma ochraceum Hoffm. On decaying wood, Jedediah Smith Redwoods State Park, Del Norte Co., 2442, Jan. 30, 1966. The sporangia are scattered, sessile, yellowish in color, and the peridium is cartilaginous. This species is apparently quite rare, being found previously only as far west as Tennessee.

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NOTES AND NEWS

DR. ELWOOD WENDELL MOLSEED (1938-1967), Assistant Professor of Botany at the University of San Francisco, San Francisco, California passed away on April 4, 1967, after an illness of several months. He was a keen field botanist and one of those rare modern taxonomists with a green thumb. During his all too-short career, he made significant contributions to our knowledge of Mexican and Central American Iridaceae. Plans are under way for the posthumous publication of his manuscripts on *Tigridia* and related genera. His untimely death is mourned not only by his friends and associates in California, but also by those in Mexico where he spent so much time since he began his field studies on *Tigridia* in 1962.



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