

quent, around milpas, Alamos, Oct. 29, 1939, *Gentry 4783* AHFH, ARIZ, DS, UC; Alamos, Sept. 16–30, 1890, *Palmer 634* GH, US; weedy flat, 11 miles northeast of Colorado, between Colorado and Mazatan, Sept. 6, 1941, *Wiggins & Rollins 335* DS, GH; moist swale, 10 miles south of Mazatan, Sept. 7, 1941, *Wiggins & Rollins 367* AHFH, DS, GH, UC.

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MOSSES OF CALIFORNIA V. *PTERIGONEURUM OVATUM* AND *P. SUBSESSILE*

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Pterigoneurum ovatum (H.) Dixon was reported by the author (1949) as unrepresented in California, although it was known to occur in other western states and as far east as North Dakota, Wyoming, Utah, New Mexico, and Texas (Wareham, 1939). *Pterigoneurum subsessile*, given by Wareham as occurring in "Western North America, east to Illinois," also was reported by the author as unrepresented in the flora of California (Koch, 1950), although it was mentioned by Sullivant (1856) as growing there and investigators later assumed its presence. Nevertheless, Californian collections of these two species did not seem to exist in any of the herbaria whose specimens were available to the author.

On 24 January 1952, plants of both species (*Koch 4029, 4026*) were found at the southern fringe of Bakersfield 5 miles west of U. S. Highway 99, Kern County. The southern end of the Great Valley does not drain into the San Joaquin River. It is an independent basin without an outlet to the sea and the vegetation is properly classified as an "Alkali Sink Community" of the "Southern Desert" biotic province by Munz and

Keck (1949). Its low altitude of about 400 meters above sea level and lack of drainage no doubt contribute to its floristic peculiarity. The area is dominated by scattered trees of *Populus fremontii* S. Wats. and *Prosopis juliflora* DC. var. *glandulosa* Cocker, although most of the ground surface below is covered with a thick growth of *Distichlis spicata* (L.) Greene. Associated with them are species of *Atriplex* and other halophytes like *Suaeda* and *Anemopsis*. As in most of California, rain in this area occurs largely during the winter months. The growth of annual vascular plants is usually delayed until average daily temperatures rise in February or March. In addition to *Pterigoneurum ovatum* and *P. subsessile*, two other mosses were collected here on 24 January 1952: *Tortula brevipes* (Lesq.) Broth. (Koch 4027) and *Aloina rigida* (H.) Kindb. var. *pilifera* (Br. & Schp.) Schp. (Koch 4025). All four mosses apparently accomplish sexual reproduction before the associated vascular plants break dormancy completely.

Both species of *Pterigoneurum* are relatively uncommon in this locality although the material collected contained an abundance of mature sporophytes with calyptrae attached. Undoubtedly a special search over a wide area would have uncovered a great number of colonies of the two species. The other two mosses collected, on the other hand, were present in great abundance and almost each colony of them was found to have produced sporophytes. The specimens cited are in the author's collection. Mr. E. B. Bartram confirmed the identity of *P. subsessile*.

In addition to their American range, both species of *Pterigoneurum* have also been reported from wide areas in Europe and from the Caucasus. In addition, Algiers, Mesopotamia, and Persia are also given by Brotherus (1924) as being within the range of *P. ovatum*. Thus the addition of these two mosses to the known moss flora of California augments the already large number of species included in the "Three Boreal Continents" Division of Koch (1954). It seems likely that both species of *Pterigoneurum* will be discovered in other desert regions within the state.

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