

THE TYPE LOCALITY OF POLYSTICHUM LEMMONI
UNDERWOOD

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By detective methods it is often possible today to locate rather exactly the type locality of species described but not definitely localized by earlier botanists. These notes are written to publish more information on the type locality of *Polystichum Lemmoni* Underwood (Our Native Ferns, ed. 6: 116-117, 1900). The published type locality was "Near Mt. Shasta, California (*Lemmon*)."

This appears to have been a loose usage of the geographic term, as the strikingly distinctive, but rare, fern has not been subsequently rediscovered on Mount Shasta. William B. Cooke (Am. Fern Journ. 29: 109, 1939) in his account of the ferns of Mount Shasta proper, excluded *P. Lemmoni* from the list, concluding that Lemmon's specimen, the type of the species, was probably not collected on Mount Shasta. This is in agreement with the detailed review and discussion of this type locality by Louis C. Wheeler (Am. Fern Journ. 27: 121-126, 1937). The type specimen is in the herbarium of the New York Botanical Garden. Two of the Lemmon collections there were labeled *P. Lemmoni* Underw. by Dr. L. M. Underwood, but neither definitely marked as the type. The first was collected on Mount Eddy, July 12, 1878; the second, near Shasta, California, July 1879. Dr. H. A. Gleason designated the second as the lectotype, since Shasta was the published type locality, and Dr. L. C. Wheeler at one place agreed with this choice. Wheeler discussed and cited the several Lemmon collections in different herbaria and their variously worded data and indicated that the type locality "near Shasta," did not apply to the former valley settlement called Shasta. It is apparent that duplicate collections were distributed by Lemmon with varying statements of the locality data.

The writer, while preparing a biography, has searched far and wide for botanical correspondence with Lemmon. That with C. B. Davenport does not help on this particular fern, but there is evidence in the letters from J. G. Lemmon to Professor D. C. Eaton, preserved in, and kindly made available by, the Stirling Library, Yale University.

"Sierra Valley, Cal.,
August 26, '79.

"Now for the most astonishing part of your letter—the new *Aspidium*. Is it possible that it is *distinct*? Why it is abundant in a certain valley not 30 miles west of Mt. Shasta, the old stamping ground of hosts of botanists. I will send you full specimens as I have here a fine lot, . . . I was struck by the appearance of the *Aspidium* & gathered a lot of it for it looked such a marked variety. And I fear yet it may prove a *munitum* for some of the fronds are large & approached the type—in appearance.

"Now for 'habitat, soil, moisture, exposure, abundance, scarcity?' etc. It is quite abundant on the side of the little valley at the headwaters of the South Fork of the upper Sacramento & along the south sloping side of Mt. Eddy, arising on the N. side of this valley. Protrudes from under rocks, a vast number of fronds together—more than any *munitum* I ever saw (which took my eye). The soil a dissolved granite, quite moist & loose, the inclination generally to the S. at a steep angle.

"What is very singular is that a grove of the long lost *Pinus Balfouriana* extends over the same ground, two excellent things found in one day! No objection to the name you are kind enough to propose. Nothing so fine as a fern, and such favorites with the ladies!!"

Lemmon later gave details of the occurrence of *Pinus Balfouriana* Jeffrey: "A few trees at an altitude of 7,500 feet forming a dark-green belt on the south flank of one of the eastern spurs of Scott Mt., 20 miles west of Shasta, where Jeffrey detected it in 1852 (rediscovered by the writer, in 1878; only other California localities, a few trees near the headwaters of Kings River, in the Southern Sierra." (2nd. Bienn. Rept. Calif. State Bd. Forestry 1887-88: 71, 1888). Further on (pp. 86-87) Lemmon continues, "Jeffrey noted his discovery, 'Mountains between Shasta and Scott Valley, N. Cal. Lat. 40° 30' to 41° 51'. Elevation 5,000 to 8,000 feet.' . . . But so small are the groves, and so local their position, that they were not detected anew until August of 1878, when the writer, making his headquarters at Sisson, prosecuted a thorough search of the various intricate mountain ranges lying west of Shasta, and forming spurs of the diversified Scott Mountains. I noted the locality for publication in 'Brewer's Botany of California,' as 'on the southern flanks of the Scott range of mountains, forming a dark-green belt, from 5,000 to 8,000 feet altitude, between the light-colored *P. monticola* below and *P. albicaulis* above it.' "

It appears that at first Eaton thought the fern from "near Shasta" to be a new species and he wrote to Lemmon announcing that he would name it *Aspidium Lemmoni* in his honor. One can imagine the intense pleasure this gave to Lemmon, a fern-lover. Then, on further consideration, Eaton decided that it was not a new species but was identical with *Aspidium mohrioides* Bory of Southern Chile and Patagonia. He published this determination (Eaton, D. C., Ferns of N. Am. 2: 128, 1879; 251-254, pl. LXXX, figs. 4-9, 1880, and Torrey Bot. Club, Bull. 6: 360-361, 1879). On page 128 Eaton recounted this, "At first I believed it to be a distinct species, and proposed to name it after its discoverer, a gentleman whose own modesty has been the innocent reason why some Californian fern was not long ago named in his honor."

Wheeler (p. 122) quotes the two indefinite statements of the locality of this rare fern given by Eaton in his "Ferns of North

America," but omits the third and more detailed one (p. 252), *viz.*, "Mr. Lemmon writes that his fern grows in loose and moist granitic soil the root-stocks hidden under rocks, and a great many plants in one cluster. 'It is very abundant on the side of a little valley at the headwaters of the South Fork of the Sacramento, and along the southern sloping side of Mount Eddy, which rises on the northern side of this valley.' "

Several of the Lemmon collections seen by Wheeler were labeled Scott Valley, Siskiyou County, July 23, 1879, and Wheeler concludes (p. 123) that this is the real type locality. The Scott Mountains are a ridge connecting with Mount Eddy and running in a southwesterly direction from it. Only the northwestern slopes are in Siskiyou County. Scott Valley, drained by the Scott River into the Klamath, runs northerly from Scott Mountain and is about sixteen miles westerly of Mount Eddy. The headwaters of the Sacramento on the slopes of Mount Eddy are in Shasta County, about sixteen miles southwesterly of Mount Shasta, so the labels would indicate that Lemmon in 1879 found two localities, one on Mount Eddy collecting there on both July 12, 1878 and July 23, 1879, and one on Scott Mountain. We also have Lemmon's statement that he also found the fern in August, 1878 on the same day that he discovered a grove of *Pinus Balfouriana* on the southern side of Scott Mountain at 7,500 feet altitude. However, it is significant that in the contemporary letters and in the data on specimens furnished at the time to Gray and Eaton, that only the Mount Eddy locality is mentioned.

Wheeler (p. 123) puzzled over a printed label of one specimen indicating apparently that J. G. Lemmon and wife were collectors of a specimen dated 1879. Mr. Lemmon's name was underlined and this would seem to indicate that he alone was the collector. It can now be positively so stated, since J. G. Lemmon and Miss Sara A. Plummer were not married till late November, 1880.

Mr. Lemmon advertised for sale, specimens of "*Aspidium Mohrioides* Bory (New to North America)," on a handbill (Pacific Coast Flowers and Ferns, Distribution of 1880). He again enumerated this rare fern as *Aspidium mohrioides* Bory (Ferns of the Pacific Coast, ed. 1: 12, 1882). He named it the New Shasta Shield Fern, and located it at "Mt. Eddy, Head-waters Sacramento River; near Shasta Cal. 1879. (New Species!)." His insertion of the phrase "New Species" was quaint, to say the least, when he accepted it, upon Eaton's determination, as the old species described by Bory de St.-Vincent. Wheeler (p. 124-125) decided that this listing by Lemmon was based upon two of his own locality records, Mount Eddy, and near Mount Shasta (= Scott Valley), and this is now confirmed.

The writer has two volumes of "American Ferns," quarto sized books bound in blue cloth with the title and ornamental designs

of ferns on both cover and title page. These books have no other printed words, and no indication of author. They have on each page a pressed fern collected by Lemmon, attached by strips and with an herbarium label with data. Each contains a specimen of *Aspidium Mohrioides* Bory and a printed label form with "U. S. Pacific Slope Flora, (California). Coll. by J. G. Lemmon and wife, Oakland, California, 188-." The data is in Mr. Lemmon's handwriting. On one it is "Near Shasta, 8,600 ft. alt. Found elsewhere only in Patagonia and Falkland Is. S. Am. Jul. 1878." On the other it is, "Near Shasta. N. Cal. 'Only found elsewhere in Patagonia.' July 1883." These books were made up by Mr. and Mrs. Lemmon for sale to botanists and fern-lovers. Doubtless many of the ferns found in our public herbaria were supplied in this book form. The two books are not identical in number of species or arrangement. It is not clear just how many times Lemmon revisited his localities in the Shasta region, but he kept dried specimens of this fern in stock and it was one of his most unique and desired collections.

Dr. W. L. Jepson has informed the writer that Lemmon did not keep complete collection number books. None of any sort has survived. The sets of his plants sorted and distributed by Dr. Asa Gray were handled differently, but those issued by Lemmon himself were selected from the duplicate stock, each set individually, when ordered. Real duplicates of a single season's collecting were thus prepared and issued over a period of decades, using whatever labels were then available, and Mr. Lemmon or Mrs. Lemmon inserting the written data (perhaps from memory) with variations in wording inevitable by this method. This doubtless explains the existence of the several apparently different habitats and localities for Lemmon's collections of this one fern in the general vicinity of Mount Shasta.

The lectotype designated by Gleason is "near Shasta, July 1879." This lectotype lacks accurate locality data, especially since it is now known that the species does not occur on Mount Shasta. Later Wheeler (p. 122) more precisely chose the type locality as Scott Valley. He was apparently influenced by the existence of a specimen from Lemmon's own herbarium, now at the University of California, labeled "Scott val. near Shasta, July 23, 1879, J. G. Lemmon." This agreed with the data published by Underwood, "Vicinity of Mount Shasta, Calif." and was a specimen retained by Lemmon. Other factors, however, provide arguments against Wheeler's choice. The type specimen cannot be that in Lemmon's herbarium, but must be one of the two specimens in the New York Botanical Garden labeled as the new species by Underwood himself. The Lemmon herbarium received by the University of California was the remnant left after Mr. and Mrs. Lemmon had eked out a living by selling their specimens. The remaining collections had poor data, many of these specimens

when incorporated in the Berkeley collection could only be labeled "Lemmon Herbarium" as there was no exact statement of data found. In any case, Underwood did not study or cite these particular specimens, rather the ones in New York. It seems well demonstrated that Mount Shasta was intended as the general area and cannot have been the exact locality. Though Lemmon collected this rare fern in Scott Valley, also on the south side of Scott Mountain, and also on the south side of Mount Eddy, the latter is here proposed as the lectotype locality. It is selected because of the detailed locality data supplied contemporarily by Lemmon to D. C. Eaton, and published by Eaton [for *Aspidium mohrioides*], and of Lemmon's own listing of Mount Eddy in his Ferns of the Pacific Coast. These statements are quoted here fully on a previous page.

The exact taxonomic position of this fern continues to trouble the botanists. At first Eaton considered it a distinct species, then on reconsideration determined it as *Aspidium* [= *Polystichum*] *mohrioides* Bory, and later H. Christ agreed. Underwood separated it as a new species, *Polystichum Lemmoni* which was accepted by Piper and by Maxon. Now, Professor Fernald (*Rhodora* 26: 92. 1924) has made the northern plant a variety of the South American one and evaluated its characters. He classifies it as *Polystichum mohrioides* (Bory) Presl var. *Lemmoni* (Underw.) Fernald. The writer has not made a detailed revision of this group, but he recently compared the North American *P. Lemmoni* with good material of *P. mohrioides* from the far extreme of South America, and was struck by their dissimilarity. For the time being he is content to follow Underwood and Maxon, and to accept *Polystichum Lemmoni* Underwood as a species.

University of Hawaii, Honolulu,
April 14, 1942

FAR WESTERN NOVELTIES IN SALIX

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Activities of collectors continue to bring to light hitherto unrecognized variations in willows. Continuing studies of relationships indicate a need for new combinations which better represent actual affinities. This paper contains some novelties in each category.

The abbreviations for herbaria containing specimens cited are as follows: BPI, National Arboretum Herbarium, Bureau of Plant Industry, United States Department of Agriculture; CAS, Herbarium of the California Academy of Sciences; CRB, *Salix* herbarium of Carleton R. Ball; CUA, Herbarium of the Catholic University of America; USN, United States National Herbarium; SU, Herbarium of Stanford University; UC, Herbarium of the University of California.



St. John, Harold. 1942. "THE TYPE LOCALITY OF POLYSTICHUM LEMMONI UNDERWOOD." *Madroño; a West American journal of botany* 6, 223–227.

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