

middle, somewhat bilabiate: berries red: seeds whitish-brown, orbicular or elliptic, 1–1.7 mm. long: axillary buds appressed or strongly ascending.—Wyoming to Washington and California. WYOMING: Yellowstone Park, 1873, *Parry*, no. 197; abundant in boggy ground on the creek bottom, Obsidian Creek, Yellowstone Park, July 24, 1899, *A. & E. Nelson*, no. 6096; Norris Geyser Basin, Yellowstone Park, September 7, 1904, *J. G. Jack*. IDAHO: Musselshell Creek, Bitter Root Mts., July 16, 1902, *C. V. Piper*, no. 4107; at edge of brook, alt. 6400 ft., Cape Horn, Custer Co., August 6, 1916, *Macbride & Payson*, no. 3649. NEVADA: Franktown, Washoe Co., alt. 5000 ft., June 28, 1909, *A. A. Heller*, no. 10,389. CALIFORNIA: Westfall's Meadows, Yosemite Valley, *Bolander*, no. 6338; by Tuolumne River, Tuolumne Meadows, alt. 8600 ft., July 19, 1907, *R. A. Ware*, no. 2625C; near Soda Springs on Tuolumne River, August 19, 1907, *Alice Eastwood*, no. 496; Lassen Peak, July, 1879, *Mrs. R. M. Austin*. OREGON: Upper Des Chutes River, *Newberry*; west end of Paulina Lake, alt. 2100 m., July 29, 1894, *Leiberg*, no. 577; dry gravelly soil of Squaw Creek, Crook Co., July 16, 1901, *Cusick*, no. 2662; bank of Big Springs Creek, along Fort Klamath-Bend road, July 19, 1920, *M. E. Peck*, no. 9574. WASHINGTON: low wet ground, Mt. Paddo (Adams), August 10, 1882, *Suksdorf*, no. 134; alpine meadows, Mt. Paddo (Adams), June 29 and August, 1885, *Suksdorf*, no. 559 (TYPE in Gray Herb.); Skamania Co., July 25, 1886, *Suksdorf*. Presumably also in British Columbia.

Differing from *L. villosa* in its membranous and scarcely rugose leaves, well-developed calyx-limb (in anthesis), and small red berries; from *L. caerulea* in its appressed or ascending winter buds, strongly ascending branches, more deeply cleft and more bilabiate corolla, red berries without bloom and small mostly orbicular pale seeds.

GRAY HERBARIUM.

THE VARIETIES OF *CORALLORRHIZA MACULATA*.

H. H. BARTLETT.

MR. H. MOUSLEY of Montreal, Quebec, has sent me water-color sketches of three *Corallorrhizas* with the request that I identify them. I can hardly do so without bringing up the question of whether or not *Corallorrhiza maculata* var. *intermedia* Farwell is really identical with var. *fusca* Bartlett. I confess that I overlooked Mr. Farwell's publication¹ of var. *intermedia* when I wrote the note² on

¹ O. A. Farwell, New species and varieties from Michigan. Ann. Rep. Mich. Acad. Sci. 19: 247–249. 1917.

² H. H. Bartlett, Color types of *Corallorrhiza maculata* Raf. RHODORA 24: 145–148. 1922.

which he has commented,¹ so if the names are not synonyms (and I believe they are not) it must be attributed to good fortune rather than good management.

Mr. Mousley sends three water-color sketches painted by Mr. R. Holmes of Toronto. One of them illustrates var. *flavida* (Peck) Cockerell very beautifully, from specimens found by the artist himself in a wood a few miles northeast of Toronto. It appears to differ from Michigan specimens in the slightly spotted rather than uniformly white lip. The distinction, although perhaps too slight for nomenclatorial recognition, indicates that there are genetically different forms within var. *flavida*.

The other two paintings represent plants collected by Mr. Mousley himself at Hatley, Quebec, in July 1924. One of them represents what I should identify as var. *punicea*. Mousley's notes as to color read "The lips of this form were only spotted along the lamellae, thus forming two lines, as it were, with two little spots on each lateral lobe. Petals and sepals not spotted at all; column slightly so at the base. Tips of sepals and petals very slightly brownish." There are here two deviations from my description of var. *punicea*, namely (1) that in the Quebec specimens spots are lacking except on the lip, whereas in the Michigan material the flower parts were all spotted, and (2) that the flower parts were slightly brown at the tip in the Quebec specimens but not in those from Michigan. As to the first distinction, it indicates again the existence of forms of each variety differing among themselves as to the abundance and distribution of spots. The second distinction is less significant, since slight browning at the tips of sepals and petals might not improbably come about through injury or incipient drying, under which circumstances it would be quite different from the normal brown of var. *fusca*.

The third painting is the one that calls for this note. It seems to depict a plant really intermediate in coloration between var. *punicea* and var. *flavida*, and therefore conforming to the original description of Farwell's var. *intermedia*, which reads as follows: "Whole plant purplish yellow; lip white with two or three large, very pale purplish spots; no spots on the other petals or sepals. Copper Harbor, Keweenaw Peninsula, no. 4003, July 8, 1915. Exactly intermediate between the species and the var. *flavida* (Peck) Cockrl.

¹ O. A. Farwell, *Corallorrhiza maculata* Raf. RHODORA 25: 31-32. 1923.

in color and in spots, which are found only on the lip and are fewer, larger, and paler than in the species. The species is common; and the var. *flavida* also is found at Copper Harbor, no. 4002, July 8, 1915." After matching carefully the sheath color of var. *fusca* with Van Dyke brown (as represented in Ridgeway's "Color Standards"), I can hardly think that any one having this plant in hand would describe it as exactly intermediate between var. *punicea* ("the species" as Mr. Farwell calls it) and var. *flavida*. I stated in my former note that *Corallorrhiza maculata* "probably contains still other varieties." This statement was made with plants in mind (but not at hand) that might fall into var. *intermedia* Farwell. My description of three definite varieties was not intended to provide a name for every specimen that might be collected. I am inclined to believe that Mr. Mousley's second Hatley (Quebec) type should be referred to var. *intermedia* Farwell.

Again, however, a discrepancy in the matter of spotting is to be noted. Farwell's var. *intermedia* had spots "only on the lip and fewer, larger, and paler than in the species." Mr. Mousley's note on his plant is "The lips of this form are spotted all over, also the petals, sepals and column." Var. *fusca* had the whole flower spotted. In throwing the species into varieties according to general plant color the maculation of the flower has to be neglected. The genetic factors for the distribution of spotting are doubtless a different series from those responsible for what Emerson has termed plant color in the study of maize. If it were desired to name all of the genetic entities in *Corallorrhiza maculata* two courses would be open to the systematist. He might assign a formal name to each combination of characters, thus making a multitude of forms, or he might classify into varieties on some one group of characteristics (as, for example, plant color), and neglect others (as, for example, spotting of the flower). The latter policy leaves it open to later botanists to enumerate, describe and name the forms if they wish, either ranging them under the varieties or neglecting the more comprehensive varieties entirely.

American taxonomy is impatient of numerous minute distinctions within a species, and it is necessary to turn to Europe for an elaborately studied parallel to our *Corallorrhiza* situation. Mainly on the basis of color and color pattern, Wittrock¹ recognized 140 named

¹ V. B. Wittrock, *Linnaea borealis* L. species polymorpha et polychroma. Acta Horti Bergiani 4, No. 7: 1-187. 13 plates. 1907.

forms of *Linnaea borealis* in Sweden, ranged, according to the more basic color distinctions, in four groups, which he named the Poliochromae, Mesochromae, Xanthochromae, and Erythrochromae. Obviously, the four groups might equally well have been called subspecies or varieties, as, indeed, the International rules would require, since the provision is made in Article 28 that the names of subdivisions of species be in the singular. To bring Wittrock's nomenclature into conformity with general usage it would merely be necessary to supplant his plural group names by the four varietal names, each variety comprehending a group of forms. The varietal names would satisfy those botanists who are appalled by the extreme degree of splitting which Wittrock's work shows to be possible and necessary if our systematic botany is to interpret nature in every detail, but who are not averse to giving nomenclatorial recognition to the more conspicuous genetic types within a species. Applying the parallel to *Corallorrhiza*, it may be supposed that many botanists would note the chief plant color types, but would disregard forms based upon the spotting of the flower. The forms exist, however, and may sometime attract a student. Unless an elaborate treatment, involving the recognition of many forms, is desired, the varieties must be based upon general plant color to the neglect of more minute characteristics.

As a result of this unfortunately lengthy note upon so slight a matter it is hoped that orchid students will not hurriedly admit the identity of *Corallorrhiza maculata* var. *intermedia* with var. *fusca*.

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GAURA PARVIFLORA Dougl., var. **lachnocarpa**, n. var., a forma typica differt hypanthio fructuque pubescentibus.—UNITED STATES. ALABAMA: weed, up to six ft. tall, in vacant lots near railroad, Montgomery, June 9, 1924, *R. M. Harper*. MISSOURI: Dry soil, Courtney, Sept. 20, 1915, *Bush*, no. 7738. TEXAS: meadows, Tarrant Co., Aug. 29, 1912, *Ruth*, no. 283; roadside, Austin, May 8, 1918, *M. S. Young*, no. 95 (TYPE); Kerrville, Kerr Co., May 14–21, 1894, *Heller*, no. 1768; dry banks, Austin, May 12, 1872, *E. Hall*, no. 216; in campis, San Fernando de Bexar, Junio, 1828, *Berlandier*, no. 2052; without definite locality, *Lindheimer*, no. 241. NEW MEXICO: near Mesilla, May 11, 1897, *A. A. Crozier*. ARIZONA: sandy river bank, Tempe, April 21, 1892, *Ganong & Blaschka*; Beaver Creek, Sept. 20, 1922, *W. W. Jones*, no. 69; Ft. Mojave, 1860–61, *J. G. Cooper*. MEXICO.



Bartlett, Harley Harris. 1925. "THE VARIETIES OF CORALLORRHIZA MACULATA." *Rhodora* 27, 11–14.

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