

intermedia is a stable amphiploid resulting from the crossing of *C. vulgaris* with *C. crupinastrum*. With its hybrid vigor, *C. intermedia* is larger and more competitive than either of its parents, with whom it does not hybridize. It has demonstrated its aggressiveness by replacing the parent species and expanding its range in parts of the Mediterranean region (H. Couderc, R. Gorenflot, M. Couderc, and J. Moret, Variation chromosomique d'Angiospermes et Collections Vivantes, Jardins botaniques et Arboretums de demain, Bureau des Ressources Génétiques, 155–165, 1991).

In addition to its practical value, the study of origins and characteristics of *Crupina* in North America by comparing it to native Mediterranean populations provides insight into the behavior of invading species.

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NEW COMBINATIONS IN *RHAMNUS* (RHAMNACEAE).—John O. Sawyer, Jr., Department of Biological Sciences, Humboldt State University, Arcata, CA 95521.

Rhamnaceae in the forthcoming revision of Jepson's Manual of the Flowering Plants of California will have the following taxonomic changes based on study of specimens in the field and at CAS, HSC, JEPS, RSA, and UC.

In his 1938 monograph, (Monographs of the Rancho Santa Ana Botanical Garden, Botany Series 1) C. B. Wolf recognized six subspecies in *Rhamnus californica* Eschsch. Two have leaf blades $\pm$ glabrous on the lower side (*R. c. ssp. californica*, *R. c. ssp. occidentalis*) and four have leaf blades tomentose on the lower side (*R. c. ssp. crassifolia*, *R. c. ssp. cuspidata*, *R. c. ssp. tomentella*, *R. c. ssp. ursina*). Because I consider *R. tomentella* Benth. as distinct from *R. californica* the following new combinations are necessary:

Rhamnus tomentella Benth. ssp. *crassifolia* (Jepson) J. O. Sawyer, comb. nov. Based on *R. californica* Eschsch. var. *crassifolia* Jepson, Man. Fl. Pl. Calif., p. 615. 1925. Ridge west of Bear Valley, western Colusa Co., *W. L. Jepson* 8974. Synonyms: *R. californica* Eschsch. ssp. *crassifolia* (Jepson) C. B. Wolf, Mon. Rancho Santa Ana Gard. Bot. Ser. 1:68. 1938.

Rhamnus tomentella Benth. ssp. *cuspidata* (E. Greene) J. O. Sawyer, comb. nov. Based on *R. cuspidata* E. Greene, Leaf. Bot. Obs. & Crit. 1:64. 1904. Near Tehachapi, Kern Co., Calif., n. d., E. I. Greene, June 22, 1889. Synonyms: *R. californica* Eschsch. var. *viridula* Jepson, Man. Fl. Pl. Calif., p. 615. 1925 [as *virida*]. Cottonwood Creek, 7500', *W. L. Jepson* 5086, *R. californica* Eschsch. ssp. *cuspidata* (Benth.) C. B. Wolf, Mon. Rancho Santa Ana Gard. Bot. Ser. 1:72. 1938.

Rhamnus tomentella Benth. ssp. *tomentella*. Pl. Hartw. 303. 1848. The Sierra Nevada foothills, collected by Hartweg. Synonyms: *R. californica* Eschsch. var. *tomentella* (Benth.) Brew. & Wats., Cal. Calif. 1:101. 1876. *R. californica* Eschsch. ssp. *tomentella* (Benth.) C. B. Wolf, Mon. Rancho Santa Ana Gard. Bot. Ser. 1:70. 1938.

Rhamnus tomentella Benth. ssp. *ursina* (E. Greene) J. O. Sawyer, comb. nov. Based on *R. ursina* E. Greene, Leaf. Bot. Obs. & Crit. 1:63. 1904. On Bear Mt. near Silver City, New Mexico, O. B. Metcalfe 172. Synonyms: *R. californica* Eschsch. ssp. *ursina* (E. Greene) C. B. Wolf, Mon. Rancho Santa Ana Gard Bot. Ser. 1:74. 1938.

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Madroño; a West American journal of botany 40, 65–65.

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