

At an altitude of 7000 feet on the White Mountains, August 15 (no. 491). Not intimately allied to any other species; the glabrous glaucescent herbage somewhat like that of *S. microdontus*, but inflorescence and large heads of the group to which *S. Bigelovii* and its allies belong.

TETRADYMIA FILIFOLIA.

Compact low shrub, with short very leafy branches, but no fascicled foliage: leaves all filiform,  $\frac{1}{2}'$  to  $1\frac{1}{2}'$  long, ascending or suberect, permanently tomentose, as are all the leafy branchlets: heads few, terminating all the branchlets, 4-flowered; involucre short, of two oblong-linear and two oblong-ovate bracts, all obtuse and with arachnoid-ciliate margins: achenes glabrous; pappus long, of rather copious bristles, all abruptly dilated and serrulate at tip. [Plate 334.]

On Round Mountain of the White Mountain Range, at 5000 feet, July 21 (no. 183). Very distinct species, quite isolated from the rest of the genus geographically.

CARDUUS PERENNANS.

Rather slender, 3° high, from apparently deep-seated perennial roots, the herbage arachnoid-woolly when young, the maturer foliage glabrate above, white-woolly beneath: stem and few flowering branches leafy, even up to the few and scarcely pedunculate heads: lowest leaves lanceolate, subentire and spinose-ciliate; the others with shallow lobes: heads  $1\frac{1}{2}'$  high, ovate; the coriaceous and not strongly imbricated bracts arachnoid-woolly along the margin only, showing a narrow glutinous spot, and tipped with a stout somewhat spreading spine; flowers red or purplish: anther-tips attenuate-subulate: some of the outer pappus bristles not at all plumose, and only sparingly barbellulate.

White Mountains, at 7000 feet, Aug. 12 (no. 326) and Organ Mountains, July 7. One of the very few perennial species indigenous to North America. In aspect more like *C. Arizonicus* than any other.

PTILORIA NEO-MEXICANA.

Tufted and much branched perennial, the slender reedy branches 1° to 2° high, clothed with a few linear and linear-subulate entire leaves and leafy bracts, the whole plant glabrous and glaucous: scattered involucre less than  $\frac{1}{2}'$  high, 5-flowered: achenes columnar and pentagonal, covered with minute sharp interrupted

transverse rugosities; pappus white, of about 15 bristles loosely long-plumose from toward the base, the basal part naked and scabrous and slightly thickened.

Mesas near Las Cruces, July 2 (no. 482). A species that may include much of the southern so-called *Stephanomeria minor*.

#### AGOSERIS GRAMINIFOLIA.

Perennial, 1° high or less, glaucous, the foliage glabrous, but scapes sparsely pilose below, woolly under the glabrous involucre: leaves all very narrowly linear, entire, acuminate: heads 1' high, narrow and few-flowered: bracts of the involucre in about 3 series, ovate-lanceolate to linear-lanceolate: achenes gradually narrowed to a beak shorter than the body; pappus white, rather coarse, hardly scabrous. [Plate 334.]

At 7000 feet altitude in the White Mountains, in moist land, August 13 (no. 513), in fruit only.

#### Explanation of Plates.

PLATE 330, 1 and 2. *Eriocarpum Wootonii* Greene. 1. A portion of a plant half natural size. 2. Involucral bracts and flowers natural size. 3 and 4. *Coleosanthus ambigens* Greene. 3. A portion of a plant half natural size. 4. Involucral bracts, flower and achene natural size; also achene  $\times 2$ .

PLATE 331, 1 and 2. *Senecio Wootonii* Greene. 1. Part of plant half natural size. 2. Involucral bract and ray flower natural size. 3 and 4. *Eriocarpum serratum* Greene. 3. A portion of a plant half natural size. 4. Ray-flower and achene natural size.

PLATE 332, 1 and 2. *Grindelia scabra* Greene. 1. A portion of a plant half natural size. 2. Involucral bract, ray flower and achene natural size. 3 and 4. *Erigeron formosissimus* Greene. 3. A portion of a plant half natural size. 4. Involucral bract, ray flower and achene natural size.

PLATE 333, 1 and 2. *Wootonia parviflora* Greene. 1. Entire plant half natural size. 2. Head of flowers and achenes natural size. 3 and 4. *Laphamia cernua* Greene. 3. Part of the plant natural size. 4. Involucral bract and flower natural size.

PLATE 334, 1 and 2. *Agoseris graminifolia* Greene. 1. A portion of a plant half natural size. 2. Achene natural size. 3 and 4. *Tetradymia filifolia* Greene. 3. Small branch of a plant half natural size. 4. Head, with one bract and three flowers removed, natural size.