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The Cactus Bees; Genus Lithurgus

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THE CACTUS BEES; GENUS LITHURGUS.

T. D. A. COCKERELL.

THE common cacti (*Opuntia* and *Echinocactus*) of New Mexico and adjacent regions are freely visited by bees, the females carrying pollen and undoubtedly aiding cross-fertilization. Professor Toumey, who doubtless knows more about cacti in a state of nature than any other man living in this country, has observed and reported the bee visits, without, however, identifying the bees. He has, however, also observed that most of the common cacti (*Opuntia*) about Tucson, Arizona, propagate by means of falling joints which take root, and not by seed; and, as he showed me in his cactus garden last year, certain species have almost lost the power of producing seed. The cactus side of the matter will, I trust, be fully elaborated in due time by Professor Toumey, and I only refer to it now to bring forward the interesting fact that we have a group of plants which are in large part independent of sexual reproduction, but which at the same time possess flowers undoubtedly adapted to bees, and visited by a series of bees more or less peculiar to them. The explanation of this will, I think, be given by Professor Toumey, but in the meanwhile it will be useful to record the bee visitors. The following are the *Lithurgus* records for New Mexico:

(1) *Lithurgus echinocacti* Ckll., 1898. — Two females at flowers of *Echinocactus wislizenii*, one at Mesilla Park (campus of Agricultural College), August 22 (Ckll.), one at La Cueva, Organ Mountains, September 4 (Townsend).

(2) *Lithurgus gibbosus* Smith, 1853 (n. syn. *compressus*, Smith, ♂). — Our form has clearer wings than Smith's type. Las Cruces, at flowers of *Opuntia engelmanni*, May 26, 4 ♀, May 25, 1 ♀; May 24, 1 ♂; also observed many other times; both sexes, but especially males, also common at flowers of *Chilopsis linearis* (Bignoniaceæ), May 31 and June 5; Mesilla,

June 19, at flowers of *Cnicus*, 1 ♀; West Fork of Gila River, July 17 (*Townsend*), 1 ♀.

(3) *Lithurgus apicalis* Cresson, 1875. — Santa Fé, June 20, at yellow *Opuntia* flowers, 2 ♂; August 2, at flowers of *Cleome serrulata* (Capparidaceæ), 1 ♂; Santa Fé Cañon, August 11, 7700 ft., inside flowers of *Opuntia arborescens* in wet weather, males; 7600 ft., at flowers of *Cnicus ochrocentrus* (purple-flowered form), females; West Fork of Gila River, July 16, both sexes (*Townsend*). The insect formerly reported from the Mesilla Valley as *apicalis* is *gibbosus*.

These are not the only bees which habitually visit cacti. *Heriades (Trypetes) gracilior* Ckll., and *Ashmeadiella opuntiae* (Ckll.) visit the flowers of *Opuntia* in the Organ Mountains in May; while *Ashmeadiella cactorum* (Ckll.) visits *Cactus* (*i.e.* *Mammillaria*) at Santa Fé in July.¹

NEW MEXICO AGRICULTURAL EXPERIMENT STATION,
MESILLA PARK, N. M., Feb. 25, 1900.

¹ Since the above was written I have found the bee *Agapostemon texanus* Cress., ♀, visiting flowers of *Cereus polyacanthus* Engelm., det. Wooton, and of *Cereus* sp., prob. *fendleri*, Engelm., in the Mesilla Valley; it burrows down among the stamens so as to be quite lost to sight. Another green bee, *Augochlora neglectula* Ckll., was found by Townsend at La Cueva, Organ Mts., visiting flowers of *Echinocactus wislizenii*.

