STUDIES OF NEW MEXICO ANTS. X. THE GENUS
LEPTOTHORAX (HYMENOPTERA: FORMICIDAE)

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Leptothorax (Leptothorax) rugatulus Emery. This species was taken at only
two localities, namely 5 mi. E. of Taos, 7,350 ft., and Bandelier National
Monument, 6,050-6,200 ft., but at both places nests were common beneath
stones on shaded grassy slopes with pines. A number of the colonies was very
populous and multiple queens were present. I can find no significant differences
between the components of these rather widely separated distributional patterns,

Leptothorax (L.) tricarinatus neomexicanus Wheeler. An inhabitant of open,
rather dry, grassy places this ant was taken at elevations from 6,500 to 7,200
feet. The nests were marked by a hole in the ground and occasionally with a
light asymmetrical scattering of fine soil. The colonies at Gallup and
Mountaintair were in sandy, clayey semidesert with rabbitbrush and scattered
juniper while those in Cimarron Canyon occupied less xeric habitats. All
colonies were rather small.

Leptothorax (L.) obliquecanthus Cole. This species was described (Cole,
1953, p. 28) from workers taken 10 mi. S. of Santa Fe, 6,500 ft., in a dry,
level, gravelly, grassy roadside, in 1951. Intensive collecting at the type locality
in the summer of 1952 failed to reveal additional specimens.

Leptothorax (Mychothorax) canadensis Provancher. I have made a
considerable study of my New Mexico collections representing complete
colonies of this species and crassipilis Wheeler. Brought into the study were
numerous collections of canadensis from both northwestern and northeastern
United States and elsewhere. Through the kindness of Dr. Brown, of the
Museum of Comparative Zoology, I was able to examine specimens of
This series was in the tray beside types of crassipilis and probably represents
part of the type series. From the same source I also obtained specimens of
crassipilis collected July 26, 1917, by W. M. Wheeler at Mt. Lemmon, S.
Catalina Mountains. 8,000-9,100 feet, Arizona.

My first impression after a rather superficial study of some of the material
was that canadensis and crassipilis were possibly synonymous. The
characteristics which seemed best for separating the two species were thoracic
pilosity of the worker and epinotal and petiolar sculpturing of the male. The
worker of canadensis has sparse, short, and usually clavate hairs while that of
crassipilis possesses numerous, long, and usually pointed (at least not clavate)
hairs. The male of crassipilis is characterized by possessing a smooth and
shining epinotum and petiolar node as contrasted with a sculptured epinotum
and petiolar node of canadensis. The first series of about thirty complete
colonies which I examined came from Tesque Canyon, 8,500-8,700 feet, Santa
Fe National Forest, near Santa Fe. From among this material I was able to
sort out colonies which, in both castes mentioned, had the characteristics of
canadensis, others which could be assigned readily to crassipilis, and still others
(including the queen) which had characteristics intermediate of the two forms.
Among the latter were workers and queens with rather sparse, medium short,
blunt, clavate and nonclavate hairs and males with lightly sculptured (rugulose)
but still quite shining epinotum and petiolar node.

Tesque Canyon extends to an elevation of about 10,000 feet and ends at
Aspen Basin, the surrounding slopes of which abound in colonies of
Leptothorax. My collections from 9,500 to 10,000 feet were next checked.

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of these represented distinctly canadensis there being no significant deviation in worker or queen pilosity or in male sculpture. Working with a descending elevational gradient I found that intermediate populations first occurred at 8,800 feet and that they apparently ended at 8,300 feet. Below 8,300 feet I had taken colonies which can be assigned only to crassipilis.

My Cimarron Canyon collections were studied next. Cimarron Canyon extends from about 6,700 to 8,700 feet. From 6,700 to 7,800 feet the colonies all represent the typical crassipilis. Colonies collected from 7,800 to 8,200 feet consist of hybrids of crassipilis and canadensis but not of those which can be assigned to either one. Between the canyon source and the town of Eagle Nest is a somewhat level stretch of dry open country with semidesert vegetation from which colonies of Leptothorax are apparently absent. In the forested area between Eagle Nest and Taos, where elevations range from about 7,000 to 7,400 feet, only colonies with characteristics of crassipilis were taken, but on the Red River road, north of Eagle Nest, I began to find hybrid populations at 8,000 feet. From 8,500 to 9,600 feet none but definite canadensis turned up.

In all of the cases mentioned colonies of crassipilis extended throughout the hybridization zone, but I was unable to find nests of canadensis at the southern limits of the zone. Furthermore crassipilis colonies were more numerous than canadensis colonies at all elevations within the zone. These facts would indicate that crassipilis has more tolerance for the higher elevations than canadensis has for the lower ones.

Thus there would seem to be a definite zone of hybridization between the two populations. In the extreme northern part of New Mexico this zone appears to be between approximately 8,000 and 8,500 feet and farther south (Tesoque Canyon and Sappello Canyon) between 8,500 and 8,700 feet. Because of this zone of fertile hybrids two species cannot be represented, I believe. The nature of the populations makes it necessary to recognize subspeciation. I propose therefore that crassipilis be considered a subspecies of canadensis. It might be asked what has prevented the hybrids from backcrossing into both the canadensis and crassipilis populations. It is conceivable that the characteristics of the two forms are such that there tends to be a stabilization of the hybrid population. Otherwise the condition must be a very recent one.

Leptothorax (M.) canadensis crassipilis Wheeler. Nests were beneath stones at the following localities: Cimarron Canyon, 6,700-7,800 ft.; 12 mi. E. of Taos, 7,000-7,400 ft.; Sappello Canyon, Beulah area, 7,500-7,900 ft.; Bandelier Natl. Monument, 6,050-6,200 ft.; Sandia Mts., on route 44, 6,900-7,500 ft. Like the typical canadensis, crassipilis inhabits moist, shaded slopes as well as grassy level areas beside streams.

Leptothorax (M.) provancheri Emery. A number of colonies was taken under stones in a moist, shaded, grassy area near a stream, 11 mi. N. of Eagle Nest, 9,000 ft., on the Red River road. At first I assigned the series to the subspecies glacialis Wheeler. However there appears to be no difference between the two forms and glacialis should be relegated to the synonymy of provancheri. This also is the opinion of Dr. Brown, of the Museum of Comparative Zoology, who made careful comparisons of types.

LITERATURE CITED