

STUDIES OF THE GENUS KUNZEANA. III. NEW SPECIES OF MEXICAN KUNZEANA

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Thirteen Mexican species have previously been described in this genus in Parts I and II (Ruppel and DeLong, 1951, 1952). The present treatment contains descriptions of eight new species and a redescription of *rosea* (Osborn) which cannot be identified or separated from closely related species by the original description and was determined only by an examination of the type material in the Carnegie Museum. It is illustrated here to assist others in recognizing it.

This group of species has more bizarre aedeagi or more elaborate or elongated accessory processes than any of the species of the genus which have been studied to date and most of these processes arise basally.

The types of all species are in the DeLong collection.

Kunzeana usitata n. sp.

Resembling *kunzei* (Gillette) in form and general appearance but smaller and with distinctive genitalia. Length 2.5 mm.

The vertex is produced about one-half of its length in front of the eyes, its anterior margin is broadly rounded, and its median length is slightly less than its basal width between the eyes.

Color: The vertex is cream mottled with heavy, orange markings. The anterior margin of the vertex is bordered with a broad ivory band. The face is dusky orange with the genae and lorae light cream. The pronotum is golden orange with its anterior margin bordered with an ivory band which is spotted with orange markings. The scutellum is ivory with its apex, basal angles, and a pair of short, median, longitudinal lines, orange. The elytra are translucent bright golden yellow with a stripe along their claval sutures and their apices, semihyaline.

Genitalia: The pygofers, plates, and styles of the male are similar to those of *kunzei*. The thick, straight, bluntly-pointed pygofer hooks arise on the dorso-caudal angle of the pygofer and extend caudad. The base of the aedeagus is rather long and broad with its dorsal processes rather long and thick. The phallicata is short and recurved with its lateral margins extended into wing-like flaps which extend laterad and terminate in pointed apices near the distal third of the phallicata. Holotype male collected at Cocula, G'ro., Aug. 6, 1930 (M. F. 1753) by J. Parra.

Kunzeana raia n. sp.

Resembling *usitata* in form and general appearance but larger and with distinctive genitalia. Length 2.75 mm.

The vertex is produced for about one-half of its length in front of the eyes, its anterior margin is broadly rounded, and its median length is slightly less than its basal width between the eyes.

Color: The vertex is cream, bordered anteriorly with an ivory band. The disk of the vertex is heavily mottled with orange. The face is dull orange with the lorae and genae cream. The pronotum is bright greenish yellow with its anterior margin bordered with an ivory band which is spotted with orange markings. The scutellum is cream with its basal angles and apex dull orange. The elytra are bright yellow with a stripe along each claval suture and their apical cells semi-hyaline.

Genitalia: The pygofers, plates, and styles of the male are similar to those of *usitata*. The base of the aedeagus is short and rather broad with its dorsal processes long and slender. The phallicata is rather thin and its lateral margins are extended into flat wings which curl somewhat dorsad and terminate in rounded apices near the middle of the phallicata. The pygofer hooks arise on the dorso-caudal angle of the pygofer and are recurved and sharply pointed.

Holotype male and male paratypes collected at Iguala, G'ro., Sept. 11, 1939, by D. M. DeLong; male paratype collected at Iguala, G'ro., Oct. 25, 1941, by DeLong, Good, Caldwell,

and Plummer; male paratypes collected at Chilpancingo, G'ro., Oct. 25, 1941, by the same collectors; male paratype collected at Carrizal, V. C., Aug. 8, 1932 (M. F. 2858) by R. R. Soto.

***Kunzeana rosae* (Osborn)**

Dikraneura (Hyoidea) *rosae* Osborn. Ann. Carnegie Mus. 18: 278, 1928.

Resembling *kunzei* (Gillette) in general form and appearance but with a longer, sharper head than *kunzei* and with distinctive coloration and genitalia. Length 2.5 mm.

The vertex is produced for about one-half of its length in front of the eyes, it is sharply angled at the apex, and its median length is equal to its basal width between the eyes. The body is somewhat depressed and the face recedes sharply from the vertex.

Color: The vertex is reddish-tan bordered anteriorly with a cream band and flecked on its disk with creamy spots. The face is dull tan with the genae and lorae cream. The pronotum is dull brown with its anterior margin reddish and spotted with cream markings. The scutellum is dull orange. The elytra are bright, deep yellow with their apices semi-hyaline.

Genitalia: The posterior margin of the seventh abdominal sternite of the female is nearly truncate with its median quarter abruptly produced into a short rounded lobe. The pygofer, plates, and styles of the male are similar to those of *kunzei*. The pygofer hooks arise on the dorso-caudal angle of the pygofer and are rather slender and sharply pointed. The base of the aedeagus is rather short and broad with its dorsal processes short and broadly separated at their apices. The phallicata is thin, and broad with its lateral margin produced into boot-shaped, hyaline processes near its distal third.

Mexican specimens have been collected at Iguala, G'ro., Sept. 11, 1939, by D. M. DeLong and C. C. Plummer and Oct. 25, 1941, by DeLong and Good; others were collected at Huitziltepec, G'ro., Nov. 20, 1929 (M. F. 1546) by Dr. Dampf.

***Kunzeana parrai* n. sp.**

Resembling *rosea* (Osb.) in form and general appearance but with the vertex more sharply angled at its apex and with distinctive coloration and genitalia. Length 2.7 mm.

The vertex is produced for about one-half of its length in front of the eyes, it is sharply pointed at its apex, and its median length is almost equal to its basal width between the eyes. The body is somewhat depressed and the face recedes sharply from the vertex.

Color: The vertex is dull orange bordered anteriorly with a cream band and spotted on its disk with obscure cream spots. The face is a uniform rich black. The pronotum is orange brown bordered anteriorly with a dull orange band which bears a few cream spots. The scutellum is dull orange. The elytra are golden orange with a stripe along each claval suture and the first and fourth apical cells, semi-hyaline.

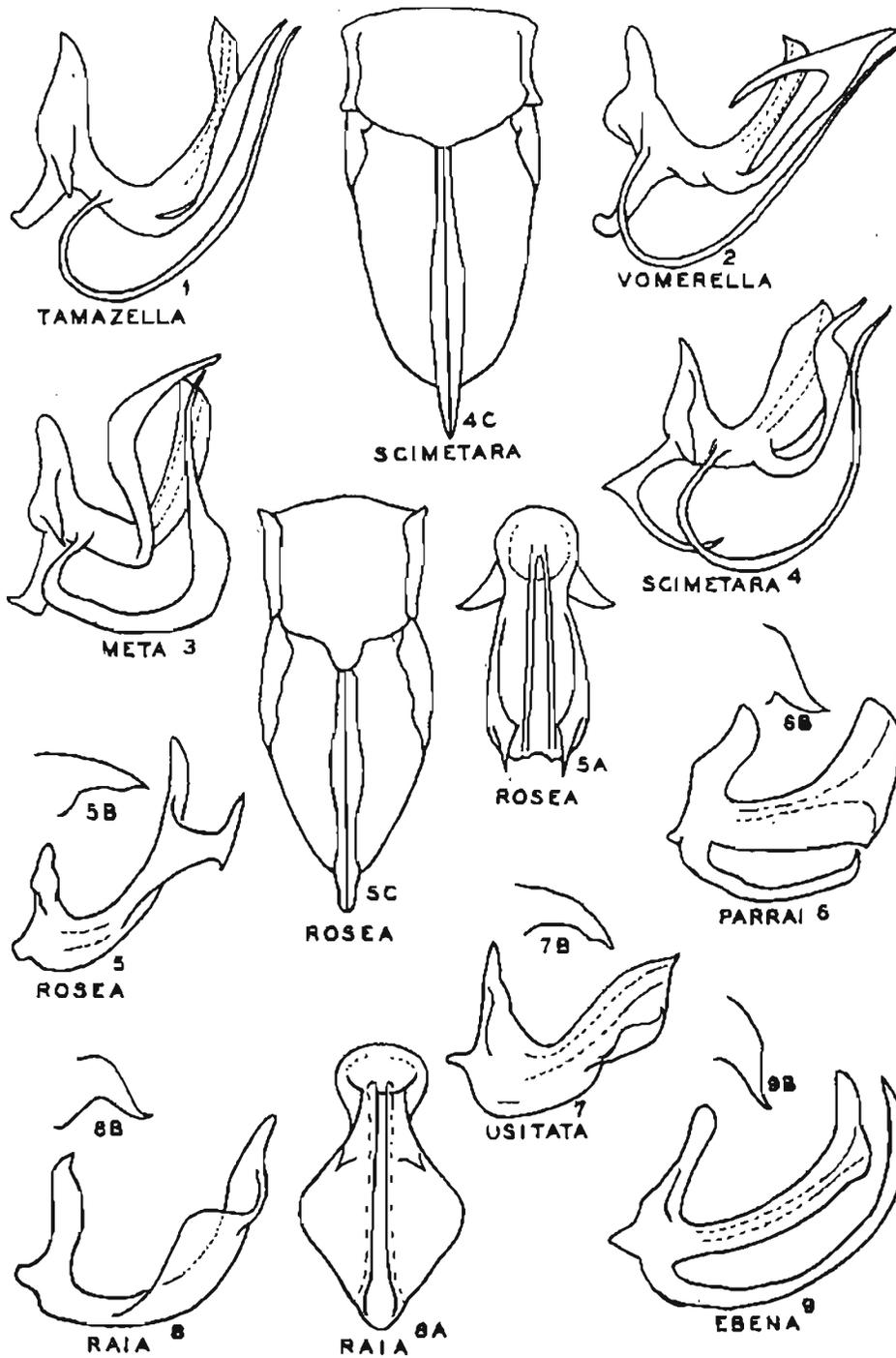
Genitalia: The pygofer, plates, and styles are similar to those of *rosea*. The pygofer hooks arise on the dorso-caudal angles of the pygofer and are slightly recurved and sharply pointed. The base of the aedeagus is short with its dorsal processes short and sharp at their apices. A pair of ventro-lateral processes, equal in length to the phallicata, arise on the base of the aedeagus and extend caudad. The phallicata widens toward its apex, its width at the apex being about three times its width at the base.

Holotype male collected at Balsas, G'ro., Nov. 12, 1929 (M. F. 1501) by Dr. Dampf; paratype males collected at Tierra Colorada, G'ro., July 12, 1929 (M. F. 1534) by Dampf; Pungarabato, G'ro., Aug. 22, 1930 (M. F. 1763) by J. Parra; Arcelia G'ro., Aug. 17, 1930 (M. F. 1766) by J. Parra; and Iguala, G'ro., Sept. 11, 1939, by D. M. DeLong.

***Kunzeana ebena* n. sp.**

Resembling *parrai* in form and general appearance but differing in male genitalia. Length 2.7 to 3 mm.

Vertex produced about one-half of its length in front of the eyes with its median length equal to its basal width between the eyes. The body is slightly depressed and its face recedes sharply from the vertex. The shape of the vertex in the series at hand varies from pointed to somewhat rounded at the apex.



1, 2, 3, 4, 5, 6, 7, 8, 9— aedeagus (lateral view).
 5a, 8a— aedeagus (ventral view).
 5b, 6b, 7b, 8b, 9b— pygofer hook (lateral view).
 4c, 5c— female seventh sternite and pygofer.

Color: The coloration in the series at hand varies from a nearly uniform reddish orange to a mottled, golden yellow. The vertex is reddish orange bordered anteriorly by an ivory band and flecked with obscure cream spots on its disk. The face is a uniform, rich black. The pronotum is orange-brown bordered anteriorly by a dull orange band which bears a few cream spots. The scutellum is dull orange. The elytra are yellow to reddish orange with their apices hyaline.

Genitalia: The pygofers, plates, and styles of the male are similar to those of *parrai*. The base of the aedeagus is rather long with its dorsal processes long and slender. A pair of thin ventro-lateral processes, slightly longer than the phallicata, arise at the base of the aedeagus. The phallicata is moderately slender to near its distal quarter where it flares to make the phallicata about twice as wide at its apex than it is at the base.

Holotype male and male paratypes collected at Valles, S. L. P., Sept. 24, 1941, by DeLong, Good, and Caldwell; male paratypes, Iguala, G'ro., Sept. 11, 1939, by D. M. DeLong, and Oct. 25, 1941, by DeLong and Good; male paratypes, Paso de Vacas, G'ro., Sept. 3, 1930 (M. F. 1792) by J. Parra; male paratypes, Mezcala, G'ro., Nov. 13, 1929 (M. G. 1512) by Dr. Dampf; male paratypes, Zirandarao, G'ro., Aug. 29, 1930 (M. F. 1786) by J. Parra; male paratypes, Cutzamala, G'ro., Aug. 20, 1930 (M. F. 1768) by J. Parra; male paratype, Cocula, G'ro., Aug. 6, 1930 (M. F. 1753) by J. Parra; male paratype, Yetla, G'ro., Aug. 11, 1930 (M. F. 1756) by Parra; male paratype, Balsas, G'ro., Aug. 15, 1930 (M. F. 1754) by J. Parra; male paratype, Arcelia, G'ro., Aug. 17, 1930 (M. F. 1766) by J. Parra; male paratype, San Geronimo, G'ro., Aug. 30, 1930 (M. F. 1787) by J. Parra.

***Kunzeana meta* n. sp.**

Resembling *aurulenta* in general appearance but with a longer, more sharply pointed head and with distinctive genitalia. Length 2.4 mm.

The vertex is produced two-thirds of its length in front of the eyes, it is sharply angled at its apex, and its median length is slightly greater than its basal width between the eyes.

Color: The vertex is golden tan with its anterior margin ivory and with a median longitudinal line and a short, longitudinal line on each side of its disk, light cream. The face is light golden tan. The pronotum is light yellow bordered anteriorly with an irregular ivory band. The scutellum is ivory with its apex, basal angles, and a pair of median, longitudinal, lines light orange. The elytra are light yellow with most of each clavus and their distal halves, semi-hyaline.

Genitalia: The plates, styles, pygofers, and pygofer hooks of the male are similar to those of *aurulenta*. The base of the aedeagus is narrow, ring-shaped, with each of its dorsal processes bearing sharpened, dorsal, and ventral projections. The phallicata is nearly parallel sided, obliquely truncate at its apex, and bears two pair of processes; a basal, lateral, clavate pair, and a pair of more distal, lanceolate, ventro-lateral processes reflexed over the phallicata. The basal processes widen to near their distal third where they narrow abruptly, terminating in whip-like apices. Holotype male and male paratype collected at Tamazunchale, S. L. P., Sept. 25, 1941, by DeLong, Good and Caldwell.

***Kunzeana scimetara* n. sp.**

Resembling *aurulenta* in general appearance but with the vertex more sharply angled at its apex and with distinctive male genitalia. Length 2.5 mm.

The vertex is strongly produced and sharply angled at its apex with its median length equal to the basal width between the eyes.

Color: The vertex is cream on the disk with its anterior margin broadly bordered with an ivory band. A light orange band, irregular on its posterior margin, extends between the ivory anterior band and the cream disk of the vertex. The face is light tan with its genae and lorae, cream. The pronotum is golden yellow, semi-hyaline on its posterior margin, and bordered anteriorly with an ivory band which bears some elongate, light orange spots. The scutellum is cream with a pair of longitudinal, median lines, its apex and its basal angles orange. The elytra are golden yellow with the margins of the clavus, the distal portion of the costal margin, and the apical cells, semi-hyaline.

Genitalia: The plates, styles, pygofers, and pygofer hooks of the male are similar to those

of *aurulenta*. The base of the aedeagus is narrow and ring-shaped and bears a short, slender, caudally-directed ventral process. Each dorsal process of the base has sharpened, dorsal and ventral projections. The phallicata is broad, widening slightly to near its apical quarter where it narrows suddenly to a pointed apex. Two pair of processes are borne on the phallicata; a pair of long, slender lateral processes which curve ventrad and then dorsad and extend to the apex of the phallicata, and a pair of clavate, ventro-lateral processes which extend parallel to the phallicata to near its apex. Both pairs of processes are reflexed at their apices. The posterior margin of the seventh abdominal sternite of the female is slightly produced into a blunt lobe.

Holotype male and paratype males collected at Balsas, G'ro., Dec. 11, 1929 (M. F. 1501) by Dr. Dampf; allotype female and male paratypes, Valles, S. L. P., Sept. 24, 1941, by DeLong, Good and Caldwell; male paratypes from Mezcala, G'ro., Dec. 13, 1929 (M. F. 1512) by J. Parra; Cocula, G'ro., Aug. 6, 1930 (M. F. 1753) by Dampf; Iguala, G'ro., Sept. 11, 1939, by DeLong; Lake Peten, Guat., Nov. 12, 1925 (M. F. 794) by Dampf.

***Kunzeana tamazella* n. sp.**

Resembling *scimelara* in general form and appearance but with distinctive genitalia. Length 2.5 mm.

The vertex is sharply angled at its apex and its median length is as great as its basal width between the eyes.

Color: The vertex is golden tan bordered anteriorly with an ivory band and marked on its disk with obscure cream spots. The face is pale tan with its genae and lorae cream. The pronotum is pale yellow marked along its anterior margin with scattered ivory spots. The scutellum is ivory with its apex, basal angles, and a pair of median longitudinal lines, orange-yellow. The elytra are bright yellow with a stripe along the claval suture, a stripe between the sectors, and their apical cells, semi-hyaline.

Genitalia: The plates, styles, and pygofers of the male are similar to those of *scimelara*. The base of the aedeagus is ring-like and its dorsal processes are similar to those of *scimelara*. The phallicata bears two pair of processes, a basal, lateral pair and a more distal, ventro-lateral pair. The basal pair are long, thin, curved, extend to the apex of the phallicata, and are reflexed at their apices. The more distal pair are lanceolate and extend parallel to the phallicata to near its apex. Holotype male and male paratype collected at Tamazunchale, Mex., Nov. 15, 1938, by J. S. Caldwell; male paratypes, Iguala, G'ro., Sept. 11, 1939, by D. M. DeLong.

***Kunzeana vomerella* n. sp.**

Resembling *scimelara* in general form and appearance but with distinctive genitalia. Length 2.5 mm.

The vertex is bluntly angled at its apex and its median length is as great as its basal width between the eyes.

Color: The vertex is golden tan bordered anteriorly with an ivory band and bearing a median and a pair of lateral, parallel, longitudinal cream stripes on its disk. The face is golden with its genae and lorae dull cream. The pronotum is golden, bordered anteriorly with an ivory band which bears scattered, longitudinal, elongate, dull orange spots. The scutellum is ivory with its apex, basal angles, and a pair of median, longitudinal stripes, dull orange. The elytra are orange-yellow with their apices pale yellow.

Genitalia: The plates, styles, pygofers, and pygofer hooks of the male are similar to those of *scimelara*. The base of the aedeagus is ring-like with its dorsal processes like those of *scimelara*. The phallicata bears two pair of processes. The more basal of these are long, slim, curved, and extend to the apex of the phallicata. The more distal pair extend dorso-caudad to near their center where they turn abruptly cephalad.

Holotype male collected at Monte Alto, V. Cruz, July 3, 1932 (M. F. 2640) by Dr. Dampf; paratype male, Iguala, G'ro., Oct. 25, 1941, by DeLong and Good.

LITERATURE CITED

- Ruppel, R. F., and D. M. DeLong. 1951. Studies of the Genus *Kunzeana*. I. Five New Species of Mexican *Kunzeana*. Ohio Jour. Sci., 51: 187-191.
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