

TWO GENERA OF NORTH AMERICAN DECTICINÆ.

BY SAMUEL H. SCUDDER.

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I. TROPIZASPIS.

TROPIZASPIS was founded by Brunner in 1893 (Rév. Syst. Orth., 187), but without specification of species, except that the author knew of but one, coming from Washington Territory. As *Arytropteris steindachneri* from Puget Sound, described by Herman in 1874 from specimens in Brunner's collection, belongs here, as indicated by me in 1894 (Can. Ent., XXVI. 180), and is the only species hitherto described, it should doubtless be regarded as the type. Others are now described, but apparently none of them are as common as that described by Herman, which is found over a great extent of country, even beyond the Pacific coast, as it has occurred in Texas and possibly in Nebraska, as will be seen below. The species may be separated by the following table: —

TABLE OF THE SPECIES OF TROPIZASPIS.

- A¹. Hind femora scarcely or not more than half as long again as the pronotum, at least in the male.
 - b¹. Lateral carinæ of pronotum diverging continuously from the very base; supraanal plate of male triangular, apically rectangulate; anal cerci scarcely longer than basal breadth; supragenital plates very large, overlapping each other and the lateral margins of the subgenital plate, together apically rounded; subgenital plate with distinct though small styles *ovata*.
 - b². Lateral carinæ converging on the prozona and then diverging; supraanal plate of male quadrangular, apically transverse; anal cerci nearly twice as long as basal breadth; supragenital plates relatively small, attingent, together apically slightly acutangulate, not reaching lateral margins of subgenital plate; the latter with minute, scarcely noticeable styles *castanea*.
- A². Hind femora twice or almost twice as long as pronotum; lateral carinæ of pronotum converging on the prozona and then diverging.
 - b¹. Pronotum broadest far behind the middle of the metazona in both sexes; ovipositor rather gently curved.
 - c¹. Disk of pronotum irregularly mottled; ovipositor slightly narrowed in the middle (where it is narrower than the frontal fastigium) and faintly enlarged beyond *picturata*.

^c2. Disk of pronotum generally unicolorous, sometimes longitudinally striped, rarely irregularly and rather obscurely mottled; ovipositor not narrower in the middle than beyond, and broader than the frontal fastigium.

^b2. Prozona broadest scarcely behind the middle of the metazona, at least in the female; ovipositor rather strongly curved, not narrowed in the middle; hind femora basally stouter than in the other species *diabolica*.

steindachneri.

Tropizaspis ovata sp. nov.

Head rather large, testaceous, the fastigium narrower than the depressed basal joint of the antennæ, anteriorly truncate, sulcate. Pronotum nearly half as long again as broad, broadest posteriorly, ovate, anteriorly truncate, the prozona plane, the metazona gently tumid, the whole disk glistening testaceous longitudinally streaked with black, especially down the middle and at the sides; lateral carinæ rather sharp and somewhat prominent laterally but scarcely elevated, diverging continuously from the very base, the hind border strongly rounded and margined; median carina sharp but feeble, equal, percurrent; lateral lobes uniform testaceous. Legs testaceous, feebly clouded with fuscous, the hind femora less than half as long again as the pronotum. Abdomen uniform testaceous; supraanal plate of male triangular, apically rectangular but rounded, the sides with a slight basal tooth; anal cerci stout, brief, conical, scarcely longer than basal breadth; supragenital plates large, tumid, superiorly carinate, overlapping each other and surpassing laterally the subgenital plate, together apically rounded; subgenital plate with distinct styles.

Length of body, 21.5 mm.; pronotum 11.5 mm.; breadth of same, 8 mm.; length of hind femora, 16.5 mm.

1 ♂. California, D. A. Saunders.

Tropizaspis castanea sp. nov.

Head rather large, testaceous, irregularly marked with fuscous in slender stripes, the fastigium dotted with luteous, a little narrower than the first antennal joint, apically truncate, plane; antennæ long enough to reach a little beyond the hind femora, testaceous broadly banded with fuscous. Pronotum with asymmetrically clepsydral disk, about half as long again as broad, broadest posteriorly, very gently tumid, faintly pectinate transversely and posteriorly faintly rugulose, castaneous, the lateral carinæ distinct but rather blunt, feeble and converging on the prozona, on the metazona diverging and with the bluntly margined hind border forming a rather short ovoid; median carina faint, equal, percurrent; lat-

eral lobes castaneous, passing below into luteous. Legs castaneous, the femora flecked above with fuscous, the hind pair only half as long again as the pronotum. Abdomen castaneous, faintly clouded and obscurely flecked irregularly with fuscous; supraanal plate of male quadrangular, apically squarely truncate, the lateral angles slightly prominent; cerci rather short, but very much longer than basal breadth, subconical; supragenital plates attingent, together triangular, apically acutangulate, lying well within the margins of the subgenital plate; the latter slightly compressed, so as to be V-shaped as seen apically, the styles minute, scarcely noticeable.

Length of body, 24 mm.; pronotum, 12 mm.; breadth of same, 7.5 mm.; length of hind femora, 18 mm.

1 ♂. Los Angeles Co., California, Coquillett. Received from the U. S. National Museum, where are other specimens.

Tropizaspis picturata sp. nov.

Head not very large, testaceous mottled with brown, the fastigium narrower than the basal joint of the antennæ; antennæ testaceous, broadly interrupted with fuscous. Pronotum with clepsydral disk, which is more than a third as long again as broad and broadest posteriorly, the bent-arcuate lateral carinæ sharp but little elevated, the posterior border delicately margined, broadly rounded, the median carina sharp, not very elevated, equal and percurrent, the whole disk testaceous, irregularly but somewhat symmetrically pictured with brownish fuscous, the lateral lobes fusco-infumate except the luteo-testaceous lower margin. Legs testaceous, the fore and middle femora flecked and banded more or less conspicuously with fuscous, the hind femora slender, more than twice as long as the pronotum, testaceous dotted and clouded with fuscous, assuming more or less the form of brief oblique fasciæ externally, just above the outer inferior carina. Abdomen testaceous, the sides especially on basal half heavily banded with fuscous, leaving only a dorsal testaceous band about as wide as the narrowest part of the pronotal disk, rapidly broadening on the fourth segment; genitalia of the male much as in *T. steindachneri*, but in the single male at hand distorted by contraction, so as not to be described accurately; ovipositor castaneous, basally lutescent, rather gently curved, about three quarters the length of the hind femora, slightly narrowed in the middle (where it is narrower than the frontal fastigium) and faintly enlarged beyond, the denticulations acute, erect, separated by their own height.

Length of body, ♂, 14.5 mm., ♀, 18.5 mm.; pronotum, ♂, 7 mm.,

♀, 8 mm.; breadth of pronotum, ♂, 5 mm., ♀, 5.5 mm.; length of hind femora, ♂, 17 mm., ♀, 20.5 mm.; ovipositor, 15.5 mm.

1 ♂, 1 ♀. Northwestern boundary survey, Kennerly.

Tropizaspis steindachneri.

Arytropteris steindachneri Herm., Verh. Zool.-Bot. Ges. Wien, XXIV. 204-205, Pl. 6, Figs. 98-102 (1874).

Tropizaspis steindachneri Scudd., Can. Ent., XXVI. 180, 183 (1894).

This is altogether the commonest form of *Tropizaspis*, to judge from the specimens I have seen, and is somewhat variable in coloration and markings, though usually rather uniformly testaceous or fusco-testaceous, with the upper part of the lateral lobes of the pronotum infuscated. Herman states that the median carina of the pronotum stops before the hind border, but it is percurrent in all the specimens I have seen, 46 in number.

It was originally described from Puget Sound. I have seen specimens made on the northwestern boundary survey by Dr. Kennerly; from Oregon (Oregon City, Harford; Mary's Peak, Benton Co., Sept. 16, Divide, Sept. 12, Drain, Sept. 11, Glendale, Sept. 9, and Siskiyou, Sept. 6, Morse); California (Mendocino; Napa Co., Edwards; Napa or Sonoma Co., Osten Sacken); and El Paso, Texas, Uhler. I have also specimens from Uhler's collection marked as taken by Suckley in Nebraska, but I am inclined to think this an error, as Suckley collected also in the northwest, and Bruner has not given it in his Nebraska lists.

Tropizaspis diabolica sp. nov.

Head moderately large, castaneo-testaceous, the fastigium slightly broader than the basal joints of the antennae. Pronotum with rather feebly clepsydral disk, which is considerably more than half as long again as broad, broadest but little behind the middle of the metazona, and of nearly equal breadth throughout the posterior half of the pronotum, the lateral carinae not elevated on the prozona, on the metazona a little elevated but blunt; hind border margined, broadly rounded; median carina feeble, subequal, percurrent; the whole disk uniform castaneous, transversely pectinate, feebly rugose posteriorly, the lateral lobes fusco-fuliginous on upper half, castaneo-testaceous below. Legs luteo-testaceous, the fore and middle femora twice banded with blackish fuscous, the hind femora coarsely and a little transversely spotted above with blackish fuscous, much more than twice as long as the pronotum, the basal portion

unusually stout. Abdomen dull luteo-testaceous, faintly infuscated in blotches laterally; ovipositor rather strongly curved, not narrowed in the middle more than beyond, luteo-testaceous, a little infuscated in the apical half, nearly two thirds as long as the hind femora, the denticulations blunt, oblique, separated by more than their own height.

Length of body, 25 mm.; pronotum, 10.5 mm.; breadth of same, 6 mm.; length of hind femora, 25.5 mm.; ovipositor, 16 mm.

1 ♀. Monte Diablo, California, August, 1872.

I have seen another species of *Tropizaspis*, closely allied to *T. steindachneri*, but easily distinguished by the stout apical spine on the inner margin of the narrower supragenital plates of the male, collected by A. P. Morse on Mt. Wilson, Altadena, California, July 27. The hind legs are long as in *T. steindachneri*, and the coloring similar. Unfortunately the single specimen was badly damaged before opportunity occurred to describe it.

II. CACOPTERIS.

Cacopteris was proposed by me in 1894 (Can. Ent., XXVI. 178, 181; see also Guide N. A. Orth., 1897, 56) as a new genus of Decticinae for several Pacific coast species, all of which were said to be new and none were at that time described. It was peculiar in that the upper surface of the fore tibiae was sometimes spined and sometimes unarmed on the inner side, this being sometimes the case even within the range of a single species. The species known to me are herewith described, and a table given for their separation. Probably others will be found, as many of these are known by only one or two examples.

The genus may be characterized as having an unarmed prosternum; the pronotum smooth, similarly arched in front and behind, with rarely any lateral or median carinae (and when present obscure and generally partial); the legs long, the hind femora generally extending well beyond the abdomen; the tegmina mere pads mostly or quite concealed by the pronotum in the female, small, apically rounded, and scarcely longer than broad in the male; the supraanal plate of male bifid, the cerci generally subcylindrical, often more or less incurved, with an inner median hook generally of considerable size, the subgenital plate apically emarginate with a pair of small and slender styles; and the ovipositor long and straight or very faintly upcurved. It has somewhat the aspect of the European *Antaxius*.

The only species known are confined to the Pacific coast region of North America, though some occur east of the Sierra Nevadas. Some of the species originally referred to it do not belong here, so that there are inaccuracies in my brief remarks in the Canadian Entomologist, *loc. cit.*, p. 181. *C. æqualis* may be regarded as the type.

TABLE OF THE SPECIES OF CACOPTERIS.

- a*¹. Male with no spines on inner margin of fore tibiæ above, and rarely with any black spot at outer apex of tegmina. Female also with no spines on inner margin of fore tibiæ above, or rarely with a single one.
- b*¹. Pronotum relatively short, being but little longer than broad; apical dentations of supraanal plate of male blunt, at least as broad as long.
- c*¹. Tegmina of male fusco-testaceous, unicolorous; supraanal plate of male broadly and roundly emarginate at apex *inermis*.
- c*². Tegmina of male light testaceous, with a distinct black apical spot; supraanal plate of male deeply and angularly emarginate apically. *fuscopunctata*.
- b*². Pronotum relatively long, being about half as long again as broad; apical dentations of supraanal plate of male acuminate, at least twice as long as broad.
- c*¹. Lateral lobes of pronotum with a slight inferior flange anteriorly; fore femora as long as pronotum; cerci of male prolonged apically beyond the inner median tooth to a bluntly acuminate spine reaching well beyond the subgenital plate *sinuata*.
- c*². Lateral lobes of pronotum with a pronounced inferior flange anteriorly; fore femora shorter than pronotum; cerci of male with a short blunt conical extension beyond the inner median tooth, not reaching the tip of the subgenital plate *ephippiata*.
- a*². Male with one or two, generally two, spines on inner margin of fore tibiæ above, and a distinct black spot at outer apex of tegmina.* Female generally spined on fore tibiæ as much as male, rarely without spines.
- b*¹. Ovipositor almost or quite as long as hind femora, which are little if any longer than the body.
- c*¹. Ovipositor much longer than hind femora; apical dentations of supraanal plate of male triangular, somewhat brief, separated by a V-shaped cleft; apical hook of cerci comparatively stout, apically bent *nevadensis*.
- c*². Ovipositor about as long as hind femora; apical dentations of supraanal plate of male slender, acuminate, separated by a U-shaped sinus; apical hook of cerci comparatively slender, feebly incurved at tip *æqualis*.
- b*². Ovipositor only three fourths as long as hind femora, which are much longer than the body *femorata*.

* The male of *C. femorata* is unknown, but as the female has two or three spines on the inner margin of the fore tibiæ above, it evidently belongs in this category.

Cacopteris inermis sp. nov.

Blackish fuscous, the whole dorsum of the female testaceous, often flecked or clouded with fuscous, the sides of the abdomen of same sex often sprinkled with testaceous. Head testaceous below the lower level of the eyes, often more or less flecked inconspicuously with fuscous; antennæ rufo-fuscous, rufous basally, rather longer than the body. Pronotum with the lower and posterior margin edged with luteous, the lateral lobes deep, with scarcely perceptible posterior sinus, strongly bent-arcuate below, the whole but little longer than broad. Tegmina of male fusco-testaceous, unicolorous, of female testaceous. Legs rather short, fusco-testaceous, the lower half of hind femora testaceous; fore femora much shorter than the pronotum; fore tibiæ normally with no spines on inner margin above (a single female has one); hind femora very much shorter than the body. Supraanal plate of male strongly transverse, the apical lobes broad, short, and rounded, the intervening sinus broad and arcuate; cerci stout, strongly incurved, both the stout inner median tooth and the depressed apical projection triangular, strongly incurved and decurved, and sharply pointed; subgenital plate with acutangulate apical emargination, the styles as long as apical breadth of plate; ovipositor castaneous, marked with black at base, straight, much longer than hind femora, though shorter than body.

Length of body, ♂, 17 mm., ♀, 21 mm.; pronotum, 5 mm., ♀, 6 mm.; fore femora, ♂, 3.75 mm., ♀, 4 mm.; hind femora, ♂, 14 mm., ♀, 14.5 mm.; ovipositor, 18.5 mm.

2 ♂, 3 ♀. Vicinity of Lake Tahoe, Nevada, Sept., H. W. Henshaw, Lt. Wheeler's exploration of 1876.

The supraanal plate and cerci of the male are quite different from those of any other species. It also has shorter legs.

Cacopteris fuscopunctata sp. nov.

Dark fusco-testaceous, the face blackish fuscous and behind the eye a narrow piceous stripe crossing the pronotum but broadly interrupted on the prozona; the legs dark fusco-testaceous, the tegmina light testaceous with a distinct black apical spot, the antennæ half as long again as the body, rufo-testaceous, narrowly ringed with fuscous at the apex of the joints. Pronotum but little longer than broad, the lateral lobes deep with no posterior sinus, bent-arcuate below, the disk with a faint median carina. Legs of moderate length, the fore femora slightly shorter than the pronotum, the fore tibiæ without spines on the inner margin above,

the hind femora about as long as the body. Supraanal plate broad triangular with a very deep apical sinus, separating two dentiform triangular lobes not so long as broad and apically acute, not reaching so far back as the subgenital plate; cerci fairly stout with similar and subequal, conical, indirected, median and apical spines of no great size, blunt tipped; subgenital plate subtruncate apically, with a feeble median emargination, the styles slight, less than half as long as the apical breadth of the plate.

Length of body, 14 mm.; pronotum, 4.5 mm.; fore femora, 4 mm.; hind femora, 14 mm.

1 ♂. Tehachapi, Cal., Aug. 2, A. P. Morse.

This species bears a close general resemblance to *C. aqualis*, from which it is distinguished by its unarmed fore tibiæ, slightly shorter hind femora, and the male genitalia.

Cacopteris sinuata sp. nov.

Light olivaceo-testaceous, the inferior margin of the lateral lobes of pronotum broadly bordered with luteous, and faint luteous stripes in place of lateral carinæ. Face yellow testaceous, narrowly edged below next clypeus with rufous. Pronotum about half as long again as broad, the lower margin of lateral lobes sinuate, the lobes being but little deeper on anterior than on posterior half of pronotum, the sinus rather slight. Tegmina dark fuscous, with luteous veins. Legs long, the fore femora slightly longer than the pronotum, the fore tibiæ with no spines on the inner margin above. Abdomen with a pair of narrow, luteous, latero-dorsal stripes fading basally; supraanal plate developing an apical pair of long, triangular, uniformly tapering and acuminate lobes, separated by a deep and narrow fissure, the lobes reaching as far as the subgenital plate; cerci cylindrical, long, sinuate, with a brief postmedian, interior, conical, pointed tooth, beyond which the cerci taper to a blunt point, this whole apical portion surpassing the subgenital plate; the latter with a subrectangulate apical emargination, the styles slender, less than half as long as the apical breadth of the plate.

Length of body, 20.5 mm.; pronotum, 6 mm.; fore femora, 6.5 mm.

2 ♂. Fort Whipple, Arizona, E. Palmer.

The colors are probably affected by immersion in alcohol. Unfortunately neither specimen has hind legs preserved.

Cacopteris ehippiata sp. nov.

Luteo-testaceous, the lower anterior margin of lateral lobes bordered with luteous, the outer face of the stouter part of the hind femora with a slender median and broader and longer inferior fuscous streaks, the tegmina blackish, with the main lateral veins luteous. Pronotum about half as long again as broad, the lateral lobes twice as deep in the anterior as in the posterior half, the sinus deep, the lower margin of deeper portion of pronotum strongly arcuate. Fore femora considerably shorter than pronotum, the fore tibiæ with no spines above on inner margin, the hind femora long, as long as the body. Supraanal plate with a pair of subattendant, long and slender, tapering, depressed and pointed dentiform lobes, nearly reaching the tip of the subgenital plate, separated by a deep and narrow fissure; cerci similar to those of *C. sinuata* but stouter and shorter, the tip not reaching so far back as the subgenital plate; the latter rather narrow apically with rectangulate emargination.

Length of body, 20 mm.; pronotum, 7.1 mm.; fore femora, 6 mm.; hind femora, 20 mm.

1 ♂. Sonora, Schott, Emory's Mexican boundary survey.

Cacopteris nevadensis sp. nov.

Fusco-griseous, the lateral lobes of pronotum more or less marked with piceous especially above, with a luteous patch bordering the infero-posterior margin; head somewhat lighter below the lower level of the eyes, the legs concolorous, the tegmina of the male dull testaceous, with an apical black spot outwardly; antennæ much longer than the body, rufo-testaceous. Pronotum but little longer than broad, the lateral lobes deep, the lower margin strongly bent-arcuate with no sinus posteriorly. Legs rather long, the fore femora as long as (♂) or shorter than (♀) the pronotum, the fore tibiæ with one or two (♂) or no (♀) spines on the inner margin above, the hind femora as long as (♂) or shorter than (♀) the body. Supraanal plate of male triangular, somewhat brief, fissured apically by a deep V-shaped cleft, forming on either side a short, triangular, pointed lobe not reaching so far as the subgenital plate; cerci with the basal half cylindrical, rather stout, at its end furnished with an interior hook, beyond which the cerci form an incurved, tapering, acuminate spine, bent before the infuscated tip; subgenital plate apically narrowed by compression, rectangularly emarginate, the styles moderate, more than half as long as the apical width of the plate; ovipositor straight, longer than the hind femora, but shorter than the body.

Length of body, ♂, 17 mm., ♀, 22.5 mm.; pronotum, ♂, 4.75 mm., ♀, 5.5 mm.; fore femora, ♂, 4.75 mm., ♀, 4.5 mm.; hind femora, ♂, 17 mm., ♀, 18 mm.; ovipositor, 20 mm.

2 ♂, 1 ♀. Ruby Valley, Nevada, Ridgway; mountains near Lake Tahoe, Nevada, Oct. 14, Henshaw, Lt. Wheeler's explorations of 1876.

The female, which alone comes from the last named source, may possibly belong to a distinct species; it differs in having a darker and more uniform coloring, with nearly uniformly fuscous lateral lobes (except the luteous patch) as well as in the points brought out in the description.

Cacopterus æqualis sp. nov.

Fusco-testaceous, often clouded with fuscous, generally but not always with a fuscous patch on the lateral lobes of the pronotum, posteriorly overhanging a crescentic luteous bordering to the lower margin; face generally a little lighter colored below the lower level of the eyes; antennæ nearly twice as long as the body, luteo-testaceous; tegmina of male testaceous, with a distinct black spot at the apex; hind femora testaceous, generally more or less infuscated, occasionally streaked longitudinally with blackish fuscous externally. Pronotum scarcely longer than inferior breadth, with deep lateral lobes, the lower margin strongly bent-arcuate, with a slight posterior sinus. Legs long, the fore femora nearly or quite as long as the pronotum, the fore tibiæ with a pair of spines on the upper inner margin, the hind femora slightly longer than the body. Supraanal plate of male with an apical pair of rather widely separated, slender, acuminate denticulations, as long as the body of the plate, reaching nearly as far as the tip of the subgenital plate, and separated by a wide U-shaped sinus; cerci stout and cylindrical in basal half, the apical half forming an inbent, apically incurved, slender, tapering hook, springing from the inner apical part of basal portion; subgenital plate apically rectangularly emarginate, the styles moderate, nearly as long as the apical breadth of the plate; ovipositor faintly upcurved, about as long as the hind femora.

Length of body, ♂, 19.75 mm., ♀, 21 mm.; pronotum, ♂, 5.25 mm., ♀, 5.5 mm.; fore femora, ♂, 5 mm., ♀, 5.75 mm.; hind femora, ♂, 20.5 mm., ♀, 22 mm.; ovipositor, 22 mm.

9 ♂, 5 ♀. Los Angeles, Cal., July 26, A. P. Morse, D. W. Coquillett; Cahon Pass, Cal., July 19, A. P. Morse. Two immature ♀ from Mt. Wilson, Altadena, Cal., July 27, A. P. Morse, may also belong here. Other specimens are in the U. S. National Museum.

Cacopterus femorata sp. nov.

Nearly uniform very dark fusco-testaceous, the hind femora lighter testaceous except for a black median stripe on the outer and inner sides, larger without, the head fusco-castaneous; antennæ nearly twice as long as the body, rufo-testaceous. Pronotum but little longer than inferior breadth, the lateral lobes angularly separated from the disk posteriorly, forming slight blunt lateral carinæ, the lobes deep, a little lighter colored below, the inferior margin strongly bent-arcuate, with a slight posterior sinus. Legs unusually long, the fore femora slightly longer than the pronotum, the fore tibiæ with two or three spines on the inner margin above, the hind femora much longer than the body. Ovipositor concolorous, feebly upturned, almost as long as the body.

Length of body, 20.5 mm.; pronotum, 5.5 mm.; fore femora, 6 mm.; hind femora, 25 mm.; ovipositor, 19 mm.

1 ♀. South Santa Monica, Cal., July 30, J. J. Rivers through A. P. Morse.

Easily distinguished by the carinæ of the pronotum, the long hind legs, and relatively short ovipositor.