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This species so far as known is confined to the northern half of the United States in the general vicinity of the Rocky Mountains. Specimens before me come from the upper Missouri and Yellowstone (F. V. Hayden), explorations in Dakota under Gen. Sully (S. M. Rothhammer), Nevada (H. Edwards), Utah (P. R. Uhler), about Rangeley on the lower White River, western Colorado (S. H. Scudder), Colorado, 5500', probably at the eastern edge of the foot-hills (H. K. Morrison, in S. Henshaw's coll. and my own), and Yuma, Arizona, collected by Wickham (Bruner).

I have seen but two specimens with red hind wings, both females from Rangeley, Colorado.

#### HIPPISCUS (X.) TOLTECUS.

*Xanthippus toltecus* Sauss., Prodr. Oedip., 91-92.

If I have correctly identified Saussure's species it has a wide range. He records it from Mexico alta. I have seen specimens from Spring Lake Villa, Utah Co., Utah, Aug. 1-4 (E. Palmer), Helena, Montana, June 21 (A. S. Packard), and Laramie River, Wyoming, (L. Bruner.)

#### HIPPISCUS (X.) ALTIVOLUS sp. nov.

Dark obscure brownish fuscous, not very robust and of small size. Head dull dirty cinereous with numerous more or less clustered blackish points, most abundant above;

summit relatively broad, scarcely at all tumid, subrugulose, the vertical fastigium indistinct from the low and dull bounding walls, closed behind by the arcuate incurving of the lateral walls, separated distinctly from the tolerably deep, biareolate median foveola; lateral foveolae rather small, triangular, subequiangular; frontal costa of moderate breadth, fading and not expanding below, but little contracted at summit, broadly and shallowly sulcate throughout. Prothorax but slightly expanding on the metazona, the dorsal area plane, scarcely indentate at the front margin of the metazona, sparsely verrucose and in addition abundantly but bluntly and obscurely arenaceous; process rectangulate; median carina low, subequal, not arched; lateral carinae tolerably pronounced; lateral lobes bluntly subrugulose on the metazona, marked with a large subquadrate blackish spot on the prozona. Tegmina very short, extending when at rest but little beyond the hind femora, dirty cinereous with obscure dark brownish fuscous transverse more or less blended bands, broader than the intermediate ashen ground, and therefore occupying much the larger space even on the apical half which is scarcely at all vitreous; sutural stripe obscure testaceous. Wings pale dull citron at base with similar reticulation, subvitreous apically with black reticulation and between a strongly arcuate, moderately narrow, blackish fuliginous band which narrows in passing toward the anal angle, which it fails to reach, and does not narrow above; it lies entirely in the apical half of the wing, leaves four marginal lobes free, and appears not to be at all separated from the humeral vitta whose outer limit is in oblique continuation of its outer curve and which reaches almost to the base; the basal half of the costal margin is testaceous. Hind femora brownish cinereous externally, with rather obscure oblique brownish stripes, the inferior surface dull coral red like the tibiae which are more or

less pallid on the sides and basally above; spines black tipped.

Length of body, 32.5 mm.; of tegmina, 20 mm.

Described from 1 ♀.

After describing the above female I received a male through the kindness of Mr. Bruner which differs from the female in general appearance much as do the males from the females in *H. (X.) Pumilus*. I may add that the lighter markings of the tegmina are slightly more distinct and better defined and the fuscous band of the wings (which are pale red at the base) is decidedly broader than in the ♀ and is re-enforced by quadrate cellular fuscous spots in the otherwise hyaline apex.

Length of body, 20 mm.; of tegmina, 19 mm.

Taken by me on the side of Mt. Lincoln, Colorado, above timber, between 11000-13000' above sea-level, Aug. 13, and by Mr. Bruner at Como, Colorado, (about 9500') July 16. It appears therefore to be an alpine form.

#### HIPPISCUS (X.) CUPIDUS sp. nov.

Similar to the last but a much larger species and of a robust form. Dark cinereo-fuscous. Head cinereous on the cheeks, blackish fuscous above and to a considerable extent in front, especially on the sides of the frontal costa; summit broad, slightly tumid, longitudinally rugulose, the vertical fastigium hexagonal with distinct and somewhat prominent lateral walls, partially closed with lower walls behind, with a median carina in its posterior half (which extends over the summit), more deeply impressed on its anterior than on its posterior half, but

partially open to the subquadrate biareolate median foveola; lateral foveolae small, distinct, triangular; frontal costa broad, rather deeply sulcate throughout, but little contracted above and hardly more than below the ocellus, widely expanding at the base and not there evanescent; antennae blackish, paling at the base. Prothorax stout and massive, the prozona distinctly tectiform but tumid, the metazona plane but longitudinally a little arcuate and centrally tumid, rather deeply impressed at the principal sulcus, the whole dorsal surface verrucose and briefly and longitudinally rugulose, but nowhere crowded with elevations; median carina moderately high and more or less arched in each of its divisions, greatly subdued between the sulci; lateral carinae distinct and rather sharp, particularly at the principal sulcus; lateral lobes bluntly verruculose, especially on the metazona, with a large, median, glabrous, subquadrate black patch having a quadrate cinereous patch in the lower posterior quadrant; process of metazona rectangulate. Tegmina only reaching as far as the hind femora, stout, blackish fuscous, paling a little distally, with distinct, small, bright cinereous, triangular markings, besides cinereous stripes along the lines of the principal nearly attingent veins, all having the same effect as the pantherine markings common in this group. Wings pale citron at base with similar reticulation and along the basal half of the front margin, vitreous apically with black reticulation and more or less fuliginous at tip, with a strongly arcuate, median, fuliginous band moderately far from the margin and separated only by a citron vein from the humeral vitta, which is in oblique continuation of its outer limit, and extends to the base of the wing, a blackish marginal stigma at its outer limit. Hind femora very broad with high carinae, cinereous with three strongly oblique blackish bars narrowest and darkest below, very broad above, the inner and inferior surface coral red; tibiae dull coral red, more or less infuscated on the

sides with cinereous carinae; spines black tipped.

Length of body, 37 mm.; of tegmina, 25 mm.

Described from 1 ♀ in the collection of Mr. Lawrence Bruner, taken on the Pinal Mountains of Arizona. It is apparently an alpine form.

HIPPISCUS (X.) PUMILUS sp. nov.

Very dark brown with generally slight cinereous shades, of rather a slender form (the ♀ more robust) and of a small size. Head tolerably tumid and moderately broad above, very variable in abundance and prominence of rugosities, but which are never very pronounced; darkest above, the face and cheeks often pallid cinereous flecked with fuscous, sometimes collected into short oblique stripes on the posterior part of the head; vertex of fastigium distinct and plane with sharp but low bounding walls, broader in ♀ than in ♂ where it is usually longer than broad, rarely closed behind, the lateral walls usually regularly arcuate with a slight tendency to a median angle; median carina generally terminating in the middle of the fastigium; lateral foveolae subtriangular, considerably longer than broad, rather shallow; median foveola variable, sometimes obsolete, sometimes biareolate and distinct from vertical fastigium only by being at a lower level; frontal costa moderately narrow, narrowed at summit, sulcate, sometimes through its whole extent and then continuous with and suppressing the median foveola, sometimes not affecting the summit, the lower portion expanding more or less and finally obsolete. Antennae shorter than (♀), or more than half as long again as (♂) the head and prothorax together, luteo-fuscous at base, blackish fuscous beyond, distinctly tapering only in the last three or four joints in the ♀, in at least the latter fifth and cochleate in the ♂.

Prothorax compressed and expanding very slightly in the ♂, robust and expanding considerably in the ♀, the prozona subectiform, the metazona plane and in the ♀ a little tumid centrally, with scattered slight, short, linear verrucosities inclined in various directions and besides but few granulations; a broad bent pallid or cinereous band on either side, often obsolete; median carina slight and equal; lateral carinae distinct and rather sharp but not prominent; upper portion of lateral lobes of prozona black or blackish with a superior oblique pallid dash and a median posterior quadrate pallid spot. Tegmina blackish brown with pale cinereous markings often almost wholly obliterated except some slight spots and streaks along the costal margin and a narrow transverse stripe crossing the base of the outer discoidal area; generally also with a triangular patch depending from the costal margin and extending, sometimes interrupted, across the middle of the inner discoidal area, with another slender stripe midway between this and the outer stripe and connected with the latter by a stripe following the base of the anterior ulnar nervule; but sometimes increased in extent and in number by multiplication of other, sometimes sinuous, transverse stripes, especially in the apical half and in the upper portion of the extreme base so that the ground is about equally divided between the two colors and the markings assume somewhat the distribution which prevails in *H. (X.) afflictus*; there is a broad conspicuous bright flavous sutural stripe and the brown axillary field is usually immaculate. Wings very pale citron or salmon red at base with corresponding reticulation, vitreous apically, the extreme apex sometimes maculate, with black reticulation and a fuliginous median arcuate band, which is generally fainter and narrower in the ♀ than in the ♂, where it is sometimes blackish fuliginous, and varies from a width hardly equal to more than one of the interspaces (when it may escape the border altogether) to a broad band more

or less confused with the more or less fuliginous maculate apex, and when not so confused generally leaving three or four marginal lobes free; it is separated distinctly by a pale yellow line from the humeral vitta which extends from its outer margin almost or quite to the base, leaving on the basal half of the costal margin a yellowish line. Hind femora more or less pallid, lighter or darker cinereous externally, traversed by three strongly oblique blackish bands, within coral red blotched heavily with black, beneath like the tibiae coral red, the outer side of the latter more or less pallid, the spines black tipped; but the brighter colors may vary all the way from coral red to luteous.

Length of body, ♂, 18-24.5 mm., ♀, 26.5-35 mm.; of tegmina ♂, 17-23 mm., ♀, 20-26 mm.

Described from 51 ♂, 5 ♀.

This is mainly a Coloradan species taken at the height of 8-9000' (Morrison in S. Henshaw's, L. Bruner's collections and my own), at Florissant, (June, S. H. Scudder; June 13-15, R. Thaxter), and South Park, 8-9000' (June 16-23, R. Thaxter). Bruner, however, sends me also specimens from Taos Valley, N. Mex., and says it also occurs at Ft. Grant, Arizona.

Only one specimen, a ♀ from South Park, has red wings.

#### HIPPISCUS (X.) ALBULUS sp. nov.

Fusco-cinereous, of moderately robust form and small size. Head pretty large and tumid, especially in the ♀, cinereous, infuscated above and marked interruptedly with small blackish brown spots on all prominences below the eyes including a narrow oblique stripe across the cheeks; summit of head faintly rugulose with faint divergent shallow

sulcations extending backward from the posterior limit of the fastigium of the vertex; this deeply hollowed, with high and thin bounding walls, open behind, and in front scarcely separated from the deep, faintly biareolate, not very broad, median foveola; median carina slight, reaching the middle of the fastigium; lateral foveolae triangular, rather pronounced; frontal costa of moderate breadth, strongly contracted at summit and less so below the ocellus, sulcate throughout. Pronotum compact, considerably expanded on the metazona, rather sparsely and moderately verruculose and also rather faintly arenaceous, the metazona plane, the process rather less than rectangulate, the median carina rather slight, nearly straight, obsolete between the sulci and here accompanied by a distinct discal scutellum, the lateral carinae stout, heavy, distinct, and extended; sides of dorsum with diverging pallid bands in the ♂; lateral lobes of pronotum pallid or cinereous, heavily blotched with black. Tegmina with distinctly pantherine markings made up about equally of dark brown and pallid cinereous colors, the former prevailing and blending on the posterior, the latter on the anterior half of the tegmina; they are mostly transverse, but a single oblique small brown bar in the middle of the tegmina in an otherwise broad pallid patch lies at the base of the outer discoidal field; the sutural stripe is pallid cinereous. Wings pallid, perhaps in life pale citron at base with corresponding reticulation, pellucid apically with black reticulation, the ♂ with a slight trace of extreme apical infuscation, the space between, wholly in the apical half of the wing, with a narrow, strongly arcuate, more or less distinct, fuliginous band, tapering along the outer margin and not nearly reaching the anal angle, narrowing also to some extent above, in the ♀ obsolescent, and leaving only about three marginal lobes free; it is separated by a clear line from the humeral vitta which, though it reaches nearly to the base, extends outward hardly beyond the inner limit of the



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