

Creagrutus hysginus (Teleostei: Characiformes),
a New Species of Characid from
Northeastern Venezuela, Sucre State

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A new *Creagrutus* species is described based on material from rivers draining into the Gulf of Paria, northeastern Venezuela. The species is distinguished by putatively derived characters of pigmentation of the fins, including a brilliant red adipose fin and the presence of dark pigment on only the lateral, unbranched ray of the pectoral fin. Other characters which, in combination, serve to distinguish *C. hysginus* include the presence of hooks on only the first two or three anal-fin rays, nine or 10 anal-fin rays, and a rounded or blotchlike humeral mark.

Una nueva especie de *Creagrutus* es descrita basada en material proveniente de los ríos que drenan en el Golfo de Paria, en el Noreste de Venezuela. Esta especie se distingue por caracteres derivados en la pigmentación de las aletas, incluido una aleta adiposa rojo brillante y la presencia de pigmentos oscuros sobre solo el radio simple y lateral de la aleta pectoral. Otros caracteres que en combinación sirven para distinguir a *C. hysginus*, incluyen la presencia de ganchos sobre solo primeros 2 ó 3 radios anales, 9 ó 10 radios anales y una mancha humeral redondeada.

Characid fishes of the genus *Creagrutus* are common elements of upland and foothill drainage systems through much of South America as far south as the Río Paraguay system. Most of the species have relatively restricted distributions (see, for example, Vari et al., 1993; Harold and Vari, 1994); but one species, *C. beni* Eigenmann, 1911, which was described from Bolivia, has been reported from virtually throughout the range of the genus (e.g., Eigenmann, 1927).

Material from the Río Yarapa, Venezuela, was incorrectly ascribed to *C. beni* by Fowler (1931: 408). *Creagrutus beni* probably does not occur in Venezuela, based on our survey of the species in the genus; and the material from Estado Sucre, referred to by Fowler, and additional, recently collected specimens, represents an undescribed species. *Creagrutus hysginus* is described at this time to make its name available for use in an ongoing study by RPV and ASH of phylogenetic relationships of *Creagrutus*.

METHODS

Institutional abbreviations for collections from which specimens were examined are as listed in Leviton et al. (1985), except for MHNLS, Museo de Historia Natural La Salle, Caracas, Venezuela. Counts and measurements were taken following methods outlined in Harold and Vari (1994). The material examined is arranged in the following sequence: institution-

al abbreviation, catalog number, number of specimens in the lot, and in parentheses the number of specimens from which counts and measurements were taken if less than the total number in the lot, their size range in mm SL, and the number of cleared-and-stained specimens in the lot.

Creagrutus hysginus n. sp.
Figures 1-2

Creagrutus beni Fowler, 1931:408 (Venezuela, Yarapa River). Marrero and Machado-Allison, 1990:66 (in part, citation of Fowler, 1931: 408 in synonymy). Not of Eigenmann, 1911.

Holotype.—MBUCV V-20310, 44.9 mm SL, Venezuela, Estado Sucre, Río Güiria, near La Toma; collected 31 March 1990.

Paratypes.—All collected in Venezuela, Estado Sucre. Collected with holotype: CAS 79623, 9 (33.2-43.0 mm SL; 1 cleared and stained), MBUCV V-24002, 20, USNM 326055, 10 (34.1-44.5 mm SL; 2 cleared and stained). MBUCV V-20304, 12 (4, 30.3-37.6 mm SL; 1 cleared and stained), Río Bautista, Sector Río Arriba Final Carretera; collected 31 March 1990. CAS 80270, 10, MCNG 19691, 148, USNM 326035, 10, Estado Sucre, Río La Toma, 6 km. north of road 9, about 4 km. west of Güiria, collected 13 Aug. 1988.

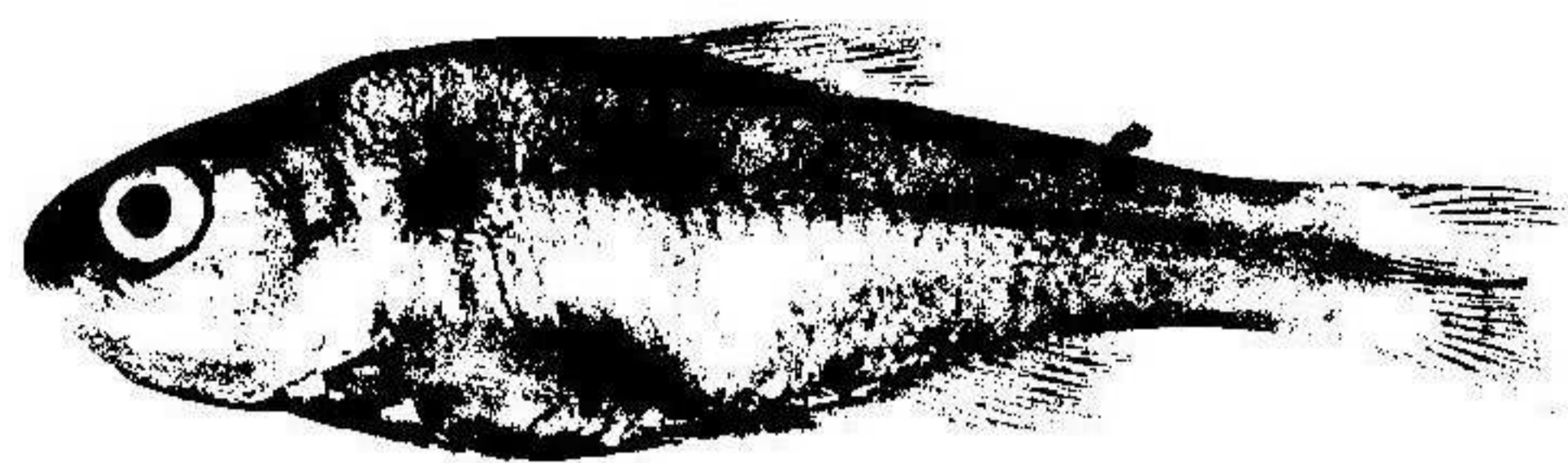


Fig. 1. *Creagrutus hysginus*, holotype, MBUCV V-20310, 44.9 mm SL.

Nontypes.—ANSP 53383–6, 4 (45.4–55.6 mm SL; 1 cleared and stained), Estado Sucre, Río Yarapa (uncertain; see Distribution). MBUCV V-20288, 3, Estado Sucre, Río Güiria, northeast of Güiria. MBUCV V-20295, 25, Estado Sucre, Río Yoco, sector Chaguaramas, northwest of Yoco. Collected with holotype: MBUCV V-24003, 186. MCNG 16174, 5, Estado Sucre, Río Irapa. MCNG 16768, 5, Estado Sucre, Río Güiria, west of Güiria. MCNG 16776, 21, Estado Sucre, caño east of Campo Claro. MHNLS 9715, 14, Estado Sucre, Río Yoco, near Güiria. MHNLS 9830, 7, Estado Monagas, Río Cocollar, Río Guarapiche tributary (Río San Juan system). MHNLS 9831, 146, Estado Monagas, Río Capiricual, tributary to Río Guarapiche (Río San Juan system), south of El Arbolito. MHNLS 9832, 31, Estado Sucre, Quebrada El Mango, tributary to Río Capiricual (Río San Juan system).

Diagnosis.—Possibly unique characters include adipose fin in life entirely brilliant red; pectoral fins appear unpigmented in preservative except for a single line of small dark chromatophores on basal one-half of lateral, unbranched ray. Other characters which, in combination, distinguish it from congeners are anal-fin ray hooks in males restricted to first two or three branched rays, nine or 10 anal-fin rays, and a rounded or blotchlike humeral mark.

Description.—Morphometric and meristic data for the holotype and 24 paratypes are given in Table 1. Body size moderate, maximum observed body size about 55 mm SL. Body slightly rotund abdominally in profile compared with congeners. Maximum body depth located about half way between origins of pectoral and pelvic fins. Anterior profile of snout and dorsal profile of head meeting in rounded obtuse angle near vertical line through point midway between nares. Dorsal profile of head posterior to that line inclined and straight to slightly convex. Predorsal profile of body with notable change in alignment relative to that of head, asymmetrically convex, with convexity most pronounced in anterior one-third of region and in some

specimens (e.g., holotype, Fig. 1), pronounced curvature immediately posterior to occiput; presence of pronounced curvature not related to sex. Dorsal profile of body straight between dorsal-fin origin and caudal peduncle. Ventral profile of head and body slightly convex from anterior margin of lower jaw to pelvic-fin origin or with ventral surface of head and abdomen each with distinctly rounded profile. Rounded obtuse angle delimiting anteroventral angle of dentary, angle variably apparent among specimens because of state of preservation.

Upper jaw longer than, and overhanging, lower jaw. Anterior surface of snout fleshy, as in other *Creagrutus* species, with numerous minute papillae over surface; greatest concentration of papillae on upper lip, margin of upper jaw, and in mouth on fleshy flaps and plicae between premaxillary teeth. Lower jaw with thick, fleshy anterior region and numerous papillae on lip. Infraorbital bones six, moderately well developed, covering about two-thirds of cheek, with ventral and posterior margins separated from preopercle by space equal to about one-half width of adjacent infraorbital bone. Curvature of posteroventral margin of third infraorbital approximately concentric with margin of orbit.

Premaxillary dentition with three major components (compares well with dentition of *C. brevipinnis* Eigenmann; see fig. 1 in Harold and Vari, 1994): (1) main row straight, consisting of six tricuspid teeth with rounded to pronounced cusps; (2) triangular cluster of three larger teeth, the medial-most tooth asymmetrical and nearly contacting equivalent tooth of other side; and (3) single tooth, similar in morphology to those of main premaxillary row, occurring lateral to fourth tooth of that row. Maxilla with four or five tricuspid teeth. Dentary teeth six, tricuspid; anterior three largest and following teeth successively shorter.

Dorsal-fin rays ii, 8. Dorsal-fin origin at vertical through pelvic-fin origin. Profile of distal margin of dorsal fin with slight concavity. Anal-fin rays ii–iii, 9–10. Distal margin of anal fin nearly straight with anterior branched rays slightly elongate. Single, bilaterally paired hooks present on two or three anterior branched rays of anal fin in males (hooks observed on only three out of 20 specimens). Hooks restricted to posterolateral surface of main shaft and posterior, secondary branch of each ray. Pectoral-fin rays i, 11–12; fin reaching posteriorly to pelvic-fin base in males with anal- and pelvic-fin hooks, in other specimens pectoral fin reaching posteriorly about three-quarters of distance between origins of pectoral and pelvic fins. Pelvic-

TABLE 1. MORPHOMETRIC AND MERISTIC CHARACTERS OF HOLOTYPE AND RANGE FOR 24 PARATYPES OF *Creagrutus hysginus*. Standard length is expressed in mm; measurements 1 to 14 are percentages of standard length; 15 to 18 are percentages of head length.

	Holotype	Paratypes
Morphometric characters		
Standard length	44.9	30.3–55.6
1. Snout to anal-fin origin	66.4	61.7–67.5
2. Snout to pelvic-fin origin	50.9	46.9–51.6
3. Snout to pectoral-fin origin	27.7	26.7–31.9
4. Snout to dorsal-fin origin	51.2	48.1–54.6
5. Dorsal-fin origin to hypural joint	54.3	51.4–56.9
6. Dorsal-fin origin to anal-fin origin	33.2	28.3–33.4
7. Dorsal-fin origin to pelvic-fin origin	31.1	27.5–33.1
8. Dorsal-fin origin to pectoral-fin origin	36.0	32.1–36.8
9. Caudal peduncle depth	11.7	10.7–12.9
10. Pectoral-fin length	19.5	18.1–22.5
11. Pelvic-fin length	16.2	15.1–17.0
12. Dorsal-fin length	22.5	19.8–24.5
13. Anal-fin length	19.2	14.8–20.4
14. Head length	29.9	27.3–30.8
15. Postorbital head length	49.0	44.1–52.6
16. Snout length	25.5	21.1–28.8
17. Bony orbital diameter	32.5	28.5–36.1
18. Interorbital width	28.2	25.7–35.0
Meristic characters		
Lateral line scales	37	35–38
Scale rows between dorsal-fin origin and lateral line	5	5
Scale rows between anal-fin origin and lateral line	3	3–4
Predorsal median scales	10	9–11
Branched dorsal-fin rays	8	8
Branched anal-fin rays	10	9–10
Branched pelvic-fin rays	7	7
Pectoral-fin rays	12	11–12
Vertebrae	36	36–37

fin rays i, 7. Pelvic fin approaching or, especially in well-developed males, reaching anal-fin origin; with distal portion turned medially in some individuals, giving fin a slightly cupped appearance. Pelvic-fin hooks, when present, occur on all portions of all branched rays, except the smallest, distal branches. Gill rakers long and narrow, especially those of ceratobranchial; 14 to 16 ($n = 20$ specimens).

Color in alcohol.—Dorsal surface of head with light brown shallow and dark brown to black deep chromatophores. Deep chromatophores small, punctate, lining interior surfaces of frontal, obscured in midline by connective tissue in fontanel. Shallow chromatophores small to large, stellate, present over entire dorsal surface of head, most concentrated on medial one half of upper jaw, snout, posterolaterally from snout to nares and posterodorsally to point above cen-

ter of orbit and overlying fontanel. Small crescent of dark pigmentation often present anterior to nares in other *Creagrutus* species continuous with snout pigment. Band of scattered light and dark chromatophores extending from pigmentation on snout and upper jaw posteriorly across cheek between margin of orbit and almost to distal margin of infraorbital bones, and joining body of scattered chromatophores of various sizes posterior to orbit. Scattered large, brown, stellate chromatophores arranged in dorsoventrally elongate band on cheek between infraorbitals and preopercle. Scales of dorsal portion of body with small dark chromatophores concentrated in area medial to scale center and with larger stellate, lighter chromatophores arranged in an arc on lateral surface of posterior field. Overall appearance of dorsal pigmentation faintly reticulate, but some specimens have irregularly arranged scales with

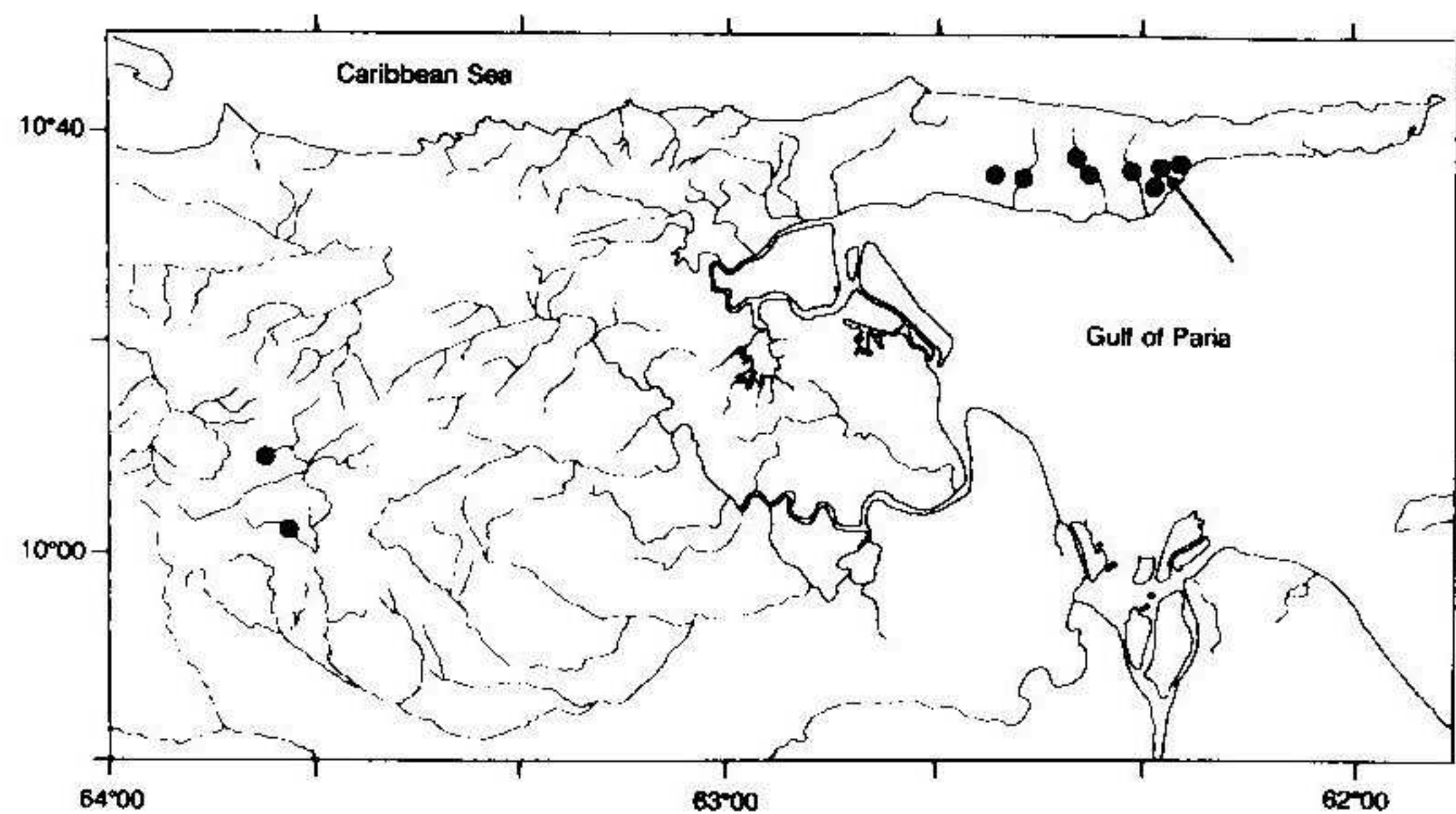


Fig. 2. Map of collection localities for *Creagrutus hysginus* (black circles). Type locality indicated by arrow.

very darkly pigmented central fields. Small black chromatophores along dorsal midline and along margin of base of dorsal fin, forming longitudinal stripe from occiput to caudal peduncle. Humeral mark usually appearing as irregular blotch or rounded spot immediately dorsal to lateral line but occasionally extending anterodorsally and diffusely giving overall appearance of inverted comma. Diffuse midlateral stripe present, extending from area slightly posterior to humeral mark posteriorly to and expanding slightly onto base of caudal fin (Fig. 1); deeplying pigment of midlateral stripe largely obscured by overlying guanine in specimens examined. Stripe most sharply defined ventrally and posteriorly. Region of body between midlateral stripe and anal-fin base with very small dark chromatophores delineating myosepta. Base of anal fin only diffusely pigmented, without dark triangular pigment bodies present in some species.

Small dark chromatophores present in caudal-fin membranes; greatest concentrations in association with central rays, appearing as disjunct extension of midlateral stripe, and on outer branched rays and procurrent rays. In juveniles (approximately 20–22 mm SL), pigmentation of central caudal-fin rays concentrated basally and appearing as small spot. Ventral lobe of caudal fin much more densely pigmented than dorsal lobe. Small dark chromatophores on distal one-half of anal-fin membranes, some specimens showing great enlargement of these chromatophores, giving appearance of dark spot in central portion of fin. Diffuse dark pigment in narrow bands immediately adjacent to anterior surfaces of basal, unsegmented portions of rays and mainly restricted to narrow bands immediately adjacent to all portions of fin rays. Distal portions of unbranched and anterior two branched anal-fin rays unpigmented. Dark chromatophores of various sizes present throughout dorsal-fin membranes; pigment often darkest and densest

in posterior one-half of fin in distal one-half of membrane. Pectoral fins unpigmented except for single line of small dark chromatophores on basal one-half of lateral, unbranched ray. Pelvic fins unpigmented.

Color in life.—Adipose fin brilliant red. Less intense orange-red pigmentation present in broad horizontal band through central part of dorsal fin and distal portion of outer caudal-fin rays. Lateral two or three rays of paired fins pale orange. Anal fin colorless. Dorsal surface of eye with bright red patch overlying reflective guanine pigment.

Distribution.—Known distribution restricted to rivers draining into the Gulf of Paria in the coastal states of Sucre and Monagas, northeastern Venezuela (Fig. 2). In the Peninsula de Paria *C. hysginus* has been collected in the upland portions of the ríos Bautista, Güiria, Irapa and Yoco. *Creagrutus* species were absent in the 20 collections of freshwater fishes from the lowland area near the base of the peninsula as reported by Fernández-Yépez (1969). The new species also occurs in upland tributaries of the Río San Juan which flows into the western Gulf of Paria.

Fowler (1931) reported *C. beni* (material here ascribed to *C. hysginus*) from the Río Yarapa, Estado Sucre. We have been unable to locate such a drainage, a problem also encountered by Fernández-Yépez (1969). We conclude from the dates and locality data of the other collections reported on by Fowler (1931) that his *Creagrutus* specimens (ANSP 53383–6) were collected in an upland tributary of the Río San Juan.

Ecology.—*Creagrutus hysginus* is quite abundant in the ríos Bautista and Güiria. These are small rivers of crystal-clear water that descend from the mountains of the central Peninsula de Paria. The substrate is coarse, ranging mainly from gravel to large stones with small amounts of sand present. These fishes occur in fast-flowing current as well as quiescent backwater areas. The forest contributes large amounts of allochthonous material to the streams, including leaves, flowers and fruit, and terrestrial insects. Examination of gut contents of *C. hysginus* revealed that the species feeds on this material as well as aquatic dipteran larvae. Other fishes collected with *C. hysginus* include species of *Astyanax*, *Hoplias*, *Rivulus*, *Poecilia*, *Hypostomus*, and *Ancistrus*.

Etymology.—*Hysginus*, from the Greek noun *hysginon*, meaning a crimson or scarlet dye, in ref-

erence to the distinctive color of the adipose fin.

Remarks.—In a report on fishes collected in Venezuela by L. Wehekind of the Barber Asphalt Company, Fowler (1931:408) attributed material of *C. hysginus* (ANSP 53383–6) to *C. beni* Eigenmann. However, the new species is distinguished from *C. beni* (holotype included among specimens examined) by the shape of the humeral mark (essentially round in *hysginus* compared with vertically elongate in *C. beni*), the number of branched anal-fin rays (nine or 10 in *hysginus* compared with 11–13 in *C. beni*), and the number of vertebrae (36–37 in *hysginus* compared with 38 in *C. beni*). As part of a revision of *Creagrutus* by ASH and RPV, in progress, types of all nominal species in the genus have been studied. *Creagrutus hysginus* is clearly distinct from all of these other taxa.

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