

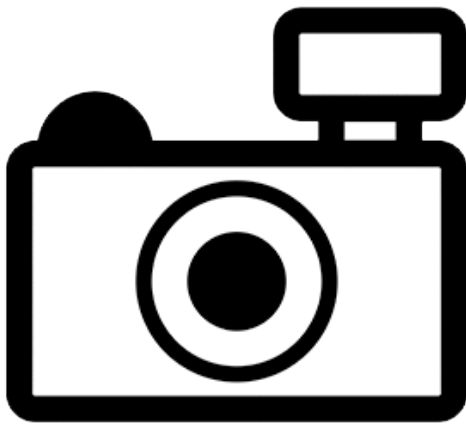
***Tridentopsis cahuali* (a catfish, no common name)**

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, December 2016

Revised, June 2018

Web Version, 11/20/2019



No Photo Available

1 Native Range and Status in the United States

Native Range

From Eschmeyer et al. (2018):

“Paraguay River basin, Argentina.”

Status in the United States

This species has not been reported as introduced or established in the United States. There is no indication that this species is in trade in the United States.

From Arizona Secretary of State (2006):

“Fish listed below are restricted live wildlife [in Arizona] as defined in R12-4-401. [...] South American parasitic catfish, all species of the family Trichomycteridae and Cetopsidae [...]”

From Dill and Cordone (1997):

“[...] At the present time, 22 families of bony and cartilaginous fishes are listed [as prohibited in California], e.g. all parasitic catfishes (family Trichomycteridae) [...]”

From FFWCC (2019):

“Nonnative Conditional species (formerly referred to as restricted species) and Prohibited species are considered to be dangerous to Florida’s native species and habitats or could pose threats to the health and welfare of the people of Florida. These species are not allowed to be personally possessed, but can be imported and possessed by permit for research or public exhibition; Conditional species may also be possessed by permit for commercial sales. Facilities where Conditional or Prohibited species are held must meet certain biosecurity criteria to prevent escape.”

Tridentopsis cahuali is listed as a Prohibited species in Florida.

From Louisiana House of Representatives Database (2010):

“No person, firm, or corporation shall at any time possess, sell, or cause to be transported into this state [Louisiana] by any other person, firm, or corporation, without first obtaining the written permission of the secretary of the Department of Wildlife and Fisheries, any of the following species of fish: [...] all members of the families [...] *Trichomycteridae* (pencil catfishes) [...]”

From Mississippi Secretary of State (2019):

“All species of the following animals and plants have been determined to be detrimental to the State's native resources and further sales or distribution are prohibited in Mississippi. No person shall import, sell, possess, transport, release or cause to be released into the waters of the state any of the following aquatic species or hybrids thereof.
[The list includes all species of] Family Trichomycteridae”

From Legislative Council Bureau (2018):

“Except as otherwise provided in this section and NAC 504.486, the importation, transportation or possession of the following species of live wildlife or hybrids thereof, including viable embryos or gametes, is prohibited [in Nevada]: [...] All species in the families Cetopsidae and Trichomycteridae”

From Utah DNR (2012):

“All species of fish listed in Subsections (2) through (30) are classified [in Utah] as prohibited for collection, importation and possession [...] Parasitic catfish (candiru, carnero) family Trichomycteridae (All species)”

Means of Introductions in the United States

This species has not been reported as introduced or established in the United States.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2016):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Trichomycteridae
Subfamily Tridentinae
Genus *Tridentopsis*
Species *Tridentopsis cahuali* Azpelicueta, 1990”

From Eschmeyer et al. (2018):

“Current status: Valid as *Tridentopsis cahuali* Azpelicueta 1990. Trichomycteridae: Tridentinae.”

Size, Weight, and Age Range

“Max length : 2.2 cm SL male/unsexed; [de Pinna and Wosiacki 2003]”

Environment

From Froese and Pauly (2016):

“Freshwater; benthopelagic.”

Climate/Range

From Froese and Pauly (2016):

“Tropical [...]”

Distribution Outside the United States

Native

From Eschmeyer et al. (2018):

“Paraguay River basin, Argentina.”

Introduced

This species has not been reported as introduced or established outside of its native range.

Means of Introduction Outside the United States

This species has not been reported as introduced or established outside of its native range.

Short Description

From Azpelicueta (1990):

“Dorsal profile of body slightly or markedly convex from snout tip to occipital region, concave after occipital area, gently arched from that point to dorsal fin origin, slanted along dorsal fin and straight between last dorsal ray insertion and caudal fin. Ventral profile of body convex, maximum depth just anterior to pelvic fin insertion, straight from that point to anal fin origin; anal fin base postero-dorsally oriented; ventral profile of caudal peduncle almost straight.”

“Body robust, laterally compressed in posterior half. Head straight between eyes; at opercular level, wider than long; anterior head margin semicircular. Nasal barbel present, its length shorter than eye and slightly longer than space between nares. Posterior nares transversely opened, placed nearer than anterior ones. Eyes lateral, covered by translucent skin. Cranial fontanelle enormous. Mouth wide, inferior, with two pairs of maxillary barbels; outer barbel reaching opercular margin or pectoral fin base. Dentary with four rows of conical teeth, their tips posteriorly recurved; four of five depressible teeth in inner row, larger than the rest [...]. Three rows of conical premaxillary teeth; inner row also with four teeth large and depressible. Small maxillary tooth [...].”

“Eleven to thirteen slightly recurved opercular odontodes, forming a bunch completely separated from interopercular one; eight or nine interopercular odontodes, twelve in one specimen; all odontodes conical and posteriorly directed [...].”

“Axillary organ well developed. Droplets appear just posterior to opercle. Pores of lateral line apparently not developed. Only two large pores in flanks, being apertures of posttemporal sensory canal. Lipid drops in different areas of body. Miniature epidermal papillae on body.”

“Ray- less cutaneous fold in dorsal and anal fins. Small dorsal fin, strongly convex anteriorly; dorsal origin slightly behind vertical through anal fin insertion; dorsal fin rays ii,5 (13 specimens) or ii,6 (4 specimens including holotype) or iii,4 (3 specimens). Caudal fin slightly forked, upper lobe larger than lower. Triangular pectoral fin with i,4,i; flattened first ray longest, its length twice or more that of last ray. Pelvic fin small; i,3,i; its origin nearer snout tip than base of caudal fin rays, except in two specimens; pelvic fin tip falling far from anal fin insertion. Anal

fin base long; iii,14 (14 individuals including holotype) or iii,15 (4 specimens) or iii,16 (2 specimens); anal fin margin straight; fin ray lengths decreasing from first to last branched ray. Fin rays divided only once.”

“Specimens preserved in alcohol: ground color pale yellowish; translucent caudal peduncle; belly translucent in females. All chromatophores dark black, rounded or star-like, except some deep hyphen-shaped chromatophores along flanks. Superficial chromatophores scattered on head, sometimes concentrated on snout or forming dots between anterior and posterior nares, anterior to dorsal fontanelle or over dorsal eye margin. Dense chromatophores beneath skin, covering brain. Small black spot under opercular and interopercular odontodes. Broad middorsal stripe crossing along back, between supraoccipital margin and dorsal fin; stripe narrow from last dorsal fin ray insertion to end of caudal peduncle. Some chromatophores spread on flanks, near mid-dorsal line. Dark pigmentation over five or six posterior vertebrae. Large chromatophores in dorsal wall of body cavity, appearing as a broad lateral band, posteroventrally oriented. Chromatophores forming an anal fin base line and two extremely narrow lines above the former. Caudal peduncle bounded by many chromatophores. All fins, excluded [*sic*] hyaline pelvics, with elongate chromatophores around ray surfaces; only four specimens with pigmented membranes. Dark spot in pectoral fin base of some specimens.”

Biology

From Datovo and Bockmann (2010):

“The stegophilines *Pareiodon* and *Pseudostegophilus* and the Tridentinae are presumably nektonic (FAB, pers. obs.; cf. Roberts, 1972; Ferraris, 1991), although members of the latter subfamily are also said to hide in sand bottoms (Burgess, 1989).”

“The feeding habits of the Tridentinae in nature are as yet unknown. However, the teeth of the Tridentinae and Stegophilinae have a very peculiar morphology and arrangement on the jaws which suggests that these subfamilies share a similar mode of feeding. Furthermore, as noticed by Weitzman (*apud* Baskin, 1973: 146), specimens of tridentine appear to chase characids in aquarium settings. A similar behavior also was recently registered for *Tridentopsis* in both aquarium (FAB, pers. obs.) and field observations (Stewart *apud* Adriaens et al., 2010: 352). This behavior may be indicative of lepidophagy and/or mucophagy, suggesting that the semi-parasitic feeding habits may be a synapomorphy for the whole Vandelliinae group [...].”

Human Uses

No information available.

Diseases

No information available. No OIE-reportable diseases (OIE 2019) have been documented for this species.

Threat to Humans

From Froese and Pauly (2016):

“Harmless”

3 Impacts of Introductions

This species has not been reported as introduced or established outside of its native range.

The importation, possession, or trade of the parasitic catfish *T. cahuali* is prohibited or restricted in the following states: Arizona (Arizona Secretary of State 2006), California (Dill and Cordone 1997), Florida (FFWCC 2019), Louisiana (Louisiana House of Representatives Database 2010), Mississippi (Mississippi Secretary of State 2019), Nevada (Legislative Council Bureau 2018), and Utah (Utah DNR 2012).

4 Global Distribution

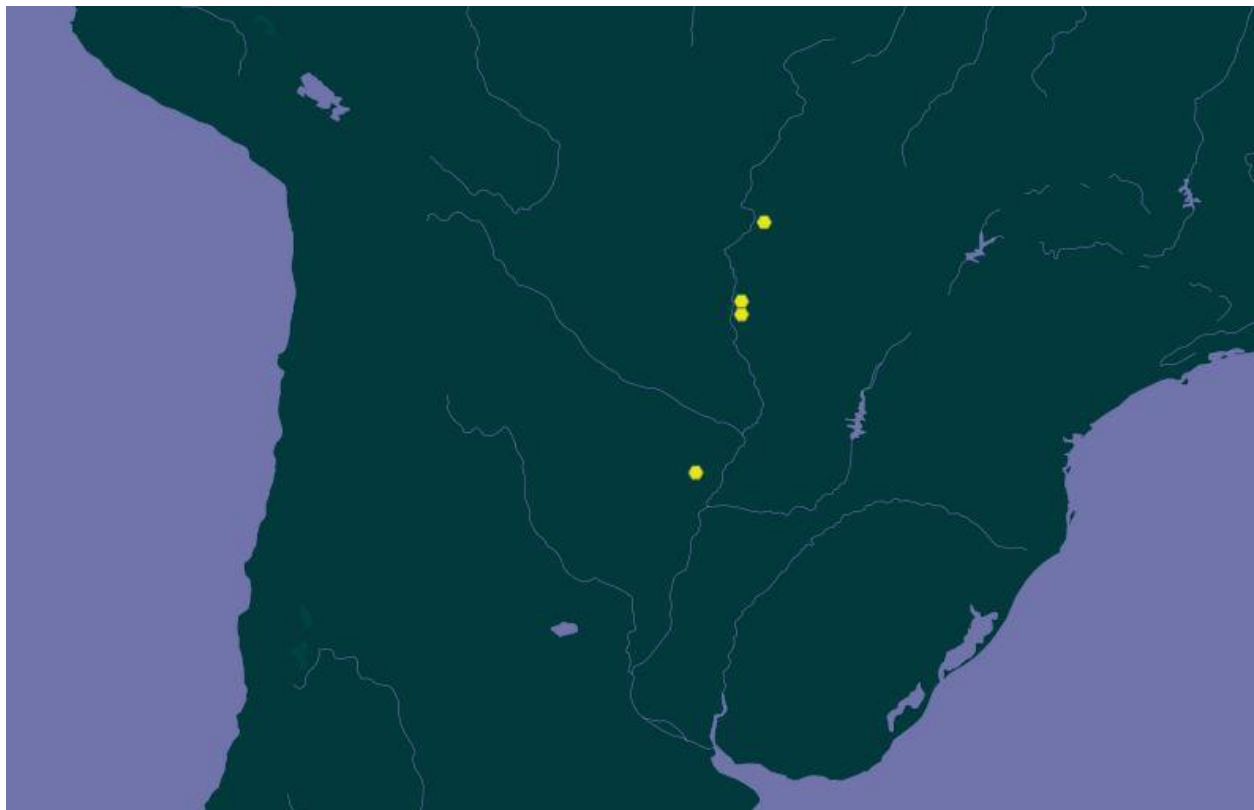


Figure 1. Known global distribution of *Tridentopsis cahuali*, reported from the Paraguay River basin in Argentina and Brazil. Map from GBIF Secretariat (2018). Although the verbal description of the species range limits that range to Argentina, the occurrences in Brazil are within the Paraguay River basin. These occurrences appear valid with appropriate documentation, so they were used in the climate matching analysis.

5 Distribution Within the United States

This species has not been reported as introduced or established in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.028, which is a medium climate match. (Scores between 0.005 and 0.103 are classified as medium.) The climate score was high for Florida and Texas, medium for Georgia and South Carolina, and low for all other states in the contiguous United States. Southern Florida and coastal southeastern Texas had high climate match. A medium match extended along the Atlantic coast from southern North Carolina to Florida, throughout much of central and eastern Texas, and in a small area in southeastern Arizona. The remainder of the country had a low match.

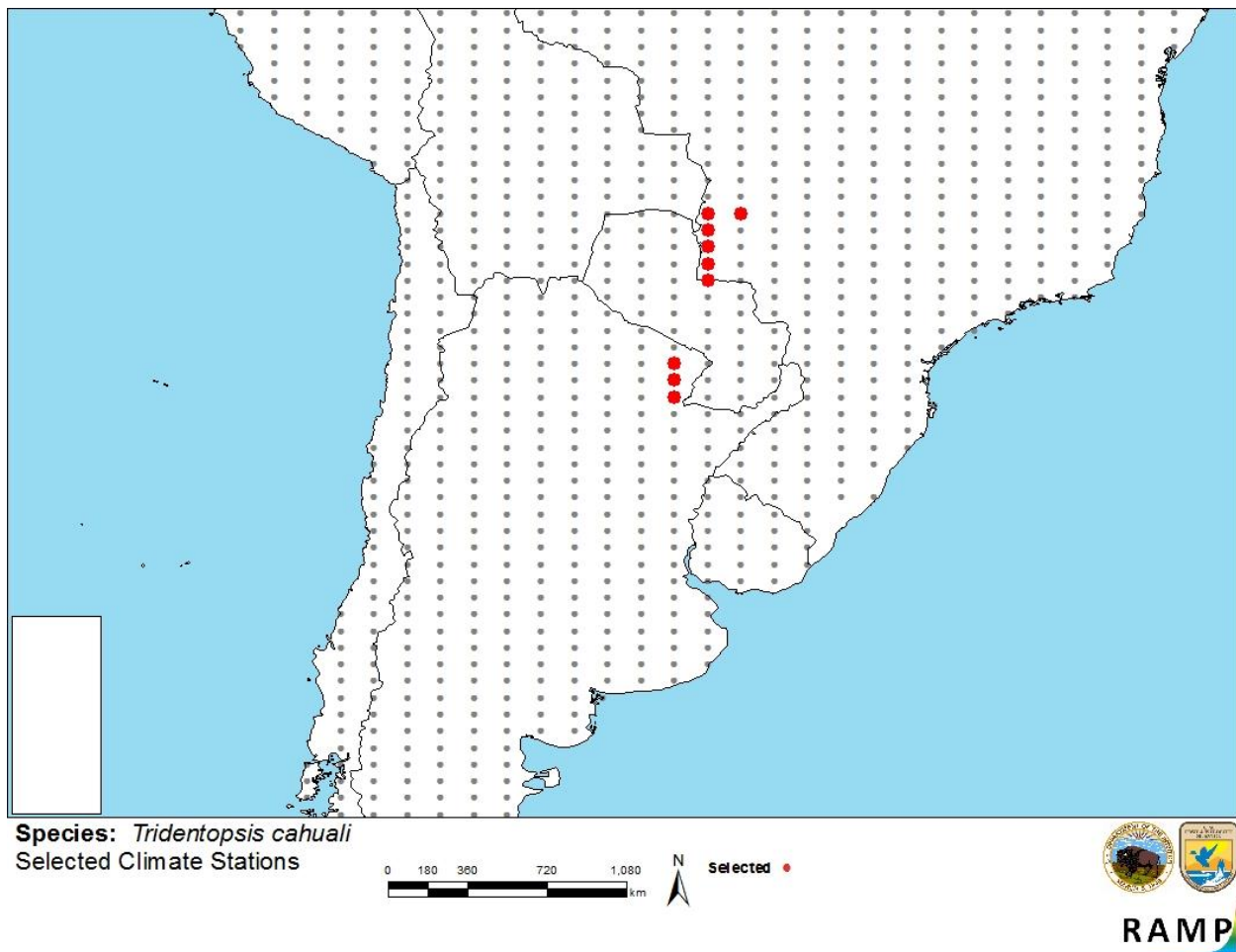


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red: Argentina, Brazil) and non-source locations (gray) for *Tridentopsis cahuali* climate matching. Source locations from GBIF Secretariat (2018).

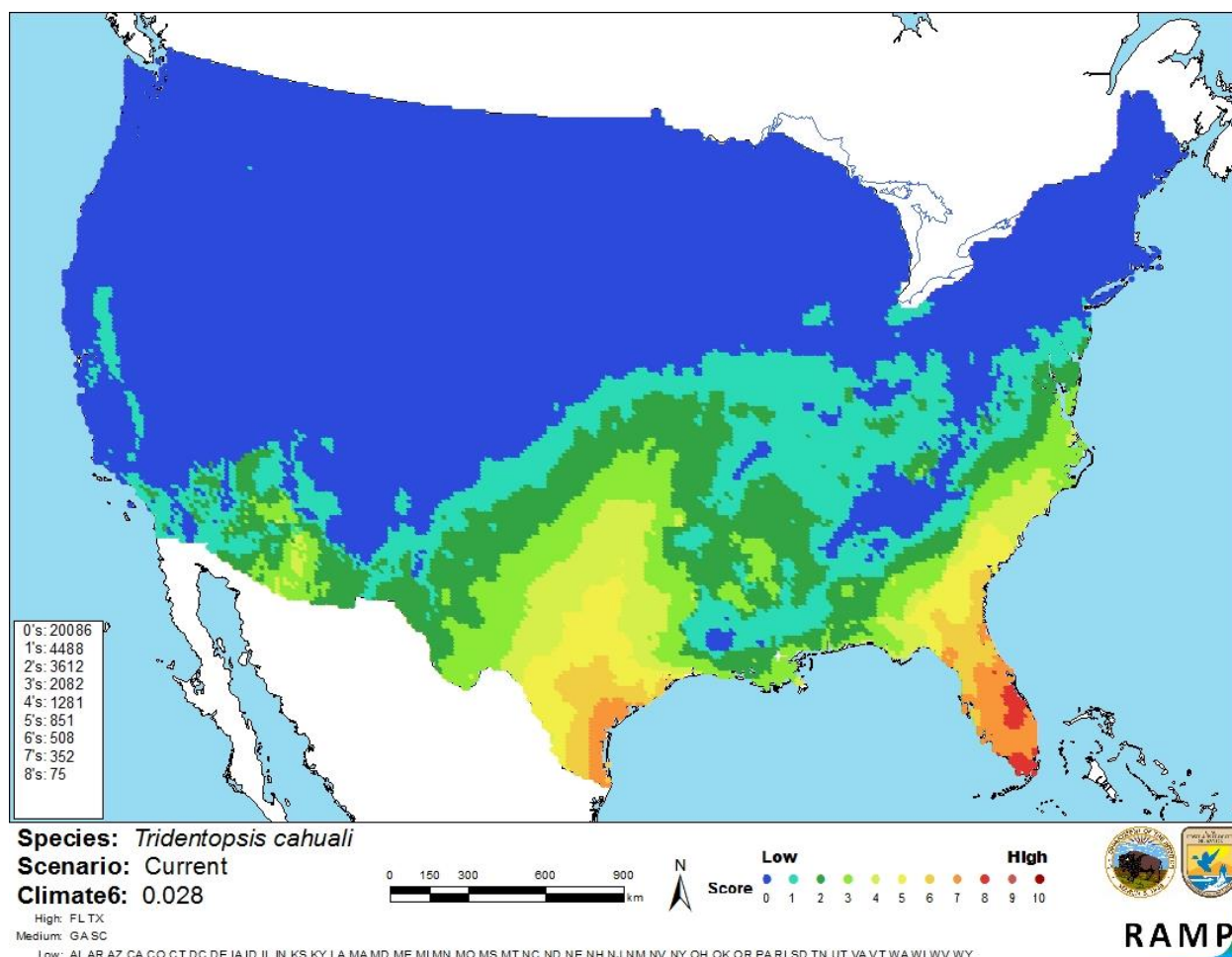


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Tridentopsis cahuali* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0=Lowest match, 10=Highest match.

The “High”, “Medium”, and “Low” climate match categories are based on the following table:

Climate 6: Proportion of (Sum of Climate Scores 6-10) / (Sum of total Climate Scores)	Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

There was very little information available on the species *Tridentopsis cahuali*. Georeferenced occurrences are limited and do not fully match the verbal description of the species range. *T. cahuali* is not known to have been introduced outside of its native range, so there is no information on history of invasiveness. With such little information available, the certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Tridentopsis cahuali is a species of parasitic catfish found in the Paraguay River basin in Argentina and Brazil. There is little information on the biology of the fish. There have been no reports of the species outside of its native range. Several U.S. States prohibit or restrict the possession, transport, or trade of this species along with other members of the family Trichomycteridae. History of invasiveness is uncertain. The climate match to the contiguous United States is medium. Much of peninsular Florida and the southeast coast of Texas have a high climate match. Certainty of assessment is low given the lack of information. The overall risk assessment category for this species is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Medium**
- **Certainty of Assessment (Sec. 7): Low**
- **Overall Risk Assessment Category: Uncertain**

9 References

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.

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Mississippi Secretary of State. 2019. Guidelines for aquaculture activities. Mississippi Administrative Code, Title 2, Part 1, Subpart 4, Chapter 11. Regulatory and Enforcement Division, Office of the Mississippi Secretary of State, Jackson, Mississippi.

OIE (World Organisation for Animal Health). 2019. OIE-listed diseases, infections and infestations in force in 2019. World Organisation for Animal Health, Paris. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2019/>. (August 2019).

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10 References Quoted But Not Accessed

Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.

Adriaens, D., J. N. Baskin, and H. Coppens. 2010. Evolutionary morphology of trichomycterid catfishes: about hanging on and digging in. Pages 337-362 in J. S. Nelson, H.-P. Schultze, and M. V. H. Wilson, editors. Origin and phylogenetic interrelationships of teleosts. Verlag Dr. Friedrich Pfeil, Munich, Germany.

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