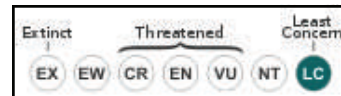


## Blackfin or Green Goodea ( *Goodea atripinnis* [luitpoldii] )

Order: Cyprinodontiformes - Family: Goodeidae



Also known as: Blackfin Goodeid, Green Goodea

**Synonyms:** *Goodea spec.* BEAN, 1880  
*Characodon atripinnis* BEAN, 1888  
*Characodon variatus* WOOLMAN, 1894  
*Characodon luitpoldii* v. BAYERN, 1894  
*Xenendum caliente* JORDAN & SNYDER, 1900  
*Xenendum xaliscone* JORDAN & SNYDER, 1900  
*Xenendum luitpoldii* JORDAN & EVERMANN, 1900  
*Goodea caliente* MEEK, 1902  
*Goodea luitpoldii* MEEK, 1902  
*Goodea calientis* REGAN, 1907  
*Goodea gracilis* TURNER, 1937  
*Goodea gracilis* HUBBS & TURNER, 1939

**Type:** Freshwater

**Description:** Green Goodea (*Goodea luitpoldii*) (Steindachner, 1894)

**Taxonomy:** Jordan wrote in his description in 1880 about the dentition: "both jaws with a series of rather slender, tricuspid teeth". The same D. S. Jordan & J. O. Snyder, 20 years later, collected fish of the same species in the Rio Verde with - this time correctly identified- bicuspid teeth. Due to Jordans wrongly given definition of tricuspid teeth in the description of *Goodea atripinnis* (and in his definition of the genus *Goodea*), both erected a new genus with bicuspid teeth, *Xenendum*, and described this species new, *Xenendum caliente*. Meek in 1902 changed the name of this species in *Goodea caliente*, synonymized *Xenendum* with *Goodea* but did not recognize both species as one. Princess Therese von Bayern described in 1894 (with the help of Franz Steindachner) the species *Characodon luitpoldii* (later named *Goodea luitpoldii*) from Lago de Pátzcuaro. The differences to *atripinnis* should be mainly the size (with more scale rows respectively) and constantly smaller scales. Following the scientific literature, *luitpoldii* should be the *Goodea* - representative of the bigger lakes (like Chapala, Zacoalcos and Pátzcuaro), whereas *atripinnis* should inhabit streams and smaller lakes. It is not ultimately cleared if *Goodea luitpoldii* is a valid species - as well as *gracilis* - but in contrast to this species, it is mostly not treated as valid by most of the authors and scientists, so we decided to place *luitpoldii* in the synonymy of *atripinnis*. In 1900, when Jordan and Snyder erected the genus *Xenendum*, they described besides the species *caliente* a second species: *Xenendum xaliscone* from Lago de Chapala. Already 2 years later, Meek synonymized both species rightly. In 1924 described C. Hubbs the species *Goodea captiva* after some specimens from Jesus Maria, bottled together with specimens of *atripinnis* and thought to belong to this species. Though he thought that both species are closely related, in 1937, together with C. L. Turner, he transferred this species into a new genus: *Xenoporphus*. Some authors believe, that within the *Chapalichthys*, the closest relative of *Goodea* can be found within the genus *Xenoporphus*.

In 1947 Fernando de Buen downgraded all described species to subspecies label and described a new one from the Rio Grande de Morelia: *Goodea atripinnis martini*. This population resembles more the *atripinnis*-type than the *luitpoldii*-type and is placed within the synonymy of *atripinnis* meanwhile.

**Physical Characteristics:** The gut is elongate (about 230% of the standard length). The mouth is dorsally oriented, the marginal teeth of premaxillary and dentary are arranged in two rows of bicuspid teeth, followed by a set of small unicuspid teeth.

**Size / Weight / Age:** The maximum known SL is about 200mm. In their natural environment the males reach a size of about 12 cm and the females can get as large as 20 cm; however, both genders usually remain smaller in the aquarium. BRIAN KABBES examined several habitats in Mexico, yet he could never find fish that were larger than 9cms. The fish were smaller.

**Color Form:** Jordan described the colour of fish in spirit as "bluish above, sides nearly plain, with a silvery streak along each series of scales. Vertical fins obscurely marked, each of them chiefly black, especially on the distal half."

Hieronimus (1995) distinguishes between three different types of colouration: The first type is totally silvery in both sexes without any black fins, the second type greenish-yellow with males with green flanks. The belly may be yellow and females display black unpaired fins when being at ease, whereas the males show yellow fins. The third type displays a strong, dark, lateral band in both sexes with also black unpaired fins in the female gender when feeling comfortable. Following him, all three types may be found at one location with different intermediate stages.

**Karyotype:** 2n = 48 2sm/ 46stt (following Uyeno, Miller & Fitzsimmons, 1983)

**Sexual dimorphism:** The recognizable differences primarily concern the body and behavior although they are only small differences.

**Reproduction & Spawning:** Following Miller, young occur from the end of January to the middle of July, indicating a long reproductive period. On the other hand, Mendoza (1962) found young in Pátzcuaro lake from June to August, indicating just one brood year for at least this lake. This is a prolific fish; a very large female (149mm SL) contained 167 (!) embryos ready for birth. These fish generally swim from midwater to bottom, feeding during the day on aufwuchs growing there. It also forms aggregates of stationary fish just off the bottom (Kingston, 1979).

### Subspecies:

- *Goodea atripinnis subsp., De Buen 1947*
- *Goodea atripinnis atripinnis, De Buen 1947*
- *Goodea atripinnis martinii, De Buen 1947*
- *Goodea atripinnis luitpoldii, De Buen 1947*
- *Goodea atripinnis xaliscone, De Buen 1947*
- *Goodea atripinnis calientis, De Buen 1947*

**Origin / Distribution:** JORDAN, D.S. (1880): Notes on a collection of fishes obtained in the streams of Guanajuato and in Chapala Lake, Mexico, by Prof. A. Duges. Proc. U. S. Nat. Mus. 2, for 1879: pp 298 - 301 This species is widely distributed. It can be found in the ríos Lerma-Grande de Santiago basin on the Pacific Slope, including former Pleistocene parts of this basin like the Río Ameca drainage and the endorheic Lago de Magdalena basin. It can also be found in the ríos Balsas and Armería basins and some independent Pacific tributaries in Nayarit, and immediately adjacent waters in Jalisco and Michoacán.

**Holotype:** There is no Holotype deposited. The whole collection has got the Collection-number: U. S. Nat. Mus. 23137. The fish have been obtained by A. Duges and forwarded to the Smithsonian institute.

**Conservation Status:** **Endangered** In 2010, few specimens of the genus *Goodea* have been found in the Río Metztlán in the state of Hidalgo, that waters into the Lago Metztlán. Comparing measures from these five individuals show intermediate results between the two accepted species *gracilis* and *atripinnis*, so the final position of this population isn't sure at all. However, following distribution patterns, it should rather belong to *Goodea gracilis* and is together with the population of *Girardinichthys viviparus* from the Lago Tecocomulco one of the most eastern distributed populations of Goodeids. *Goodea atripinnis* belongs to few Goodeids used for human consumption. Other sometimes eaten species are *Allophorus robustus* and *Chapalichthys encaustus*.

**Behavior:** At one location can be found different types of colouration, but also in body shape, means long and slender individuals as well as relatively short and high-backed ones. This fact makes it impossible to distinguish any subspecies according to colour patterns or body shapes.

**Habitat / Biotope:** The habitats are very versatile, including lakes, ponds, streams, springs and outflows. It goes down to 1.7m, but prefers usually depths of less than 0.5m. The water may be clear, turbid or muddy and currents are none to sometimes moderately strong. Different substrates like mud, clay, sand, gravel and rocks occur. The vegetation is rarely sparse, typical are green algae plus *Chara*, water hyacinths, *Potamogeton*, *Lemma* and *Nasturtium*. The types have been collected near the town of León in the state of Guanajuato. Bean, also in 1880, mentioned this species, and also specimens collected by Duges, with the locality given as a salt lake in the middle of a little volcanic plain in Valle de Santiago, Guanajuato. Eventually, these might be the same specimens.

**Diet:** As to food *Goodea atripinnis* is adaptable accepting flakes, frozen food and live-food of all kinds. A vegetable portion should be included. Hence, scalded spinach can be given as a supplementary food and algae should exist in the aquarium to provide an additional source of food. This species is definitely herbivorous, feeding mainly on filamentous green algae, water plants, microcrustacea and mollusca. Jordan in his original description described the intestinal canal as "considerably convoluted and filled with mud." In contrast to all other Goodeids, *Goodea atripinnis* is high tolerant of highly degraded environments and has got a big range of distribution, the absolutely biggest among Goodeids with respect to the other species. It can be found from tributaries of the ríos Ayuquila and Armería in the west until Mexico City meanwhile (introduced) in the east. It can be found in waters of Durango (introduced) in the north as well as in tributaries of the Río Balsas in the south. The distribution range covers nearly the whole range of all known species of Goodeids in Mexico!

**Aquarium Setup:** It has been found that in their natural habitat the different populations are infested by parasites both internally and externally.

**Minimum Tank Size:** 55 gal. 200 liter Tank

**Care Level:** *Goodea atripinnis* is very robust and may survive poor living conditions for some time.

**Water Conditions:** The culture of this pretty Goodeid is relatively easy. However, it is important not to let the water temperature remain over 22 °C for a long period of time. Continuously keeping these Goodeids too warm can result in them becoming ill with fish tuberculosis. *Goodea atripinnis* feels most comfortable between 18 °C and 20 °C. The water-parameters are not of important as long as the water is alkaline.

**Swimming Level:** Mid Level to Bottom

**Compatibility / Temperament:** Because of the quiet and peaceful character of these fish it is possible to keep them in a community tank. The only detraction is that this robust species displays no bright colors, that could increase its popularity. The variability of *Goodea atripinnis* in the different populations is relatively small, in spite of the large area of distribution and the different living conditions.

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