

= Brazilian ironclad Tamandaré =

The Brazilian ironclad Tamandaré was an armored gunboat built for the Brazilian Navy during the Paraguayan War in the mid 1860s . She bombarded the Paraguayan fortifications blocking access up the Paraná and Paraguay Rivers as well as bombarding Paraguayan positions in support of the Brazilian Army . The ship participated in the Passagem de Humaitá in February 1868 and was badly damaged . After Tamandaré was repaired she provided fire support for the army for the rest of the war , aside from bombarding Paraguayan capital of Asunción once . The ship was assigned to the Mato Grosso Flotilla after the war . Tamandaré was decommissioned in 1879 and scrapped afterwards .

= = Design and description = =

Tamandaré was designed to meet the need of the Brazilian Navy for a small , simple , shallow draft armored ship capable of withstanding heavy fire . She was one of three armored gunboats , together with Barroso and Rio de Janeiro , built to the same general plan , although each ship varied significantly in size and armament . The ship is best characterized as a central battery design because the casemate did not extend the length of the ship . A bronze ram , 1 @ 4 meters ( 4 ft 7 in ) long , was fitted . The hull was sheathed with Muntz metal to reduce biofouling . For sea passages the ship 's freeboard could be increased to 1 @ 7 meters ( 5 ft 7 in ) by use of removable bulwarks 1 @ 1 meters ( 3 ft 7 in ) high . On riverine operations , the bulwarks , and the ship 's masts , were usually removed .

The ship measured 51 @ 36 meters ( 168 ft 6 in ) long overall , with a beam of 9 @ 19 meters ( 30 ft 2 in ) and had a mean draft of 2 @ 4 meters ( 8 ft 0 in ) . Tamandaré normally displaced 754 metric tons ( 742 long tons ) and 845 metric tons ( 832 long tons ) at deep load . Her crew numbered 120 officers and men .

= = = Propulsion = = =

Tamandaré had a single John Penn & Sons 2 @ cylinder steam engine taken from the British @ built wooden gunboat Tietê and proved unreliable in service . The engine , which drove a single 2 @ bladed propeller , was powered by two tubular boilers that produced a total of 273 indicated horsepower ( 204 kW ) which gave the ship a maximum speed of 8 knots ( 15 km / h ; 9 @ 2 mph ) . The ship 's funnel was mounted directly in front of her casemate . Tamandaré carried enough coal for six days ' steaming .

= = = Armament = = =

Tamandaré mounted one 70 @ pounder Whitworth rifled muzzle loader , three 68 @ pounder and two 12 @ pounder smoothbore guns in her casemate . To minimize the possibility of shells or splinters entering the casemate through the gunports they were as small as possible , allowing only a 24 ° -arc of fire for each gun . The rectangular , 9 @ metre ( 29 ft 6 in ) casemate had two gun ports on each side as well as the front and rear .

The 70 @ pounder gun weighed 8 @ 582 pounds ( 3 @ 892 @ 7 kg ) and fired a 5 @ 5 @ inch ( 140 mm ) shell that weighed 81 pounds ( 36 @ 7 kg ) . The 7 @ 9 @ inch ( 201 mm ) solid shot of the 68 @ pounder gun weighed a nominal 68 pounds ( 30 @ 8 kg ) while the gun itself weighed 10 @ 640 pounds ( 4 @ 826 @ 2 kg ) . The gun had a range of 3 @ 200 yards ( 2 @ 900 m ) at an elevation of 12 ° . The exact type of 12 @ pounder gun is not known . All of the guns could fire both solid shot and explosive shells .

= = = Armor = = =

The hull of Tamandaré was made from three layers of wood , each 203 millimeters ( 8 @ 0 in )

thick . The ship had a complete wrought iron waterline belt , 1 @. @ 52 meters ( 5 @. @ 0 ft ) high . It had a maximum thickness of 102 millimeters ( 4 in ) covering the machinery and magazines , 51 millimeters ( 2 in ) elsewhere . The curved deck , as well as the roof of the casemate , was armored with 12 @. @ 7 millimeters ( 0 @. @ 5 in ) of wrought iron . The casemate was protected by 102 millimeters of armor on all four sides , backed by 609 millimeters ( 24 @. @ 0 in ) of wood capped with a 102 mm layer of peroba hardwood .

= = Service = =

Tamandaré was laid down at the Arsenal de Marinha da Côte in Rio de Janeiro on 31 May 1865 , during the Paraguayan War , which saw Argentina and Brazil allied against Paraguay . She was launched on 21 June 1865 , completed on 16 September and cost £ 40 @, @ 506 . The ship arrived at Corrientes on 16 March 1866 ; the next day she sailed for the confluence of the Paraná and Paraguay Rivers to begin operations against the Paraguayans . On 26 March she bombarded the defenses of Itapirú and sank one Paraguayan boat ( chata ) . During her bombardment on the following day , a shell entered one of her gun ports , despite the chain curtain that protected it , and killed 14 men , including her captain , Lieutenant Mariz e Barros , and wounded 20 . The ship bombarded Curuzu Fort , downstream of Curupaity , on 1 September in company with the ironclads Rio de Janeiro , Brasil , Lima Barros , Barroso , and the monitor Bahia . Between 24 and 29 December Barroso , Tamandaré , Brasil , and 11 gunboats bombarded Curuzu Fort again .

On 8 January 1867 Tamandaré , Bahia and Colombo bombarded Paraguayan fortifications at Curupaity . The Brazilians broke through the river defenses at Curupaity during daylight on 15 August 1867 with Barroso , Tamanadaré , and eight other ironclads . The ships were hit 256 times , but not seriously damaged , and only suffered 10 killed and 22 wounded . Tamandaré 's engines broke down while she was in front of the guns and she had to be towed to safety by the ironclad Silvado . They were quickly repaired and Tamandaré bombarded Paraguayan artillery batteries at Timbó that commanded the Paraguay River north of Humaitá the next day . The Paraguayans repeated the operation again on 9 September with much the same result . On 26 September the Paraguayans moved a large @-@ caliber gun below Humaitá and bombarded the Brazilian squadron , but it was silenced by gunfire from Tamandaré and Bahia .

On 19 February 1868 six Brazilian ironclads , including Tamandaré , sailed past Humaitá at night . Three Pará @-@ class river monitors , Rio Grande , Alagoas and Pará , were lashed to the larger ironclads in case any engines were disabled by the Paraguayan guns . Barroso led with Rio Grande , followed by Bahia with Alagoas and Tamandaré with Pará . Both Tamandaré , which had taken an estimated 120 hits , and Pará had to be beached after passing the fortress to prevent them from sinking . Tamandaré was under repair at São José do Cerrito until mid @-@ March . On 25 November the ship bombarded the Paraguayan capital of Asunción . Tamandaré and Alagoas destroyed the artillery batteries at Timbó on 23 March 1869 . The ship was assigned to the Mato Grosso Flotilla , based in Ladário , after the war . Tamandaré was decommissioned on 18 April 1879 and scrapped afterwards .