Species Invasion of Jaguar Cichlid (*Parachromis managuensis*) in Nyunyur Reservoir

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Abstract

Foreign fish, especially predatory fish in Indonesian public waters, are very dangerous for the local ecosystem, foreign predatory fish can become the main predators and can cause an imbalance in the ecosystem. From this study we report the catch of foreign predatory fish from the jaguar cichlid species (Parachromis managuensis) from Central American waters caught in Nyunyur Reservoir, Blitar Regency, East Java. The method in this study used a desk study and jaguar cichlid species identification method using morphological observations based on Kullander and Hartel (1997). This catch is a warning and an important note for the relevant agencies regarding the invasion of the jaguar cichlid species in the Nyunyur Reservoir as an initial step in monitoring aquatic ecosystems.

Keywords: *Foreign Fish, Jaguar Cichlid, Nyunyur Reservoir, Parachromis managuensis*

Introduction

The jaguar cichlid (Parachromis managuensis) is a freshwater predatory fish from Central America that is found in Costa Rica and Nicaragua (Bussing, 1998). Jaguar cichlid fish have long been found to invade several regions such as South America, North America (Magalhães and Vitule, 2013) and Southeast Asia as introduced predatory fish (Hasan and Widodo, 2021). Jaguar cichlids reproduce rapidly in Taal Lake in the Philippines and other areas (Dahruddin et al., 2017). The jaguar cichlid fish is categorized as a predatory fish which is known to be greedy and often eats small fish, shrimp, moss and mollusks. Jaguar cichlids are very easy to adapt to new environments such as changes in pH, temperature and DO (Yamamoto and Annette, 2000), therefore this fish is very dangerous if released in Indonesian waters. Jaguar cichlid fish in Indonesia are more often used as freshwater ornamental fish which are widely bought and sold in fish markets and until now there is no data as a fish farming commodity in Indonesia (Hasan and Widodo, 2021). Nyuyur Reservoir is a small reservoir located in Soso Village, District. Gandusari, Kab. Blitar, East Java and there is no recorded place for cultivating jaguar cichlid ornamental fish in the Nyunyur Reservoir area, the presence of jaguar cichlid fish in Nyunyur Reservoir is a note that must be taken into account to maintain the ecosystem and survival of local fish.

Methods

The method in this research uses a desk study method from several existing research results, as well as field observations by resource persons at the Nyunyur Reservoir location, Soso Village, Kec. Gandusari, Kab. Blitar, East Java. Data collection was carried out by literature study and interviews. Secondary data was collected by reviewing several references in the form of journals and articles related to jaguar cichlid fish (Dadiono and Aminin, 2021; Dadiono and Wijaya, 2022; Dadiono and Suryawinata, 2022). The data search was carried out using the Google search engine with the keywords Jaguar

cichlid fish (Parachromis managuensis) (Dadiono and Suryawinata, 2021; Dadiono and Andayani, 2022).

The information data obtained was then compiled using study methods through interviews and discussions via social media. The method for identifying jaguar cichlid fish species was obtained using a morphological observation approach based on Kullander and Hartel (1997).

Results and Discussions

The jaguar cichlid fish species (Figure 1) caught in the Nyunyur Reservoir has a total length of between 15 cm – 20 cm. The jaguar cichlid was caught by a local angler on November 8, 2022 using a 270/360 Oregon cayenne fishing rod, turtle line (5lb), number 7 pagoda hook, stele float and folding lead sinker. Jaguar cichlids are deliberately targeted as fishing targets using shrimp bait.

Figure 1. Jaguar Cichlid Fish (Documentation : Een).

The jaguar cichlid fish species caught at the Nyunyur Reservoir (Figure 2) has the following characteristics: a large head with a blunt snout tip, a flat body shape, a large mouth with rows of sharp teeth on the upper and lower jaw. It has a black stripe motif from the tip of the head to the tail, the basic body color is purplish black with a white to yellowish belly and there is a pattern of spots on the fins.

Figure 2. Nyunyur Reservoir (Jelajah Blitar, 2014).

Based on observations of the morphological characteristics in the chapter, the results appear to be in accordance with the morphological characteristics of the jaguar cichlid fish proposed by Kullander and Hartel (1997), where the jaguar cichlid fish has a larger mouth when compared to other cichlidae families, apart from that the most striking difference is the presence of a pattern of black lines on its body from head to tail and the presence of black spots on its body. The closest relative of the jaguar cichlid or Parachromis managuensis to compare with is the Cichlidae family. When compared to the Cichlidae family, the Parachromis managuensis type has a distinctive character with a striped body color pattern and black spots like a jaguar.

The catch of jaguar cichlid fish in the Nyunyur Reservoir is a red line for the reservoir ecosystem because this species has the ability to adapt. According to Agasen et al. (2006), this fish is tolerant to changes in temperature, DO and pH. This species also has the ability to reproduce throughout the year so it is very possible for a population spike to occur which could cause the extinction of local fish. The parent of the Parachromis managuensis species is very protective of its offspring so that this strengthens the potential of the new offspring to survive.

Based on the analysis, the entry of jaguar cichlid fish into the Nyunyur Reservoir is the result of uncontrolled and irresponsible ornamental fish trading activities by

ornamental fish hobbyists who release these fish. Cases like this have often occurred before, such as the spread of tilapia and tilapia fish in Indonesian public waters (Arghifari et al., 2019; Dadiono, 2021; Dadiono, 2022). Therefore, there needs to be stricter supervision of foreign fish that have the potential to become invasive fish.

Conclusion

The jaguar cichlid fish is a foreign predatory fish from Central American waters that came to Indonesia as an ornamental fish for sale. Findings of jaguar cichlid fish in Nyunyur Reservoir, Kab. Blitar is a warning and an important note. The jaguar cichlid fish is very dangerous for local aquatic ecosystems, so its distribution in Indonesian waters must be regulated and monitored so that the balance of the aquatic ecosystem is maintained.

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