

# Flying Fox (*Epalzeorhynchus kalopterus*)

## Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, June 2012

Revised, November 2016

Web Version, 2/4/2019



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<http://fishbase.org/photos/UploadedBy.php?autoctr=22725&win=uploaded>.

## 1 Native Range and Status in the United States

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### Native Range

From Froese and Pauly (2016):

“Asia: lower half of the Malayan/Thailand peninsula, Borneo, Java and Sumatra in Indonesia.”

### Status in the United States

This species has not been reported as introduced or established in the United States. However, it is available for sale from U.S.-based aquarium retailers. For example, Arizona Aquatic Gardens

(2019) lists the species for sale for \$5.88 per individual, and World Wide Fish and Pets (2018) lists the species for sale for \$3.49 per individual.

## Means of Introduction into the United States

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

## Remarks

From NatureWatchNZ (2016):

“The flying fox is similar to the Siamese algae eater (*Crossocheilus oblongus*) and the false flying fox (*Garra cambodgiensis*) when young. [Anonymous 2008]”

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2016):

“Kingdom Animalia  
Subkingdom Bilateria  
Infrakingdom Deuterostomia  
Phylum Chordata  
Subphylum Vertebrata  
Infraphylum Gnathostomata  
Superclass Osteichthyes  
Class Actinopterygii  
Subclass Neopterygii  
Infraclass Teleostei  
Superorder Ostariophysi  
Order Cypriniformes  
Superfamily Cyprinoidea  
Family Cyprinidae  
Genus *Epalzeorhynchos* Bleeker, 1855  
Species *Epalzeorhynchos kalopterus* (Bleeker, 1851)”

“Current Standing: valid”

### Size, Weight, and Age Range

From Froese and Pauly (2016):

“Max length : 16.0 cm TL male/unsexed; [Kottelat et al. 1993]”

## **Environment**

From Froese and Pauly (2016):

“Freshwater; demersal; pH range 6.5 – 7.0; dH range: 5 – 8.”

## **Climate/Range**

From Froese and Pauly (2016):

“Tropical; 24°C - 26°C [Riehl and Baensch 1991; assumed to represent recommended aquarium water temperature]”

## **Distribution Outside the United States**

Native

From Froese and Pauly (2016):

“Asia: lower half of the Malayan/Thailand peninsula, Borneo, Java and Sumatra in Indonesia.”

Introduced

From Froese and Pauly (2016):

“To: Philippines

From: Unknown

Established in the wild: unknown”

According to Xiong et al. (2015), *E. kalopterus* has been introduced to China through the aquarium trade, but its current status in China is unknown (Mu et al. 2008).

## **Means of Introduction Outside the United States**

From Froese and Pauly (2016):

“Reason: ornamental”

## **Short Description**

From NatureWatchNZ (2016):

“The flying fox fish has a characteristic long body with a flat abdominal area. Its dorsal area has a coloration ranging from olive to dark brown. The lower half of its body has a yellowish white hue. A brownish-black line is apparent from its mouth, eye and the caudal fins. On top of this brownish-black line is a gold-colored stripe. The eyes of a flying fox may have a reddish iris. Its dorsal, anal and ventral finnage consisting [*sic*] of a black band and a white edge. [Butler 2006; Froese and Pauly 2014]”

## **Biology**

From Froese and Pauly (2016):

“Commonly collected from the lower surface of floating objects such as boats and floating houses [Kottelat and Widjanarti 2005]. Feeds on worms, crustaceans, insects and plant matter [Mills and Vevers 1989].”

From Vidthayanon (2012):

“Habitat and Ecology: Rivers and hill streams. Has most often been observed grazing sandy or rocky substrates in streams and rivers and is known to move into seasonally inundated floodplains or forested areas during the wet season. It is these migratory patterns that are thought to have been disrupted by human development (Seriously Fish 2011).”

## **Human Uses**

From Froese and Pauly (2016):

“Aquarium: highly commercial.”

*E. kalopterus* is available for sale from U.S.-based aquarium retailers. For example, Arizona Aquatic Gardens (2019) lists the species for sale for \$5.88 per individual, and World Wide Fish and Pets (2018) lists the species for sale for \$3.49 per individual.

## **Diseases**

No information available.

## **Threat to Humans**

From Froese and Pauly (2016):

“Harmless.”

## **3 Impacts of Introductions**

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No information available.

## 4 Global Distribution

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**Figure 1.** Known global established locations of *Epalzeorhynchus kalopterus*. Map from GBIF (2016). Location in Australia does not represent an established population and was not included in climate matching analysis.

## 5 Distribution within the United States

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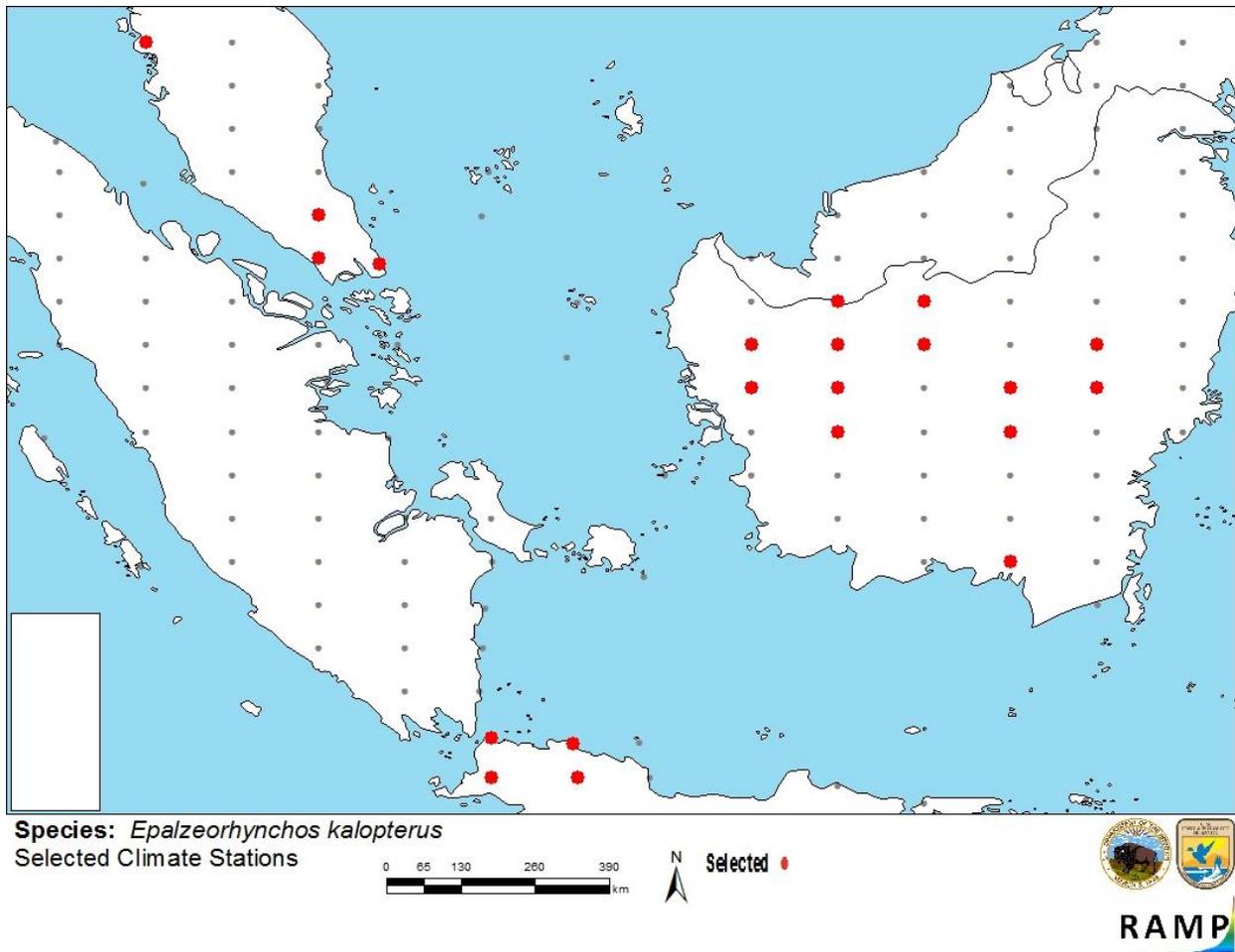
This species has not been reported in the United States.

## 6 Climate Matching

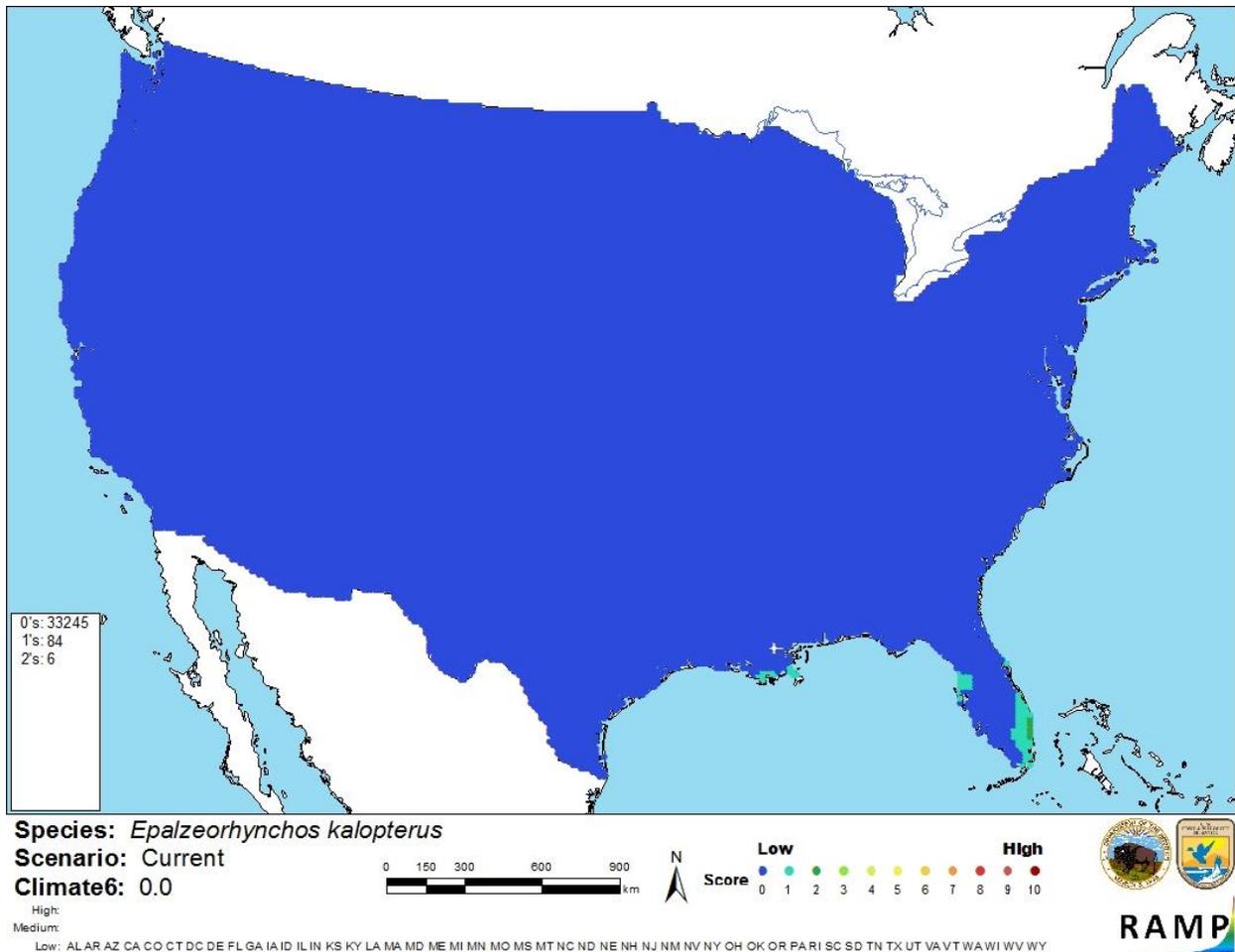
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### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low throughout the contiguous United States. Highest match was located in southern Florida and coastal Louisiana. Climate 6 match indicated that the contiguous United States has a low climate match. The scores indicating a low climate match are those less than or equal to 0.005; climate match of *Epalzeorhynchus kalopterus* was 0.0.



**Figure 2.** RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; southern Malaysia, western Indonesia—Borneo and Java) and non-source locations (gray) for *Epalzeorhynchus kalopterus* climate matching. Source locations from GBIF (2016); location in Australia was excluded from climate matching because it does not represent an established population.



**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *Epalzeorhynchus kalopterus* in the contiguous United States based on source locations reported by GBIF (2016). 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
$\geq 0.103$	High

## 7 Certainty of Assessment

Little information is available on the biology, ecology, and distribution of *E. kalopterus*. The species has been introduced to two countries outside the native range, but establishment has not been verified. No information is available on impacts of introduction. Certainty of assessment is low.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Epalzeorhynchus kalopterus* is a cyprinid fish native to Southeast Asia. It is popular in the aquarium trade, including in the United States. No establishment outside its native range has been confirmed, so the history of invasiveness is uncertain. Very little information is available on the biology and ecology of this species. Climate match to the contiguous United States is low. Overall risk posed by *E. kalopterus* is uncertain.

### Assessment Elements

- **History of Invasiveness: Uncertain**
- **Climate Match: Low**
- **Certainty of Assessment: Low**
- **Overall Risk Assessment Category: Uncertain**

## 9 References

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

- Arizona Aquatic Gardens. 2019. Thai flying fox algae eaters. Available: <https://www.azgardens.com/product/thai-flying-fox-algae-eaters/>. (February 2019).
- Froese, R., and D. Pauly, editors. 2016. *Epalzeorhynchus kalopterus* (Bleeker, 1850). FishBase. Available: <http://www.fishbase.org/summary/Epalzeorhynchus-kalopterus.html>. (June 2012, November 2016).
- GBIF (Global Biodiversity Information Facility). 2016. *Epalzeorhynchus kalopterus* (Bleeker, 1850). Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2360408>. (November 2016).
- ITIS (Integrated Taxonomic Information System). 2016. *Epalzeorhynchus kalopterus* (Bleeker, 1851). Integrated Taxonomic Information System, Reston, Virginia. Available: [https://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=639590#null](https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=639590#null). (November 2016).
- NatureWatchNZ. 2016. *Epalzeorhynchus kalopterus*, a member of minnows and carps (family Cyprinidae). New Zealand Bio-Recording Network. Available: <http://naturewatch.org.nz/taxa/187369>. (November 2016).
- Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.

Vidthayanon, C. 2012. *Epalzeorhynchus kalopterus*. The IUCN Red List of Threatened Species 2012: e.T181151A1703897. Available: <http://dx.doi.org/10.2305/IUCN.UK.2012-1.RLTS.T181151A1703897.en>. (November 2016).

World Wide Fish and Pets. 2018. Siamese flying fox. World Wide Fish and Pets, New Haven, Connecticut. Available: <https://www.worldwidefishandpets.com/product/siamese-flying-fox/>. (January 2019).

Xiong, W., X. Sui, S.-H. Liang, and Y. Chen. 2015. Non-native freshwater fish species in China. *Reviews in Fish Biology and Fisheries* 25(4):651-687.

## 10 References Quoted But Not Accessed

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**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.**

Anonymous. 2008. Flying fox information. The Aquarium Wiki Encyclopaedia. Available: [http://www.theaquariumwiki.com/Epalzeorhynchus\\_kalopterus](http://www.theaquariumwiki.com/Epalzeorhynchus_kalopterus). (March 2008).

Butler, R. 2006. Flying fox *Epalzeorhynchus kallopterus* [sic]. Mongabay.com. Available: [http://fish.mongabay.com/species/Epalzeorhynchus\\_kallopterus.html](http://fish.mongabay.com/species/Epalzeorhynchus_kallopterus.html). (August 2007).

Froese, R., and D. Pauly, editors. 2014. *Epalzeorhynchus kalopterus*. FishBase. Available: <http://www.fishbase.org/summary/Epalzeorhynchus-kalopterus.html>. (April 2014).

Kottelat, M., A. J. Whitten, S. N. Kartikasari, and S. Wirjoatmodjo. 1993. Freshwater fishes of Western Indonesia and Sulawesi. Periplus Editions, Hong Kong.

Kottelat, M., and E. Widjanarti. 2005. The fishes of Danau Sentarum National Park and the Kapuas Lakes area, Kalimantan Barat, Indonesia. *The Raffles Bulletin of Zoology Supplement* 13:139-173.

Mills, D., and G. Vevers, 1989. *The Tetra encyclopedia of freshwater tropical aquarium fishes*. Tetra Press, New Jersey.

Mu, X. D., Y. C. Hu, X. J. Wang, J. R. Luo, X. H. Li, and C. Liu. 2008. Ornamental alien fishes in China. *Chinese Journal of Tropical Agriculture* 28(1):34-40.

Riehl, R., and H. A. Baensch. 1991. *Aquarien Atlas, volume 1*. Mergus, Verlag für Natur-und Heimtierkunde, Melle, Germany.

Seriously Fish. 2011. *Epalzeorhynchus kalopterus* - flying fox. Available: <http://www.seriouslyfish.com/profile.php?id=235>. (October 2011).