

# European Perch (*Perca fluviatilis*)

## Ecological Risk Screening Summary

Web Version – September 2014



Photo: © Kesi, M. From EOL (2014)

## 1 Native Range, and Status in the United States

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### Native Range

From Global Invasive Species Database (2012):

“Native range extends throughout Europe.”

### Status in the United States

This species has not been reported from the US.

## Means of Introductions to the United States

This species has not been introduced to the US.

## Remarks

From Global Invasive Species Database (2012):

“*Perca fluviatilis* (perch) are a widespread species of predatory freshwater fish that are prized for angling. Their natural range is throughout much of Europe, but they have been introduced to a number of countries around the world as a sport fish. The effect of *Perca fluviatilis* on native aquatic fauna has led to it being designated as invasive in many locations.”

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2012):

“Kingdom Animalia  
Phylum Chordata  
Subphylum Vertebrata  
Superclass Osteichthyes  
Class Actinopterygii  
Subclass Neopterygii  
Infraclass Teleostei  
Superorder Acanthopterygii  
Order Perciformes  
Suborder Percoidei  
Family Percidae  
Genus *Perca*  
Species *Perca fluviatilis* Linnaeus, 1758

Taxonomic Status: Valid”

### Size, Weight, Age

From Froese and Pauly (2010):

“Max length : 60.0 cm SL male/unsexed; (Kottelat and Freyhof 2007); common length : 25.0 cm TL male/unsexed; (Muus and Dahlström 1968); max. published weight: 4,750 g (Berg 1965); max. reported age: 22 years (Beverton and Holt 1959).”

## Environment

From Froese and Pauly (2010):

“Freshwater; brackish; demersal; pH range: 7.0 - 7.5; dH range: 8 - 12; anadromous (Riede 2004); depth range 1 - 30 m (Frimodt 1995), usually 3 - 4 m (Smolian 1920)”

## Climate/Range

From Froese and Pauly (2010):

“Temperate; 10°C - 22°C (Riehl and Baensch 1991); 74°N - 38°N, 91°W - 168°E”

## Distribution Outside the United States

From Global Invasive Species Database (2012):

### Native

“Native range extends throughout Europe.”

### Introduced

“Introduced to Australia, China, Cyprus, Italy, Morocco, New Zealand, Spain and South Africa (FishBase 2004). The species is not a true native of Ireland (although it was introduced 100s of years ago) and it is still absent from parts of Scotland.”

## Means of Introduction Outside the United States

From Global Invasive Species Database (2012):

“*Stocking*: Perch may be stocked as a sport fish in some locations.”

“*Natural dispersal (local)*: Perch could expand their distribution within a water body by swimming to new areas.”

## Short description

From Froese and Pauly (2010):

“Dorsal spines (total): 14 - 20; Dorsal soft rays (total): 13-16; Anal spines: 2; Anal soft rays: 7 - 10; Vertebrae: 39 - 42. Diagnosed from other species of Percidae in Europe by having the following unique characters: pelvic and anal fins yellow to red; posterior part of first dorsal fin with dark blotch; and flank with 5-8 bold dark bars, usually Y-shaped. Differs further by the combination of the following features: two dorsal fins, clearly separated from each other; and 56-77 scales along lateral line (Kottelat and Freyhof 2007). Body greenish-yellow; 5-9 transverse black bands on the sides; first dorsal fin gray, black spot at the tip; second dorsal greenish-yellow; pectorals yellow; other fins red. First dorsal fin markedly higher than the second. Caudal fin emarginate (Berg 1965).”

## Biology

From Froese and Pauly (2010):

“Inhabits a very wide range of habitats from estuarine lagoons, lakes of all types to medium-sized streams. Feeding larvae occur in open water. This is an opportunistic diurnal feeder which preys mainly during sunrise and sunset, using all available prey. Larvae and small juveniles usually feed on planktonic invertebrates. During first summer, many juveniles move near shores to feed on benthic prey. Often feeds on fishes at about 12 cm SL. May undertake short spawning migrations. Males attain first sexual maturity at 1-2 years and females at 2-4 years of age. Spawns in February-July (Kottelat and Freyhof 2007). Eggs grouped in long white ribbons (up to 1 m) are found over submerged objects (Pinder 2001). Its flesh is excellent and not so bony. Utilized fresh and frozen; eaten pan-fried and baked (Frimodt 1995). May be captured with natural or artificial bait (Billard 1997).”

## Human uses

From Froese and Pauly (2010):

“Fisheries: highly commercial; aquaculture: commercial; gamefish: yes”

## Diseases

From Froese and Pauly (2010):

“Perch Rhabdovirus, Viral Disease”

## Threat to humans

From Froese and Pauly (2010):

“Potential pest”

## 3 Impacts of Introductions

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From Global Invasive Species Database (2012):

### “General Impact

As a predator upon zooplankton, macroinvertebrates and fish, perch have the potential to significantly alter native freshwater communities (Closs et al. 2003).”

### “Location Specific Impacts

#### Western Australia (Australia)

Competition: Perch have been implicated in the local extinction of the rare mud minnow (*Galaxiella munda* see in IUCN Red List of Threatened Species), as well as affecting the recruitment of a recreationally important decapod (*Cherax cainii*).”

“New Zealand

Modification of natural benthic communities: As a predator upon zooplankton, macroinvertebrates and fish, perch have the potential to significantly alter native freshwater communities (Closs et al 2003).”

“Predation: Perch are thought to predate on or compete with native freshwater fish (Closs et al 2003).”

From NSW DPI (2012):

“Redfin [*Perca fluviatilis*] are a popular sport fish with some anglers because of their fighting qualities and taste. However, they are also voracious predators of other fish and invertebrates, can destroy recreational fisheries in enclosed waters by building up large numbers of stunted fish and eliminating other species, and can devastate native fish populations by carrying the epizootic haematopoietic necrosis (EHN) virus. For these reasons, redfin are considered a serious pest and in December 2010 redfin were listed as a Class 1 noxious species in NSW.”

“Even though redfin have been in Australia for over 100 years, much of the information regarding their impacts is based on personal observations rather than scientific studies. Redfin are voracious predators which consume a wide variety of fish and invertebrates, including small native species such as pygmy perch, rainbowfish and carp gudgeon, and the eggs and fry of larger fish such as silver perch, golden perch, Murray cod and introduced trout.”

“This predation can seriously impact populations of native species and trout, and hence can also affect recreational fisheries for these species. For example, redfin were recorded as eliminating 20,000 newly released rainbow trout fry from a reservoir in south-western Australia in less than 72 hours. Redfin are capable of rapidly populating new waterways and in stable water bodies (such as lakes and dams) they can form very dense populations. Under these conditions, redfin become stunted as they deplete the food supply, becoming worthless for angling.”

“In such large numbers, they can also out-compete most other fish species. One of the most significant threats to native fish from redfin is their potential to spread the viral disease Epizootic Haematopoietic Necrosis (EHN). This disease, which was first isolated in 1985 and is unique to Australia, can cause mass mortality in juvenile redfin perch during the summer months.”

“A number of native species, including silver perch, Murray cod, mountain galaxias and particularly Macquarie perch, are highly susceptible to the disease, and EHN virus may be one factor responsible for the decline in various native species over the last couple of decades.”

From Froese and Pauly (2010), citing Kottelat and Whitten (1996):

“Introduced in the 1970s. Caused the disappearance of endemic fish *Asipiorhynchus laticeps* in Lake Bositen, Xinjiang. This species was introduced from the Ertrix River basin in the north Xiangjiang Autonomous Region to the Bosten Lake in the south Xiangjiang autonomous regions

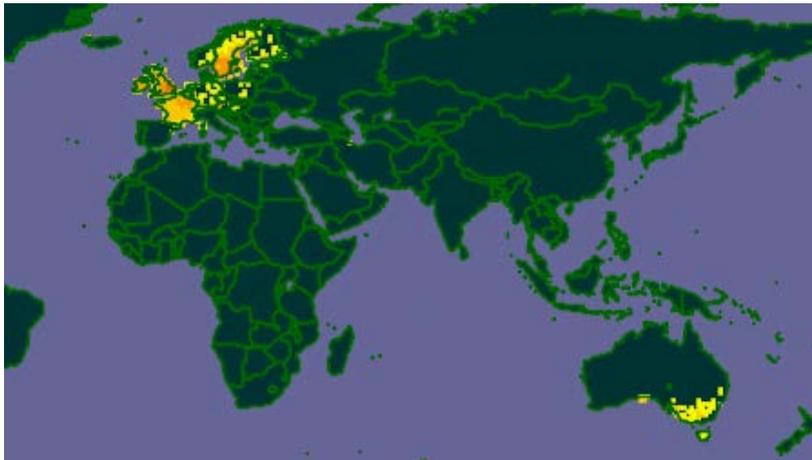
for fish resource enhancement purpose. It became a dominate fish in the new environment (Bartley 2006).”

From Froese and Pauly (2010), citing Arthington (1989):

“Introduced to make wildlife more familiar to European colonizers (Arthington and McKenzie 1997). Reintroduced in 1868 (Welcomme 1988). Established in western Victoria, New South Wales, Tasmania, Western Australia and South Australian Gulf divisions; has displaced native species. In the 1980s, this species invaded the Murray River in south-western Australia (Hutchison and Armstrong 1993). Feed selectively on small endemic fishes and fish fry and may have affected the numbers of galaxiids, pygmy perch, *Nannoperca australis*, and the golden perch, *Macquaria ambigua* in southern rivers.”

## 4 Global Distribution

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**Figure 1.** Global distribution of *P. fluviatilis*. Map from GBIF (2012). The map also showed locations in Canada and the U.S. These locations are most likely *P. flavescens* (native U.S. species) that were mistakenly identified and are not included in CLIMATCH analysis.

## 5 Distribution within the United States

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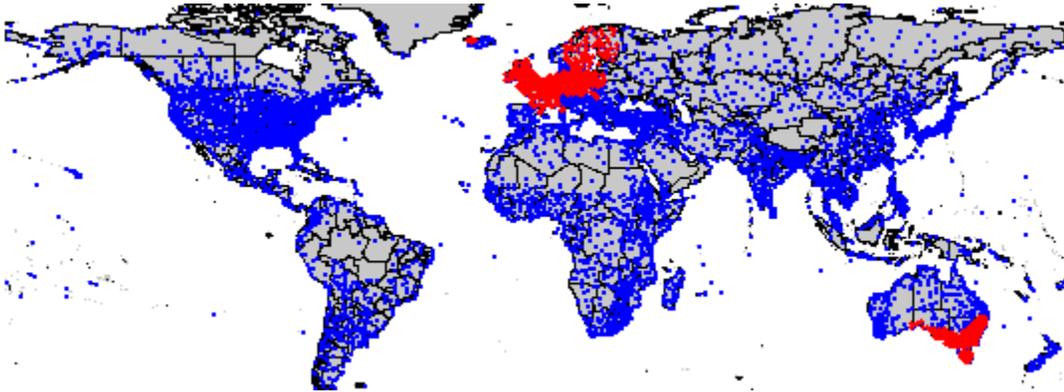
No known U.S. occurrences have been reported for this species.

## 6 CLIMATCH

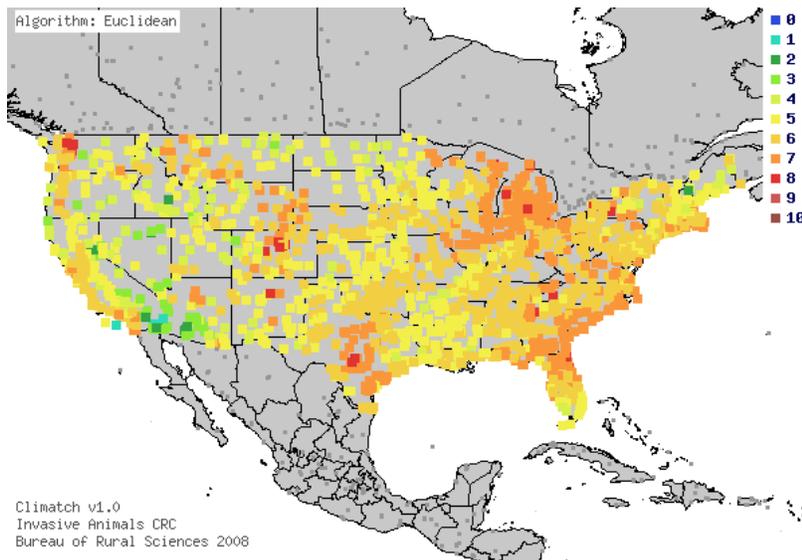
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### Summary of Climate Matching Analysis

The climate match (Australian Bureau of Rural Sciences 2010, 16 climate variables; Euclidean Distance) was high to medium for the entire U.S. Low matches only occurred in the Desert Southwest. Climate 6 match indicated that the U.S. has a high climate match. The range for a high climate match is 0.103 and greater, climate match of *P. fluviatilis* is 0.627.



**Figure 2.** CLIMATCH (Australian Bureau of Rural Sciences 2010) source map showing weather stations selected as source locations (red) and non-source locations (blue) for *P. fluviatilis* climate matching. Source locations from GBIF (2012).



**Figure 3.** Map of CLIMATCH (Australian Bureau of Rural Sciences 2010) climate matches for *P. fluviatilis* in the continental United States based on source locations reported by GBIF (2012). 0= Lowest match, 10=Highest match.

**Table 1.** CLIMATCH (Australian Bureau of Rural Sciences 2010) climate match scores

CLIMATCH Score	0	1	2	3	4	5	6	7	8	9	10
Count	0	4	14	48	135	535	775	436	27	0	0
Climate 6 Proportion =	0.627 (High)										

## 7 Certainty of Assessment

Information on this species is abundant, both on its biology and on the impacts caused by introduction of this species. Certainty of this assessment is high.

## 8 Risk Assessment

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### Summary of Risk to the Continental United States

Establishment and impacts occurring in other countries. Climate matching is moderate to high, meaning that risk of invasion and establishment is significant enough to raise concern should the species get introduced to the United States. The biggest threat would likely be to native perch via competition and hybridization.

### Assessment Elements

- **History of Invasiveness(See Section 3): High**
- **Climate Match (See Section 6): High**
- **Certainty of Assessment (See Section 7): High**
- **Overall Risk Assessment Category: High**

## 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.**

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## 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 in**

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