

# Salmo marmoratus

Taxonomic Authority: Cuvier, 1829

Synonyms:

Region: 1

Common Names:

Order: Salmoniformes

Family: Salmonidae

Notes on taxonomy:

## General Information

Biome  Terrestrial  Freshwater  Marine

### Geographic Range of species:

It is restricted to southern Switzerland, northern Italy and Adriatic basin of Slovenia. It has been introduced in several countries in Europe. There are 7 pure populations in Slovenia and 3 known pure populations in Italy (more research needed as there may be more).

### Habitat and Ecology Information:

The remaining population of Marble trout are found in headwaters of mountainous streams.

### Conservation Measures:

Listed in the Annex II of the Habitats Directive of EU.

### Threats:

Hybridization with foreign trout stocked for angling. Water extraction and pollution.

### Species population information:

Rare, declined in the early 1900's.

## Country Distribution

	Native - Presence Confirmed	Native - Presence Possible	Extinct	Reintroduced	Introduced	Vagrant
Italy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slovenia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Switzerland	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Upper Level Habitat Preferences

Score

## Lower Level Habitat Preferences

Score

5.1 Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)

1

## Major threats

Code	Description of threat	Past	Present	Future
1	Habitat Loss/Degradation (human induced)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.3	Extraction	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.3.6	Groundwater extraction	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Invasive alien species (directly affecting the species)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2.3	Hybridizers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	Pollution (affecting habitat and/or species)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6.3	Water pollution	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	Natural disasters	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7.1	Drought	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	Intrinsic factors	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9.1	Limited dispersal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9.9	Restricted range	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

## Conservation Measures

Code	Conservation measures	In place	Needed
1	Policy-based actions	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2	Legislation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.1	Development	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.1.1	International level	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.2	Implementation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.2.1	International level	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Research actions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3.1	Taxonomy	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.2	Population numbers and range	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.3	Biology and Ecology	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.4	Habitat status	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.5	Threats	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.8	Conservation measures	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.9	Trends/Monitoring	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Habitat and site-based actions	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.1	Maintenance/Conservation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.4	Protected areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.4.1	Identification of new protected areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.4.2	Establishment	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.4.3	Management	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Species-based actions	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.1	Re-introductions	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Utilisation of Species

### Purpose/Type of Use

1. Food - human

Subsistence

National

International

Other purpose:

Only for angling

### Primary forms removed from the wild

100%

>75%

51-75%

26-50%

<25%

Other forms removed from the wild:

1. Whole animal/plant

### Source of specimens in commercial trade

100%

>75%

51-75%

26-50%

<25%

Other source of specimens:

Wild

Trend in wild offtake/harvest in relation to total wild population numbers over last five years:

Unknown

Trend in offtake/harvest produced through domestication/cultivation over last five years:

Unknown

CITES: Not listed

## **Red Listing**

**Red List Assessment:** Least Concern (LC)

Possibly Extinct

### **Red List Criteria:**

**Rationale for the Red List Assessment:** In slovenia there is estimated to be around 10,000 individuals of the pure species at 7 locations with a combined AOO of < 20km<sup>2</sup>. The populations in Italy need more reasearch as more populations are likely to be found in addition to the 3 already identified. The stocking of foreign trout continues and may reduce population numbers of genetically pure marble trout. However, the populations in Slovenia, and to a lesser extent in Italy, are safe and have no major widespread threats (Crivelli, A. pers comm).

**Current Population Trend:** Decreasing

**Date of Assessment:** 31/10/2004

**Assessor(s):** A.J. Crivelli

**Evaluator:** J. Freyhof

### **Notes on Red listing:**

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## **Bibliography**

- Povz, M., 2002, Status of the freshwater fishes and lampreys in Slovenia, , Conservation of Freshwater Fishes: Options for the Future, Collares-Pereira, M.J., Cowx, I.G. & Coelho, M.M., , , Fishing News Books, Oxford, U.K.
- Povz, M., Jesensek, D., Berrebi, P. & Crivelli, A.J., 1996, T, , The marble trout, *Salmo trutta marmoratus* Cuvier, 1817: in the Soca river basin, Slovenia., , , Tour du Valat, Arles, France
- Fumagalli, L., Snoj, A., Jesensek, D., Balloux, F., Jug, T., Duron, O., Brossier, F., Crivelli, A.J. & Berrebi, P., 2002, Extreme genetic differentiation among the remnant populations of marble trout (*Salmo marmoratus*) in Slovenia., *Molecular Ecology*, , , 11, 2711-2716, ,