Scardinius erythrophthalmus 正體中文

System: Freshwater

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Cypriniformes	Cyprinidae

Common name

rosioara (Romanian), about (French), deargan (Gaelic, Irish), platelle (French), gardon carpe (French), kokkinoftera (Greek), pearl roach (English), louzou (French), perlin rudoploutvy (Czech), plate (French), rietvoorn (Dutch), lloska-ë (Albanian), perlín ostrobrichý (Czech), sorkh Baleh (Farsi, Iran), Rotfeder (German), kizilkanat baligi (Turkish), scardola (Italian), redeye (English), platitsa (Greek), chervenoperka (Bulgarian), rothfeden (French), rotengle (French), rossard (French), sorkh Pareh (Farsi, Iran), sorv (Norwegian), gardí (Spanish), wzdrega (Polish), sergent (French), rudskalle (Danish), sorva (Finnish), suce-roseaux (French), gardon rouge (French), rottle (French), Meefischli (German), rudd (English), krasnoperka (Russian), Weißfisch (German), cervenica obycajná (Slovak), wzdrega a. krasnopiórka (Polish), Sarv (Swedish), rdeceperka (English, Slovene), gardon de roche (French), cervenica (Czech), almindelig Rudskalle (Danish), sørv (Norwegian), søv (Norwegian)

Synonym

Scardinius eruthrophthalmus , (Linnaeus, 1758)
Cyprinus erythrophthalmus , Linnaeus, 1758
Leuciscus erythrophthalmus , (Linnaeus, 1758)
Scardinius erithrophthalmus , (Linnaeus, 1758)
Cyprinus erythrops , Pallas, 1814
Cyprinus compressus , Hollberg, 1822
Cyprinus scardula , Nardo, 1827
Cyprinus caeruleus , Yarrell, 1833
Rutilus erythrophthalmus scardata , (Bonaparte, 1837)
Cyprinus fuscus , Vallot, 1837
Scardinius scardafa , (non Bonaparte, 1837)
Scardinius hesperidicus , Bonaparte, 1845
Scardinius platizza , Heckel, 1845
Leuciscus apollonitis , Richardson, 1857
Scardinius dergle , Heckel & Kner, 1858
Scardinius macrophthalmus , Heckel & Kner, 1858
Scardinius plotizza , Heckel & Kner, 1858
Scardinius crocophthalmus , Walecki, 1863
Scardinius erythrophthalmus dojranensis , Karan, 1924
Scardinius scardafa ohridana , Vladyko & Petit, 1930
Scardinius erythrophthalmus rutiloides , Vladykov, 1931
Scardinius erythrophthalmus achrus , Stephanidis, 1950
Scardinius erythrophthalmus racovitzai , Müller, 1958
Scardinius racovitzai , Müller, 1958

Similar species

Summary

Scardinius erythrophthalmus (rudd) are mainly herbivorous freshwater fish that are found throughout Eurasia. They have been introduced to a number of countries as a sport fish. Concerns have been raised about the effects of Scardinius erythrophthalmus on aquatic communities.

view this species on IUCN Red List

Species Description
The back is golden-olive, paling to a silvery-olive on the sides and silvery-white on the belly. The fins are coloured a bright orange-red and the eyes are pink to gold (McDowall, 2000)

Notes
Rudd are unpopular with trout anglers, as they will take a fly and therefore make it more difficult to catch trout .

Lifecycle Stages
Males mature at the age of one, females at one to two. Lifespan exceeds four years (McDowall, 2000).
Newly hatched fish attach themselves to aquatic plants using adhesive organs. They stay attached for several days while the sustenance contained within the yolk sac is used up(McDowall, 1990).

Uses
Valued as a sporting fish by coarse anglers (McDowall, 2000).

Habitat Description
Found in lakes, rivers, marshes, canals and ponds (FishBase, 2004). Prefers waters that contain large weed beds (McDowall, 2000). Tolerates a pH range of 7.0 - 7.5 and temperature range of 10 - 22°C. Can live in brackish waters (FishBase, 2004).

Reproduction
Reproduction is by external fertilisation, with large numbers of small eggs (1 - 1.4mm in diameter) deposited amongst aquatic vegetation. Spawning occurs once per year over spring/summer, when water temperatures rise above about 18°C (McDowall, 1990)

Nutrition
Largely carnivorous. When small rudd feed on aquatic crustaceans, snails and insects. As they grow larger they include small fish, worms, detritus, aquatic plants and terrestrial insects in their diet (McDowall, 2000).

General Impacts
Rudd maybe a potential pest in some areas, due to their consumption of aquatic plants. Experiments in New Zealand have suggested that rudd may be putting vulnerable native aquatic plant communities at risk (Lake *et al.*, 2002).In New Zealand the introduction of rudd to a small put-and-take trout fishery ruined the fishery because they stunted and outcompeted trout for anglers lures (Rowe & Champion, 1994).

Management Info
Preventative measures: The use of potentially invasive alien species for aquaculture and their accidental release/or escape can have negative impacts on native biodiversity and ecosystems. Hewitt *et al*, (2006) Alien Species in Aquaculture: Considerations for responsible use aims to first provide decision makers and managers with information on the existing international and regional regulations that address the use of alien species in aquaculture, either directly or indirectly; and three examples of national responses to this issue (Australia, New Zealand and Chile). The publication also provides recommendations for a 'simple' set of guidelines and principles for developing countries that can be applied at a regional or domestic level for the responsible management of Alien Species use in aquaculture development. These guidelines focus primarily on marine systems, however may equally be applied to freshwater.
Copp *et al*, (2005) Risk identification and assessment of non-native freshwater fishes presents a conceptual risk assessment approach for freshwater fish species that addresses the first two elements (hazard identification, hazard assessment) of the UK environmental risk strategy. The paper presents a few worked examples of assessments on species to facilitate discussion. The electronic Decision-support tools- Invasive-species identification tool kits that includes a freshwater and marine fish invasives scoring kit are made available on the Cefas (Centre for Environment, Fisheries & Aquaculture Science) page for free download (subject to Crown Copyright (2007-2008)).
Physical: A study has shown that the use of fine-mesh monofilament gill nets is a potentially viable but short term option for the control of rudd in small lakes (Neilson *et al.* 2004). Ruud were eliminated from a 2 ha lake using a combination of grass carp to removee weed beds and then Rotenone to remove the unwanted fish exposed by weed removal (Rowe & Champion, 1994).

Pathway
Angling organisations may realease rudd as a sport fish. Rudd have been introduced illegally by anglers in some countries.

Principal source: McDowall, R. M. 2000. The Reed field guide to New Zealand freshwater fishes. Auckland, Reed.
FishBase, 2004. Species profile *Scardinius erythrophthalmus* Rudd

Compiler: IUCN/SSC Invasive Species Specialist Group (ISSG) with support from the Terrestrial and Freshwater Biodiversity Information System (TFBIS) Programme (Copyright statement)
Updates with support from the Overseas Territories Environmental Programme (OTEP) project XOT603, a joint project with the Cayman Islands Government - Department of Environment

Review: Dr. David Rowe, NIWA (National Institute of Water & Atmospheric Research). Hamilton New Zealand.

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ALIEN RANGE

[1] CANADA
[4] NEW ZEALAND
[1] TUNISIA
[1] MOROCCO
[1] SPAIN
[1] UNITED STATES

Red List assessed species 3: CR = 1; VU = 1; LC = 1;

Salvelinus fimbriatus **VU**
Salvelinus grayi **CR**
Scardinius hesperidicus **LC**

BIBLIOGRAPHY
18 references found for **Scardinius erythrophthalmus**

Managment information

Burrough, R. J. 1978. The biology and management of roach (*Rutilus rutilus* L.) and rudd (*Scardinius erythrophthalmus* L.) in Slapton Ley, Devon. PhD thesis. Exeter University, U.K.

Centre for Environment, Fisheries & Aquaculture Science (CEFAS)., 2008. Decision support tools-Identifying potentially invasive non-native marine and freshwater species: fish, invertebrates, amphibians.

Summary: The electronic tool kits made available on the Cefas page for free download are Crown Copyright (2007-2008). As such, these are freeware and may be freely distributed provided this notice is retained. No warranty, expressed or implied, is made and users should satisfy themselves as to the applicability of the results in any given circumstance. Toolkits available include 1) FISK- Freshwater Fish Invasiveness Scoring Kit (English and Spanish language version); 2) MFISK- Marine Fish Invasiveness Scoring Kit; 3) MI-ISK- Marine invertebrate Invasiveness Scoring Kit; 4) FI-ISK- Freshwater Invertebrate Invasiveness Scoring Kit and AmphISK- Amphibian Invasiveness Scoring Kit. These tool kits were developed by Cefas, with new VisualBasic and computational programming by Lorenzo Vilizzi, David Cooper, Andy South and Gordon H. Copp, based on VisualBasic code in the original Weed Risk Assessment (WRA) tool kit of P.C. Pheloung, P.A. Williams & S.R. Halloy (1999).
The decision support tools are available from:
http://cefas.defra.gov.uk/our-science/ecosystems-and-biodiversity/non-native-species/decision-support-tools.aspx [Accessed 13 October 2011]

The guidance document is available from http://www.cefas.co.uk/media/118009/fisk_guide_v2.pdf [Accessed 13 January 2009].

Champion, P. Clayton, J. and Rowe, D. 2002. Alien Invaders Lake Managers Handbook. Ministry for the Environment.

Summary: Available from: http://www.mfe.govt.nz/publications/water/lm-alien-invaders-jun02.pdf [Accessed 3 February 2005]

Clearwater, Susan J.; Chris W. Hickey and Michael L. Martin. 2008. Overview of potential piscicides and molluscicides for controlling aquatic pest species in New Zealand. Science for conservation 283. March 2008, New Zealand Department of Conservation

Summary: Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/sfc283entire.pdf [Accessed 20 March 2008]

Copp, G.H., Garthwaite, R. and Gozlan, R.E., 2005. Risk identification and assessment of non-native freshwater fishes: concepts and perspectives on protocols for the UK. Sci. Ser. Tech Rep., Cefas Lowestoft, 129: 32pp.

Summary: The discussion paper presents a conceptual risk assessment approach for freshwater fish species that addresses the first two elements (hazard identification, hazard assessment) of the UK environmental risk strategy The paper presents a few worked examples of assessments on species to facilitate discussion.
Available from: http://www.cefas.co.uk/publications/techrep/tech129.pdf [Accessed 1 September 2005]

IUCN/SSC Invasive Species Specialist Group (ISSG)., 2010. A Compilation of Information Sources for Conservation Managers.

Summary: This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.

Ling, N. 2002: Rotenone a review of its toxicity and use for fisheries management. Science for Conservation 211. 40 p.

Summary: Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/SFC211.pdf [Accessed 7 March 2008]

Mendoza, R.E.; Cudmore, B.; Orr, R.; Balderas, S.C.; Courtenay, W.R.; Osorio, P.K.; Mandrak, N.; Torres, P.A.; Damian, M.A.; Gallardo, C.E.; Sanguines, A.G.; Greene, G.; Lee, D.; Orbe-Mendoza, A.; Martinez, C.R.; and Arana, O.S. 2009. Trinational Risk Assessment Guidelines for Aquatic Alien Invasive Species. Commission for Environmental Cooperation. 393, rue St-Jacques Ouest, Bureau 200, Montr al (Qu bec), Canada. ISBN 978-2-923358-48-1.

Summary: In 1993, Canada, Mexico and the United States signed the North American Agreement on Environmental Cooperation (NAAEC) as a side agreement to the North American Free Trade Agreement (NAFTA). The NAAEC established the Commission for Environmental Cooperation (CEC) to help the Parties ensure that improved economic efficiency occurred simultaneously with trinational environmental cooperation. The NAAEC highlighted biodiversity as a key area for trinational cooperation. In 2001, the CEC adopted a resolution (Council Resolution 01-03), which created the Biodiversity Conservation Working Group (BCWG), a working group of high-level policy makers from Canada, Mexico and the United States. In 2003, the BCWG produced the Strategic Plan for North American Cooperation in the Conservation of Biodiversity. This strategy identified responding to threats, such as invasive species, as a priority action area. In 2004, the BCWG, recognizing the importance of prevention in addressing invasive species, agreed to work together to develop the draft CEC Risk Assessment Guidelines for Aquatic Alien Invasive Species (hereafter referred to as the Guidelines). These Guidelines will serve as a tool to North American resource managers who are evaluating whether or not to introduce a non-native species into a new ecosystem. Through this collaborative process, the BCWG has begun to implement its strategy as well as address an important trade and environment issue. With increased trade comes an increase in the potential for economic growth as well as biological invasion, by working to minimize the potential adverse impacts from trade, the CEC Parties are working to maximize the gains from trade while minimizing the environmental costs.
Available from: English version: http://www.cec.org/Storage/62/5516_07-64-CEC%20invasives%20risk%20guidelines-full-report_en.pdf [Accessed 15 June 2010]
French version: http://www.cec.org/Storage/62/5517_07-64-CEC%20invasives%20risk%20guidelines-full-report_fr.pdf [Accessed 15 June 2010]
Spanish version: http://www.cec.org/Storage/62/5518_07-64-CEC%20invasives%20risk%20guidelines-full-report_es.pdf [Accessed 15 June 2010].

Neilson, K., Kelleher, R., Branes, G., Speirs, D., Kelly, J. 2004. Use of fine-mesh monofilament gill nets for the removal of rudd (*Scardinius erythrophthalmus*) from a small lake complex in Waikato, New Zealand. New Zealand Journal of Marine and Freshwater Research, *38*: 525-539.

Summary: An assessment of the potential of fine-mesh monofilament gill nets for controlling rudd. Conclusions were that this method appears to be a potentially viable and cost-effective option for ongoing control.
Available from: http://www.rsnz.org/publish/nzjmfr/2004/046.php

Rowe, D.K and Champion, P.D., 1994. Biomanipulation of plants and fish to restore Lake Parkinson: a case study of its implications. In Collier, K.J (eds), Restoration of Aquatic Ecosystems, Science and Research Series, Department of Conservation, New Zealand.

Rowe, D.K and Graynoth, E, 2002. Lake Managers Handbook- Fish in New Zealand Lakes. Ministry for the Environment, Wellington.
Summary: Available from: http://www.mfe.govt.nz/publications/water/lm-fish-in-nz-lakes-jun02.pdf

General information

FishBase, 2004. Species profile *Scardinius erythrophthalmus* Rudd
Summary: FishBase is a global information system with all you ever wanted to know about fishes . FishBase on the web contains practically all fish species known to science. FishBase was developed at the WorldFish Center in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and many other partners, and with support from the European Commission (EC). Since 2001 FishBase is supported by a consortium of seven research institutions. You can search on Search FishBase
This species profile is available from:
http://www.fishbase.org/Summary/SpeciesSummary.cfm?genusname=Scardinius&speciesname=erythrophthalmus [Accessed 10 September, 2004].
Freshwater Biodata Information System New Zealand (FBIS), 2005
Summary: The Freshwater Biodata Information System (FBIS) contains fish, algae, aquatic plant and invertebrate data and metadata gathered from New Zealand s freshwater streams, rivers and lakes. FBIS provides different ways to search for biodata: choose a predefined search from a list of common searches; use the map view to draw a box on a map and search for biodata; or create your own search for maximum search flexibility. FBIS is offered as a nationally available resource for the New Zealand public, institutions and companies who need access to a well-maintained long-term data repository.
Available from: https://secure.niwa.co.nz/fbis/validate.do?search=common [Accessed 5 August 2005]
ITIS (Integrated Taxonomic Information System), 2005. Online Database *Scardinius erythrophthalmus*
Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.
Available from:
http://www.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Scardinius+erythrophthalmus&p_format=&p_ifx=plglt&p_lang= [Accessed March 2005]
Lake, M.D., Hicks, B. J., Wells, R. D. S., Dugdale, T. M. 2002. Consumption of submerged aquatic macrophytes by rudd (*Scardinius erythrophthalmus* L.) in New Zealand. Hydrobiologia *470*: 13-22.
Summary: Experiments were carried out to determine the preference of rudd for a range of aquatic macrophytes in New Zealand. The results suggest that rudd are a threat to vulnerable native aquatic plant communities.
McDowall, R. M.1990. New Zealand Freshwater Fish a natural history and Guide. Heinmann and Reed MAF Publishing Group
McDowall, R. M. 1990. New Zealand Freshwater Fishes: a natural history and guide. Auckland. Heinemann Reed.
Summary: An excellent reference book on New Zealand freshwater fish. Contains more in-depth information on species than McDowall, 2000.
McDowall, R. M. 2000. The Reed field guide to New Zealand freshwater fishes. Auckland, Reed.
Summary: Contains short descriptions and distributions far all freshwater fish found in New Zealand. An excellent reference.