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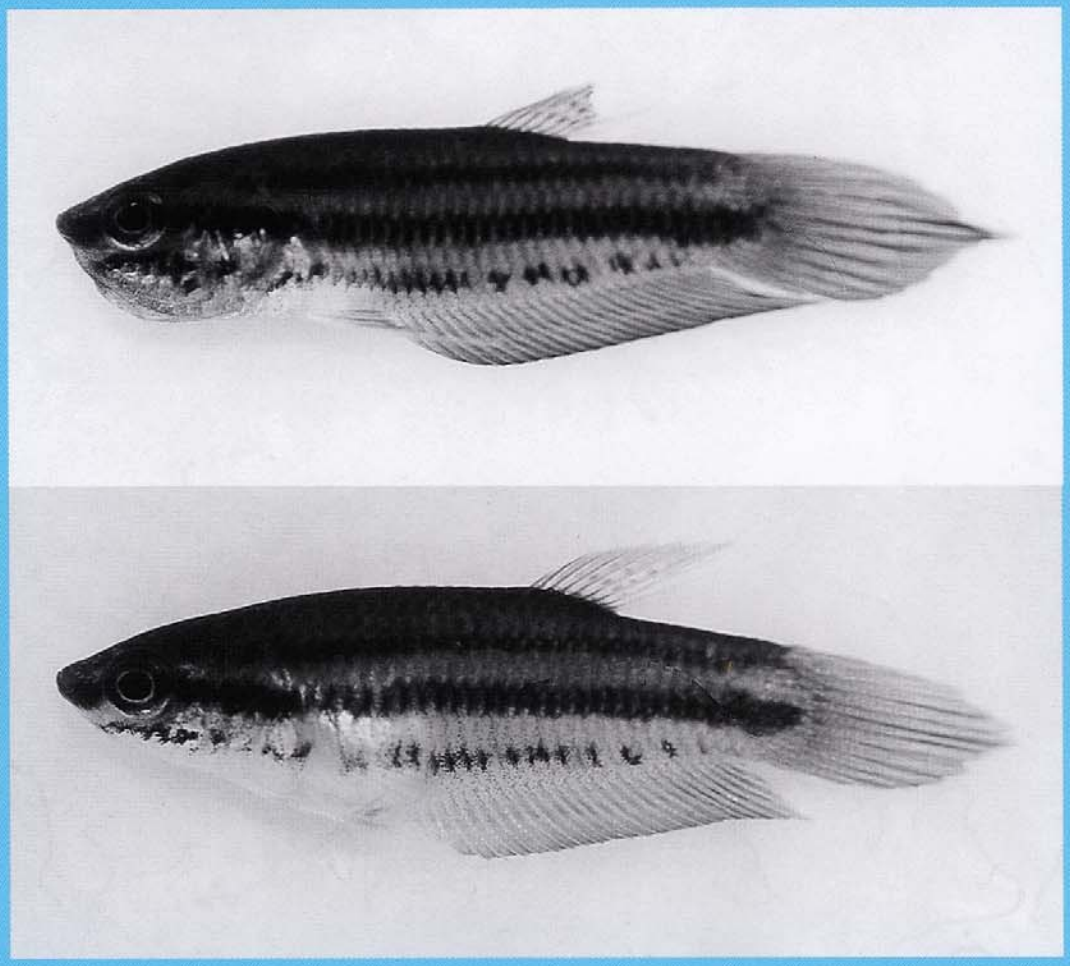

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A new locality record for *Lepidocephalichthys jonklaasi* (Deraniyagala, 1956) (Teleostei: Cypriniformes, Cobitoidea, Cobitidae)

Ein neuer Fundort von *Lepidocephalichthys jonklaasi* (Deraniyagala, 1956) (Teleostei: Cypriniformes, Cobitoidea, Cobitidae)

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Summary: A new location for the rare loach *Lepidocephalichthys jonklaasi* (Deraniyagala, 1956) in the Kottawa Forest Reserve, Sri Lanka is reported. A synopsis of the known geographical distribution of this endemic species is added. Relevant ecological habitat data for the species are presented. The conservation status of the species is discussed.

Key words: Sri Lanka, Cobitidae, *Lepidocephalichthys jonklaasi*, distribution, Kottawa

Zusammenfassung: Ein neuer Fundort der seltenen Schmerle *Lepidocephalichthys jonklaasi* (Deraniyagala, 1956) im Kottawa, Sri Lanka wird beschrieben. Die bisherige Kenntnis über die Verbreitung dieser endemischen Art wird dargestellt. Artrelevante ökologische Daten des Biotops werden vorgestellt. Die Bedrohung der Art wird diskutiert.

Schlüsselwörter: Sri Lanka, Cobitidae, *Lepidocephalichthys jonklaasi*, Verbreitung, Kottawa

1. Introduction

Lepidocephalichthys jonklaasi, a loach of the family Cobitidae, was originally described by Deraniyagala (1956) as a member of the genus *Lepidocephalus*. The type locality is Wilpita Estate near Akuressa in the southwestern wet zone of Sri Lanka. Later Deraniyagala (1958) added the information, that this place is located 500 m above sea level. Up to now, only four localities are documented for this species (Pethiyagoda 1994).

1. Wilpita Estate near Akuressa in Southern Province, Matara District, belonging to the system of the Nilwala Ganga; type locality of the species (Deraniyagala 1956).
2. Madaka (06°48'N, 80°10'E), Western Province, Colombo District, belonging to the Kalu Ganga system (Nalinda in Pethiyagoda 1991).
3. Kanneliya Reserve, Southern Province, Galle District, belonging to the Gin Ganga system (Kottelat in Pethiyagoda 1991).
4. Weddagala, Sabaragamuwa Province, Ratnapura District, belonging to the Bentota Ganga System (Senanayake [1980] cited in Pethiyagoda 1991).

L. jonklaasi is endemic to the southwestern part the of the island of Sri Lanka, called the "wet zone" (Erdelen 1998, Domrös 1971). It is is not a synonym of *L. thermalis*, as proposed by De Silva (1963), but a valid, distinct species (Pethiyagoda 1991).

2. Material and methods

During field studies 27 biotopes with a possible occurence of *L. jonklaasi* were visited during the dry season in the months January, February and March in the years 1992, 1995, 1997, 1998, and 2000 to 2004. Collections were made with 60 × 40 cm frame nets with 1 to 2 mm mesh width close to the bottom of the small and shallow waterss in rainforest areas and by searching the leave litter.

Photos of living specimens were taken in aquaria (Figs. 1 to 3). Three preserved specimens were deposited in the "Staatliches Museum für Tierkunde Dresden" (MTKD after LEVITON et al. 1985, MTD under the curatorship of Dr. Axel ZARSKE) and numbered as MTD F 26846 to 26848.

3. Results

3.1. New locality

In 1998 a single specimen of *L. jonklaasi* was caught at the new locality (06° 05' 88" N - 080 ° 18' 86" E, 102 m above sea level near Kottawa

Fig. 1: *Lepidocephalichthys jonklaasii* from Kottawa, Galle District, 2001.
Abb. 1: *Lepidocephalichthys jonklaasii* von Kottawa, Galle Distrikt, 2001.

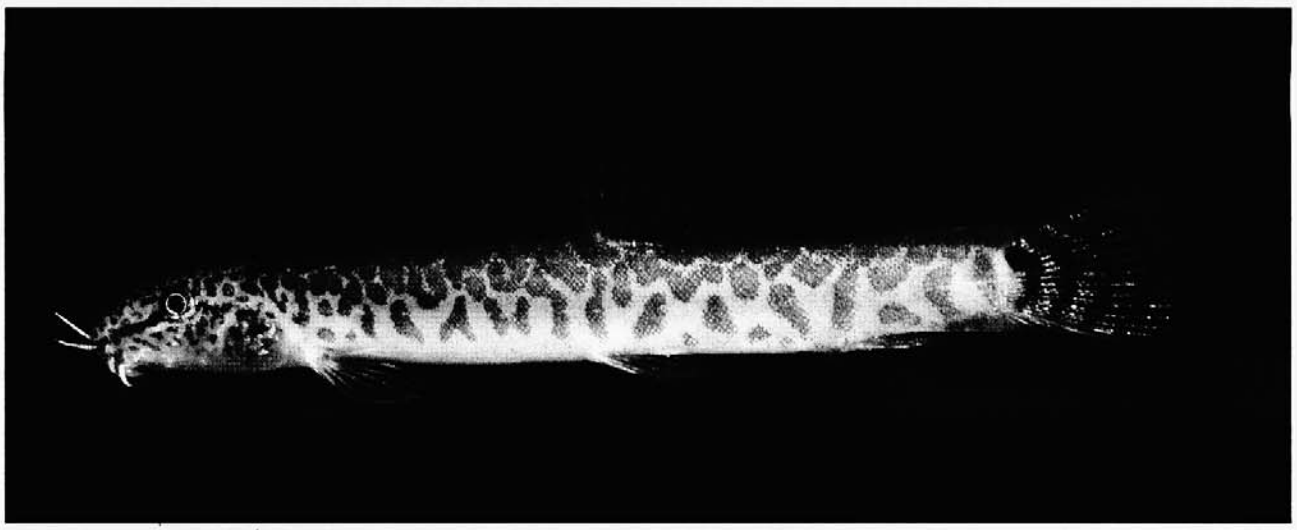

Fig. 2: *Lepidocephalichthys jonklaasi* from Kottawa, Galle District, 2003.
Abb. 2: *Lepidocephalichthys jonklaasi* von Kottawa, Distrikt Galle, 2003.

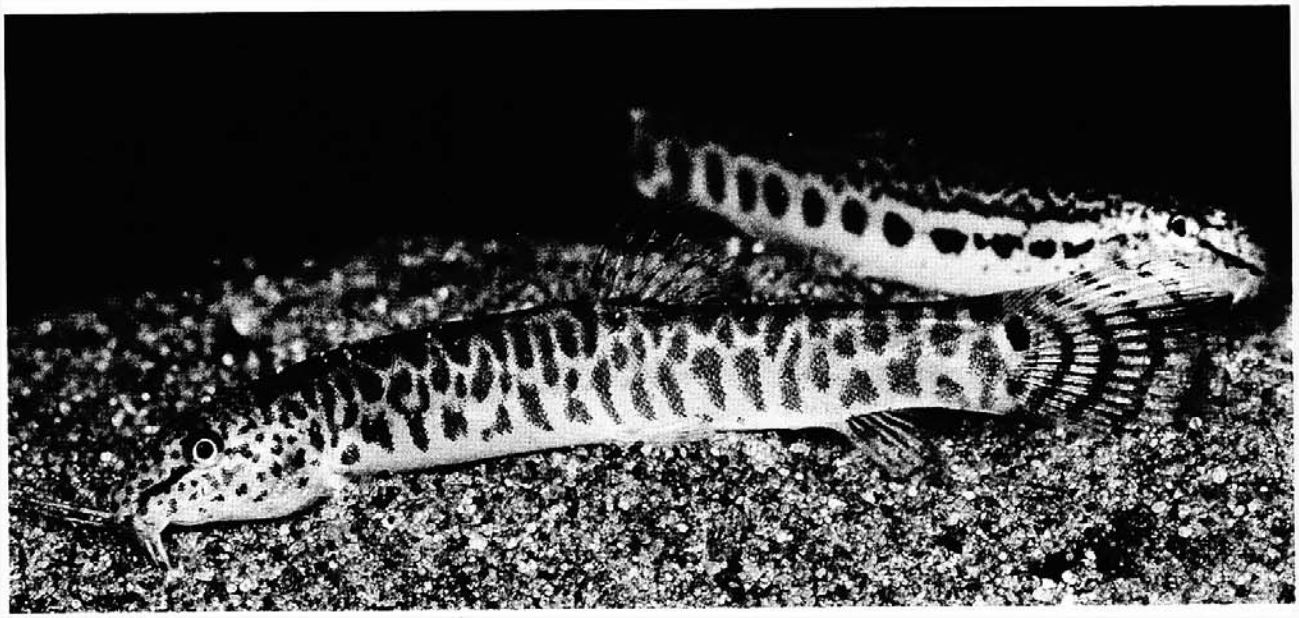

Fig. 3: *Lepidocephalichthys jonklaasii* (front), *Lepidocephalichthys thermalis* (rear).
Abb. 3: *Lepidocephalichthys jonklaasii* (vorn), *Lepidocephalichthys thermalis* (hinten).

Forest Reserve), which is a small "blackwater" creek located north of the Kottawa Forest Research Institute in the Southern Province, Galle District (Fig. 4). In 2000 this record was confirmed by collection of three additional specimens and 2001, 2003 and 2004 again by further specimens.

3.2. Ecological data

L. jonklaasi is known as a stenoecic species strongly restricted to creeks on the island of Sri Lanka with blackwater character in rainforest areas. Water parameters (minimum/maximum) measured in the Kottawa Oya from 1996 to 2004 were:

Temperature	23,6 °C/26 °C
Total hardness	not measurable/1,5 °dGH
Carbonic hardness	not measurable/2 °dkH
Electric conductivity	30 $\mu S \cdot cm^{-1}$/60 $\mu S \cdot cm^{-1}$
pH	5,9/8,1
Water colour	like tea/colourless

4. Discussion

This new record is somewhat surprising because since more than 25 years this habitat was visited by biologists and aquarists. They were chiefly interested in the Spotted Gourami, *Malpulutta kretseri* DERANIYAGALA, 1937, or the Pearly Rasbora, *Rasboroides vaterifloris* (DERANIYAGALA, 1930) and it seems that they ignored the loach species or overlooked the loaches which are active at dusk and night.

The fact that *L. jonklaasi* and *L. thermalis* (VALENCIENNES, 1846) and *Schistura notostigma* (BLEEKER, 1853) show syntopic occurance in this habitat is more important. *L. thermalis*, like *L. jonklaasi*, belongs to the family Cobitidae, while *S. notostigma* belongs to the family Balitoridae. *L. thermalis* is a loach with a widespread distribution in Sri Lanka and on the Indian subcontinent. In Sri Lanka it is chiefly found in the first and second peneplains up to about 350 m above sea level (for geographic structure see COOREY 1967). However, *S. notostigma* is usually restricted to more mountainous areas in the third peneplain higher than 250 m a.s.l. (OTT 1999). The fourth cobitoid species of Sri Lanka, *Acanthocobitis urophthalmus* (GÜNTHER, 1868), family Balitoridae, has not been found in Kottawa yet. Other fish species found in Kottawa Oya are shown in table 1.

L. thermalis is an euryoecic species tolerating a broad spectrum of different habitats and therefore is widely spread on the island of Sri Lanka and in the southern part of the Indian subcontinent. Maybe this species has invaded the rainforest brook more recently. *S. notostigma* prefers flowing streams and is also found directly below high waterfalls like Diyaluma or Rawana Ella Falls in the Badulla District of the Central Province. It

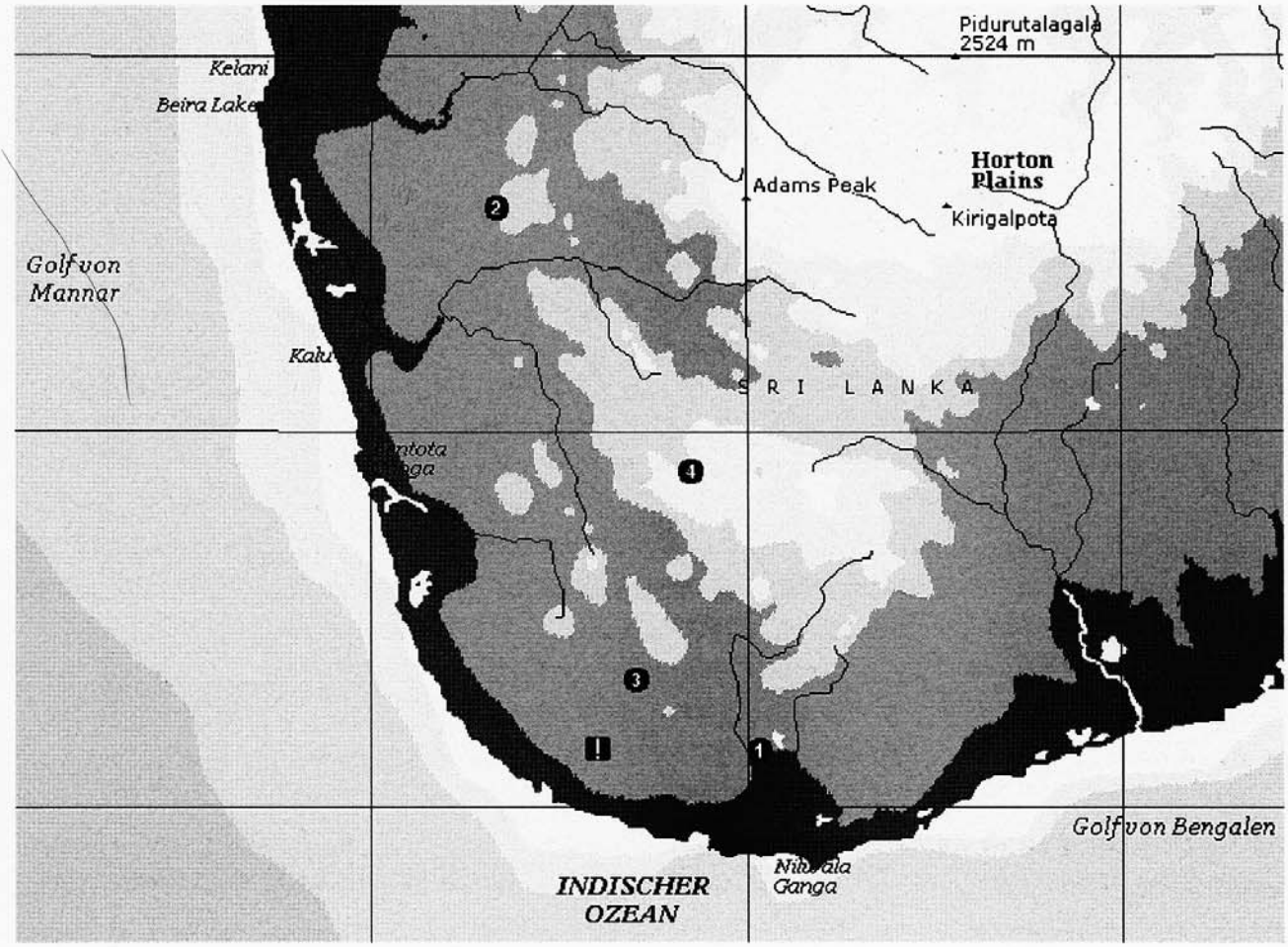

Fig. 4: Known localities of *Lepidocephalichthys jonklaasi.*
1 - Wilpita Estate near Akuressa in Southern Province, Matara District
2 - Madaka, Western Province, Colombo District
3 - Kanneliya Reserve, Southern Province, Galle District
4 - Weddagala, Sabaragamuwa Province, Ratnapura District
! - The new one in Kottawa, Southern Province, Galle District
Abb. 4: Bekannte Fundorte von *Lepidocephalichthys jonklaasi.*
1 - Landsitz Wilpita bei Akuressa in der Süd-Provinz, Distrikt Matara
2 - Madaka, West-Provinz, Distrikt Colombo
3 - Kanneliya Schutzgebiet, Süd-Provinz, Distrikt Galle
4 - Weddagala, Provinz Sabaragamuwa, Distrikt Ratnapura
! - Der neue Fundort bei Kottawa, Süd-Provinz, Distrikt Galle

seems to colonize this rainforest stream due to the pressure of lost habitats in the surrounding area, where land use by increasing rice culture takes place.

L. jonklaasi tolerates only low concentrations of free saprobic bacteria; usually rainforest creeks do not have more than 10^2 colony founding bacteria per milliliter water. Depending on the content of substances like humic acids, flavonoids and other tanning organic compounds in the peaty black water and a typical pH below 7 the concentration of bacteria is low.

Obviously due to agricultural and other anthropogenic influences the Kottawa Oya became polluted in the last decade, what is shown by the wide ph range and values above 7, which are unusual for a rainforest creek.

L. jonklaasi is reported as endangered species since more than ten years (PETHIYAGODA 1994; cf. SILVA & SILVA 1994). The IUCN Red Data Book classification (International Union for Conservation of Nature and Natural Resources, http://www.iucn.org) is EN B1+2c C1. EN means endangered facing a very high risk of ex-

Tab. 1: Fish species recorded in the creek Kottawa Oya.
Tab. 1: Nachgewiesene Fischarten im Bach Kottawa Oya.

Species	1995	1996	1997	1998	2000	2001	2003	2004
Aplocheilus parvus					x		x	
Aplocheilus werneri	x	x	x	x	x			x
Belontia signata	x					x	x	x
Channa orientalis			x					
Channa sp.				x	x			x
Chela laubuca			x				x	x
Devario malabaricus	x				x	x		
Heteropneustes fossilis				x				x
Lepidocephalichthys jonklaasi				x	x	x	x	x
Lepidocephalichthys thermalis				x		x	x	x
Malpulutta kretseri	x	x	x	x	x		x	x
Mystus vittatus							x	
Pseudosphromenus cupanus		x	x					
Puntius bimaculatus							x	x
Puntius filamentosus (?)		x						x
Puntius nigrofasciatus	x	x	x	x	x	x	x	x
Puntius titteya	x							x
Puntius vittatus	x	x			x			
„Rasbora" daniconius s.l.	x	x	x	x	x	x	x	x
Rasboroides vaterifloris	x	x	x	x	x	x	x	x
Schistura notostigma			x			x		x

tinction in the wild in the near future, as defined by the following criteria. "B1+2c" means the extent of occurrence estimated to be less than 5,000 km^2 or area of occupancy estimated to be less than 500 km^2, and is 1) severely fragmented or known to exist at no more than five locations, and 2) continuing decline is inferred, observed or projected, in any of the following: area, extent and/or quality of habitat and C) Population estimated to number less than 2,500 mature individuals and 1) an estimated continuing decline of at least 20% within five years or two generations, whichever is longer.

All known habitats of *L. jonklaasi* are shallow, slow flowing rivulets in rainforest areas, heavily shaded by trees and shrubs, and the bottom covered with leaf debris. Therefore the main threat is the ongoing deforestation on the island of Sri Lanka, where this highly specialized species is endemic in the wet zone of the southwestern provinces. A secondary, not yet sufficiently researched threat is the introduction of habitat competitors like *L. thermalis* in the endangered rainforest habitats and the existence of other euryoecic fish species like *Devario malabaricus*, *Puntius bimaculatus*, *Puntius vittatus*, and *Rasbora daniconius* s.l.

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