

# Hybrid *Labeo umbratus* × *L. capensis* (pisces, cyprinidae) from the Hardap Dam, S.W.A.

by  
I. G. Gaigher  
Department of Zoology,  
University of Fort Hare

H. J. Bloemhoff  
Division of Nature Conservation and Tourism  
South West Africa Administration

## 1 INTRODUCTION

Hardap Dam is situated in the middle reaches of the Fish River, a tributary of the Orange River below the Aughrabies Falls. The dam contains two mudfish species namely *Labeo umbratus* and *L. capensis*. *L. capensis* is the most abundant fish in the dam. It made up forty nine percent of gill net catches during a survey done in the year October, 1971 to September, 1972. *L. umbratus* is common but less abundant and only made up sixteen percent of gill net catches during the same period (Bloemhoff, 1974).

Schoonbee (1969) found that the food habits of the two species are largely similar in Babers Pan, Western Transvaal. According to Mulder (1973) *L. umbratus* prefer lentic conditions while *L. capensis* are found in all habitats in the Vaal River. The two species therefore occur together and utilize the same food, but the morphology of their mouths indicates that they occupy different ecological niches by feeding differently. In waters where both species occur, the mouths of *L. umbratus* open terminally, probably for feeding on suspended material or from soft substrates. *L. capensis*, on the other hand, have ventral mouths with large flappy lips, probably as an adaptation for feeding off stones. The bottom of Hardap Dam is largely stony and this possibly explains the abundance of *L. capensis*.

*L. capensis* spawn on gravel or submerged grass of streams (Mulder, 1973) and spawning of *L. umbratus* was found to take place on gravel (Gaigher, Ntloko and Visser, in press). According to these authors spawning of *L. umbratus* and *L. capensis* also takes place at the same time of the year and under similar environmental conditions.

Spawning of mudfish have not been observed in Hardap Dam, but hybrids are relatively common indicating that the two species share the same breeding sites. The purpose of this paper is merely to describe the morphology of the hybrids. More studies will be done in future to determine whether the hybrids are sterile, etc.

## 2 RESULTS

Figure 1 shows the external morphology of *L. capensis*, *L. umbratus* and a typical hybrid. The external morphology of the hybrids vary, but the head generally resembles that of *L. umbratus*, whilst the body is more *L. capensis*-like. The mouth varies from terminal when opened to sub-inferior, but never inferior as in *L. capensis*. The barbels are generally intermediate in size between those of *L. capensis* and of *L. umbratus*. The spots on the dorsal sides of the body vary in different individuals from dark-orange, as in *L. capensis*, to light-golden, as in *L. umbratus*. The same applies to the general colouration of the body.

For further comparison the following measurements and counts were done of ten hybrids and of ten specimens of each species: standard length, head length, distance from the orbit to the preopercular/opercular groove, opercular length (measured horizontally), in-

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## ABSTRACT

The external morphology of ten specimens each of *Labeo umbratus*, *L. capensis* and hybrid *L. umbratus* × *L. capensis* from the Hardap Dam are compared. The external morphology of hybrids vary, but the head generally resembles that of *L. umbratus* while the body is more *L. capensis*-like. Hybrids are relatively common in the dam, probably because the two parent species share the same breeding sites and spawn at the same time of the year.

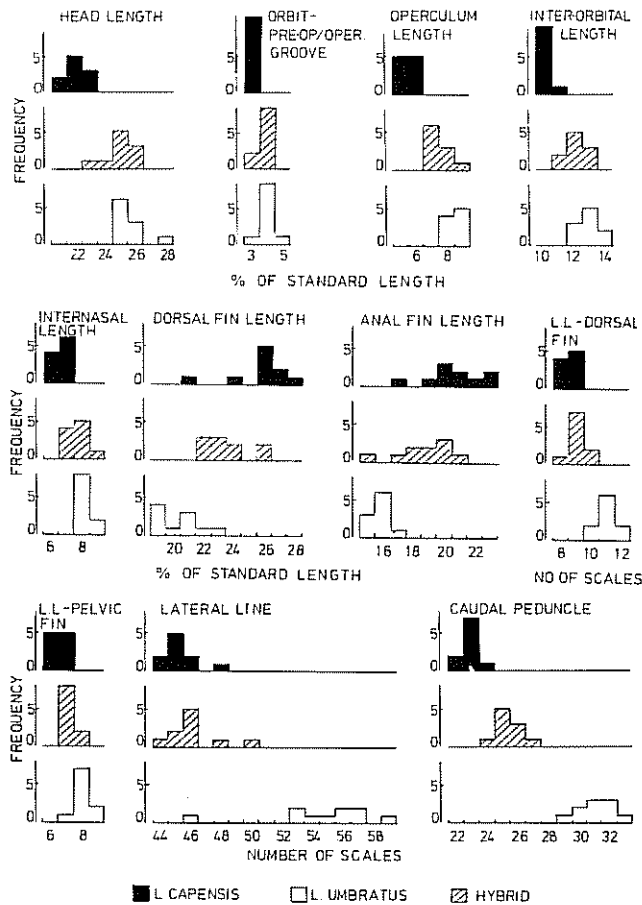


Figure 2. A comparison of certain external morphological features of *Labeo capensis*, *L. umbratus* and hybrid *L. capensis* × *L. umbratus* from the Hardap Dam.

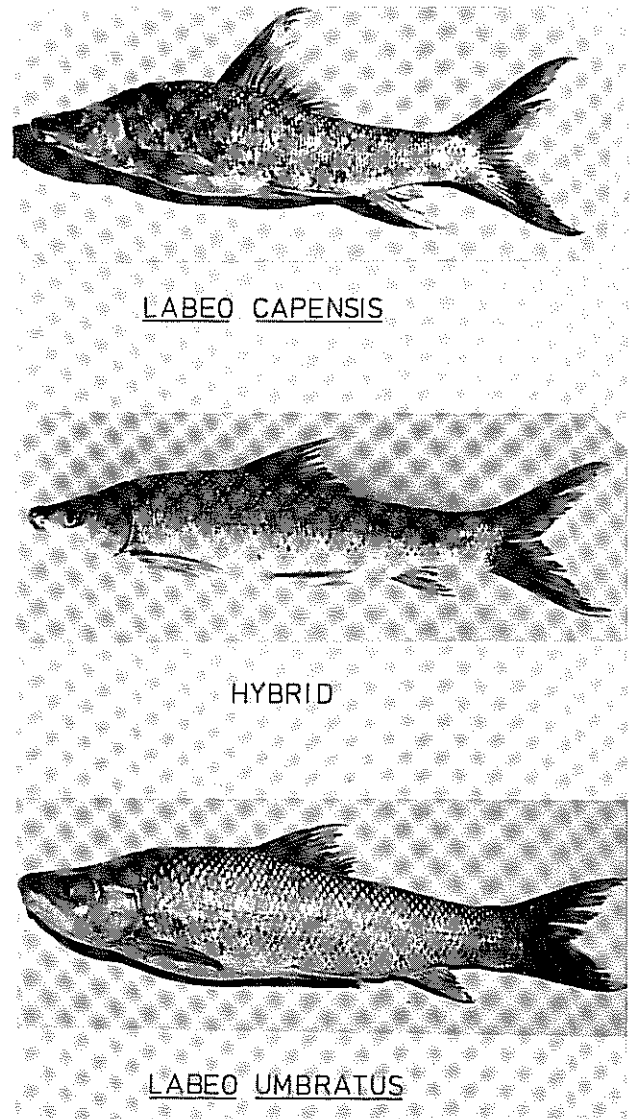


Plate 1.

terorbital length, internasal length, fin lengths, lateral line scale count, caudal peduncle scale count, number of scales between the lateral line and the origin of the dorsal fin and number of scales between the lateral line and origin of the pelvic fin. Measurements were expressed as percentages of standard length and the results are shown graphically in Figure 1.

The hybrids are closer to *L. capensis* in some features, intermediate in other features and closer to *L. umbratus* in still other features. As far as the head is concerned, the head length and distance between the orbit and preopercular/opercular groove of the hybrids are approximately similar to those of *L. umbratus*, whilst the opercular, interorbital and internasal lengths are intermediate between the two species.

Fin lengths vary, but the fins of *L. capensis* are generally longer than those of *L. umbratus*. The fin lengths of hybrids are intermediate between the two species, but closer to *L. capensis*. Only the dorsal and anal fin lengths are compared in Figure 1.

The number of lateral line scales of the ten hybrids examined fall within the range for *L. capensis*. The caudal peduncle scale count is intermediate between the count for the two parent species. One speci-

men of *L. umbratus* had only forty six and forty eight lateral line scales on the left and right sides of the body respectively. This count falls within the range for *L. capensis*, but in general appearance and in all other meristic structures and squamation this specimen is a typical *L. umbratus*. The caudal peduncle scale count of the ten *L. capensis* from Hardap Dam examined falls mainly outside the range of twenty to twenty two given for this species by Jubb (1967), but falls within the range of twenty to twenty four given by du Plessis (1963).

The number of scales between the lateral line and origin of dorsal fin and between the lateral line and origin of the pelvic fin of hybrids are in most cases similar to the number for *L. capensis*, but some specimens have a count within the range for *L. umbratus*.

Hybrids between *L. capensis* and *L. umbratus* are relatively common in Hardap Dam. Of 165 specimens collected with the aid of gill nets for this study, 110 were identified as *L. capensis*, 28 as *L. umbratus* and 27 as hybrids.

### 3 DISCUSSION

It is important for fisheries biologists to be aware of the occurrence of hybrids and to be able to separate them from the parent species. The hybrids analyzed for this study were obvious specimens, but it was not always easy to identify hybrids. For example, the "*L. umbratus*" with 46 lateral line scales was possibly a hybrid and not a true *L. umbratus*. Fisheries biologists usually have large numbers of fish on hand that have to be analyzed before they turn bad, and for this reason aberrant specimens are often overlooked or identified on general appearance. However, this could lead to erroneous results if hybrids are present and it is therefore recommended that specimens be discarded or treated separately if they look different from, or intermediate to the species being analyzed.

*L. capensis* × *L. umbratus* hybrids are not only confined to the Hardap Dam, but have also been recorded from the Caledon River in the Orange Free State (Nature Conservation, O. F. S., 1972/73) and from the Verwoerd Dam (Hamman, *pers. com.*). Hybrids are not only confined to these two *Labeo* species. The senior author collected a hybrid *L. ruddi* × *L. molybdinus* from the Incomati River system and Pott (*pers. com.*) found hybrid *L. rosae* × *L. rubropunctatus* in the Pongolo River system.

### 4 ACKNOWLEDGEMENTS

The authors are greatly indebted to the Director of Nature Conservation and Tourism of the S. W. A. Administration and the Council of the University of Fort Hare which enabled them to do the study.

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