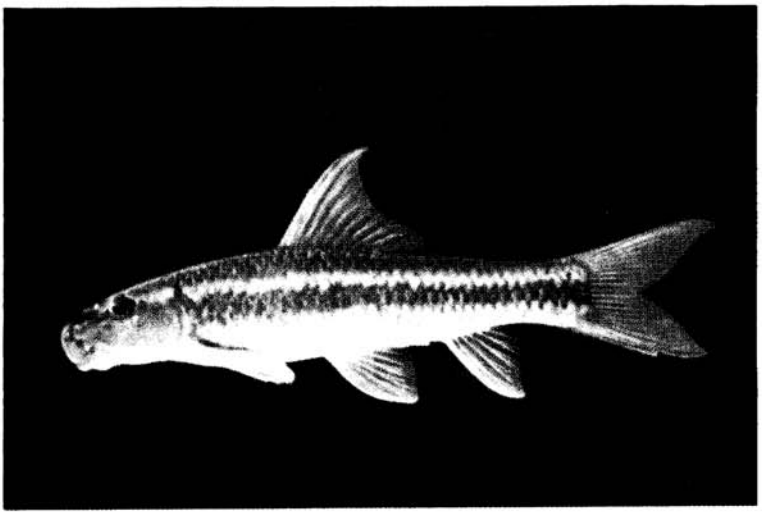


21. *Labeo cylindricus* Peters, 1852.
Synonyms: *L. darlingi* Boulenger, 1902.
L. parvulus Gilchrist & Thompson, 1913.
Rough-nosed mudfish. Red-eye mudsucker.
Rooioog-moddervis.

Young individuals are usually olive to olive-brown with or without a dark lateral streak (in rocky habitats) and with a red eye. The colour darkens with age to a more uniform greyish- to olive-brown. Fins are flesh-coloured.

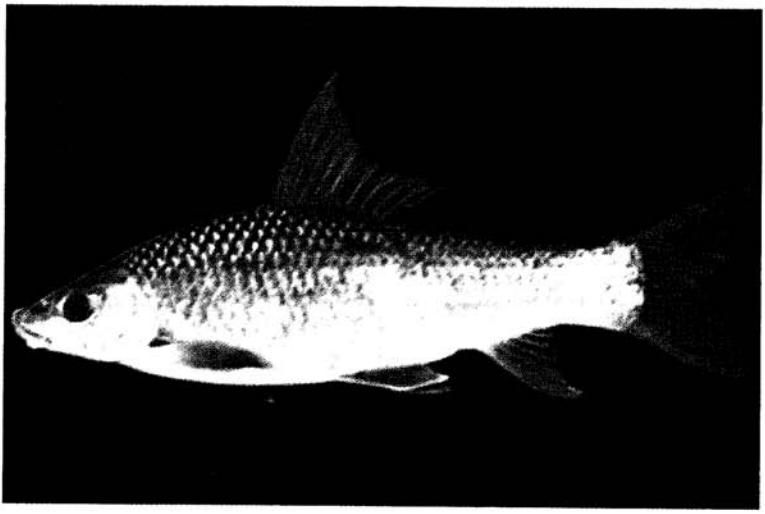
Although weights of up to 2 lbs. have been recorded elsewhere, *L. cylindricus* rarely grows to anything approaching this size in Park waters and adults are usually about 7-8 inches in length. Sexual maturity is reached at a size of about 3 inches and it appears that in the same age group, the males are smaller than the females.

The habitat of choice of these interesting fishes is running water with a rocky, pebble-strewn bottom, over which the fish move, often in little shoals, grazing the algae and apiphytes on the substrata. They are often found at rocky drifts through rivers, where the water is only a few inches deep.

Despite the fact that their chosen habitat offers excellent cover, these fish are important items on the diet of predators such as tiger-fish.

During the summer floods, *L. cylindricus* often moves upstream in immense numbers, possibly to spawn, and the smaller specimens display a remarkable ability to scale obstacles in their path such as weirs and dam walls over which there is a trickle of water. Climbing is achieved by alternatively clinging to the surface with its mouth and pressing with the paired fins, thus wriggling up.

Distribution: Widely distributed throughout the perennial and some of the seasonal rivers in the Park. (Fig. xx).



22. *Labeo molybdinus* Du Plessis, 1963.

Plumbeous mudfish. Loodvis.

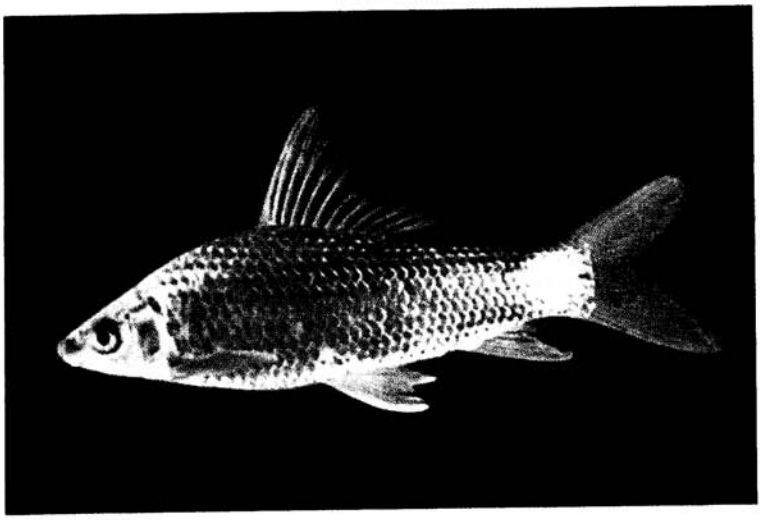
Very similar in appearance to *cylindricus*, but has a more compressed body, more pointed snout and grows to a larger size. The eye is placed slightly lower on the head and the scales are more numerous. The snout is large, but is not so blunt and rough as that of *cylindricus*, and it projects well beyond the lips. The nape rises more steeply behind the head than in *cylindricus*. The dorsal fin is fairly high, with a concave posterior edge.

Young spesimens are olive-brown with, or without, a darker lateral band. Larger fish are dark slate colour above with a dirty white belly and pink mouth. The eye lacks the distinct red colour of *cylindricus*. Adults grow to a maximum length of about 15 inches (2 lbs. 9 oz.).

L. molybdinus is similar in habits to *cylindricus* and is often found in association with it in the same rocky habitats. If anything, *molybdinus* is more partial to deeper water than *cylindricus* and more often venture upstream into the seasonal tributaries, where they take up abode in the larger permanent pools.

Sexual development begins at a length of 3½ inches in males, but only at a length of over 5 inches in females.

Distribution: As in the case of *L. cylindricus, molybdinus* has been recorded from all the perennial and many of the seasonal rivers in the Park. (Fig. xxi).



23. *Labeo rosae* Steindachner, 1894.
Synonym: *L. hamiltoni* Gilchrist & Thompson, 1917.
Red-nosed mudfish. Rooineus-moddervis.

This species is related to *L. altivelis* of Rhodesia and tropical East Africa. It is a beautiful silver to silvery-grey fish with bronzy-green back and steel blue head. The eye is reddish-orange and tubercles on the snout are characteristically bright red. It attains a length of some 16 inches and 5 lbs. in weight, but normally adults do not weigh much more than about 3 lbs.

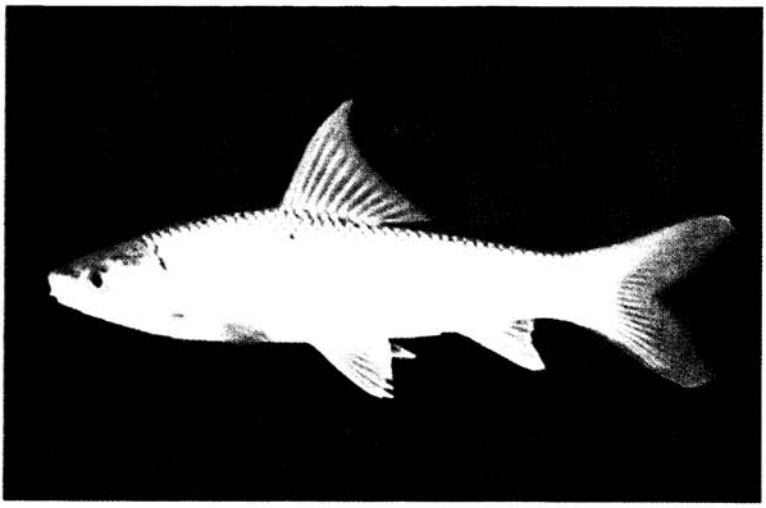
L. rosae is an active fish, which leaps out of the water to a remarkable height when netted or when negotiating obstacles during their summer migration upstream.

The fish's speed and strength make it attractive to sportsmen and when hooked, it provides excellent sport to the angler. In contrast to its other Lowveld congeners, it is more ready to take a bait. Numbers are caught in such rivers as the Letaba by baiting small hooks with mealie-meal paste, earthworms or a grain of unripe maize and using a float set at the correct depth.

The red-nosed *Labeo* is also not partial to rocky habitats, and is often netted in large numbers along sandy stretches of the river or in isolated pools with a sandy bottom. It inhabits both the main stream of perennial rivers, as well as pools in the seasonal rivers. The food of this fish consists mainly of algae, diatoms and organic detritus, together with a certain amount of small insect larvae.

Sexual maturity begins at a length of about 6 inches and it has been found that both mature and immature fish take part in the annual migration upstream during the summer months.

Distribution: A common species, which is widely distributed throughout all the river systems and sub-systems of the Park. (Fig. xxii).



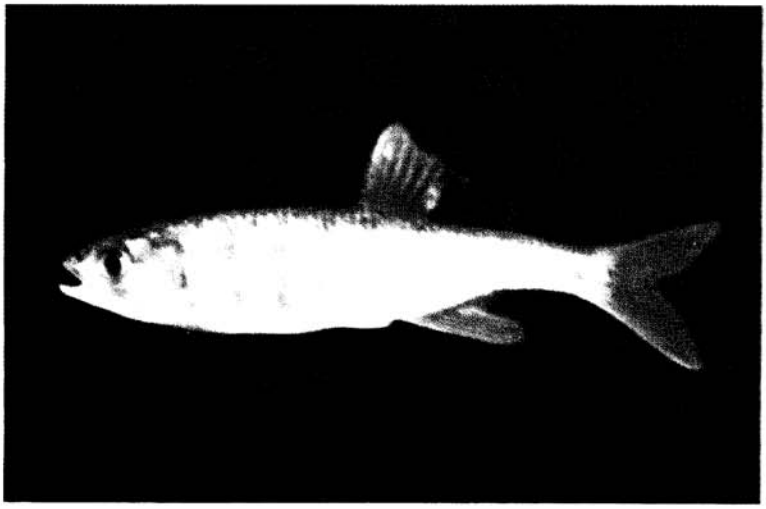
24. *Labeo ruddi* Boulenger, 1908.
Synonym: *L. tenuirostris* (non Steindachner).
Small-mouthed mudfish. Kleinbek-moddervis.

In life this fish has a bright silvery colour with olive-brown back and a dark band behind the operculum. There is no red on the snout as in *rosae*, but a little is present in the eye above the pupil. The paired fins are flesh-coloured, tinged with black. The edges of the dorsal and caudal fin have a reddish tint, more marked in the caudal. A dark patch on the lateral sides of the caudal peduncle is accentuated in preserved specimens. The fish is more slender than *rosae* and does not grow to such a large size, a 12 inch long specimen being exceptional. Warts on the nose are for the most part absent and the mouth is smaller and with shorter papillae than *rosae*.

The small-mouthed mudfish is a species endemic to the Lowveld waters and is rarely caught at altitudes in excess of 1,400 ft. It does not relish running water and is not often found in the perennial rivers. Their habitat of choice is the larger pools of open water in the seasonal rivers, and here again, preferably those with a muddy or silt-covered bottom. Here it feeds primarily on algae in the bottom sludge and organic detritus.

Not much is known of the breeding habits of this species, but it is almost certain to spawn locally when cognisance is taken of the very young specimens which are sometimes netted in the Park during the summer months.

Distribution: The seasonal tributaries to all the perennial rivers in the Park. (Fig. xxiii).



25. *Barilius zambezensis* (Peters), 1852.

Synonyms: *B. neavii* Boulenger, 1907.

B. peringueyi Gilchrist & Thompson, 1913.

B. stephensoni Gilchrist & Thompson, 1913.

Barred minnow. Sebravis of Gebande ghieliemientjie.

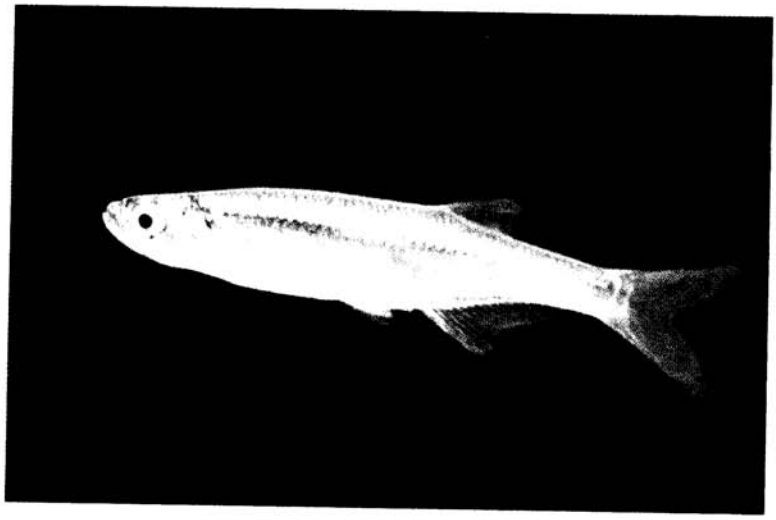
The mature banded minnow is a beautiful creature — bright silvery in life, with blue-black vertical bars producing a zebroid effect. The tail and dorsal fin is edged with scarlet and have basal patches of black, whereas the head and chest of adult males are suffused with bright pink. In length they attain about 6 inches, but are usually considerably smaller.

The favourite habitat of these strikingly-coloured litle fish is shallow sandy pools below rocky rapids, where the current is swift and the water is clear and well aerated. They are very active and strong swimmers and venture into the torrential potion of streams with ease, but shun muddy or silt-laden waters (vide their absence from the Levubu river).

B. zambezensis is a predator of insects and other small aquatic creatures such as tadpoles. Ants, beetles, flying termites and flies are also taken from the surface of the water.

Breeding occurs in summer and sexual development begins at a length of less than 3 inches.

Distribution: The perennial rivers of the Park except the Levubu river. (Fig. xxiv).



26. *Engraulicypris brevianalis* (Boulenger), 1908.

Synonyms: *E. whitei* v.d. Horst, 1934.

E. gariepinus Barnard, 1943.

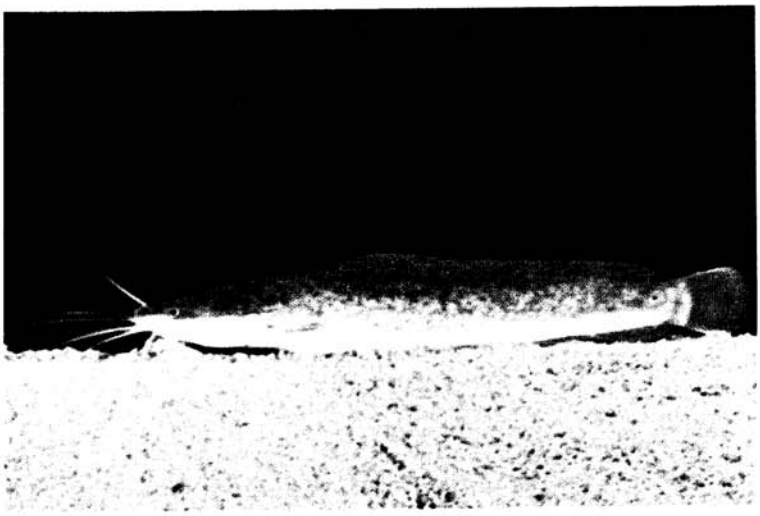
Freshwater sardine or Whitebait.

Glasvissie. Rivier- of Varswatersardyn.

In life, these tiny and slenderly-built fishes are silvery-white with a paler olive-green dorsal surface and a darker silvery lateral stripe which becomes dark and spotted in preserved specimens. In length the fresh-water sardine rarely exceeds $2\frac{1}{2}$ inches and is usually smaller.

Engraulicypris lives in shoals in quiet, clear and well-aerated water, preferably with cover in the form of submerged or marginal vegetation. They breed freely and appear in considerable numbers in their chosen habitats. Here they play an important role in the economy of the river or inland water. They are choice items of food for predatory fishes, while they themselves feed on planktonic crustaceans, diatoms and tiny aquatic insects taken from the bottom or mid-water, algae, and winged ants or flies that fall on to the surface. At night, these fishes are attracted to a light. Breeding occurs in spring and maturation commences at a length of about 2 inches.

Distribution: Widely distributed in perennial and seasonal waters throughout the Park. (Fig. xxv).



27. *Clarias gariepinus* (Burchell), 1822.
Synonyms: C. *capensis* Cuvier & Valenciennes, 1840.
C. *mossambicus* Peters, 1852.
Barbel. Catfish. Baber.

Depending on the clarity of the water of their habitat, there are usually two colour varieties of barbel: a plainly coloured greyish to olive-yellow variety with a very dark slate or greenish-brown dorsal surface and white throat and belly, and a mottled variety which has a pale olive background mottled with dark greenish-brown. Specimens taken from very turbid water are sometimes plain silvery to olive-gray.

The maximum size and weight attained by this common and well-known fish has not been established, but anglers frequently catch large specimens ranging from 20-50 lbs. in weight. It is doubtful whether the Lowveld waters harbour the same monstrous barbel as has been found on occasion in the Vaal and Orange systems. It is a fact, though, that the murky waters of the Olifants River, and particularly the Levubu, afford favourable living conditions to many more really large barbel than do the rivers with clearer water such as the Sabi, Crocodile and Letaba rivers.

When compared with most other species of indigenous freshwater fishes, barbel are poor swimmers and do not frequent swiftly flowing water. They are much more at home in stagnant waters and are therefore found chiefly in pools of seasonal rivers, ponds or lowland pans and lakes. Even foul, poorly oxygenated waters, incapable of sustaining any other fish life, hold no great hazard for these hardy fishes. That *Clarias* manage to survive in such water is mainly due to their possessing an elaborate accessory breathing organ which enables them to utilise atmospheric oxygen. Barbel often rise to the surface in isolated pools, particularly at dusk, to gulp air with great splashes.

When the water of such outlying pools or pans recedes during prolonged dry spells, or when the early spring rains fail, barbel are often trapped in large numbers in the ensuing mud morass and provide a rich harvest to scavenging birds, reptiles and mammals. Even lions and hyaenas have been observed to join in the general slaughter on such occasions.

Crocodiles appear to be the most important natural enemy of large, adult barbel although tiger-fish, otters and predating birds such as fish eagles, undoubtedly take large numbers of young and medium-sized individuals. There is some evidence that the larger barbel sometimes return the compliment and prey on newly hatched crocodiles. Where isolated pools or lakes are colonized by *Clarias* they may become dominant, often to the detriment of associated species.

It seems clearly evident, therefore, that barbel play a profound part in the ecology of inland waters, both as predator and prey.

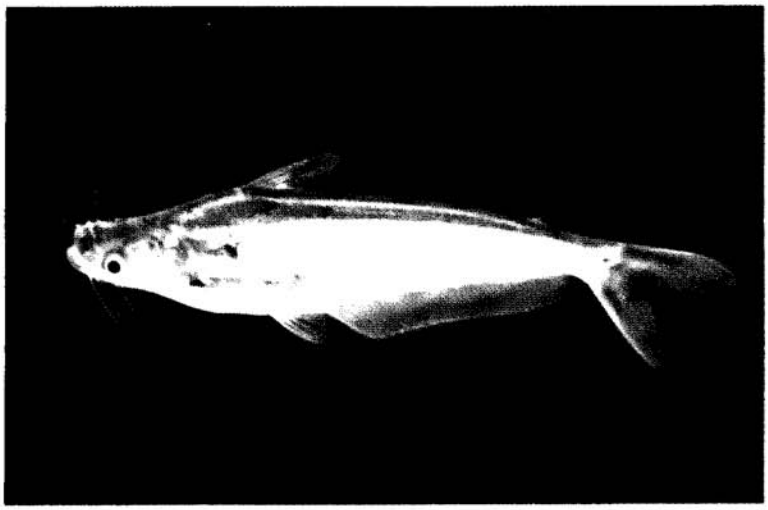
Barbel take advantage of temporary floods to colonize new waters. Provided the spillway is not too steep, they have been seen to enter impoundments by swimming up the overflow stream. Their occasional appearance in waters which have no outlet, would suggest that they may even be capable of travelling some distance overland during wet weather or at night.

It is commonly believed that barbel are capable of burrowing into the bottom of a drying pool where they lie dormant until the depression is again flooded. Further confirmation of this supposed aestivation is required however.

Clarias gariepinus is an omnivorous scavenger and predator on other fish and is mainly associated with the bottom, muddy if possible, but otherwise sandy or rocky. Winged termites or other insects are sometimes taken from the surface. *Daphnia* and other plankton organisms are important items of food for younger barbel. Large barbel are cannibalistic and often prey on young of their own kind. Being rather sluggish in movement, their predation on other fish is achieved by surprise rather than by pursuit.

A spawning migration to very shallow weedy waters is undertaken during summer, when the rainy season is well advanced and large quantities of eggs (100,000 or more) are laid by gravid females. Sexual development may commence at a length of less than 6 inches in males and at about $7\frac{1}{2}$ inches in females.

Distribution: Exceedingly common and widely distributed in perennial and seasonal waters throughout the Park. (Fig. xxvi).



28. *Eutropius depressirostris* (Peters), 1852.

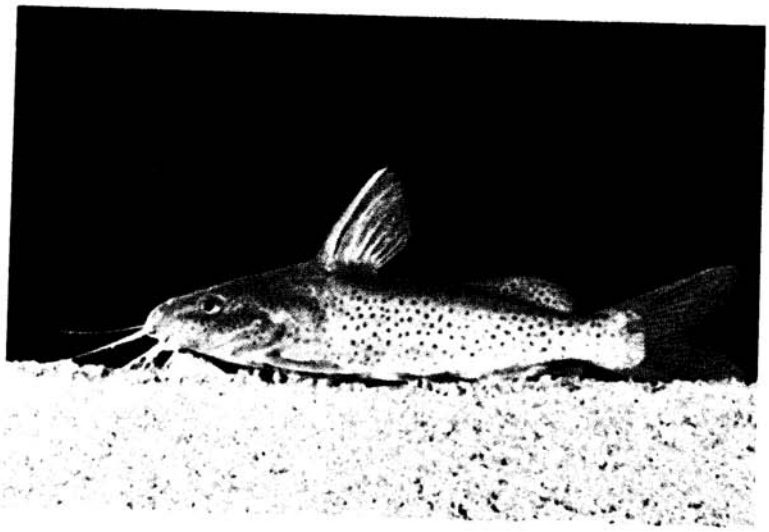
Silver barbel. Silwerbaber. „Makriel". Bottervis.

A silvery, olive-yellow fish with dark markings along the dorsal surface. Young specimens usually have a prominent dark lateral streak. The belly is silvery, pale yellow or olive and the anal fine, which is edged with pale yellow, has a dark band running parallel with the central surface. Although they are poor angling fish, silver barbel are excellent eating and attain a maximum weight of about 3 lbs.

Eutropius is an inhabitant of both running and still water at low altitudes, but prefer the latter. In the Park they are more commonly taken in pools in seasonal rivers than in the perennial streams.

They are active and predatory catfishes which subsist mainly on insects, besides other small aquatic organisms such as young fish and shrimps. During the summer months they often gorge themselves on the fruit of *Ficus sycomorus* or the seeds of *Trichilia roka* dropping into the water. Together with barbel and several species of small *Barbus* and *Tilapia*, they may often be seen picking away at the rotting carcases of animals which have been drowned by crocodiles and float on the surface of the water. Adult specimens have a large fish component in the diet. Females appear to grow considerably larger than males and spawning probably takes place during early summer.

Distribution: Widely distributed in all the perennial and seasonal rivers throughout the Park. (Fig. xxvii).



29. *Synodontis zambezensis* Peters, 1852.

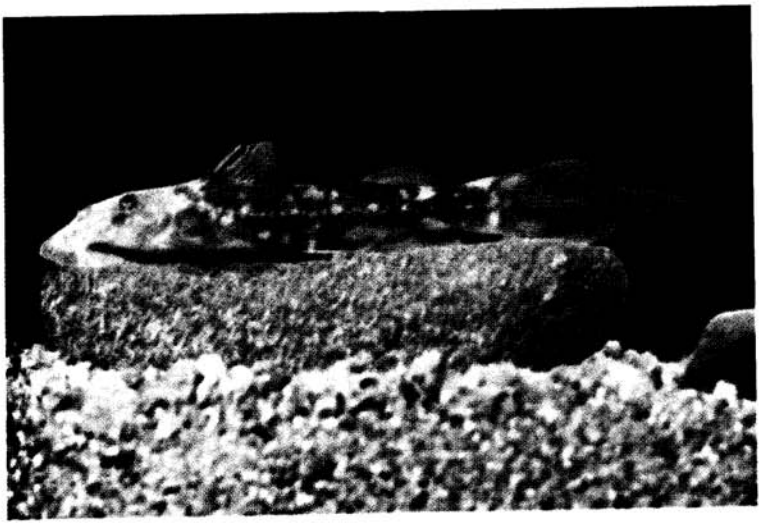
Squeaker. Knorbaber.

Squeakers are well-known little catfishes which often occur in large numbers in waters below 1,000 ft. elevation. In waters where they swarm, the *Synodontis* hordes are a pest to anglers by taking bait intended for other fishes. In colour, live specimens are slate-grey to yellowish-grey with the whole body spotted with small round dots, smaller or equal to the size of the pupil of the eye. The belly and undersides are a paler olive-yellow. The dorsal and pectoral spines are strong, sharp and serrated, and can be locked in the upright position by means of a complicated joint. While there are no poison glands associated with these spines, it would appear that the mucus coating the spines is irritant, and wounds inflicted by these fish bleed profusely and are very painful. When handled squeakers emit pig-like little grunts.

These fishes are not strong swimmers and shun swift-flowing water. They are usually found in quiet pools in both the perennial and seasonal rivers.

Synodontis is a bottom-feeder and well-nigh omnivorous in its diet. Stomach contents include such items as plant seeds, chewed weed, twigs and gravel, as well as insect and mollusc remains. Breeding takes place during the first good rains and young fish may then be found in quiet, weedy backwaters.

Distribution: Pools in all the perennial and many seasonal rivers of the Park, below 1,000 ft. elevation. (Fig. xxviii).



30. *Chiloglanis anoterus* Crass, 1960.
Penant-tailed dwarf catfish or rock catlet.
Wimpelstert-suierbekbaber.

This interesting member of the catfish family is often overlooked because of its small size (maximum length $3\frac{1}{2}$ - 4 inches) and difficult environment. In life it is olive-brown above, with 7 irregular paired yellowish patches along the body. The lips and belly are pale yellow and the fins are also pale, with darker central portions.

Members of the *Chiloglanis* genus are particularly adapted by means of their sucker-like mouth to cling to rock surfaces in the torrential portion of streams. Their habitat of choice in consequence, is amongst rocks in clear, swift-flowing streams, where the water is well aerated. They may thus be found in the shallower rapids of large rivers, as well as tiny streams, always provided that there is a constant flow of water. In stagnant waters they do not survive long, and when they are thus trapped, these fishes always seek refuge from the warmer water layers under loose boulders or in rock crevices.

C. *anoterus* has a short dorsal spine and maxillary barbels, and the characteristic elongation of the lower lobe of the caudal fin in adult males distinguishes this form from the other species in the Park. The dorsal and pectoral spines are needle-sharp and inflict painful wounds when carelessly handled. The mucus covering the spines apparently contains an irritant as well as a principal which retards the coagulation of blood.

In habitats where these tiny fishes are abundant, they may often be

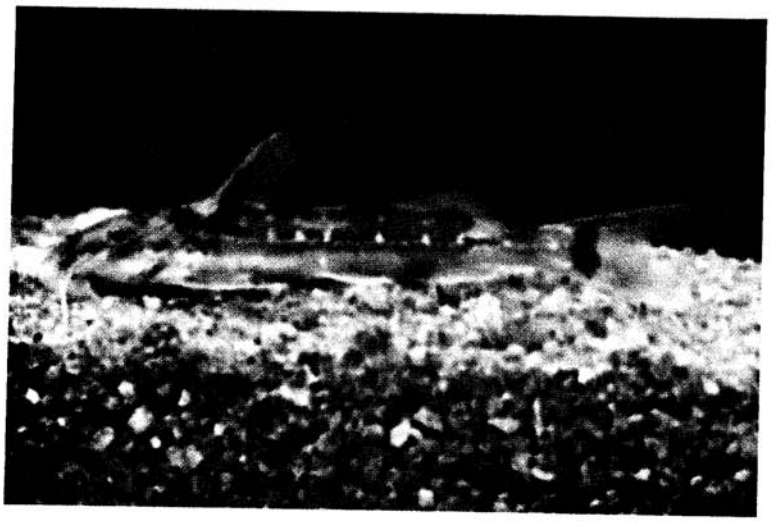
seen when a loose rock is gently overturned and lifted slowly out of the water. The fish clings to the rock surface with its wide disc-like mouth and, by using its pectoral fins, is capable of climbing up the damp sides of weirs and waterfalls.

Chiloglanis species feed on such items as midge and blackfly larvae and mayfly nymphs.

Sexual maturity is attained at a length of about 2 inches and spawning takes place in summer.

This little fish would probably make an interesting aquarium subject but for the difficulty of feeding them and the fact that the water must be continually aerated.

Distribution: Torrential portions (rapids) of the Sabi and Crocodile Rivers (i.e. tributaries of the Incomati system). (Fig. xxix).



31. *Chiloglanis swierstrai* v.d. Horst, 1931.
Synonym: *C. engiops* Crass, 1960.
Bearded or Slender dwarf catfish.
Langbaard- of Bont-suierbekbaber.

A small and slender *Chiloglanis* species which attains a maximum length of about $2\frac{1}{2}$ inches. The eyes are close together on top of the head, and the maxillary barbels are long and about equal in length to the dorsal spine, which is unserrated and half the length of the head. The lower lip has three lobes projecting backwards between the mandibular barbels, and the mouth is smaller and not as sucker-like as in the other species.

The tail is deeply forked. In colour they are generally pale brownish to reddish-brown above and white below, with darker patches on the head and near the bases of the fins, which are paler. Unlike its congeners, *C. swierstrai* is not an inhabitant of rock rapids, but commonly frequents shallow stretches of rivers or streams with a sandy or pebbly bottem. Usually found in rivers below 2,000 ft. elevation. Sexual development commences at a length of $1\frac{1}{2}$ inches.

Distribution: Has been recorded particularly along the lower reaches of all the perennial rivers of the Park. (Fig. xxx).

32. *Chiloglanis paratus* Crass, 1960.

Spiny dwarf catfish or rock catlet.

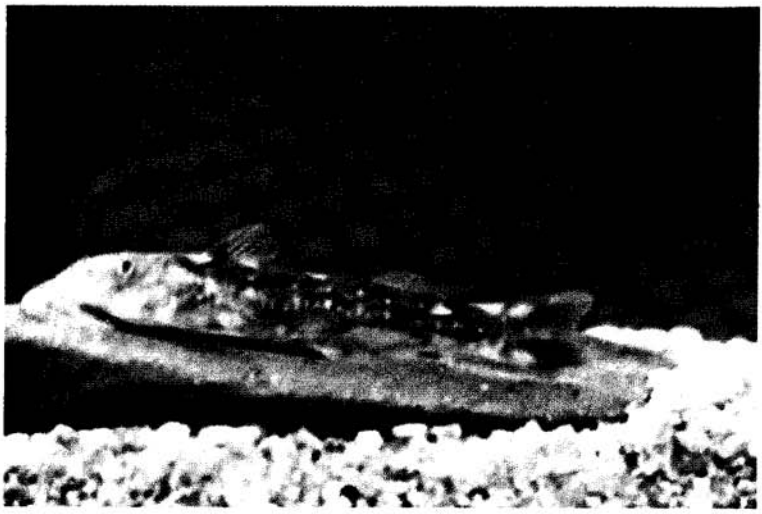
Swart of Gestekelde suierbekbaber.

A larger and more robust *Chiloglanis*, which bears some general resemblance to *anoterus*, but is easily distinguished from the latter by the prominent, long dorsal spine, which is serrated along its posterior edge and is half as long as the head. The maxillary barbels are stout but not as long as in *swierstrai*. The tail is fairly deeply forked and colouration is dark brown to black above, whitish or yellowish below, with paler areas on the head, opposite the dorsal spine and above the ventral fins.

The prominent disc-like mouth is clearly an adaptation for life in torrential situations and these fishes are commonly found, often in association with C. *anoterus* or C. sp. cf. C. *pretoriae*, amongst rock-strewn shallows or in rocky rapids of the perennial rivers in the Park. This species migrates upstream into the larger seasonal rivers, such as the Shingwedzi, during the summer floods, and numbers have been captured where they attempt to negotiate the perpendicular walls of the Shingwedzi causeway.

The usual size is about $2\frac{1}{2}$ inches in length, but exceptionally large specimens up to $3\frac{1}{4}$ inches have been caught with an electrical stunning apparatus in suitable locations in the Olifants River.

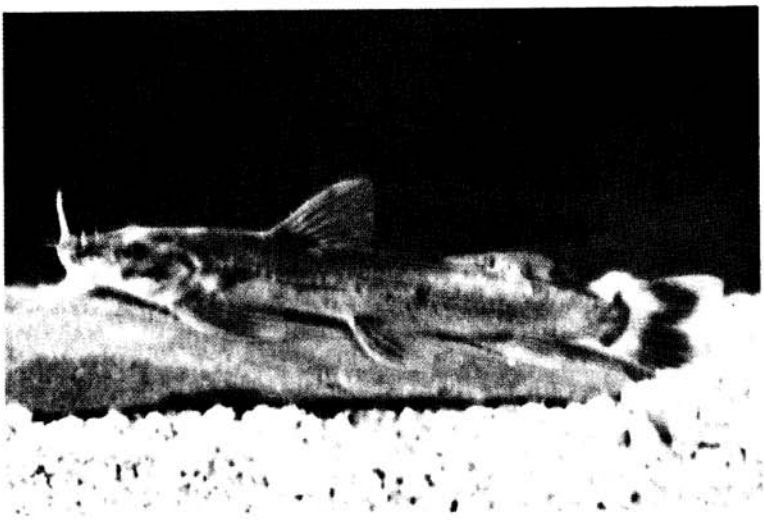
Distribution: All the perennial rivers of the Park, as well as, seasonally, in pools in the Shingwedzi River. (Fig. xxxi).



33. *Chiloglanis* sp. cf. C. *pretoriae* v.d. Horst, 1931.
Lesser dwarf catfish. Kleinste suierbekbaber.

Somewhat similar in general appearance to C. *anoterus* and C. *paratus*, but may be distinguished from both these congeners by the small size of the mature fish (maximum length ± $2\frac{1}{2}$ inches) and the very short, unserrated dorsal spine. The caudal fin of males of about 2 inches in length, also does not develop the penant-like appendage as in *anoterus*. The habitat and habits are similar to that of *anoterus* and *paratus*.

Distribution: Not particularly common, but has been recorded in all the perennial rivers of the Park. (Fig. xxxii).



34. *Amphilius platychir* Günther, 1864.

Synonyms: *A. grandis* Boulenger, 1905.
A. hargeri Boulenger, 1907.
A. brevidorsalis Pellegrin, 1919.
A. platychir Günther, 1864 var. *cubangoensis* Pellegrin, 1936.

Flathead or Mountain catlet. Berg-klipbaber.

Live flathead catlets are olive to greyish-brown, with variable markings and pale areas. Large specimens may exceed 6 inches in length.

Catlets are widespread in clear, fast-flowing upland streams, where stones abound. They are often, but not exclusively, found in the colder mountain streams. Here they are preyed upon by large trout. The rock-strewn rapids at Sabi-hoek, where the Sabi river enters the Park from the west, apparently constitutes the eastern-most limit of distribution of this interesting species in the Lowveld. It has never been recorded in the warmer waters, below 1,300 ft. elevation, further to the east, and even at Sabi-hoek has only been captured during the winter months, when the water is clear and cold. At best, *A. platychir* may therefore only be regarded as a temporary migrant which penetrates our waters only during winter.

Catlets feed mainly on aquatic insects and other small animal life such as crustaceans, tiny tadpole, etc. Eggs are laid under stones, and from these hatch larvae which look, from above, exactly like tadpoles, and swim with the same wriggling motion.

Amphilius does not survive long in aquaria unless the water is particularly well aerated and the temperature is controlled.

Distribution: In the Park waters it is known only from Sabi-hoek, where the Sabi river enters the Park from the west. (Fig. xxxiii).

35. *Anguilla marmorata* Quoy & Gaimard, 1824.
Has been recorded as *A. bengalensis* by Boulenger and Gilchrist & Thompson.
Madagascar Mottled Eel. Geelbontpaling.

This is the common large mottled eel of our Lowveld waters. Depending on the turbidity of the water of the habitat, the colour varies from olive-yellow mottled with olive-brown in muddy water, to olive-yellow mottled with very dark brownish-green in clearer water. Large specimens are often very dark on the dorsal surface and silvery iridescent white on the belly.

These large eels attain a length of well over 5 ft., and weights of up to 45 lbs. have been claimed by anglers.

A. mamorata is a predacious fish of great strength and formidable appearance. It has a powerful muscular body and exhibits a remarkable tenacity to life. When attacked, it will attempt to defend itself, although its rasp-like teeth are scarcely long enough to do injury to the human skin. Large mottled eels are usually caught by anglers setting stout night lines baited with fresh fish. The habitat of the mottled eel is usually deep rocky pools, whereas its relative, the common Mocambique eel, *A. mossambica,* inhabits shallower water and is even found amongst rocks in rapids or in pools below rapids.

Eels are generally carnivorous in their dietary habits. They are particularly fond of freshwater crabs (*Potamon* spp.) and also take fish, frogs, worms and other small aquatic animals.

A very good description of the life history of Anguillid eels is provided by Crass (1963):

"People who find young eels far inland, may be inclined to think that breeding occurs in fresh water. This is not so, however, and an eel only a few inches long has probably journeyed many hundreds of miles, since it

hatched from an egg that was spawned far out at sea. A period of a year or more is passed as a flat transparent larva, or *Leptocephalus* which drifts with the ocean currents that move westwards towards the coast of Africa from beyond Madagascar. Gradually the shape changes until the larva becomes an elver, a baby eel between two to three inches long and no thicker than a match stick.

Elvers are carried down the southeast coast of Africa by the Agulhas current and large numbers enter the mouths of Natal rivers each summer. Such tiny creatures might be expected to lack the strength to travel far inland, but in point of fact the very small eels have a better chance of reaching the headwaters than bigger ones because they are able to wriggle up the sides of waterfalls and obstacles that defeat their larger brethren.

That is probably why the common Mocambique eel, *A. mossambica*, is found further from the coast in our waters than the mottled eels. Specimens of the latter which reach Natal have already grown beyond the elver stage and they therefore fail to penetrate so far up the rivers as *mossambica* elvers.

The distance travelled inland varies greatly from one individual to another. Males generally stay near the sea, and they also grow less rapidly and do not live as long as the females. The latter may survive for as long as 20 years or more. An eel's life approaches its end when sexual maturity is reached. Maturation is accomplished by changes in appearance, notably a general silvering of the body and an increase in size of the eye, besides a great enlargement of the gonads and, in the final stage, atrophy of the digestive system. A migration then begins to the spawning area in the depths of the ocean, from which the adults never return."

Distribution: *A. marmorata* has been recorded in suitable localities along all the perennial rivers of the Park, as well as in pools in the larger seasonal rivers such as the Mbyamiti and Shingwedzi. (Fig. xxxiv).

Note: Another large mottled eel, *Anguilla nebulosa labiata* Peters has been collected in the Komati river system fairly far inland, as well as in pools and dams in the headwaters of the Letaba river. These eels may therefore yet be captured within our boundaries and added to the list of endemic freshwater fishes.* It seems possible though that this may only happen when these fishes are in transit, as they appear to inhabit the colder waters of the upland streams in preference to the warmer Lowveld waters.

The rare shortfinned eel, *Anguilla bicolor bicolor* McClelland has recently been collected in pans and backwaters of the Incomati system in Mocambique, but it is doubtful whether this species will ever penetrate the waters of the Kruger Park.

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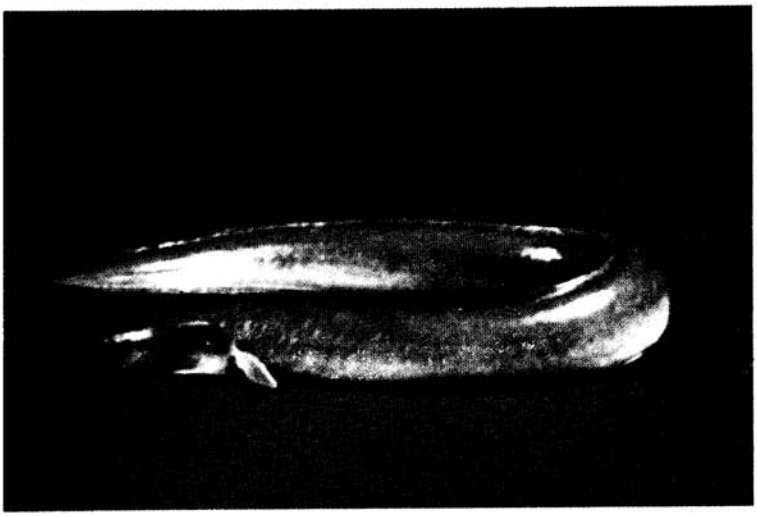
* A specimen has recently been taken at the Komati-Crocodile junction.



36. *Anguilla mossambica* Peters, 1852. Synonym: *A. capensis* Kaup, 1859. Common long-fin eel. Mossambiekpaling. Gewone Langvin- of Vaalpaling.

This is an eel of moderate size, and, in South Africa, a 10 lb. female specimen is considered exceptionally large. Male specimens rarely weigh more than $\frac{3}{4}$ lbs.

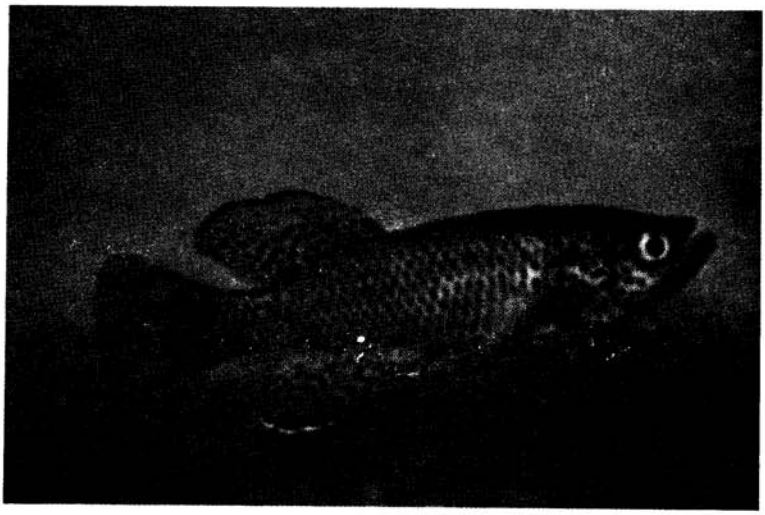
A. mossambica varies in colour from olive-brown in muddy water to uniform dark slate-grey in clear water, the belly being olive-yellow. Large specimens will be found to be dark metallic bronze, some almost black, on the dorsal surface with iridescent silvery white bellies.

The larger specimens usually inhabit larger bodies of open water, particularly deeper pools with rocky bottoms or with plenty of cover in the form of aquatic vegetation. Younger eels and even some larger specimens may, however, take up residence in tiny streams and smaller pools in seasonal rivers, provided there is a hollow beneath a boulder or an undercut bank to provide shelter.

In clear water, an eel may be observed lying motionless in its abode with the tail resting on the bottom, and the anterior end of the body raised in a slight curve. The fish remains quiescent except for the rythmic opening and closing of the jaws as it breathes. It is nevertheless poised for instant action and lunges with blinding speed at any unwary prey that may come within reach.

Eels appear to feed mainly at night and the diet changes with increasing size. Young ones eat midge and mayfly larvae, larger specimens take dragonfly nymphs and crabs, while mature eels feed on crabs, frogs and fish. None of the spectacular upstream migrations by young eels, and their nocturnal negotiation of natural obstacles, weirs, dam walls, etc., which have been observed in Natal and along the Eastern Cape Province coastal districts, have yet been recorded in the Park. A number of very small eels have been captured in our waters, but invariably during the summer floods.

Distribution: *A. mossambica* has been recorded in pools along all the perennial, as well as many of the seasonal rivers throughout the Park, and it is considerably more common than *A. marmorata*. (Fig. xxxv).



37. *Notobranchius orthonotus* (Peters), 1844.
Synonym: *Fundulus mkuziensis* Fowler, 1934.
Tongaland top minnow or Seasonal fish.
Tongalandse Eenjaarvis. Muskietvis.

In view of their brilliant and gorgeous colouration, members of this remarkable group of Cyprinodont fishes are much in demand as aquarium specimens. Live adult *Notobranchius orthonotus* are dark iridescent blue-green on the dorsal surface with paler golden-olive ventral surface. In females, the dorsal and anal fins are golden-olive with bluish edges and brown spots, whereas, in males, they have deep mauve or indigo edges and magenta-coloured spots. The rays of the anal fin are a deep maroon, and the lateral scales are edged with maroon with distinct spots along their posterior margins. The iris is golden and the operculum spotted with dark red. Adult specimens may grow to a length of $2\frac{1}{2}$ - $2\frac{3}{4}$ inches.

These fishes are amongst the few vertebrate animals that are distinctly annual. By the term "annual" it is implied that they complete their life cycle during a period of time which is usually less than a calender year! The waters inhabited by *Notobranchius* are as a rule temporary, and dry up completely during the dry season. The eggs manage to survive however, burried in the surface layer of mud, until the rains of the next season bring about their hatching. *Notobranchius* fry grow very rapidly and are often sexually mature and spawning within 8 - 10 weeks.

The cyclic dessication, for a period of 6 - 8 months, during the dry season, has been found to be essential for their survival, as the percentage of viable eggs surviving in waters that are more or less permanent, is very low and the adult fish also do not thrive in such waters.

The only essential requisite for a good *Notobranchius* biotope would then appear to be the regular drying up of the habitat during the dry