



Tony Eldon points to a brown mudfish found beneath a log at Kumara on the West Coast in 1966 and (inset) the same fish up close. Eldon found that mudfish aestivate for a month or two in summer and autumn in the mud under forest litter. If the water dries up the fish move into holes under trees or logs until the water returns. This ability to survive after its water disappears allows mudfish to occupy habitats that other fish cannot.

age to mudfish habitat on the Coast has already been done, wetland drainage is still permitted by the transitional regional plan. The proposed regional policy statement supports the idea of protection and a series of fish and wildlife surveys are being conducted on the Coast. "The brown mudfish seems to live where few other fish do, and so we find that the only other creatures in its habitat are eels and koura."

ALTHOUGH THE three mudfish species attracted some interest last century, it was

Tony Eldon, inspired by Bob McDowall, who was responsible for the revival of interest in the 1960s.

He found it to be abundant in forest swamps and bogs, mostly in shallow water of less than half a metre. Frequently, it appeared in holes round the buttresses of trees. He also noted that it was highly nocturnal.

It is the mudfish's tendency to "aestivate" (rather to fish what hibernating is to bears) in mud in a state of torpor, that still interests those who find them. More

than 100 years ago R.C. Reid wrote, "As the water dries up it is forced to wriggle into the mud . . . it has been known to follow down the moisture in holes left by decaying roots and get a considerable depth underground . . . the discovery of a healthy fish five or six feet under solid dry ground has been looked upon as truly miraculous."

But as they are not totally inactive, McDowall questions whether they truly aestivate. Eldon suggests that some members of the same galaxiid family have already evolved a capacity for breathing air which has enabled the mudfish to survive without water. This is what some juvenile fish are capable of as they pass up the edges of waterfalls. From this it was a short step to adapt to an earthy habitat where there was little competition from other fish.

Apart from the importance of this little-understood creature and the habitats in which it can flourish, brown mudfish are almost certainly an important bio-indicator. "They are never found in foul water, they are only in good clean oxygenated water," says Eldon.

Seventy years ago W.J. Phillipps reflected ruefully on the future of the mudfish: "As the forest is gradually being cleared and the swamps drained there is little doubt that yet another animal unique in the natural world of New Zealand will become extinct."

Today the conservation status of the

The other mudfish

IN ADDITION TO the better known brown mudfish there are two other species: the black mudfish (*Neochanna diversus*) found only in the northern half of the North Island and the Canterbury mudfish (*N. burrowsius*) known, as the name suggests, only from that region. All three are members of the galaxiid family, the grouping that provides New Zealand with its whitebait species.

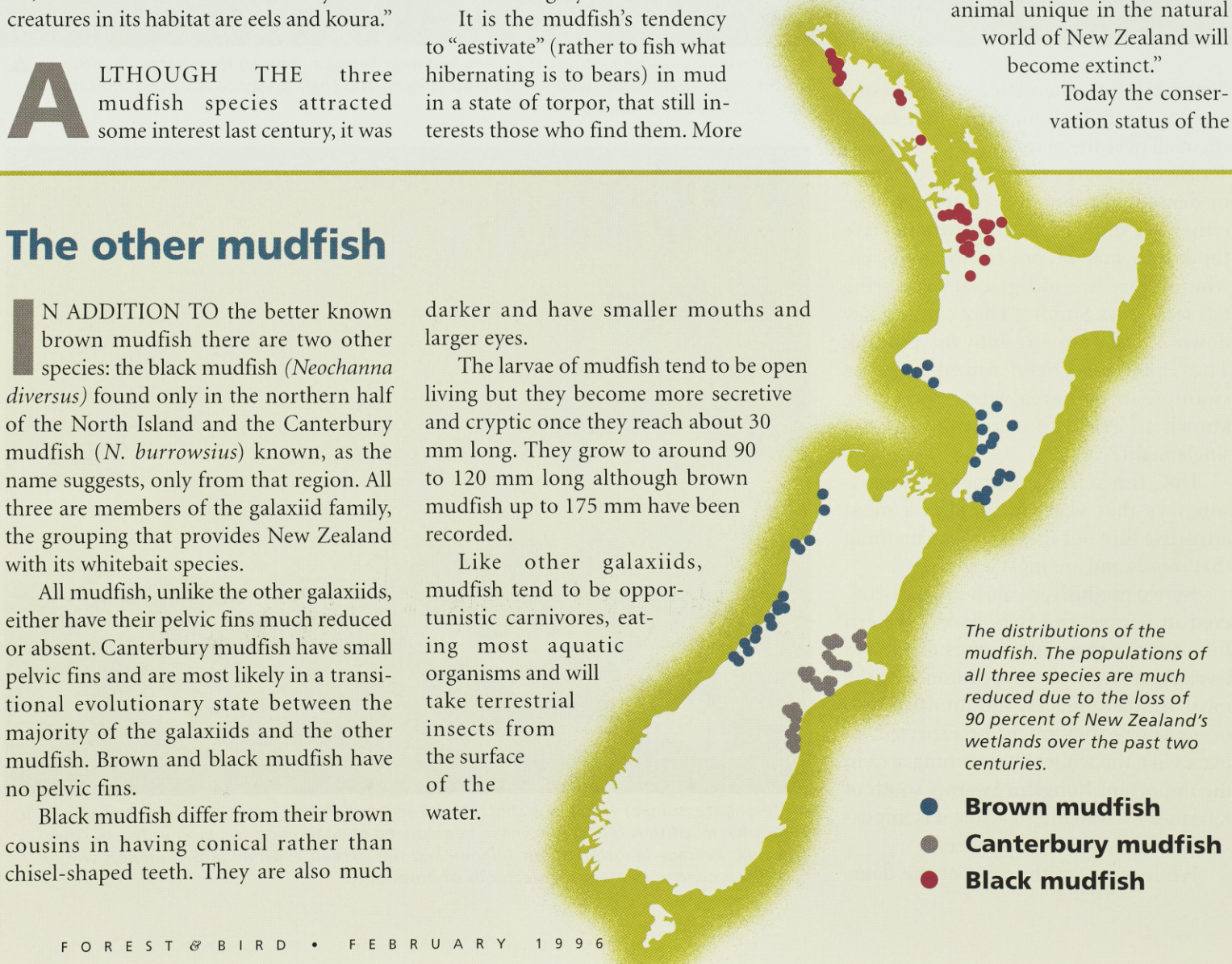
All mudfish, unlike the other galaxiids, either have their pelvic fins much reduced or absent. Canterbury mudfish have small pelvic fins and are most likely in a transitional evolutionary state between the majority of the galaxiids and the other mudfish. Brown and black mudfish have no pelvic fins.

Black mudfish differ from their brown cousins in having conical rather than chisel-shaped teeth. They are also much

darker and have smaller mouths and larger eyes.

The larvae of mudfish tend to be open living but they become more secretive and cryptic once they reach about 30 mm long. They grow to around 90 to 120 mm long although brown mudfish up to 175 mm have been recorded.

Like other galaxiids, mudfish tend to be opportunistic carnivores, eating most aquatic organisms and will take terrestrial insects from the surface of the water.



The distributions of the mudfish. The populations of all three species are much reduced due to the loss of 90 percent of New Zealand's wetlands over the past two centuries.

- Brown mudfish
- Canterbury mudfish
- Black mudfish