

the great blue duck mystery – Where do all the young birds go? Preliminary results show that some young males move right out of the catchment, returning again after a few months.

An important part of this national conservation effort is captive breeding. 'Op-

eration Whio' aims to breed blue ducks in captivity for eventual release into the wild to supplement existing populations or establish new ones. Over 40 blue ducks, nearly all raised in captivity, are now held in aviaries around the country. The breeding effort is coordinated by Ducks Unlim-

ited, a national waterfowl organisation.

The Mt Taranaki experiment has shown that it should be possible to re-establish blue duck in areas where they have become extinct. However, further research to determine the critical requirements of good blue duck habitat is essential, as the reasons for the decline in blue duck populations are still not clearly understood. A survey of blue duck habitat throughout the country by scientist Kevin Collier has shown that favourable rivers tend to have narrow channels, high gradients and stability, low summer water temperatures, large boulders, and intact native forest as riparian vegetation.

With an improved understanding of blue duck ecology, and the guidance of a recovery plan, efforts to protect the species can be better directed. According to Murray Williams, the key to survival of the species lies in the protection of successful family lines. Some pairs are very productive, consistently raising at least two young per year on average. Other pairs rarely succeed in their breeding attempts. He found the recovery of the blue duck population on the Manganui-a-te-Ao was primarily due to the efforts of two pairs whose abundant offspring colonised the vacant territories up and down the river.

In an effort to assist the Manganui-a-te-Ao blue duck population, white water rafters have voluntarily agreed to stop rafting down the river during the critical months of October and November, when newly born chicks are vulnerable to outside disturbance.

Unfortunately, the major threat to the survival of the blue duck, and the historic cause of its decline, is still with us. Destruction or modification of blue duck habitat continues today and has taken on a whole new meaning with the creation of Electricorp – a State Owned Enterprise which believes it has a mandate to increase electricity consumption. With the growing demand for energy, pressure is mounting to increase hydro power generation from the country's untamed rivers. The Government does not have an energy conservation policy and New Zealanders are facing a succession of battles throughout the country as wild rivers are eyed by electricity producers to supply more power. Increasing hydro power generation is not necessary if proper energy conservation and energy efficiency measures are implemented.

The blue duck requires unmodified rivers. Its present distribution is testimony to this. While the intricate ecological requirements of the blue duck are still only partially understood, there is no doubt about its requirement for a pristine habitat. The blue duck is a symbol for the life-blood of the country – our wild and scenic rivers. Its presence indicates healthy and unmodified river ecosystem, upon which many agricultural, industrial and urban uses downstream are dependent. If New Zealand loses the distinctive 'whio... whio...' from its mountain streams then it has lost not only a national symbol of the back country, but will have sacrificed the quality and character of the country's river systems. 🦆

Effects of water diversion on the Whanganui whio

by Keith Chapple, Forest and Bird energy campaigner

The future of one of the key populations of blue duck (or whio as used here) hangs on the outcome of Court action being taken by Electricorp.

This publicly owned corporation is challenging a Planning Tribunal decision for the partial return of water to the upper Whanganui catchment taken for the Tongariro Power Scheme.

THE UPPER WHANGANUI CATCHMENT comprises six tributaries: Whakapapa, Okupata, Taurewa, Tawhitikuri, Mangatepopo, uppermost Whanganui. These rivers are all prime whio habitat.

Tributaries of these streams are be-headed – the water being piped under the hills to the Tongariro Power Scheme. The Whakapapa has a mere five percent residual flow, while the other tributaries are left dry below the intake. This is known as the Western diversion.

Little is known about whio on the Tongariro Scheme's Eastern diversion (Rangipo), which comprises more dam sites and more be-headed rivers. The Tongariro river is the only one in the power scheme to have been studied in depth. The whio population on that river plummeted from 32 to five when water diversion commenced in 1984. Numbers may have risen a little since then.

Early population density

The size of the Whanganui whio population before the power scheme began is uncertain. No population counts or studies were carried out as part of the power scheme investigation work. The only biological study of note is the 'Woods Report 1957' which was concerned only with eels and whether they would migrate through the tunnels and infest Lake Taupo.

Whio were known to populate the Whakapapa/Whanganui confluence and were recorded in the early 1950s. The population at this time would certainly have been in the region of hundreds of pairs.

The Whakapapa currently supports 10-11 pairs, but carrying capacity would be much greater with full water flow. In May 1991, the river was running naturally due to the diversion tunnel being blocked off for repairs. Two fledglings were sighted at Owango, having migrated about 12 kilometres downstream. It was a tragedy in the making, because the next day the water was diverted back into the tunnel. The birds have since

disappeared as the low water level has left much of their habitat high and dry. The Owango sighting demonstrates the probable elimination of 12 pair on the Whakapapa river. The power scheme has eliminated habitat for at least 16 pairs on the Whanganui and Mangatepopo tributaries. Two pairs have been eliminated from the Okupata river (five pairs presently live here).

Dewatering of the Taurewa and Tawhitikuri rivers, plus farming and forestry activity have probably eliminated a further ten pairs. Thus, about 40 pairs – half the blue duck in these tributaries – have been eliminated since 1972.

Significance of the Whanganui whio population

The upper Whanganui river and tributaries affected by the power scheme currently holds about 43 to 49 whio pairs. This is thought to be the largest whio concentration in the North Island.

In addition, the Manganui-a-te-Ao, where the most intensive whio study has been carried out, holds a further 36 to 40 pairs. The Manganui-a-te-Ao is also a tributary of the Whanganui. It is unaffected by the power scheme and fully protected by a National Water Conservation order.

Vulnerability

Conservation status could change overnight. The Whakapapa colony is the most vulnerable because it is on a lahar path (volcanic mud eruption). One major lahar could wipe out the entire colony. The Manganui-a-te-Ao is equally vulnerable; it too lies on a lahar path.

The single most important conservation action for North Island whio would be to restore the water to the Mangatepopo river and the upper headwaters of the Whanganui. These tributaries are more secure habitat because they are not on potential lahar flows.