

3.8 Compensatory habitat

Environmental compensation has been a significant community issue. The approved package for the project was a result of community suggestions and extensive liaison with various government agencies. The provision of compensatory habitat will ameliorate the impacts of the project that cannot be mitigated by other measures.

The RTA identified land in the vicinity of the project area that had similar habitat value to the ecological precincts being traversed by the road corridor. Significant tracts of land have been conserved within new and existing Nature Reserve areas under the management of the Department of Environment and Conservation. In doing so, these parcels of land and the habitat contained within them attain a level of protection not available while in private ownership and in many cases not afforded to the land acquired for the highway upgrade project. Approximately 6.7 hectares of native vegetation was cleared for the project, however 100 hectares of suitable habitat was acquired as part of the compensatory habitat package.

The approved compensatory habitat package for the project included eight key components:

- A. The RTA has purchased two large properties to the west of the project. They have particularly high conservation value, containing at least seven threatened plant species, lowland rainforest, and koala habitat. Most of this area (a residence was excluded) has been transferred to the Department of Environment and Climate Change to become a new Nature Reserve.
- B. Both the Department of Environment and Conservation and the community identified the Marshalls Creek corridor as an area of high ecological value. This corridor forms an important link between the Billinudgel and Brunswick Heads Nature Reserves. The RTA has negotiated the purchase of private lands within this corridor, which have been transferred to the Department of Environment and Climate Change for inclusion in the Marshalls Creek Nature Reserve.
- C. The project will create two property residues, one just north of the Brunswick River adjacent to the Brunswick Heads Nature Reserve, and the other at the far northern end of the project adjacent to the Billinudgel Nature Reserve. These residues have been purchased by the RTA and have been transferred to the Department of Environment and Climate Change for incorporation into the respective Nature Reserve areas.
- D. The saltmarsh adjacent to the proposed Brunswick North interchange has been identified as degraded and will be rehabilitated. A restoration plan has been developed, in consultation with the relevant government agencies and approved by the Department of Planning. Actions arising from the first 12 months of plan have been undertaken progressively during 2008, and will continue for the next nine years unless otherwise varied by the approved adaptive monitoring / management strategy.
- E. The RTA has formally relinquished the zoning on the area of land, previously zoned for road purposes, on the northern side of the Brunswick River. The RTA requested that Byron Shire Council rezone this area for Nature Reserve purposes as part of the Brunswick Heads Nature Reserve.

- F. On the northern side of the Brunswick River the RTA attempted to negotiate the purchase of an area of land containing a highly significant population of Davidsons Plum and other threatened species. Unfortunately the owner was not interested in selling the property and the acquisition process was stopped. As an alternative strategy, the RTA in consultation with DECC successfully negotiated the acquisition of an alternative parcel of land known as Lot 107 from Byron Shire Council which was adjacent to the Marshalls Creek Nature Reserve.
- G. The project has provided significant improvement to the southern foreshore area of the Brunswick River, following construction of the new bridge and subsequent removal of the existing bridge and approach roads. The area has been rehabilitated, providing pedestrian and cycle access for the local community and visitors to the area. The ultimate ownership, management, and use of this area is the responsibility of local authorities in consultation with and the local community. Options for the redevelopment of the Brunswick River foreshore, including the Ferry Reserve area are discussed in a Lands Department study – *Brunswick Heads Foreshore Strategic Plan – Draft – December 2007*. This has been prepared since the completion of the Upgrade and was prepared in consultation with the relevant agencies and put on public display for comment.
- H. As part of the environmental compensation for the construction of the Brunswick Heads Bypass the RTA earmarked a number of property residues to the east of the Bypass for conservation purposes. The RTA has transferred ownership of these parcels of land to DECC for incorporation into the adjacent Nature Reserve and Crown Land.

3.8.1 Mangrove Compensatory Areas

Mangroves were removed from the bridge footprint to enable access for construction. Compensatory habitat included the propagation and planting of mangroves.

If inside a SEPP14 Wetland, ratio of 10:1 was to be achieved, otherwise a ratio of 2:1 was required. Replanting of mangroves was performed, and there is also evidence of natural re-establishment under the bridge on the southern bank (Refer to Photograph 3.31). Some of the land purchased by RTA also had wetlands.

3.8.2 Seagrass Compensatory Areas

The footprint associated with the Brunswick River Bridge was expected to directly (construction activities and/or piles) or indirectly (shading) impact upon seagrass beds. To compensate for this loss, the seagrass likely to be affected was transplanted to a site immediately downstream. The methodology, developed in conjunction with officers from DPI - Aquatic Habitat Protection Unit was innovative and rehabilitation of the seagrass beds was expected. Unfortunately, all of the transplanted seagrass was covered with sediment by the flood of June 2005 and no recovery was subsequently observed due to the large depth of overlying sediment. DPI - Aquatic Habitat Protection Unit requested that Abigroup implement other options for works, but on 30 June 2008 they accepted a \$25,000 payment *in lieu* of physical compensation. Those

funds are being used to stabilise a portion of the Brunswick River near Mullumbimby that is considered to be significantly contributing to sediment in the lower reaches of the river.



Photograph 3.31 Natural re-establishment of mangroves on the southern shore of the Brunswick River under the new bridge.

3.8.3 Fishing bats

To compensate for the loss of the roost under the old Brunswick River Bridge, four wooden bat boxes were located on both the internal western wall of the southern abutment and the internal eastern wall of the northern abutment of the new bridge. Two large wooden bat boxes were also installed on the underside of Span 2 of Orana Bridge over Marshalls Creek, Ocean Shores. Bat boxes were also installed in the Brunswick Heads Nature Reserve. The scuppers from the old bridge were also recovered and relocated into the abutment of the new bridge. Under the existing monitoring protocol, all boxes will continue to be monitored both visually, and with Anabat detectors until 2012 unless otherwise agreed by DECC as part of the adaptive monitoring program.

There was no visual evidence of use, and no bats found roosting within the scuppers, or the internal structure of either the northern or southern abutment or support walls during the inspections carried out between November 2007 and May 2008.

Despite efforts by the RTA to improve the security of the northern abutment, the area remains unsuitable for sustained habitation by micro-bats due to the continued human disturbance within this abutment (Photograph 3.32). During the May 2008 site inspections it was found that

unauthorised access was also a problem in the southern abutment with graffiti sprayed on internal abutment walls. Bat friendly gating and barbed wire fencing (away from the bat entry point) have been discussed as a method of securing the abutments and plans to secure both abutments are currently being developed by the RTA in collaboration with ELA ecologists. The barbed wire fencing has subsequently been installed.

No bats were found roosting, nor was there any evidence that bats had used any of the eight (8) bat boxes in either abutment of the Brunswick River Bridge in the period between November 2007 and May 2008.

No bats were found roosting in either of the bat boxes in Brunswick Heads Nature Reserve, nor was there any evidence that bats had used the boxes in the period between November 2007 and May 2008. The two large wooden lattice style bat boxes at Orana Bridge were installed on 21st May 2008 but no monitoring data was available at the time of this report.



Photograph 3.32 The northern abutment of the Brunswick River Bridge showing the graffiti that has been produced by persons entering the abutment illegally. This activity may also have impacted upon the use of the boxes which are visible on the right-hand wall.