

3. Environmental and Social Considerations

3.1 Flora and fauna

A flora and fauna assessment was undertaken to determine the ecological values and implications for development of the area. The aim of the investigation was to identify the species and habitats of conservation significance, based on current legislative and planning instruments, with the ultimate aim of assisting in decision making for sustainable development of the area.

Area E has been subject to extensive disturbance as a result of clearing for agriculture and as such the ecological values are confined to those areas too steep or otherwise unsuitable for agriculture. A number of assessments have previously been undertaken for areas that make up most of the site. These assessments have considered the ecological values of defined areas within the study area, with consideration to rezoning and development proposals. The ecological values have been described in these previous studies and give an indication of the values that need to be considered.

The site has been largely cleared of vegetation for agricultural purposes with the remaining vegetation confined to lowland wetland areas and drainage channels or where steep terrain prevents easy access. The agricultural land use has resulted in disturbance of the vegetation communities and allowed invasion of exotic species (particularly camphor laurel) over much of the site. The wetlands area has also been historically disturbed, as indicated in aerial photos by the presence of wind rows of vegetation and constructed drainage channels. Significant wetland areas associated with Trutes Bay within the Terranora Broadwater abut the site to the north. This area is of ecological and economic significance as it provides suitable habitat for migratory wader birds and oyster farming, both of which require protection from the degrading processes of adjacent land use and development.

3.1.1 Methodology

The following section identifies the various methods used to complete this examination of flora and fauna. Investigation included:

- review of Existing Information and Previous Studies;
- desktop reviews; and
- field studies.

3.1.1.1 Review of Existing Information and Previous Studies

There is a considerable amount of information relating to the flora and fauna values for the Area E study area. Review of the ecological information to date for the Area E was undertaken to identify the constraints for future land use in the area. The review is based on historical information including:

- previous reports including ecological assessments associated with rezoning applications;
- Tweed Shire Council Vegetation Management Strategy 2003 and mapping;
- Wader Bird monitoring reports for the Tweed River Estuary;
- State Government legislation and planning instruments;

- information on local ecological values;
- NSW Biodiversity Plan;
- Tweed Shire Planning Documents; and
- correspondence with relevant stakeholder including Tweed Shire Council Environment Officers and NSW National Parks and Wildlife service

The information was obtained by:

- review of existing information for previous planning studies, Tweed Shire Environmental Studies, State Planning Policies, Conservation Plans and relevant legislation;
- comments and recommendations from stakeholder agencies which outline the information required to identify the environmental constraints with development of the site. These comments have been considered in the preparation of this assessment; and
- obtaining additional information where gaps have been identified in the existing information set such as, areas of land not assessed by previous data sets, updated legislative significance of species previously identified in the area and by undertaking additional field investigations to confirm the relevance of historical data and add additional information where possible.

The existing flora and fauna information has been drawn from a number of reports including preliminary flora and fauna assessments, vegetation mapping compiled for the Tweed Vegetation Management Strategy 2003 and the Lower Tweed Estuary River Management Plan Technical Summary September 1991. Preliminary flora and fauna surveys have been undertaken for most of the Area E site. Since the commissioning and completion of these reports the legislative and natural environment may have changed. Hence, these reports are considered to give a good indication of the existing flora and fauna values of the site and development constraints, with regard to the protection of the natural environment. However, these documents require a review in light of more recent information. Flora and Fauna survey reports reviewed for this assessment include (refer also to Figure 3.1):

- February 1993 Preliminary Floral and Faunal Assessment on Lot 2 DP 778727, Lot C DP 954793, Lot 2 DP 169490, Lot 1 FP 165461 and Lots 39,40 and 43 DP 254416 and plan in transfer No. A846508 Parish of Terranora, county of Rous;
- February 1995, Mahers Lane landowners group Preliminary Biological Assessment;
- March 1995, Preliminary Biological Assessment of the Bolster Property; and
- November 2003, Preliminary Flora and Fauna Assessment, Area E Terranora NSW.

3.1.1.2 Database Searches

Database searches were undertaken to identify species recorded as inhabiting the area or potentially inhabiting the area. Database searches were undertaken including:

- Searches of NSW National Parks and Wildlife Service Atlas Database; and
- Searches of the Department of Environment and Heritage online database for significant species likely to be present in the study area as listed under the *Environmental Protection and Biodiversity Conservation Act 1999*.

3.1.1.3 Field Assessment

The information required for land use planning with respect to flora and fauna values needs to be sufficient to determine the impacts of development and adjacent effects from long term land use and reflect current understandings of ecological resource management. The historical information, although identifying most of the main issues, was based on limited field investigation over a long period of time. Gap studies were therefore undertaken and information collated into this report to achieve the objectives, including:

- Confirmation of the presence or absence of Mitchell's Rainforest Snail in remnant lowland rainforest and swamp forest in the area.
- Updated list of species and legislative significance of species under state and commonwealth legislation.
- Confirmation that ecological values of the areas identified in previous assessments has not significantly changed. This includes confirming the presence of rare and threatened flora and fauna on the site in areas previously identified and more importantly confirming the absence of rare and threatened species in areas with little or no conservation value.
- Consideration of current planning considerations to the updated information.

The methodology for undertaking the gap studies included undertaking a desktop review to assess significant species likely to be present in the area, field reconnaissance to confirm the findings of previous assessments and update changes in legislative significance of the species associated with the site. A field assessment was undertaken to update the information already obtained for the site, to confirm the relevance of this data and identify the ecological significance of the environmental values on the site. The field assessment was undertaken over a four day/ night period from Monday 6 October to Friday 10 October 2003 by two PB ecologists. The methodology for the field survey included:

- an assessment of the site vegetation classifications and mapping identified in previous assessments;
- identification of the presence of significant flora in areas of sensitivity (Threatened species were identified in the vicinity of the brushbox forest and swamp rainforest during a site visit in June 2003);
- confirmation of vegetation communities undertaken by transect walk through each habitat where the dominant structural species of the community was confirmed and targeted searches for rare and threatened species was undertaken;
- spotlight searches for a period of 2 hours per night including a transect in each of the habitat types on the site;
- targeted searches of lowland rainforest and swamp rainforest for the presence of Mitchell's Rainforest Snail;
- Anabat echo-location recordings each night;
- identification of wader bird habitat within the site;
- incidental sightings and searches of fauna within remnant habitat on the site; and
- Searches for signs (scratches, marks, nests, scats) of fauna inhabiting the site.