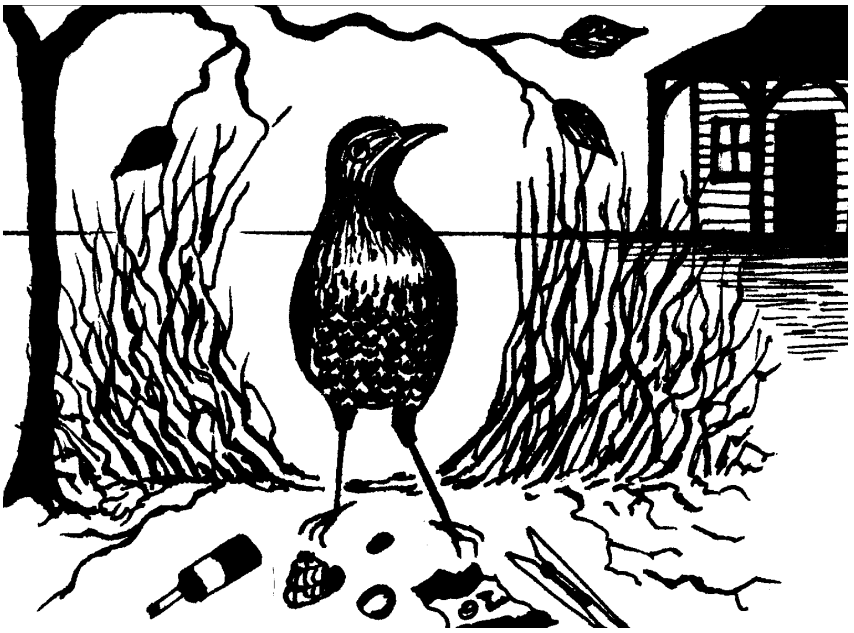
SECTION 2: Land, Vegetation and Wildlife

KEY PRIORITIES

To implement best-practice management for protecting native vegetation, controlling environmental weeds and maintaining habitat for native wildlife populations

To rehabilitate degraded areas, especially riparian areas and areas with high potential for soil erosion

To strengthen the role of local Landcare groups and other avtivities for promoting and supporting sustainable rural industries



LAND RESOURCES

The effects of soil erosion and woody weed invasion are evident in many rural areas throughout Townsville-Thuringowa. However, there is little information on the extent and nature of land degradation in these non-urban areas. The sustainability of our current land-use practises needs urgent assessment. This will require an understanding of the changes that have occurred locally as a result of post-colonial settlement and more recent growth and development.

Change is an intrinsic feature of landscapes and ecological systems. However, the rate of change and the extent to which we have modified the soil and vegetation in Australia over the last 200 years appears to be causing permanent damage to basic ecosystem functions (i.e. the functions on which life depends). We do not know all of the ways in which human-induced changes to our local landscapes have compromised (or have the potential to compromise) the long-term sustainability of the natural environment. However, understanding this will be fundamental for successfully reducing the negative impacts of our activities before they result in irreversible damage.

NATIVE VEGETATION

Decline of native vegetation is acknowledged as Australia's number one environmental problem. It is not only the major cause of loss in biodiversity, but it also leads to degradation of soils and a decline in

quality of ground and surface waters. Reduced vegetation cover also plays a key role in the accelerated greenhouse effect upon the atmosphere. Recent clearing rates in Queensland, in response to the introduction of clearing controls on freehold land, reached world record levels. It has become imperative for all governments and the community at large to work together towards an equitable solution that may reverse the decline of native vegetation while respecting the right of individuals to benefit from their land and resources.

Three major priorities have been identified for management of native and exotic vegetation:

1) Townsville-Thuringowa has notable areas of native vegetation with high conservation value because of the occurrence of threatened or vulnerable species and ecosystems, or because of their role in connecting fragmented habitats. It is necessary to improve the protection and management of these valuable remnants. Regional planning policies have recently been developed to facilitate this process, but urgent action is required because of the current high rate of clearing and development in the sub-region.
2) Vegetation management must be improved, both on public and private land, particularly in relation to integrated weed control and management of fire regimes.
3) A coordinated and integrated approach to revegetation of key areas is needed to protect and enhance catchment processes and biodiversity, particularly, but not exclusively, in riparian zones. The adequate supply of local gene pool plant species is essential to revegetation projects and needs to be ensured through the establishment of a local gene-pool seed-bank and nursery and the adoption of best practices in the local nursery and revegetation industries.

NATIVE WILDLIFE

Although the benefits of maintaining biological diversity are not immediately obvious to most people, they are many and considerable. Biodiversity is the variety of life forms that have evolved over hundreds of millions of years. This variety underpins the essential functions of all ecosystems, from maintaining the quality of the air we breathe, to providing our food-chains, and maintaining our land and water productivity. The preservation of biological diversity is essential to the sustainability of our local natural resources.

Townsville-Thuringowa has a high diversity of native fauna species. This includes five endemic species: a Nursery Frog and a Leaf-tailed Gecko found only on Mt Elliot; The Townsville Rock Skink found on our granite mountains; the White-lipped Legless Lizard; a leaf-litter skink known only from Magnetic Island, and a leaf-tailed gecko only just discovered at Hervey's Range. Over sixty species occurring locally are listed under legislation as being at risk. At least eight of these are Endangered (Northern Bettong, Cassowary, Red Goshawk, Little Tern, Waterfall Frog, Australian Lace-lid Frog and three marine turtles). Protection and management of native wildlife and their habitats preserves and enhances our biodiversity.

Information on local native fauna distribution and habitat use is scarce. A considerable amount of information is scattered across different sources that are usually site specific. This does not allow for a comprehensive assessment of the adequacy, of current management of wildlife resources in area. Current trends in human population and industrial growth pose serious threats to the integrity of habitats and habitat connectivity in Townsville-Thuringowa, and highlight the urgency of integrating habitat values into planning for current and future land-use. A high level of local expertise is available due to the presence of a number of research institutions and specialised community organisations. This presents a valuable opportunity to consolidate our knowledge, further our understanding and improve our management of wildlife populations and habitats.

STRATEGY 2.1 PROTECTION & MANAGEMENT OF NATIVE VEGETATION

❖ WHAT ARE THE ISSUES?

Since settlement, substantial changes have occurred in the native vegetation of Townsville-Thuringowa. Lowland areas have been heavily modified, mainly as a result of past broad-scale clearing and grazing, recent urban expansion, altered fire regimes and the introduction of exotic pest species. Environmental weeds have replaced large areas of native vegetation in open woodlands and riparian habitats. Some vegetation communities in the area are threatened due to their altered condition, the limited areas that remain, and/or the presence of activities that threaten their future survival.

Although we have some information on our vegetation resources, there are many important things that remain unknown. We do not know enough about vegetation communities in the Ross River Dam catchment, and upland areas outside the Wet Tropics, like Hervey's Range, The Pinnacles and Mt Elliot. We also lack information on habitat and connectivity values of remnant vegetation patches, and site-specific information on conservation values and threatening processes. It is essential that we fill these gaps in order to protect and manage our vegetation resources in a cost-effective way.

Some local areas (like Clemant State Forest, Cape Cleveland and Magnetic Island) have outstanding conservation values due to their size, uniqueness, healthy connectivity between highlands and coastal habitats, variety of vegetation communities, and the presence of threatened species. These outstanding natural areas provide an opportunity to conserve biodiversity of regional and national significance that we cannot afford to lose. We must also protect remaining natural areas in our urban and suburban landscapes, and manage urban bushland to retain and restore the habitat values uniquely associated with our dry tropical environment (see Strategy 2.4).

❖ WHY DOES NATIVE VEGETATION NEED PROTECTION?

In Townsville-Thuringowa, native vegetation communities:

- perform essential ecosystem functions, including primary productivity, storage and recycling of nutrients, soil stabilisation, maintenance of hydrology and climate, and absorption of greenhouse gases;
- sustain production of agricultural and forest products;
- provide habitats for native animals and corridors that allow them to move between habitats;
- represent important spiritual and cultural resources for indigenous and non-indigenous communities;
- perform natural water quality control;
- afford opportunities for recreation and experience of natural areas; and
- convey a sense of place and identity.

❖ WHAT CAN WE DO ABOUT IT?

We can protect and manage native vegetation communities, to ensure no loss of biodiversity.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ A sound understanding of the condition of native vegetation and the threats it faces across Townsville-Thuringowa.

★★ Improved management of native vegetation in urban and rural areas, on public and private land.

★★★ Restrictions on clearing and incentives for retaining and restoring vegetation to protect environmental values and prevent further degradation of productive land.

★★ A community that understands and appreciates the values of the local landscape.

★★★ Effective protection and management of high conservation areas, threatened ecosystems and threatened plant species, through the adequate management of protected areas, strategic local government planning and Voluntary Conservation Agreements.

STRATEGY 2.2 REHABILITATION OF DEGRADED AREAS

❖ WHAT ARE THE ISSUES?

Many areas in Townsville-Thuringowa bear the evidence of past mistakes in planning for land use and development. The limited respect given to retaining good quality natural areas in our living environments has led to actions (like unregulated access to sensitive areas and dumping of rubbish) that cause degradation via weed invasion, soil erosion and decline of native vegetation. We need to restore some of the values that we have lost, such as the scenic amenity of open spaces and the potential for nature-based recreation and education activities close to our homes. However, enjoyment of natural areas is not the only reason behind rehabilitation efforts. Impacts such as fragmentation of habitats and loss of riparian vegetation have profound consequences for the functioning of the ecosystem services we depend on. Revegetation around watercourses and wetlands is fundamental to restoring water quality, healthy streams and productive fisheries in coastal and marine environments.

In some cases, sound vegetation management (e.g. weed control, fire management, fencing of sensitive areas) may result in natural regeneration of disturbed sites. However in most cases, active planting of local provenance species is required to rehabilitate vegetation communities. Townsville City Council has a Revegetation Strategy to guide its program of rehabilitating vegetation in urban and non-urban areas, which relies on input from the community. It provides an inventory of sites with potential for rehabilitation and criteria to prioritise rehabilitation projects for maximum efficiency and gain. The Landcare Centre is developing a complementary Revegetation Manual to assist community groups and residents in revegetation activities.

We still need to identify sites for rehabilitation in Thuringowa, in order to progress strategic revegetation and rehabilitation in the sub-region. All projects across the entire sub-region will need to be prioritised based on the TCC model and the framework of catchment management units.

❖ WHY REHABILITATE DEGRADED AREAS?

Rehabilitation of degraded sites:

- restores and enhances biodiversity and habitat functions of native ecosystems;
- provides habitat connectivity in modified urban landscapes;
- restores scenic and amenity values;
- provides opportunities for the community to actively participate in environmental restoration projects;
- provides demonstration sites for community education; and
- protects stream banks and water quality, by reducing soil erosion, and nutrient runoff.

❖ WHAT CAN WE DO ABOUT IT?

We can rehabilitate disturbed and degraded environments to improve habitat integrity, biological diversity, ecosystem processes and scenic amenity values.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ A strategic approach to the selection and prioritisation of areas for revegetation and rehabilitation projects.

★★★ Coordinated implementation of rehabilitation projects through integration of government and community initiatives.

★★ Rehabilitation of residential and industrial development sites (including extractive industries) to restore native vegetation cover following clearing and construction works.

★★★ Programs encouraging community sectors to initiate and support local revegetation projects.

STRATEGY 2.3 STATE OF THE LAND IN RURAL AND RURAL-RESIDENTIAL AREAS

❖ WHAT ARE THE ISSUES?

We do not have a solid understanding of the condition of our rural land resources. Grazing is the predominant land-use in Townsville-Thuringowa outside urban areas. The lack of broad information about current land management practices (including weed management, fire regimes, soil erosion, soil compaction, salinity risk) makes it difficult to assess the sustainability of local grazing. Impacts may result from overgrazing and the disturbance of riparian areas by cattle (e.g. in the Ross River Dam and Bohle River catchments). The introduction of exotic pasture plants can cause serious problems, as seen in the current invasion by *Hymenachne* of internationally significant wetlands near Townsville.

Agricultural cropping in Townsville-Thuringowa consists predominantly of small intensive horticulture, predominantly fruit trees. Some sugarcane is grown in northern parts with pressure for expansion further south. Potential issues include sustainability of irrigation practices, potential for salinisation, pollution of soils and water, disturbance of acid sulfate soils (see Strategy 4.3), and increased pressure resulting from decreasing farm sizes.

We have little information to assess the long-term sustainability of current practices in rural residential areas. Residential expansion on rural land at the outskirts of urban centres has been ad-hoc, with little planning framework to protect habitats, catchment processes and good quality agricultural land. Recent land-use planning acknowledges this trend and aims to correct it. However, more understanding is needed about the effects of activities such as animal husbandry, overstocking, extraction of bore-water, and use of fertilisers for "hobby farms" (including turf farms). Poor vegetation management and clearing, major changes to natural drainage patterns, and the spread of exotic plants (e.g. for landscaping or pastures, and through seed contamination in animal feeds or on machinery) threaten essential catchment processes in Townsville-Thuringowa.

❖ WHY IS HEALTHY RURAL LAND IMPORTANT?

Land resources, including the landscape, the soils and the organisms they support:

- provide environments where we can live;
- support agricultural systems that feed us and are important for our economy and our community;
- support native ecosystems that are important for the preservation of Australia's biological diversity; and
- perform ecosystem processes (eg. recycling of carbon, nutrients and water) that are essential for all life.

❖ WHAT CAN WE DO ABOUT IT?

We can identify, understand and reverse land degradation processes in Townsville and Thuringowa through research, sound land-use planning, management interventions and education of landholders.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ Comprehensive catchment-based assessment and monitoring of the state of the land in rural and rural-residential areas throughout Townsville-Thuringowa, building on existing information and local resources, wherever feasible.

★★ Sustainable use and development of rural resources, based on improved understanding of the nature and implications of current land-use practices.

★★ An increased understanding and wiser management of the impacts of activities in rural-residential areas including animal husbandry, hobby-farming, turf farming, groundwater use, waste disposal, vegetation management and changes to natural drainage patterns.

★ A community that is aware of and feels responsible for sustainable use of our land resources.

STRATEGY 2.4 PROTECTION OF SOIL RESOURCES

❖ WHAT ARE THE ISSUES?

Townsville-Thuringowa has many areas of highly dispersive and erosion-prone soils, which have poor structure and are sparsely vegetated. The high rainfall experienced seasonally and sporadically results in large amounts of soil being eroded and washed into streams and the ocean.

A number of activities that we undertake or may neglect result in increased soil erosion. These include removal of trees, shrubs and groundcover vegetation; inappropriate fire regimes; earthworks for subdivisions and infrastructure developments; disturbance of soil by cattle, particularly along watercourses; and inadequate control of environmental weeds. Some aspects of the recreational activities undertaken in watercourses, such as power boating and the use of illegal boat ramps, contribute to the erosion of stream banks.

Apart from the loss of vital topsoil, the downstream effects of run-off (siltation and sedimentation) can have severe ecological impacts. These include: changes in depth of waterways and natural drainage patterns; increased local flooding; smothering of in-stream plants and animals; loss of fishery habitats; and smothering of coastal marine ecosystems (seagrass beds, coral reefs). Even coastal processes can be affected, as indicated by recent evidence that some sandy beaches have turned into mudflats over the last 50 years, due to soil erosion in coastal catchments.

Many state agencies have guidelines to minimise soil erosion during infrastructure and development works (e.g. Main Roads). Recently, local attention to the risks of losing soil has increased, partly due to workshops initiated by the Townsville-Thuringowa Landcare Association. The Townsville City Council has a soil erosion policy. Detailed assessments of erosion-prone soils over most of the sub-region were undertaken during recent planning for industrial and urban development. However, the full implications of soil erosion are not widely appreciated by the broad community. The success of local policies and guidelines needs evaluating. Initiatives to increase understanding in the broader community of the effects of current land-use practices are required in an Integrated Catchment Management framework.

❖ WHY PROTECT SOIL RESOURCES?

Soil supports:

- micro-organisms that perform essential ecological processes;
- native plant populations (e.g. grasslands, woodlands and forests) and the ecosystems they form;
- pastures and crops that are economically important;
- man-made constructions (residential, public services and industrial) and infrastructure facilities; and
- aesthetically pleasing landscapes in open spaces, public parks and residential areas.

Eroded soil clogs streams, reefs, water supply dams and harbours.

❖ WHAT CAN WE DO ABOUT IT?

We can minimise the impacts of activities that result in loss of soil, and repair areas that have been damaged.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ Sound information on the nature and extent of soil erosion throughout Townsville-Thuringowa, and at a catchment level.

★★ Implementation of management plans and procedures to minimise and repair soil erosion, particularly through effective vegetation management.

★★★ Minimisation of impacts of future land development on soil erosion.

STRATEGY 2.5 PLANTING OF LOCAL PROVENANCE SPECIES

❖ WHAT ARE THE ISSUES?

Local provenance plants originate from plant populations found in the local region, so they have genetic make-ups suited to local conditions. They have also evolved unique sets of interactions with other organisms, plants or animals that inhabit the local area. The introduction of plants from elsewhere in Australia or overseas, has the potential to weaken genetic make-up through hybridisation, and change the interactions between species in local ecosystems. The protection of local plant populations is fundamental for safeguarding our natural systems. Generally, there is too little appreciation in the community of the value of planting local provenance species. Adorning our streets and gardens with exotic species and native plants from other parts of the country signifies a lack of appreciation of the aesthetic values of the local Dry Tropics landscapes, and a lack of understanding of the need to protect our region's biological diversity.

Local provenance plants are essential for catchment-oriented revegetation projects. They are used for revegetation of disturbed and degraded areas; beautification of urban open spaces by councils and the community; stabilisation of sites experiencing erosion (e.g. beach dunes); and post-construction revegetation of urban developments. An adequate supply of local provenance plants requires the collection of seed from wild plants and nurseries to grow the seed. A recent Greening Australia initiative has resulted in the establishment of Wildseeds Townsville, a community group of local experts dedicated to collecting, storing and distributing seeds from indigenous plant communities. Their activities will make available an increasing variety and quantity of local provenance seed. However, more nursery facilities are needed to produce appropriate plants ready for use by management agencies, community groups, developers and residents.

❖ WHY PLANT LOCAL PROVENANCE SPECIES?

Local provenance plant species:

- contribute to the maintenance and enhancement of our region's biological diversity;
- protect the unique gene-pools of Townsville-Thuringowa's native plants;
- are adapted to local conditions; and
- reinforce the sense of place and identity of Townsville-Thuringowa.

❖ WHAT CAN WE DO ABOUT IT?

We can promote and support planting of local provenance species for revegetation and conservation purposes in Townsville-Thuringowa.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ The establishment of non-profit, local provenance seed-banks and nurseries, maintained in partnership by community groups, local and state governments and the commercial nursery industry.

★★ A community that understands the importance and benefits of planting local provenance species.

★★ Increased understanding of the factors that promote or prevent effective storage and propagation of local provenance species.

STRATEGY 2.6 MANAGEMENT OF WEEDS

❖ WHAT ARE THE ISSUES?

In Townsville-Thuringowa, exotic plants represent a major threat to biodiversity and land productivity. Weeds are usually divided into two major categories: (1) agricultural weeds that are detrimental to crops and livestock; and (2) environmental weeds that threaten native ecosystems and the health of land and water resources. This Strategy deals with environmental weeds only. Effects associated with the spread of environmental weeds include the exclusion of native plants, generation of large fuel loads (i.e. guinea grass), increased risks of landslides, and health risks for humans and wildlife.

Environmental weeds may include both exotic species and native Australian plants that do not occur naturally in the area. At least 76 environmental weeds occur in Townsville-Thuringowa and 15 are a "severe problem" in Townsville alone. Twelve weeds are declared under State law, which means that individual landholders must take actions to control them.

Townsville-Thuringowa is at risk of more weed invasions from new pastoral, horticultural and agricultural plants, and from seeds contaminating hay and other animal feeds. Many weeds are grown as garden ornamentals ("garden thugs"), which escape into bushlands and wetlands. Illegal dumping of garden waste in bushland, and seeds contaminating mulch and topsoil just add to the problems.

The scale of the weed problem requires a strategic response. For instance, weed seeds often wash downstream, so we should try to work from the top of the catchment down. As most weeds are good at dispersing, we will need to work with neighbouring sub-regions. Government agencies, landholders and the rural industries will need to collaborate to control key environmental weeds for long-lasting benefits.

The Queensland Department of Natural Resources and Mines and the two City Councils are currently preparing Pest Management Plans. These plans will provide policy directions and guidelines for control of environmental weeds by government officers, community groups and residents. Our community has a fundamental role to play in ensuring awareness and participation of individual landholders and volunteer groups in pest management efforts.

❖ WHY MANAGE AND CONTROL WEEDS?

Management and control of environmental weeds can:

- protect and restore healthy native vegetation communities and viable wildlife habitats;
- enhance sustainable production systems;
- protect our native wildlife;
- result in aesthetically pleasing landscapes; and
- promote ecologically sustainable and safe fire regimes.

❖ WHAT CAN WE DO ABOUT IT?

We can minimise the impacts of weeds on native ecosystems and their conservation and productivity values, as well as prevent the establishment of new weeds.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ Identification, prioritisation and management of areas in need of weed eradication and control.

★★★ Adoption of integrated weed management methods that are environmentally sensitive.

★★★ Active participation of community groups and residents in developing Pest Management Plans.

★★ Increased understanding of weed ecology in Townsville-Thuringowa.

★★ Increased awareness of the potential hazards of ornamental, pasture and agricultural plants.

STRATEGY 2.7 FIRE MANAGEMENT

❖ WHAT ARE THE ISSUES?

Over the past 50-60,000 years, vegetation communities throughout Australia have been shaped and maintained by the fire management regime of Aboriginal Australians. With the interruption of traditional burning practices, less frequent but more intense fires have caused dramatic changes to vegetation communities.

Modified fire regimes are believed to be a major factor influencing changes to vegetation cover and community composition throughout the Australian continent. Fire affects vegetation communities in various ways; whilst it can trigger germination of fire-dependent plants it can also cause local extinction of fire sensitive species (usually rainforest, riparian and vine thicket species). Particularly in tropical savannas, fire is a key factor in determining relative abundance of grasses and woody plants. The effects that fire has on specific vegetation communities depend on factors including the plant species present; the intensity, frequency and type of fire; the topography of the country; the time of year or season, and the atmospheric conditions at the time.

Fire also represents a major threat to property and lives. Reducing the risk of wildfires near inhabited areas is the major purpose of controlled burning. Prescribed burning is also used by government agencies and landholders as a land management tool for a range of purposes including conservation, pasture improvement and weed control.

Although we have a relatively good understanding of the physical features of fire and its behaviour in different circumstances, we have limited knowledge of the effects of fire on different vegetation communities. In particular, we need to understand what the optimal timings, frequencies and intensities of fires ought to be for the range of vegetation types and other values we want to protect. The frequency of widespread bush fires highlights the need to reconcile risk-reduction and conservation objectives in our attempts to manage fire regimes in Townsville-Thuringowa. Local Councils and the Emergency Services must ensure that local fire hazard mapping and management planning make considerations for the protection of fire-dependent and fire-sensitive ecosystems.

❖ WHY IS FIRE MANAGEMENT IMPORTANT?

Sound management of fire:

- enhances biodiversity, by assisting fire-dependent species, protecting sensitive species from intense burning and controlling weed species;
- reduces risk of destructive fires for residents and property; and
- reduces the risk of wild fires destroying bush habitats.

❖ WHAT CAN WE DO ABOUT IT?

We can manage fire regimes in a way that enhances biodiversity conservation, protects fire-sensitive ecosystems and reduces the risk of hazardous fires.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★ Identification of fire-dependent and fire-sensitive ecosystems and improved understanding of the effects of fire on local biodiversity.

★★ Pro-active fire management based on sound scientific knowledge, aimed at reducing risks to lives, property and biodiversity, in and outside conservation reserves.

★★★ Increased awareness among the general public of the risks and effects of inappropriate and illegal burning on property and the natural environment.

STRATEGY 2.8 FOREST RESOURCES

❖ WHAT ARE THE ISSUES?

Moderate timber production is currently undertaken in Townsville-Thuringowa. In the past, woodlands and rainforest species were harvested for timber and fuel from upland and lowland forests. Rainforest areas are now protected within the Wet Tropics World Heritage Area. Some important forests in the region that lie outside the World Heritage Area, (e.g. Clemant State Forest), have outstanding conservation values and are used (or could be) for a range of non-extractive recreational and conservation purposes. Some private forests may also fulfil this function.

It is likely that arrangements for the use of State Forests and timber products in Townsville-Thuringowa will be established in a Multiple Use Management Planning process, with wide community and industry consultation.

Our community must ensure that the conservation and recreational values of the local forests are fully acknowledged and protected under future management arrangements. We need to assess the potential for agro-forestry, the possible consequences of using exotic timber species, and our current use of timber products against national and international goals of resource sustainability and reduction of greenhouse gases.

Harvesting of old growth and tropical forests is one of the most pressing global environmental problems. We need to increase awareness in our local community of the global implications of using timber products imported from non-sustainable sources. We must also ensure the efficient use of timber by-products from local land clearing and the control of woody weed, because these valuable timbers are currently being wasted.

❖ WHY ARE FOREST RESOURCES IMPORTANT?

Our native forests and plantations provide opportunities for:

- long-term sustainable harvest of forest products for building and landscaping purposes;
- the conservation of our native vegetation communities, landscapes and wildlife habitats;
- nature-based recreation and environmental education for us and our children;
- protection and maintenance of catchment processes; and
- production of honey and other non-wood forest products.

❖ WHAT CAN WE DO ABOUT IT?

We can protect and manage forest and timber resources for their long-term sustainability.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ Strategic planning processes to protect the natural values of Clemant State Forest and adjacent unallocated state lands.

★★★ Comprehensive understanding and sustainable management of forest resources throughout Townsville-Thuringowa.

★★ Understanding and promotion for the potential of agro-forestry and other forms of forest management among private landholders in Townsville-Thuringowa.

★ Wider awareness of the local and global implications of unsustainable forestry practices.

★★ More efficient use of timber by-products in Townsville-Thuringowa.

STRATEGY 2.9 WILDLIFE POPULATIONS, HABITATS AND CORRIDORS

❖ WHAT ARE THE ISSUES?

Townsville-Thuringowa has a large and diverse fauna, which includes several species unique to the area and some listed under legislation as facing a risk of extinction. Habitat loss and modification are recognised as the greatest causes of species extinction and decline in biodiversity. Animals need habitats for shelter, food and reproduction, and habitats must be a fair size to maintain viable populations. Currently, we do not have a comprehensive understanding of the distribution, ecology and habitat preferences of local wildlife populations. Habitat requirements vary from species to species, and we need more information for many of the species occurring here. We need greater understanding of threatening processes and the interactions of species with people so that we can protect wildlife and habitat from the increasing pressures of development.

There is a lot of local expertise in research institutions and wildlife-study groups in our community, so a considerable amount of information on individual groups of animals is available. A major priority is to gather this information into a comprehensive picture of the condition of local wildlife populations and the threats they face.

Past and current land clearing and invasions by weeds have resulted in habitat fragmentation across large areas of Townsville-Thuringowa. However, areas of considerable size remain where there has been relatively little disturbance. Protection and management of these areas is essential to local and even global preservation of vulnerable species that cannot survive in small or disturbed areas.

To survive in urban areas native animals require adequate habitats and connections between habitat "pockets". Protection and management of riparian vegetation can maintain connectivity, with waterways functioning as natural "corridors" for animal movements. However, more information on the use of corridors by animals is required to identify important sites. We must ensure that the collaborative efforts of managers, scientists and expert residents result in a strategic and effective management of key species and habitats.

❖ WHY IS WILDLIFE IMPORTANT?

Native wildlife populations in Townsville-Thuringowa:

- perform ecological roles essential for conservation of biodiversity & sustainability of natural resources;
- include species that are threatened with local and/or global extinction;
- include species that are entirely unique to our area; and
- represent important cultural and spiritual resources for local indigenous and non-indigenous communities.

Wildlife corridors and refuges:

- enable movements of wildlife between key habitats, thus improving the viability of local populations;
- reduce the impacts of habitat loss and degradation resulting from development; and
- provide opportunities for co-existence of wildlife and people in highly modified urban landscapes.

❖ WHAT CAN WE DO ABOUT IT?

We can better understand the current condition of native wildlife in Townsville-Thuringowa and reduce the threats to it, so that we can protect key species and habitats now and into the future.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ An information base on the distribution, movements and habitat requirements of local native wildlife populations, building on existing knowledge and local expertise.

★★★ Integrated management and protection of wildlife habitats and corridors.

★★ Implementation of recovery plans for locally threatened species.

★★ Improved understanding and protection of urban and suburban wildlife.

★★★ Increased participation of the community in monitoring and protecting wildlife populations.

STRATEGY 2.10 MANAGEMENT AND CONTROL OF PEST ANIMALS

❖ WHAT ARE THE ISSUES?

At least twelve introduced pest animals occur in Townsville-Thuringowa that present a threat to human health, the conservation of local wildlife populations and agricultural productivity. Six of these 12 pests have high priority for control and management. There is some information available on the impacts that feral pests have on agricultural production, human health and domestic livestock, but we need more understanding of their impacts on native wildlife, ecosystems and biological diversity. Ecological impacts of feral animals vary with species but can include destruction of vegetation; disturbance of soil leading to erosion and decline in soil structure; direct predation on native species; competition for food, shelter and other resources, and transmission of diseases and parasites.

In urban and suburban areas, uncontrolled pet cats and dogs may have a dramatic impact on local bird, reptile and mammal populations. In southern states, registration of cats is compulsory and regulations are in place to control roaming of domestic cats. Unrestrained and dumped domestic cats and dogs also contribute to growing feral populations.

The Townsville and Thuringowa Pest Management Plans (in preparation by DNRM and the City Councils) will outline a strategic approach to control of pest animals. We need to increase our understanding of the impacts of roaming feral, stray and domestic animals on local wildlife and ecosystems, and implement effective control measures. We also need to ensure that control of undesirable animals is undertaken in a way that minimises stress and pain to individual animals.

Pest animals also include exotic fish species introduced into our waterways, which are treated separately in Strategy 4.5. Introduced marine species are becoming a major threat to Australia's marine biodiversity, in both temperate and tropical waters, but are not dealt with in this Strategy. The Townsville Port Authority is in the process of developing a local response strategy to deal with this issue.

❖ WHY CONTROL PEST ANIMALS?

Management and control of pest animals:

- protects local wildlife populations and habitat integrity, thus maintaining and enhancing biological diversity;
- protects and enhances agricultural productivity; and
- protects residents from health risks associated with populations of pest animals.

❖ WHAT CAN WE DO ABOUT IT?

We can control and manage local populations of pest animals in order to minimise impacts on conservation and agricultural productivity values, while ensuring humane treatment of all individual animals.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★ Increased understanding of the distribution and impacts of feral animals and roaming pets on native flora, fauna, agricultural production and health.

★★ Pro-active and integrated implementation of the Townsville and Thuringowa Pest Management Plans involving humane and environmentally sensitive procedures for controlling pest animals.

★★ Increased public awareness and control of the impacts of domestic pets on native fauna in urban, suburban and rural residential environments.