

3.2 Land

The serpent said, when I become real I'll have no hands and no feet, how can I possibly look after anything, then as all the other spirits watched this great serpent materialised in front of them, the heavy sky was crushing the great serpent onto the ground, and as they watched they saw the great serpent use all its muscles together and with all its strength, and energy it lifted the sky, and in total defiance move across the land creating a smooth trail beckoning all the others to follow.

With the exception of the handful, all the spirits started to follow this great serpent as it moved along forming the valleys and pushing up the hills. This serpent is known as Wogarl. Yes, Wogarl was the first to become real, the first to perform heroic deeds by creating the trails and the hills it was the first leader. At times this great serpent went under the ground and came up again forming the area where there would be lakes.

Aspirational Target: Improve land condition in the Region and ensure land use planning and development is sustainable and appropriate to the land capability and suitability.

3.2.1 Resource Description

There are various ways that Land can be defined and various ways that it can be classified. The most significant properties of Land may be its extent, chemical composition, texture and form. Its most important functions are to provide a medium (framework) and base for housing almost all of the elements of biosphere and to provide nutrients both directly by weathering and by holding organic products in pores and on the surface.

The land resource assets of the Region include productive agricultural land, soil, mineral and forestry resources, and conservation areas of significant Value.

Land is central to all the natural resources within the Region. It is of high value to a wide range of groups. It is integral to the indigenous cultural heritage of the Region, and has spiritual value throughout the indigenous population. It derives enormous economic value from activities of minimal disturbance such as recreation and tourism, minor impact activities such as the wildflower and seed collecting industries, and major impact activities such as land clearing or extractive industries.

A summary of the land resource asset values derived from the community consultation and stakeholder engagement process is outlined in Table 6. These are defined under the three main categories of environmental, economic and social values.

Table 6: Land resource asset values

| Environmental | Economic | Social |
|--|--|--|
| <ul style="list-style-type: none"> • Provides biological links through a variety of unique ecosystems, internationally significant geomorphological features, e.g. Bicuspate Dunal Systems, supporting plant life and habitat • Produces wide variety and features of soils, influencing fertility, nutrient cycling and water / energy flows • Has significant intrinsic value including the unique landscape features | <ul style="list-style-type: none"> • Provides tourism / recreational opportunities • Holds mineral resources • Soils influence land use and capability • Landforms affect real estate values • Supports high value agricultural industries providing a range of fresh horticultural products, wine and tourism for the Region | <ul style="list-style-type: none"> • Provides tourism / recreation and subsequent health benefits • Creates lifestyle/ spirituality/ sense of place/aesthetics • Important for indigenous use • Sustains infrastructure/ heritage value • Provides place to live • Delivers education / research opportunities |

Effective management of the land is critical for the management of other assets. Run-off from the land affects the waterways, which ultimately reach the coastal zones. Condition of the biodiversity is connected to the soil and land health. The movement and quality of the air is affected by the state of the land and vegetative cover.

For the purpose of the Strategy, land is described as a natural resource asset comprising components of: landscape integrity, ecosystem function, soil and land health, sustainable production and quality of life. It is important to recognise the interrelationships between land, water, biodiversity, air and sustainable management.

The term 'landscape integrity' defines the extent to which the natural surroundings contribute to the original integrity of the landscape. The term includes the original character, context and range of processes that link the various landscape systems. It provides a measure of how landscape systems are maintained, along with the natural nutrient cycles, energy flows and hydrology. Landscape integrity also provides a measure that encompasses a range of impacts associated with human activities in the Region. Both urban development and agricultural activities affect the integrity of the natural landscape by fragmenting and degrading asset values. Understanding landscape processes is therefore essential to assessing landscape integrity. Natural landscape systems help conserve the soil, maintain water quality and supply, and provide educational, recreational, tourist and other amenity value. They also contribute to both human physical and spiritual welfare. Major issues about integrity also include traditional cultural properties; one important consideration is the "integrity of relationship" between a place and the community that values it. This may also include the relationship to the surrounding landscape context, such as the role the landscape plays in the ongoing social life of the community and its social integrity.

There are a large number of discrete physical environments that contribute to the visual character of the Region. They provide important places for aesthetic appreciation, recreation and tourism uses. They include the Hills sub-region, the Darling Scarp, high dunes on the Coastal Plain, limestone cliffs either side of the Swan River, coastal dunes, lake and cave systems, as well as unique features such as the internationally significant dunal systems located in the north of the Region. The Swan River System Landscape Description (Swan River Trust, 1997) provides a full inventory of the resource information for the Swan and Canning Rivers and is seen as the first stage in achieving landscape protection. It includes geology, topography, vegetation, hydrology, flooding, public access, recreational elements and nodes, and environment changes from land use. Maintaining the landscape integrity of the Region is important to the wider regional community.

Ecosystem function is linked to landscape integrity. It encompasses services of nature (ecosystem services), such as soil generation and soil fertility, pollination, control of the vast majority of potential insect pests, water filtration and hydrological balance, and drives the productivity of farmland. An adequately functioning ecosystem is vital to achieve this productivity.

The health of both the soil and the land is extremely important for sustaining natural and human systems. The two are intrinsically linked and must be managed holistically to maintain health and productivity. The soil biodiversity is vast, consisting of thousands of species of bacteria and hundreds of species of fungi and protozoa. They are generally essential to the biological health of soil and functionality of ecosystems.

Sustainable agricultural production is dependent on soil and land health. It can be defined as a system of agricultural production that aims to reduce environmental degradation, maintain agricultural productivity, promote economic viability in both the short and long-term and maintain stable rural communities and quality of life. (University of New Hampshire, 2001). It can also be defined as the use of farming practices and systems which maintain or enhance the economic viability of agricultural production; the natural resource base; and other ecosystems, which are influenced by agricultural activities (Standing Committee on Agriculture and Resource Management, 1991).

Quality of life includes social well being and incorporates the value the wider regional community places on the lifestyle associated with the Region. The wider regional community has adopted a lifestyle that is heavily reliant on the availability of high quality environmental assets within the Region. Easy access to rural and natural landscapes is part of the quality of life.

Biodiversity conservation is intrinsically linked to both urban development and sustainable agricultural production in the Region. Through their management practices, rural land managers can contribute to abating threats to biodiversity that ultimately affect their business. These threats include management of pest and diseases, and altered fire regimes. Protection and management of publicly and privately owned native vegetation, including bushland, wetlands and riparian zones, contribute to achieving the Region's priorities for both biodiversity and land assets.

3.2.2 Resource Condition

The Swan Region comprises the primary urban area in Western Australia. The Region is 7,000 square kilometres in area, of which the Metropolitan Regional Scheme occupies 54 per cent.

Approximately 200,000 hectares within the Region can be classified as semi-rural and rural land, with some urban areas including special rural zonings, (eg. within the City of Canning). These areas support a range of agricultural land uses including grazing, viticulture and horticulture. Rural land is also valued for rural subdivisions and recreation and tourism areas. These uses are of significant economic benefit to local towns and metropolitan Perth. Agricultural productivity in the Region is predominantly intensive and of high value.

The agricultural area is characterized by many small, diversified rural properties. The major agricultural product in Perth is poultry (\$86 million 1996/97), nurseries and vegetables (\$40 million and \$49 million respectively), eggs and fruit (\$23 million and \$34 million), while beef and grapes contributed \$19 million.

There are many pressures on high value agricultural land including fragmentation and reduced connectivity through degradation, development and changing ownership. This is associated with increased urbanisation of agricultural land. Rising demand for urban land leads to speculation by developers and increases the dollar value of the land but leads to a devaluing of the land for agricultural purposes, which can lead to land use conflict. Figures 11 and 12 indicate the land capability and the current land use within the Region.

Salinity is a growing issue in the Swan Region, particularly within the more rural areas. While some of these areas are directly impacted by salinity, eg. Woorooloo Brook and Ellen Brook regions, there is also potential for indirect impacts to the Swan and Canning River systems from drainage projects in the Avon Region.

Land capability is defined according to the Agriculture WA ratings for perennial horticulture, as detailed in Table 7. Land capability is the ability of land to support a type of land use without causing damage. Damage refers to both on-site and off-site effects. The final capability rating is determined by the most limiting land quality.

Table 7: Land Capability Classes

| Class | Description |
|--------------|--|
| I | Very high capability for the proposed activity or use. Very few physical limitations present which are easily overcome. Risk of land degradation is negligible. |
| II | High capability. Some physical limitations affecting either productive land use or risk of land degradation. Limitations overcome by careful planning. |
| III | Fair capability. Moderate physical limitations affecting productive land use or risk of land degradation. Careful planning and conservation measures required. |
| IV | Low capability. High degree of physical limitations not easily overcome by standard development techniques and/or resulting in a high risk of land degradation. Extensive conservation requirements. |
| V | Very low capability. Severity of physical limitations is such that its use is usually prohibitive in terms of either development costs or the associated risk of land degradation. |

Source: Agriculture Western Australia (1997).

Land suitability refers to the potential uses of the land based upon consideration of prevailing physical, technical and socio-economic conditions. Full suitability evaluation involves a multi-disciplinary approach and includes a basic inventory of land resource data, an understanding of the ecological requirements of the land use contemplated, basic data on the economics of land use, land improvement, new technologies, marketing and transport, and a knowledge of the attitudes and goals of people affected by the proposed changes.

Considerable areas of land are being used beyond their capability and suitability. The outcome is the persistence of high nutrient levels in waterways such as in Ellen Brook, and obvious soil erosion on grazing and horticultural land and examples of incompatible land uses and management practices. Increasing salinity, increasing soil acidity, rising water tables and accelerated erosion are affecting agricultural productivity, existing infrastructure and new developments. The above issues must be addressed to maintain or improve land condition and productivity in the Region, and thus to reduce 'off-site' impacts on the other assets such as declining water quality and biodiversity condition.

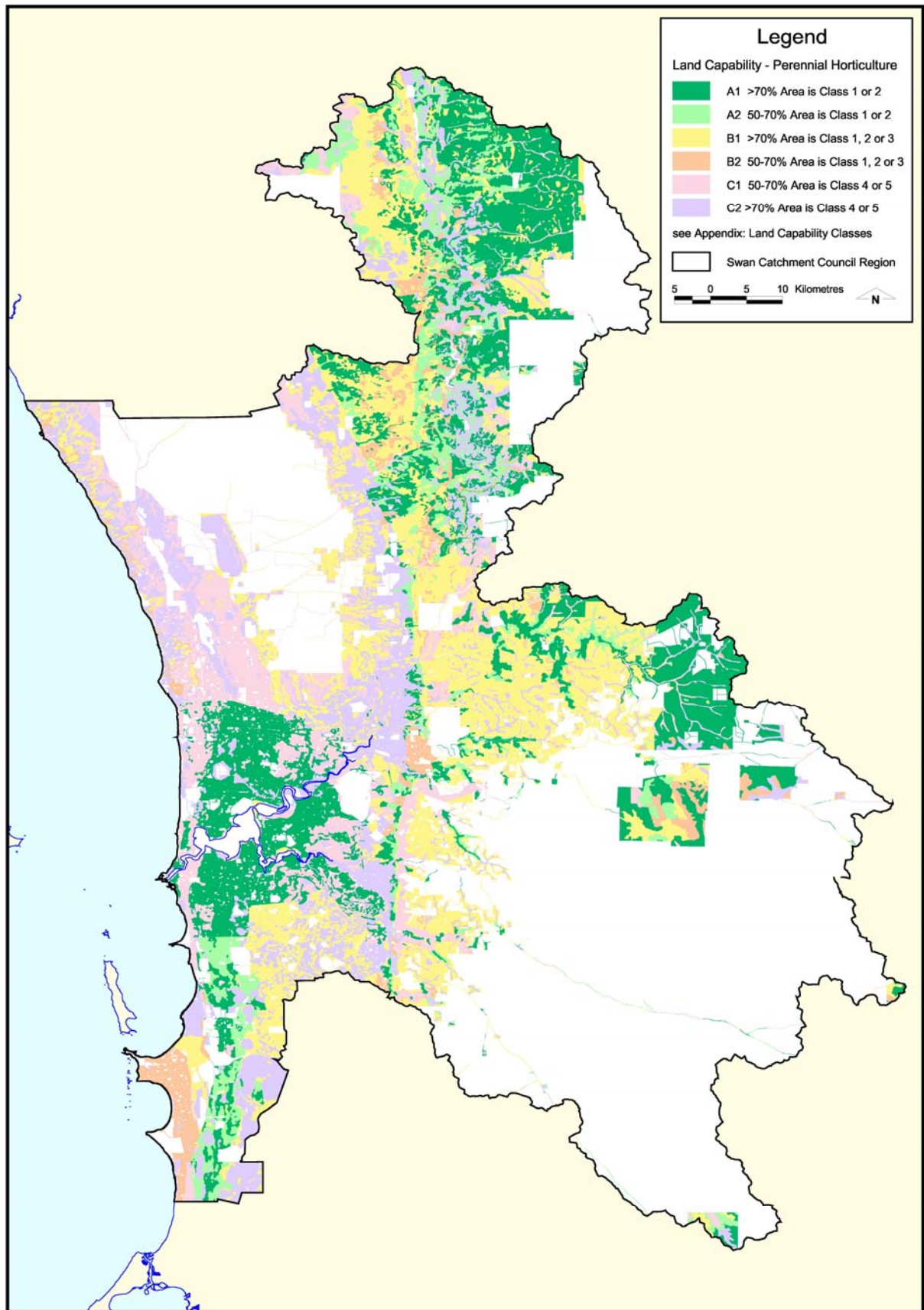


Figure 11: Land capability in the Swan Region

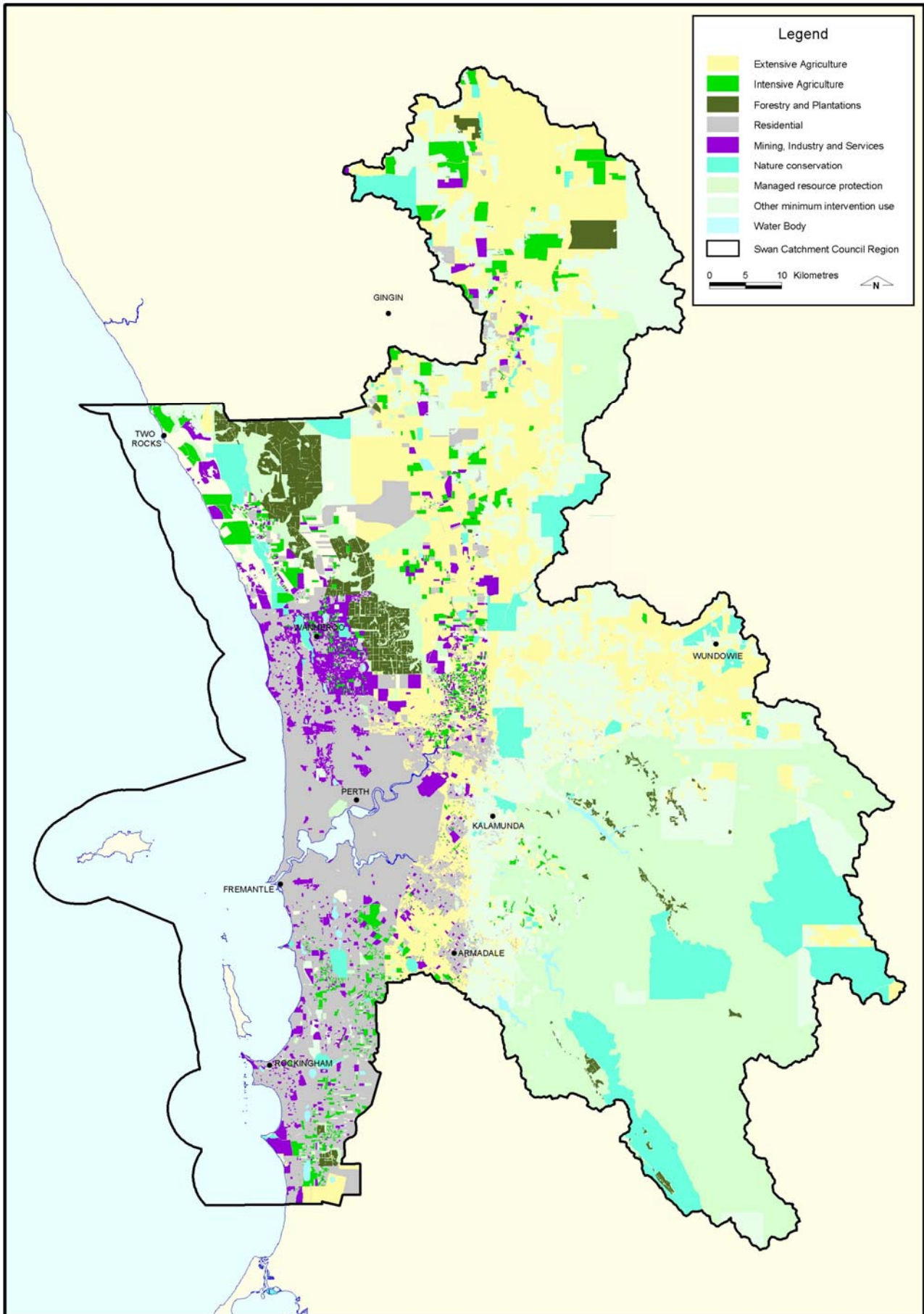


Figure 12: Land use in the Swan Region

Land use in urban areas has also impacted severely on the land condition and landscape integrity. Human population pressure on the natural resources of the Region is a key issue. Sound land use planning and management practices are essential for maintaining the values of landscape integrity, ecosystem function, soil and landscape health and productivity. Both on-site and off-site impacts need to be managed in order to preserve the natural resource values within the Region. Acid sulfate soils are key threatening processes to land condition, and the related water and biodiversity assets within those landscapes.

3.2.3 Issues and Pressures

Nutrient export, sedimentation, waterlogging, salinity, erosion, deteriorating soil structure and fertility are predominant issues in the Ellen Brook, Brockman River and Wooroloo Brook catchments. Erosion is also common in the Hills catchments and along water courses and new building sites on the Coastal Plain. There is a strong link between land and water in nutrient export and the health of waterways. Poor land management contributes to eutrophication of streams such as Ellen Brook and the Wungong River.

Increasing population and urban growth as well as incompatible land management practices place the greatest pressure upon the values of land as a natural resource asset (Table 8).

The pressures of increasing population and urban growth primarily results in planning and development decisions that allocate land uses that are incompatible with land capability and suitability. This leads to land use conflict, with the land allocated to a use for which it is not best suited, and which is often not sustainable. Increasing population and urban growth adds to the conflict over land usage. This is primarily through inappropriate recreational and tourism use, including the misuse of natural areas and drainage management issues. See Section 2 for further discussion.

Table 8: Primary cause and effect of pressure on land as a natural resource asset

| Cause | Effect |
|--|---|
| Increasing population and urban growth | Land use conflict and subsequent risk to asset base and landforms <ul style="list-style-type: none"> • pests and diseases • weeds • vegetation clearing • water use issues • nutrient export • salinity • acid sulfate soils • contaminants • drainage • erosion • hydrological change • drainage management and water sensitive design requirements • gross pollutants Fragmentation of natural resources and management leading to: <ul style="list-style-type: none"> • loss of connectivity between natural resources e.g. biodiversity corridors • loss of critical mass e.g. farmland, native vegetation/biodiversity • increased risk of conflict e.g. between agriculture and lifestyle uses • increased management costs ie due to more landholders/land managers • increased problems with biosecurity e.g. increased risk of exotic pests and diseases being introduced from urban areas |
| Incompatible land management practices | General environmental degradation <ul style="list-style-type: none"> • nutrient export • salinity • acid sulfate soils • contaminants • drainage • erosion • hydrological change • pests and diseases • weeds • vegetation clearing • water use issues |

Inappropriate land use and poor land management practices contribute to a number of degrading processes on the land and are contrary to the objectives of sustainable production. These include, but are not limited to:

- *Altered hydrology.* Rising groundwater levels cause waterlogging and salinisation. Low groundwater levels impact on both groundwater dependent ecosystems and irrigated productive lands. Contributing to the impact is the overabstraction of the groundwater resource and the surface water changes resulting from land clearing.
- *Salinity.* This was identified in the State Salinity Strategy (2000) as the greatest environmental threat facing Western Australia, potentially affecting up to 30 per cent of the State. The area of salt affected land has already had a serious impact on biodiversity, current and future water supplies, agricultural and regional infrastructure. Within the Region, land salinisation is most likely to occur in the inland areas of Chittering. Further work is needed to identify the areas at risk, and develop appropriate management strategies.
- *Acid sulfate soils.* Acid sulfate soils are waterlogged soils that contain iron sulfide minerals, predominantly as the mineral pyrite. Acid sulfate soils are most likely to occur in coastal regions but are also locally associated with dryland salinity in some agricultural areas (Figure 13). These soils are benign when undisturbed, but the exposure of pyrite to air by the drainage, dewatering or excavation of soil can generate substantial amounts of sulfuric acid. Drainage water in contact with the oxidising soil usually becomes acidic and leaches substantial amounts of metals from the soil. The discharge of acidic water into waterways and wetlands may cause fish kills and loss of aquatic biodiversity, and the infiltration of water through the soil profile may contaminate groundwater with arsenic and metals. Acidic drainage may also reduce agricultural productivity and corrode urban infrastructure such as underground pipes and concrete. As development pressure increases in low-lying swampy areas due to increasing land values, particularly in wetland and foreshore areas of the Swan-Canning estuary, the risk of acid sulfate soil related environmental problems will increase unless the disturbance of these soils is carefully managed (Department of Environment 2003).
- *Erosion and sedimentation.* This is the major cause of land and watercourse degradation in the Region due to mobilisation of nutrients from the soil into waterways. The management of nutrient transport is further complicated as it is a non-point source of pollution (Lloyd and Van Delft, 2001) (Figure 14).
- *Leaching.* Loss of nutrients applied to poor phosphorus retaining soils on the Swan Coastal Plain is a major economic and environmental problem. There is a strong link between land and water in nutrient export and the health of waterways. Poor land management contributes to the eutrophication of waterways (refer to Waterways in Section 3.3.2 and Figures 19 & 20).
- *Pests and diseases.* This includes the full spectrum of harmful weeds, pests, diseases and unwanted animals that degrade the land asset and impact on sustainable production. A set of measures have been designed to protect the land from these pests, referred to as biosecurity (Department of Agriculture, 2003).
- *Contaminated lands.* This includes sites of both current and historical contamination. Management of land contamination is particularly difficult as the pollutants move through the groundwater system and can express at a location remote from the original source.
- *Fire management regimes:* Fire management regimes that are incompatible with the natural environment may contribute to a number of degrading processes on the land. For example invasion by opportunistic weedy species can rapidly establish in an area cleared of native vegetation, out-competing the native plants that are typically slower to recolonise. Similarly, soil erosion can result from a lack of stable vegetative cover following a high intensity fire, or following wildfire suppression (ie graded firelines etc). Incompatible fire management regimes can favour the establishment of plant species stimulated by fire, at the expense of those species that are not fire resistant, resulting in loss of biodiversity. This issue of fire management regimes and biodiversity loss is further discussed in Biodiversity (Section 3.4).

3.2.4 Current Response

Land use and management in the Region is subject to a range of legislation. For rural land, the principal statute is the *Soil and Land Conservation Act (1945)*. The *Act* includes measures to prevent degrading activities and requires private landholders to address existing land degradation problems. The *Act* also empowers wider regional community action through its support for Land Conservation District Committees (LCDC's) and catchment groups. A great deal of catchment management planning has occurred through these groups. This legislation is planned to be replaced in the near future by an *Agricultural Management Act* that will address a wider array of environmental and biosecurity concerns related to sustainable agricultural industries.

Recent changes to the *Environmental Protection Act (1986)* provide clearing regulations to manage land clearing and degradation assessment and approval. This *Act* is also used in rural developments and proposals.

With the number and variety of primary producers there is a range of other relevant legislation, including:

- *Agriculture and Related Resources Protection Act (1976)*
- *Plant Diseases Act (1918)*
- *Stock Disease Regulations (1968)*
- *Stock Identification and Movement Act (1972)*
- *Wildlife Conservation Act (1950)*
- *Conservation and Land Management Act (1984)*
- *Mining Act (1978)*

Various legislative developments are currently in progress, including;

- A proposed *Biodiversity Conservation Act*, which is anticipated to replace, amongst other things, the current *Wildlife Conservation Act (1950)*. The proposed *Act* is also expected to give legal recognition to threatened ecological communities.

Within the urban environment, the principal statutes are the *Western Australian Planning Commission Act (1985)*, *Metropolitan Region Town Planning Scheme Act (1959)* and the *Town Planning and Development Act (1928)*. The *Environmental Protection Act (1986)* is also very important in the urban setting.

The Metropolitan Region Scheme (MRS) is the statutory basis for planning metropolitan Perth and is the focus of a large amount of supporting non-statutory work. The MRS is designed to regulate and control the use of land for town planning purposes, and helps shape the broad urban form of the city and the development constraints within each zone. Within the MRS there is recreational space (eg. Darling Range Regional Park) State Forest reservations and rural purpose zonings. Beyond the MRS boundary, town planning is conducted solely within the Local Government Town Planning Schemes.

The planning process developed for the *Greater Perth* initiative is being managed by the Department of Planning and Infrastructure (DPI). This planning process considers issues such as the size of Perth's 'ecological footprint' and limits to future expansion of the urban areas. This was also identified within the *State Sustainability Strategy* (Government of Western Australia 2003). The wider regional community also contributed through "Dialogue with the City" (Department of Planning and Infrastructure 2003) consultation forums. The purpose of these forums was to guide future planning through deliberative democracy process based on the following principles:

- To enhance efficiency of urban land and infrastructure
- Improve resource efficiency and energy use and protect the environment
- Enhance community vitality and cohesiveness

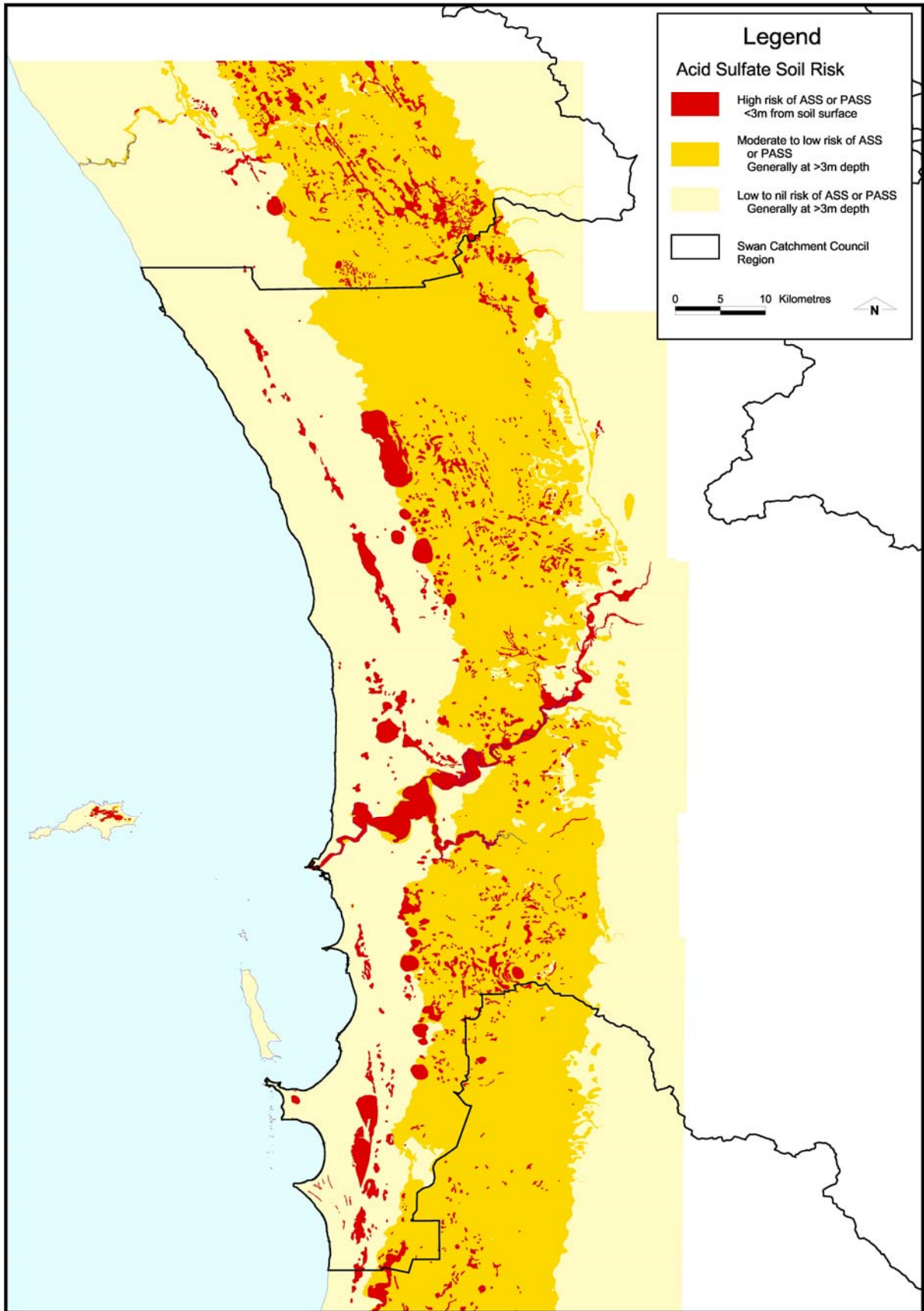


Figure 13: Risk of acid sulfate soils in the Swan Region

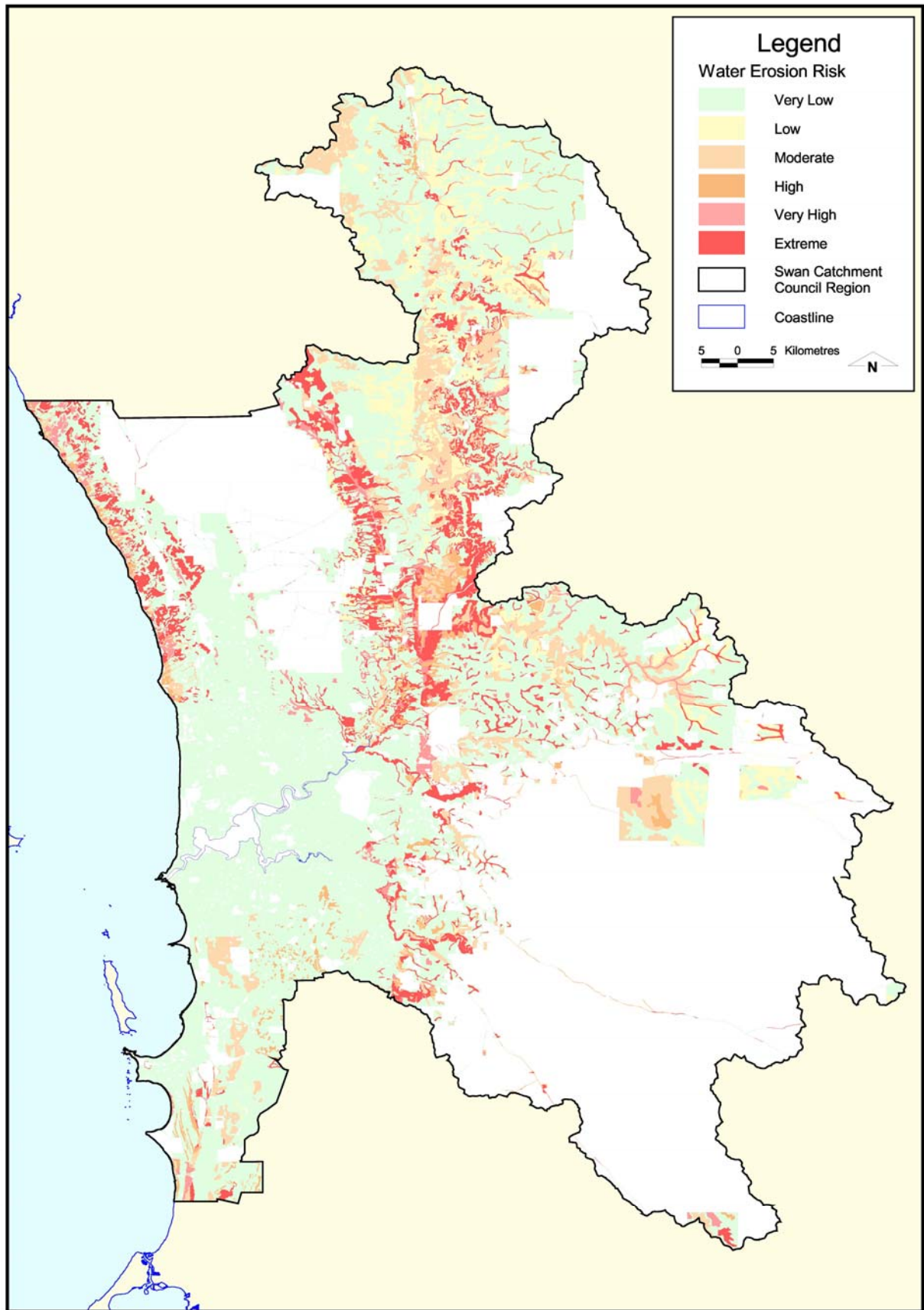


Figure 14: Risk of erosion and sedimentation in the Swan Region

The result was a draft vision from the wider regional Perth community, stating that by 2030, Perth people will have created a world-class sustainable city; vibrant, compact and accessible, with a unique sense of place.

State planning legislation includes the Statement of Planning Policy No.2 – Environment and Natural Resources Policy, which defines the principles and considerations that represent good and responsible planning in terms of environment and natural resource issues within the framework of the State Planning Strategy. The objectives of this policy are to:

- Integrate environment and natural resource management with broader land use planning and decision-making.
- Protect, conserve and enhance the natural environment.
- Promote and assist in the wise and sustainable use and management of natural resources.

Many of the Local Governments in the Swan Region have recognised the environmental pressures, and responded with land management strategies and local level policy amendments. These include rural strategies, policies to address erosion and sedimentation, natural resource management policy manuals and regional NRM planning. Appendix 3 provides a snap shot of NRM related documents for Local Government and community organisations.

Rural shires are also required to establish Rural Land Use Strategies that can be used to regulate land use and management in non-urban parts of the Region. A separate *Swan Valley Planning Act (1995)* applies in the Swan Valley to ensure the protection of the rural character of that part of the Region. The Agricultural and Rural land use Statement of Planning Policy delineates areas where local shires need to consider the economic, social and environmental requirements for agricultural land use.

In relation to the protection of areas of agricultural significance, Statement of Planning Policy 2.5 - Agricultural and Rural Land Use Planning delineates areas of potential State/regional agricultural significance within the Swan Region with broad State/regional significance.

Other Government agencies with responsibilities for land use and management undertake activities on land vested in them under a range of *Acts* (eg. WAPC, CALM, Western Power and LandCorp). Two examples are the *State Salinity Strategy*, currently being implemented primarily through the Department of Environment (DoE), the Department of Agriculture and the Department of Conservation and Land Management (CALM), and the State Weed Plan managed through the Department of Agriculture and CALM.

In addition, there are a wide range of tools and resources available to land managers on a Local, State and National level. These tools provide guidelines and recommendations, but have no statutory powers. Examples include: *A Manual for Managing Urban Stormwater Quality in Western Australian* (1998); *Erosion and Sediment Control Manual for the Darling Range* (2001); *Caring for your Land - A Guide for Small Landholders* (1999) and *Sustainable Land Management in the Ellen Brook Catchment* (2001). River restoration programs and the Swan-Canning Cleanup Program (SCCP), while targeting the management of waterways and river condition, also assist in the remediation of unsustainable land management practices. One outcome of this program is the *Local Government Natural Resource Management Policy Manual* (2003), which provides a useful tool for land managers. Community funding opportunities are available through programs such as the Swan Alcoa Landcare Program (SALP) for environmental remediation activities. To combat acid sulfate soils the Department of Environment is developing a "Framework for Managing Acid Sulfate Soils" which outlines a series of guidelines, and mechanisms to manage these soils.

There is a network of very active community-based Landcare and environmental groups working with private landholders and Local Governments to protect and rehabilitate local areas, provide information to schools and the wider regional community about the importance of Landcare and sustainable land management in the Region. Local Government and funding programs such as the SALP and Australian Government EnviroFund primarily fund this effort. Works are often carried out in accordance with a local or sub-regional management plan.

The community group (eg landcare and friends groups) and Local Government efforts in managing land based biodiversity, water quality and sustainable land management is of utmost importance. The Region's landscapes are highly sought after for a range of uses. Land is a public and private asset, and regional community understanding and involvement is important to ensure the landscapes are managed and planned for current and future communities and with strong environmental principles.

Partnerships between organisations are rapidly expanding and strengthening, as NRM managers develop the links between assets and approach environmental activities from a regional viewpoint.

Capacity building has been identified as essential in the development of sustainable land management practices. A range of education and training opportunities are available to land managers. These include property planning workshops that provide information to land owners on protecting and enhancing their land (Department of Agriculture), garden design and management workshops (SCCP) and other community education opportunities.

3.2.5 NRM Strategy Response

The Strategy responses outlined below form the basis for the land asset category targets detailed in Section 4. The Resource Condition Targets for lands within the Swan Region address the issues of salinity and soil condition, particularly water erosion, waterlogging and acid sulfate soils.

Land is often being used for purposes beyond its suitability and capability. One response is to incorporate relevant information, including risk assessment, into the land use planning and development processes, which will assist in addressing the pressures on the land resulting from incompatible land use decisions (LM1.1, LM1.2, LM2.2, LM2.5). Planning will also support the protection of land features valued within other asset categories, for example features of cultural heritage and biodiversity significance. The protection of identified representative landscape features (LM1.1, LM1.3, LM2.1, LM2.3) links to both the biodiversity targets of protecting unique vegetation communities associated with the landscape features, and the cultural heritage targets of protecting sites of indigenous heritage.

Progress towards sustainable production in the Region can occur through the development of strategies that address the management of land according to soil type and risk identification. The Swan Region Strategy specifically addresses risk from salinity and poor soil condition (LR1 and LR2).

Sustainable production strategies will encourage the adoption of best management practice, and promote the development of market-based incentives. The Agricultural and Rural Land Use Statement of Planning Policy will be a key mechanism for both the protection of prime agricultural land and to ensure sustainable primary production in the Region (LM1.2, LM2.2). The value of agriculture and its associated industries (for example tourism) will make a significant economic contribution to the Region. This will be an important component in developing the land capability and suitability information available for use in planning and development assessments.

In response to rising salinity the Swan and Avon Catchment Councils have developed the *Avon-Upper Swan Region Memorandum of Understanding* for the Brockman River, Ellen Brook and Woorloo Brook catchments. This agreement enables implementation of the priority actions under the State Salinity Strategy and NAP to remediate areas impacted by salinity in the Region. Closer definition of areas at risk of salinity and raised groundwater/waterlogging is needed (LM1.1). Options for salinity management for landholders and farmers need to be developed and implemented. Risks to groundwater resources used for irrigation need to be identified (see Section 3.3), and sustainable and profitable production options for landholders that address land and water management issues need to be developed and communicated.

Building the capacity of the Region to sustainably manage land assets is recognised as a key strategic focus for the Council (LM1.4, LM2.5). Education and accessibility to NRM information will be integral to this process. This can be achieved by identifying those areas requiring protection and making this data available through a comprehensive regional geographic information system. Individual and community group involvement in NRM will continue to be supported through the regional and sub-regional coordinators and facilitators network.

3.2.6 Trade-offs

A principle trade-off in the implementation of the strategic responses outlined above will be that using land for one purpose could potentially exclude its use for another purpose. For example, clearing of native vegetation to enable development to proceed, will impose constraints upon the Region's unique biodiversity to maintain ecological integrity and function (ie clean air and water). Consideration of these key decisions and their long-term implications will need to be made by Government, industry and the wider regional community. In this context, further allocations of a land use will need to be considered in terms of long-term sustainability to avoid the prevention of other beneficial uses for that land.

'Off-sets' are currently being used in some areas to compensate for environmental impacts. Environmental thresholds need to be identified for important areas where trade-offs cannot be applied. These concepts are being considered by the EPA and an Environmental Sustainability Forum instigated by the Minister for the Environment. An Environmental Offsets Preliminary Draft Position Statement will be released soon by the EPA. Offsets and thresholds are being investigated as 'sustainable solutions' to environmental impacts.

The social, economic and environmental costs / benefits associated with decision-making will be considered during an assessment of trade-offs during the development of the Swan NRM Region investment plan.

