MANAGING AND SUSTAINING VISUAL LANDSCAPE VALUES IN WESTERN AUSTRALIA'S SOUTH WEST FORESTS

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BACKGROUND

Many land uses and management practices can change the visual character of the landscape. Such uses and practices, while they may be scientifically or technically correct, may not always result in attractive landscapes, especially in the short term. Moreover, where land use activities are not carefully planned and executed, the result can be long term or permanent degradation of the visual landscape. In many instances, it is this loss of scenic quality associated with environmental change that is most apparent to the public and which results in criticism of land-management activities. Often this can be avoided through sensitive planning and management of the landscape.

Landscape management, or visual resource management (VRM) as it is frequently termed, is the scientific discipline concerned with the management of land, vegetation and water resources so as to maintain or enhance their visual quality.

The prime goal of visual resource management is to ensure that all uses and activities are planned and implemented so as to complement rather than detract from the visual qualities of the environments in which they occur.

Visual Resource Management is a positive and integral component in land use planning and management processes. It is not a cosmetic exercise in which the results of careless planning and development are hidden from view, or superficially treated to make them more palatable to the viewing public.

The Visual Landscape Management System, as described, addresses all landscapes across the CALM Estate, and does not solely focus on those Road, River and Stream Zone areas currently under review.

THE BASIS FOR VISUAL LANDSCAPE MANAGEMENT

The term "landscape" refers to the appearance or visual expression of an area as determined by its geology, soils, landforms, vegetation, water features and land use history. Visual Resource Management is based on the premise that the visual quality of a landscape is a resource in its own right. This resource can be measured, assessed and managed in much the same way as other resource values such as fauna, flora, water, timber and recreation.

Managing the visual resource is dependent on a knowledge and assessment of the landscape itself as well as a thorough understanding of proposed land use(s). After the various landscape elements have been identified and assessed, it is possible to evaluate how particular management alternatives will affect the appearance of any landscape and subsequently to develop landscape specifications compatible with other resource management objectives.

In the past four years, CALM has adopted a systematic approach to the inventory and assessment of visual landscape values based on systems now operating in other Australian States and overseas. This approach enables scenic values to be described, evaluated, compared and mapped with a minimum amount of subjectivity. To date, visual landscape values in the Southern Forest Region and several national parks elsewhere in the State have been classified and mapped using the VRM System.

CALM'S VISUAL LANDSCAPE MANAGEMENT POLICY

CALM's commitment to managing the visual landscape on an equal basis with all other natural resources is spelled out in the Department's Policy Statement No. 34 (Visual Resource Management on Lands and Water Managed by CALM), attached, and in key passages of strategic and regional management plans for the 3 Forest regions, as follows:

> *"To ensure that all land uses on lands and water managed by CALM are planned and carried out in ways that sustain the beauty of the natural environment."*
> *(Policy Statement No.34, 1989)*
>
> *and*
>
> *"To ensure that activities on CALM land are planned and carried out in ways that compliment rather than detract from the inherent visual qualities of the natural environment. Outstanding scenic landscapes will be protected from impairment of visual amenity".*
> *(Southern Forest Region Strategic Plan, 1986)*

A major strategy spelt out in the Policy is that CALM will:

- Harvest multiple use forest areas in which timber production is permitted in ways that sustain the desired visual character of the forest and according to accepted landscape planning and design principles.

BASIC LANDSCAPE PLANNING AND DESIGN PRINCIPLES

87 % of Humans' Perception Is Based on Sight

Visual Landscape Character:

- Every landscape being viewed has an identifiable and descriptive visual character. This character results from various geological, hydrologic and climatic processes and associated soils and vegetation.

Landscape Dominance Factors:

- Visual landscape character can be described in terms of four component elements or dominance factors:

  Form - the shape or structure of landscape features. It is found in topographic land form in distant views and individual rocks, trees, etc, in foreground views.

  Line - often described as the result of a point which has been extended. It is found in such things as tree trunks, twigs and branches, roads and pathways and at macroscale in shorelines, ridgelines, etc.

  Colour - the visual sensation or perception that enables one to differentiate objects even though the objects may appear otherwise identical. Distant views often have their colours muted into a bluish haze.

  Texture - defined as the visual surface characteristics of the landscape feature/s.

Management Application Example:

With a forest landscape dominant in texture, it is extremely difficult to impose an activity strong in form and line (such as a road or clearfell area) and yet retain the texture characteristic.

Elements Affecting Landscape Dominant Factors:

- Motion
- Distance -
  - *Foreground*: textual details are most evident.
  - *Middleground*: land forms and vegetation patterns link together into whole units. Textual patterns are most evident.
  - *Background*: the expansive views reduce form to simple shapes and removes any sense of texture. Line and form qualities become more dominant.
- Observer Position
- Lighting
- Scale
- Time Span - Viewing time
- Weather
- Season

Landscape Contexts:

- Landscapes can be viewed in many contexts depending upon the observers location, the surrounding environment and the particular subject of interest. Landscape contexts include: Panorama, Feature, Enclosed, Focal, Canopied, Detailed, Ephemeral, etc.

Landscape Diversity:

- Diversity in the landscape is visually desirable.
- Given any area viewed, small, large or moving, there is a point at which variety increases from zero (monotony) until it becomes visually pleasant. As it continues to increase, it approaches the point where it is no longer pleasant; then finally, it is infinite and no longer recognisable or zero again.

Scenic Quality:

• The scenic quality of any landscape varies from place to place. Scenic quality generally increases with naturalness, uniqueness, ruggedness and diversity in landform, vegetation and waterform features. Scenic quality can be defined in specific terms for each Landscape Character Type.

Visual Landscape Change:

- Human imposed changes in the landscape can have dominant, overpowering impact, or they can maintain, enhance or restore visual quality by complimenting the surrounding landscape's aesthetic forms, lines, colours and textures.

VISUAL RESOURCE MANAGEMENT APPLICATION

Broad Scale Planning Level:

A flow chart illustrating the main components of the broad scale planning system is shown in Figure One.

The System integrates a Resource Base (Figure 1: Column 1) of:

1. Physical Landscape Elements, and
2. Social Considerations.

From an Inventory (Column 2) and Assessment (Column 3) procedure, Recommendations (Column 4) are made with Landscape Management Zones mapped, depicting levels of concern for the visual resource. For each recommended Zone a Visual Quality Objective (VQO) is written providing standards for conservation and land management activities, outlining levels of protection, enhancement, alteration, and techniques for measuring results. This objective can then be monitored and reviewed according to the determined standards. The VRM process is thus a valuable tool for a systematic identification, evaluation and management of the scenic resource. It equips the land manager with the means of developing rational arguments and predictive models to formulate policy for management of the scenic resource.

As a landscape management system, VRM cannot stand alone. It must be part of an integral, multi-resource planning system.

Project Application Level:

The second stage of the Visual Resource Management System is devoted to incorporating the Landscape Management Zones and their corresponding Visual Quality Objectives (VQO) to specific land management projects (refer to Figure 2). This work requires further extensive on site investigations and data analysis and is combined with other resource data to form specific planning and design documents. Operational guidelines and specifications for various management activities are defined, to include such activities as plantation establishment and harvest, recreational developments, roading, utility corridors, etc.
Examples of VRM project application level analyses are shown in Overlay Figures 3 - 6, viz: Dombakup Forest Block.

Other site analysis factors should include:

slope/topography
aspect
vegetation structure and density
vegetation species composition and patterns
view contexts
viewer position/angle of view
view duration/critical view directions
season
soils and erodibility
alteration type - scale, size, configuration, sequence
etc.

FUTURE DIRECTIONS IN VISUAL LANDSCAPE MANAGEMENT

There is a growing need to undertake extensive research and development projects in the field of Visual Landscape Management. These projects will attempt to fill the gaps in the knowledge base and application techniques for improved, and more holistic methods of landscape management. Areas of study will include:

- Landscape change simulation and prediction modelling.
  Using land information computer systems to prepare 3-dimensional visual scenarios and regional landscape analyses. This will be particularly valuable for planning timber harvest areas.

- Understanding human perceptions and preferences of Western Australian landscapes.
  What are the products of scenic quality, and what produces it ? How do we respond to landscape change ?
  We know a great deal more about how wildlife responds to landscape change than the human animal.

- Understanding and managing the non-visual landscape values.

In complimenting the above projects, an extensive staff training program will be carried out. Land managers will be better equipped with the skills and tools of sensitive landscape management.

MANAGING ROAD, RIVER AND STREAM LANDSCAPES

There are a number of approaches or scenarios that could be applied in the management of road, river and stream landscapes. Such scenarios could range from the existing, inflexible approach; the 'hands off' option; the narrow visual resource management option; or finally, to a fully integrated resource management approach, using multi-discipline land conservation and management processes.

The reality of balancing natural resource requirements and associated community values will probably demand a hybrid of the above management options. Viz:

1. Existing Option

- Road, river and stream zones remain as they are, and are managed as static, restricted, linear corridors with minimal respect to the dynamic and organic qualities of landscapes.

2. 'Hands Off' Option

- Maximise scenic quality through preservation of all landscapes.
- Little change acceptable other than by natural evolution, protection, and/or enhancement or rehabilitation of degraded landscapes. That is, no timber production.
- In many ways, this would be the easiest option to manage.

3. VRM Option

- Achieve the systematically derived Visual Quality Objectives without any scenic value trade-off.
- Maximise landscape values through the retention of established character and/or enhancement of modified cultural landscapes using the VRM System.
- Sensitive landscape management areas would be defined by the overlaying of land system data, resource elements and bio-physical factors only - not linear, geometric distances or volumetric factors. Visually sensitive areas would include all areas of high scenic quality and Landscape Management Zone A areas.
- Ensure that representative areas of each Landscape Character Type are reserved.
- Allow a degree of flexibility in sensitive management area boundary definition to reflect increasing and greater understanding of resource factors. Avoid getting locked-into boundary lines. Reflect recommendations resulting from in-built monitoring and evaluation systems.

4. Integrated Resource Option

- Manage the systematically derived Visual Quality Objectives with visual value trade-offs.

- Maximise landscape values through the retention of established character and/or enhancement of modified cultural landscapes through the use of the principles and procedures of the VRM System, and in the integration of multi-discipline land management processes.

5. Recommended Option

- A combination of Options 2, 3 and 4.

SUMMARY AND RECOMMENDATIONS

The Visual Resource Management system provides a systematic and objective basis for the inventory, assessment, management and protection of visual resources throughout W.A's forest estate. It is applicable to all landscapes and not solely for road, river or stream type areas. The system focuses on both broad scale planning and specific project levels.

CALM's VRM system will ensure the on-going maintenance, protection, restoration and enhancement of the visual quality of our managed landscapes, not only in the forested Southwest, but throughout the State.

The very nature of managing visual landscape values is inseparably linked with the management of other forest resource values. As stated above, VRM cannot stand alone. Visual resource values are the aesthetic consequences of sensitive or insensitive land management.

All visual landscape values, including those characteristic to Road, River and Stream Zones, should be sensitively managed. The forest management priorities should be derived from the balanced assessment of **all** forest resource values - not simply on timber requirements. Indeed, this is the essence of multiple-use management and conservation of forest landscapes.

If a multiple-use or resource planning approach, incorporating visual resource management, is feasible then we believe that the Road, River and Stream Zone system can be modified.

Current resources within CALM - both human and financial, allow for progressive implementation of the VRM System. A more rapid multiple resource planning approach would require additional resources. These commitments or assurances are clearly stated in CALM's Policy No.34.

Finally, it is recommended that:

1. CALM's Policy No.34 be implemented as resources allow.

2. A multiple resource, multi-disciplinary land planning approach, incorporating the VRM System, be adopted in the management of all forest landscapes, including Road, River and Stream Zones.

GLOSSARY OF TERMS

LANDSCAPE - refers to the appearance or visual expression of the countryside. It combines the visual elements of both the natural and built environs to include such ingredients as landform, vegetation, waterform, land use, architecture, etc. It is fundamental to consider the general public, user or consumer of the landscape, and how these ingredients combine to contribute to the overall effect on such public perceptions.

VISUAL RESOURCE - that portion of a landscape falling within a person's view.

SCENIC QUALITY - is the relative visual character of a landscape, expressed as an overall visual impression or value held by society after perceiving an area of land.

LANDSCAPE CHARACTER TYPE - is a broad scale area of land with common distinguishing visual characteristics based on an amalgamation of landform, climate, vegetation, water form and land use pattern.

LANDSCAPE MANAGEMENT ZONE - is a specific parcel of land within a defined Landscape Character Type which has common visual assessment classification.

VISUAL QUALITY OBJECTIVE (VQO) - is a written guideline which provides a measurable standard for the acceptable protection of the characteristic landscape.

PUBLIC SENSITIVITY LEVELS - each travel route/road or use area is classified according to their level of viewer sensitivity. This relates specifically to the extent of how many and what type of viewers are observing the State's landscapes. Specific criteria is set for these levels.

SEEN AREA - the total area observed from one or more viewpoints. It is often measured in terms of foreground, middleground and background distance zones.

DISTANT ZONES - these zones refer to the following measured portions of the visual resource or Seen Area.

Foreground (fg):	0 - 0.5 km	Evident textual detail
Middleground (mg):	0.5 - 6.5 km	Evident textual patterns
Background (bg):	6.5 - Infinity	Mapping confined to 16 km Mainly mass colour patterns

Figure 1

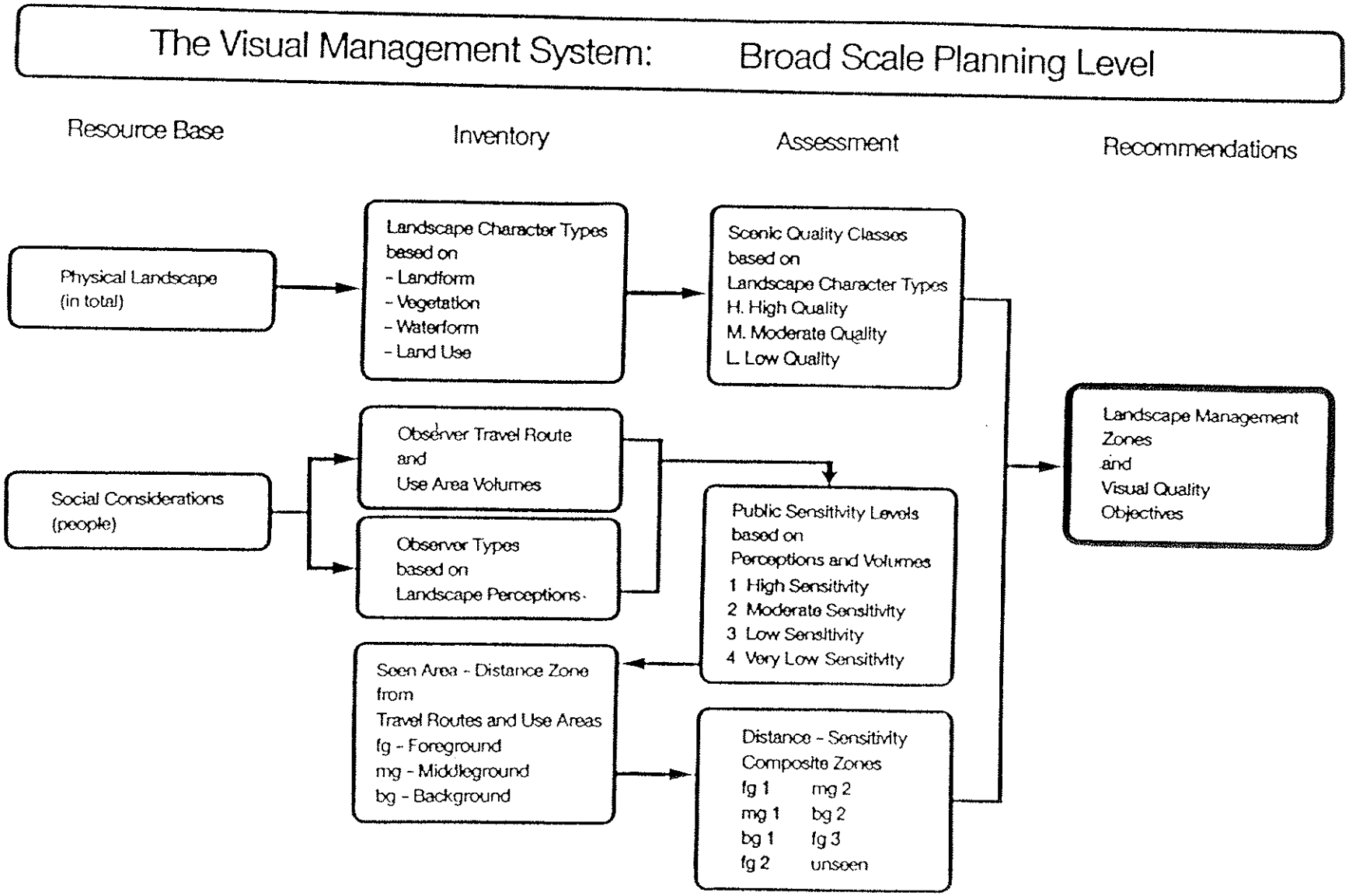
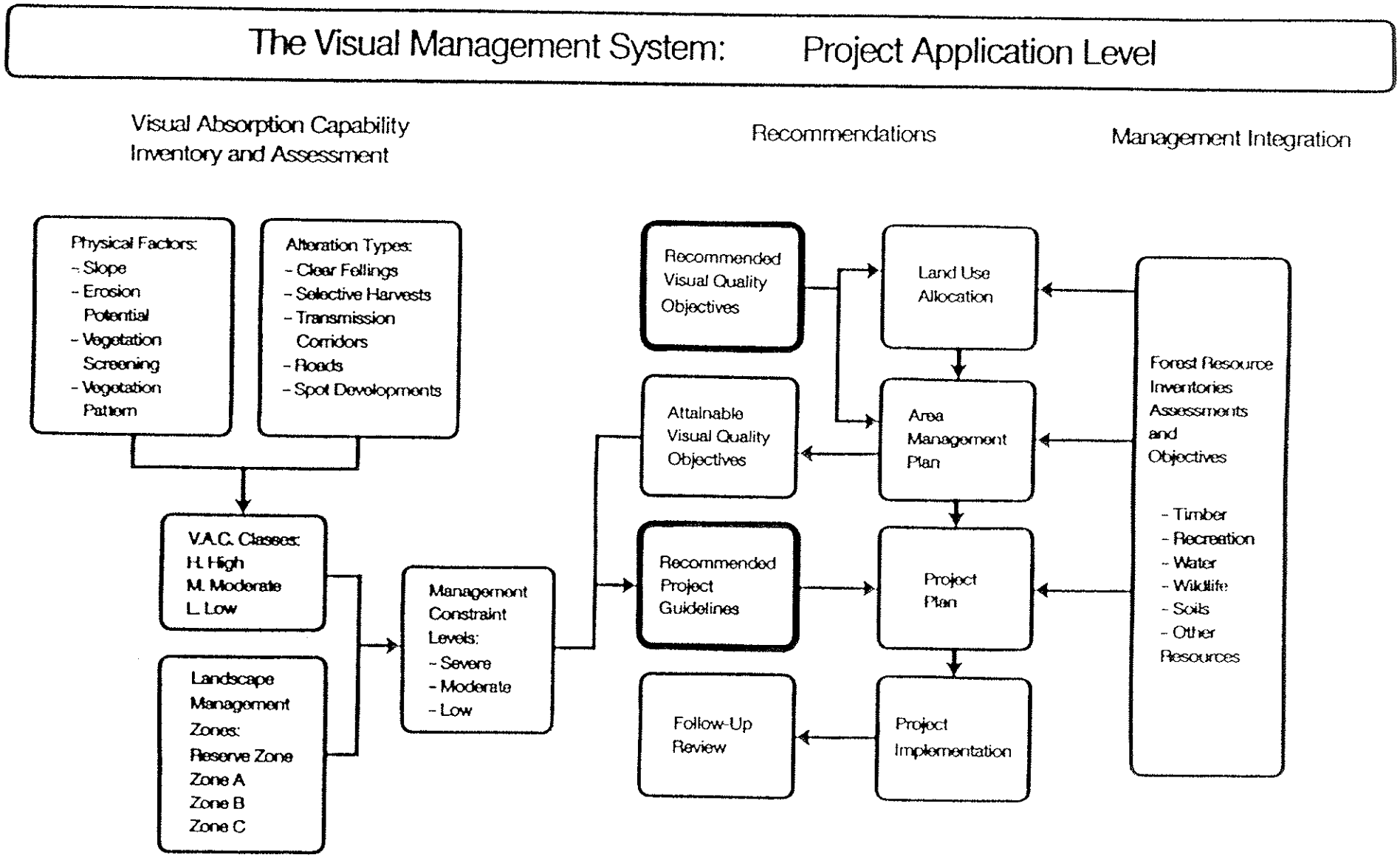

The Visual Management System: Broad Scale Planning Level
Resource Base
Inventory
Assessment
Recommendations
Physical Landscape (in total)
Landscape Character Types based on
- Landform
- Vegetation
- Waterform
- Land Use
Scenic Quality Classes based on Landscape Character Types
H. High Quality
M. Moderate Quality
L. Low Quality
Social Considerations (people)
Observer Travel Route and Use Area Volumes
Observer Types based on Landscape Perceptions
Public Sensitivity Levels based on Perceptions and Volumes
1 High Sensitivity
2 Moderate Sensitivity
3 Low Sensitivity
4 Very Low Sensitivity
Seen Area - Distance Zone from Travel Routes and Use Areas
fg - Foreground
mg - Middleground
bg - Background
Distance - Sensitivity Composite Zones
fg 1 mg 2
mg 1 bg 2
bg 1 fg 3
fg 2 unseen
Landscape Management Zones and Visual Quality Objectives

Figure 2


The Visual Management System: Project Application Level
Visual Absorption Capability Inventory and Assessment
Recommendations
Management Integration
Physical Factors:
- Slope
- Erosion Potential
- Vegetation Screening
- Vegetation Pattern
Alteration Types:
- Clear Fellings
- Selective Harvests
- Transmission Corridors
- Roads
- Spot Developments
V.A.C. Classes:
H. High
M. Moderate
L. Low
Landscape Management Zones:
Reserve Zone
Zone A
Zone B
Zone C
Management Constraint Levels:
- Severe
- Moderate
- Low
Recommended Visual Quality Objectives
Attainable Visual Quality Objectives
Recommended Project Guidelines
Follow-Up Review
Land Use Allocation
Area Management Plan
Project Plan
Project Implementation
Forest Resource Inventories Assessments and Objectives
- Timber
- Recreation
- Water
- Wildlife
- Soils
- Other Resources

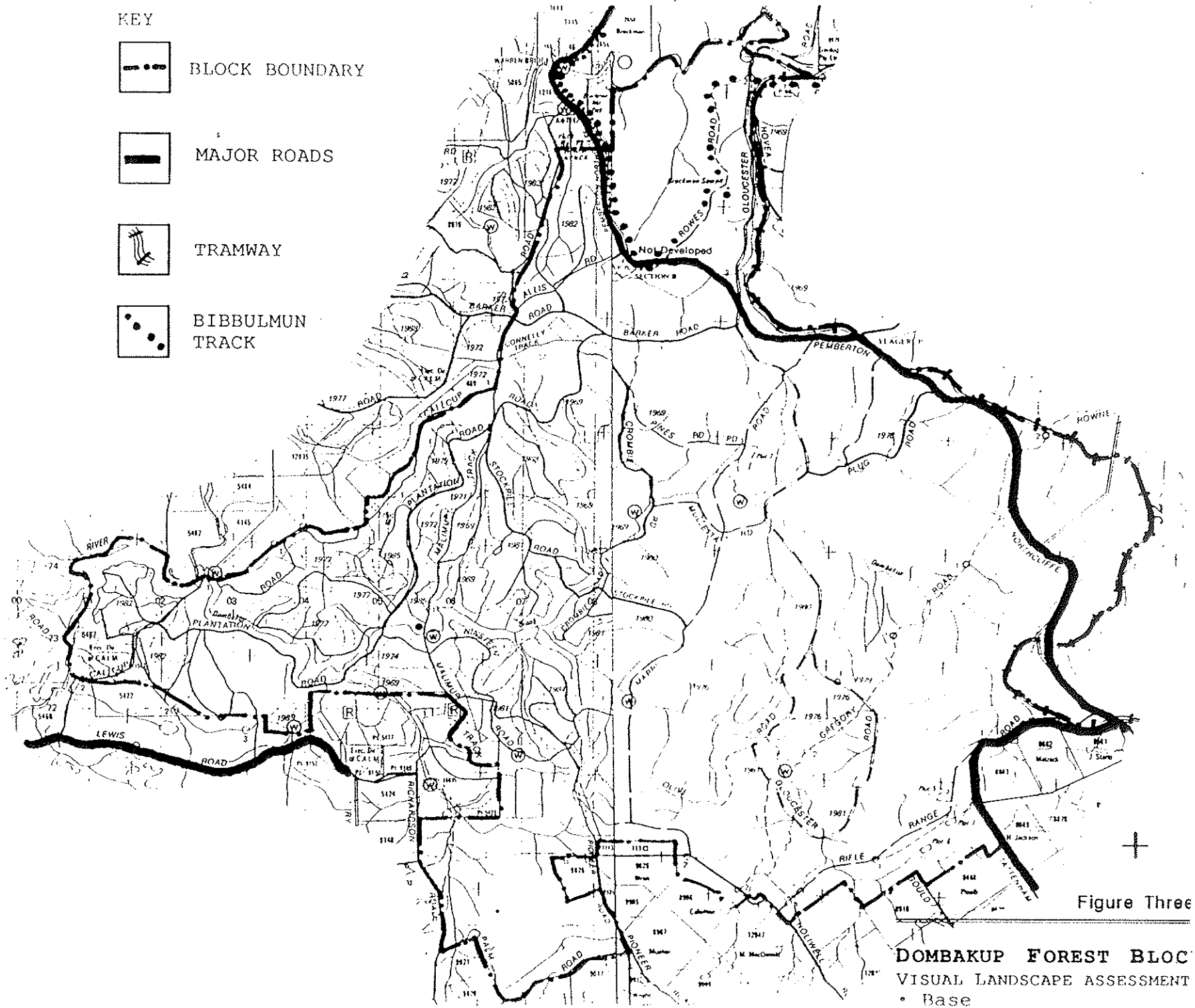


Figure Three

DOMBAKUP FOREST BLOC

VISUAL LANDSCAPE ASSESSMENT

• Base

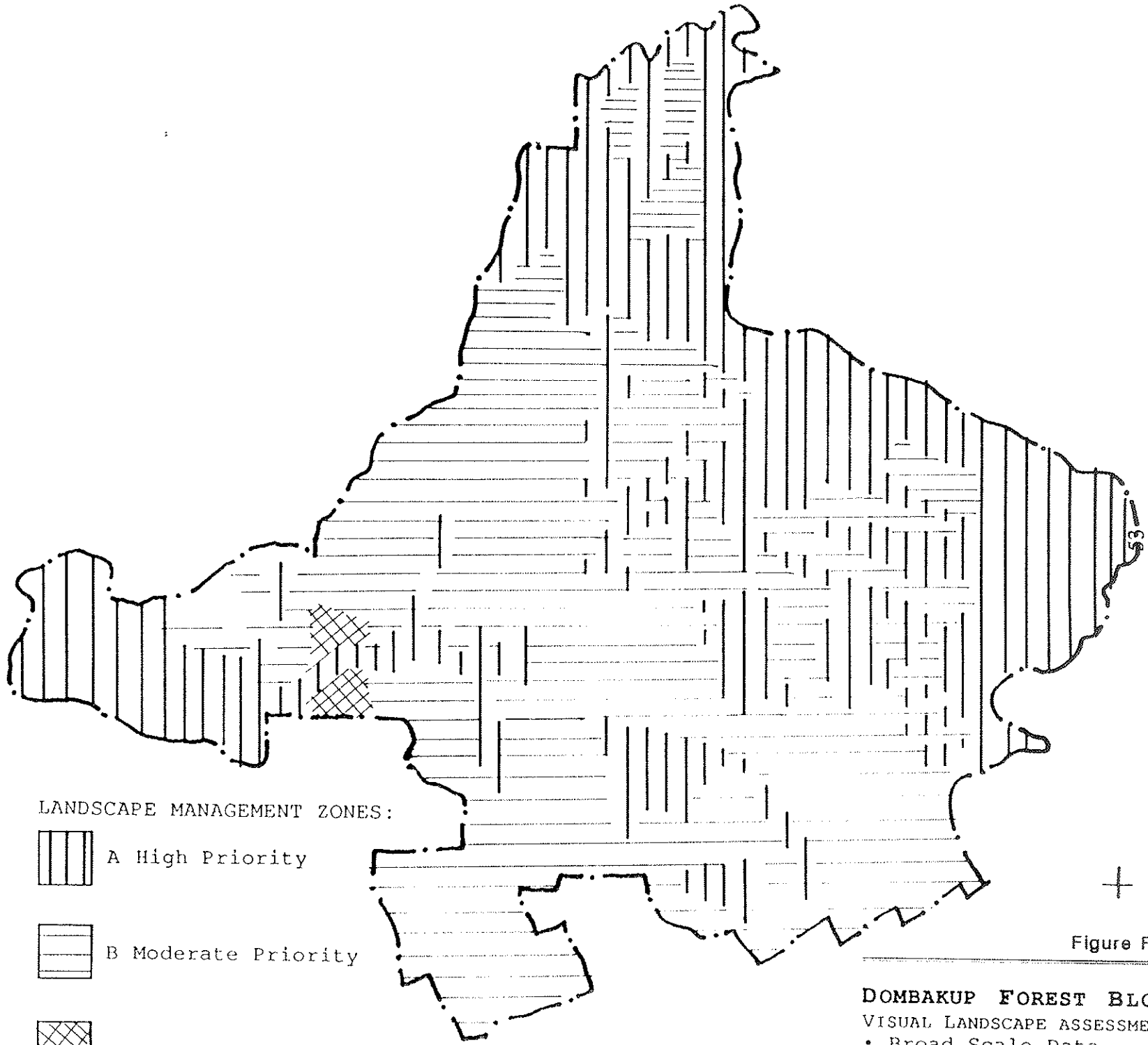


Figure Fo

DOMBAKUP FOREST BLO(
VISUAL LANDSCAPE ASSESSMEN
• Broad Scale Data

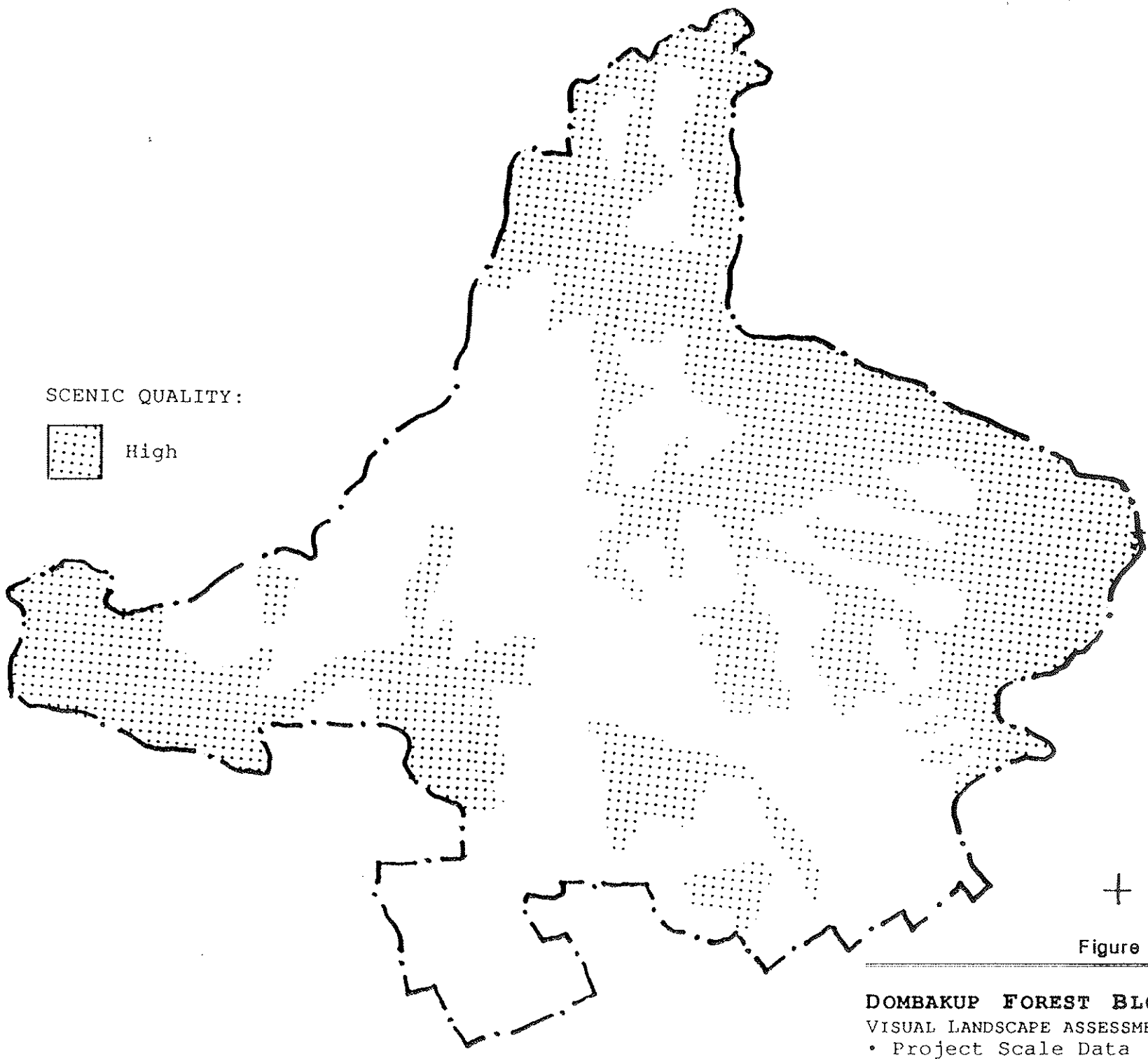


Figure Fiv

DOMBAKUP FOREST BLOC
VISUAL LANDSCAPE ASSESSMENT
• Project Scale Data

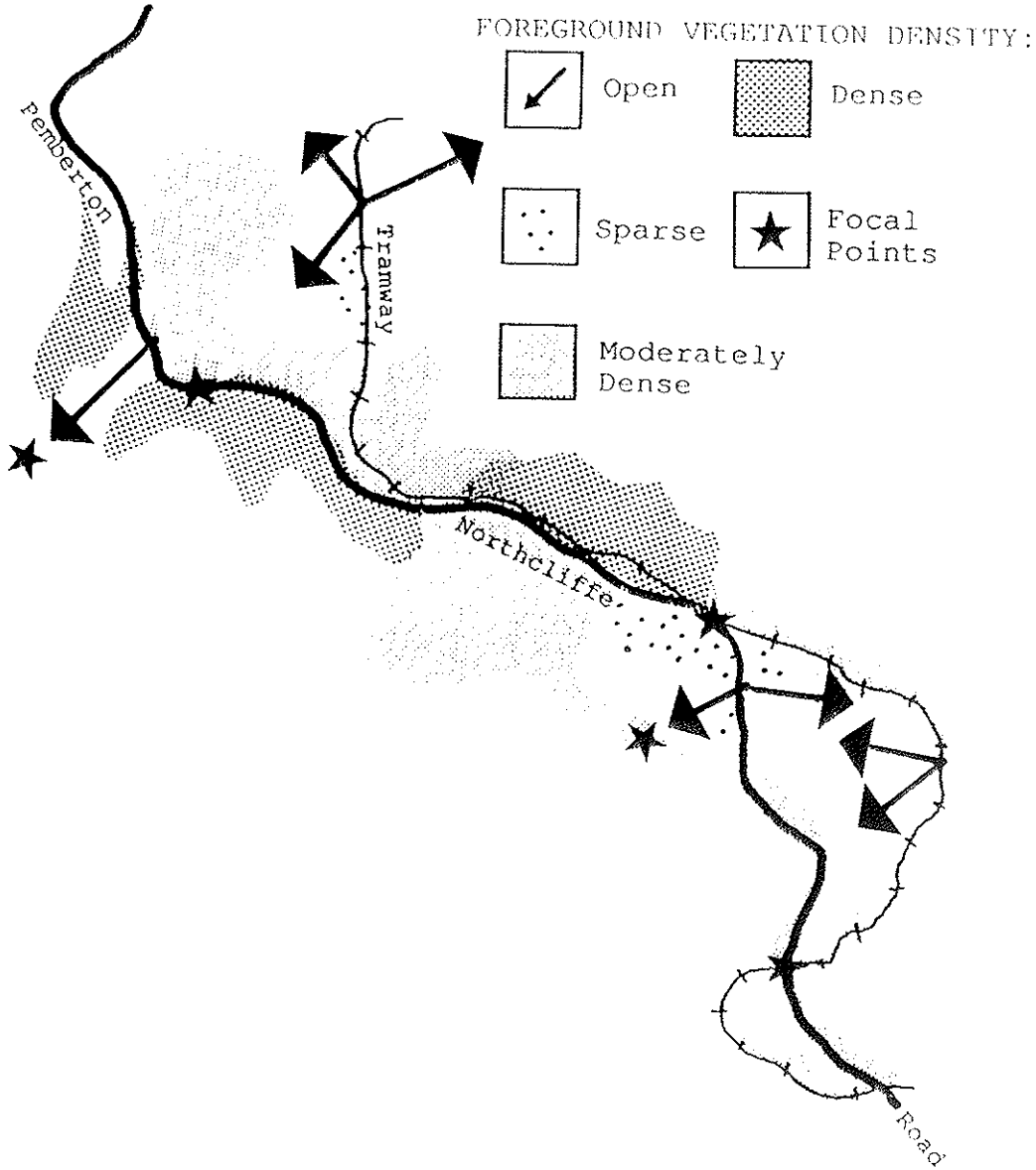


Figure Six

DOMBAKUP FOREST BLOCK
VISUAL LANDSCAPE ASSESSMENT
• Project Scale Data

PROCEEDINGS OF A SEMINAR

A REVIEW OF ROAD, RIVER AND STREAM ZONES IN SOUTH WEST FORESTS

Held at Manjimup

Tuesday, 9 July 1991

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