Deer Farm, Glen Forrest

Report and recommendation of the
Environmental Protection Authority

Environmental Protection Authority
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Deer Farm, Lot 38 Nelson Road, Glen Forrest

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Background

The Shire of Mundaring referred the above proposal to the Environmental Protection Authority on 23 May, 1990 for its consideration. The Shire Council does not support the proposal in principle because it would be in conflict with the Shire of Mundaring's draft Town Planning Scheme No. 3 which is expected to be gazetted late 1990. This Scheme is an attempt to take into the account the suitability of the land for different land uses and it would require that all land in water supply catchments and adjacent to MRS reserves, including the proposed site for the Deer Farm, would be zoned for Landscape Protection. However, since the proposal is compatible with the rural zoning of the current Town Planning Scheme, Council has resolved to grant its approval to the proposal, subject to several conditions, if the EPA considered it to be environmentally acceptable.

The Water Authority of WA considers that intensive animal husbandry is not a suitable landuse within the catchment of a potable water supply. The Water Authority is therefore opposed to the development since it is in a potable water supply catchment and any turbid runoff contaminated with nutrients and other pollutants from the deer farm would be likely to lead to a reduction in downstream water quality. However, the Water Authority does not have the statutory authority to prevent the development from proceeding in this catchment.

The available information was released for public comment and subsequently the Authority received six submissions on the proposed Deer Farm. The submissions have been summarized in the Appendix.

Location

The site of the proposed development is a 15.67 ha property located in the Darling Range adjacent to the Darlington townsite (Figure 1). The property is in the Lower Helena Valley Water Catchment Area, and the general topography consists of hill country with moderate slopes and gravelly loams/clays/silts typical of the area with some laterite outcrops. Approximately two thirds of the property is covered with native vegetation. The head-waters of a small stream which eventually flows into the Helena River, begin on the property.

Lot 38 Nelson road is located adjacent to an area reserved for Parks and Recreation under the Metropolitan Region Scheme and which is included in the recommended system 6 Regional Park M34. This area, which covers the Helena Valley downstream of the Mundaring weir, is considered to be of important regional significance because of its "extremely high conservation value for both fauna and flora" (including rare flora) and its proximity to the Perth urban area. Drainage from the proposed site flows into the recommended Regional Park about 250 metres downstream.

Proposal

The proposal is for a breeding herd of 50 - 100 Red Deer on the cleared portion of the property, approximately 5 ha. The deer are to be kept for the commercial production of velvet for the Asian market, and venison production for both the local and export markets. It is not intended to slaughter animals on the property. The proposed development is not intended to be used as a tourist attraction. The proposal also includes the construction of a residence and sheds. The proponent intends to erect adequate fencing around the property according to the regulations and requirements of the Agriculture Protection Board.

Potential environmental impacts

The proposed stocking density is high, and the proposed number of deer could not be supported solely by the vegetation growing in the stocked area. The Department of Agriculture recommends a stocking rate of 7 to 10 Dry Sheep Equivalents (DSE) to the hectare for unirrigated land in this area. One breeding Red Deer (doe and fawn) is considered to be approximately equivalent to three DSE's.

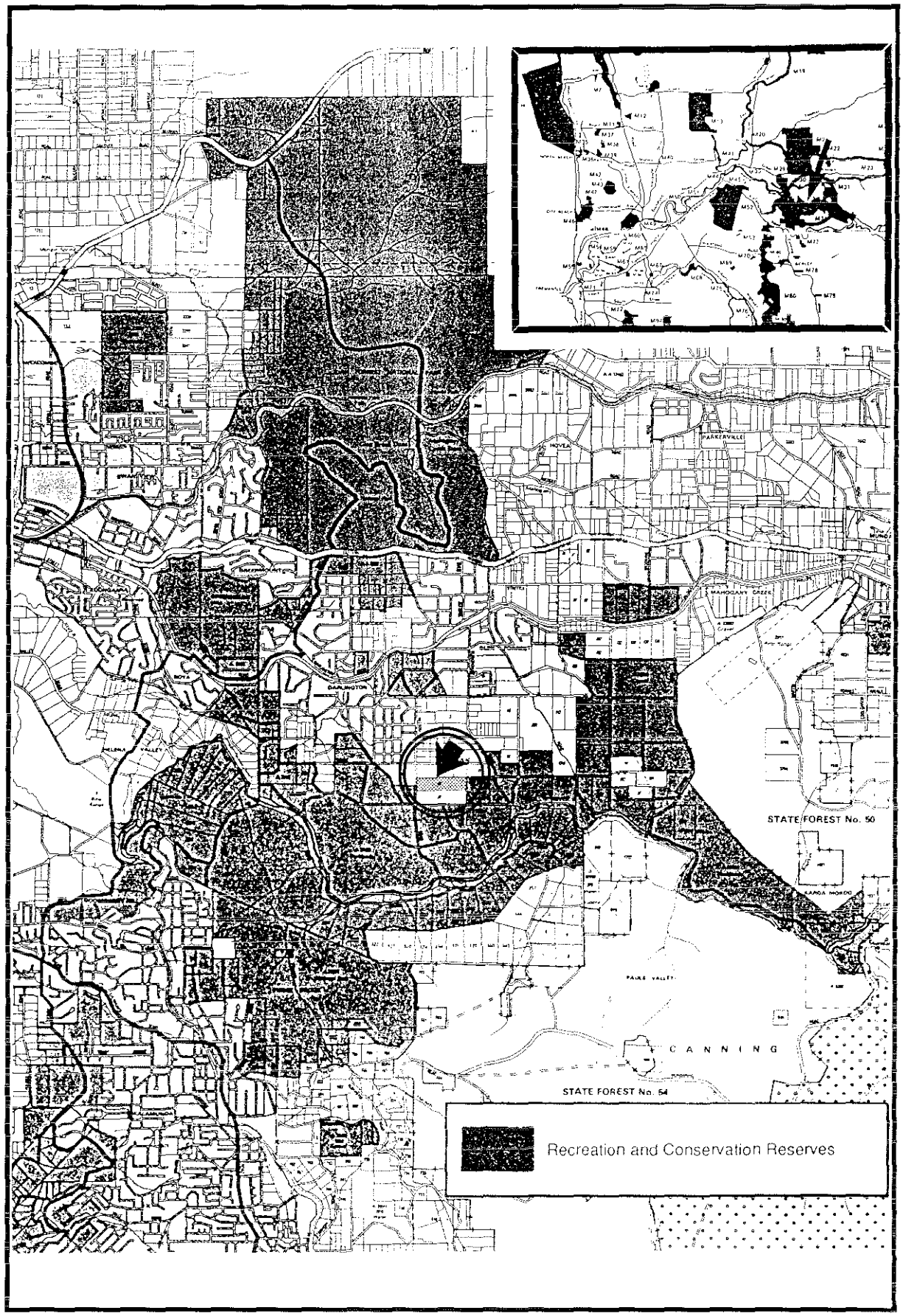

Figure 1: Location map showing the proposed development site

This recommendation represents a stocking rate of 2.3 to 3.3 breeding deer per hectare, or 12 to 17 breeding deer over the 5 hectares, which is considerably less than the number of deer proposed for the site. There is some evidence to indicate that the conversion rate used to convert DSE's to deer may be too low because of the additional damage to the vegetation caused by the animals sharp hooves.

A substantial amount of feed would need to be imported for the animals and therefore the development would essentially be a feedlot. Assuming that no fertilizers were applied to the stocked area, then the expected phosphorus and nitrogen loads in the waste of the breeding deer alone would be 39 to 78 kgP/ha and 236 to 471 kgN/ha per annum which represents a high nutrient loading rate. The results from nutrient leaching studies in this area indicate that the phosphorus retention capability of these hills soils would normally be sufficient to assimilate this quantity of phosphorus, however, given the high stocking rate,expected lack of vegetation, disturbance of the surface soil and the likely quantity of waste material available for erosion, a substantial quantity of this nutrient may be leached into the nearby waterways. The studies have also indicated that there is very limited nitrogen uptake by these soils and that it is readily leached to the streams and downstream waterbodies where it may promote algal growth. This is of particular concern to the managers of the Swan-Canning Estuary since nitrogen levels in the estuary are considered to be low compared to other nutrients and therefore may be limiting algal growth.

The following potential environmental impacts are of concern to the Authority:

- **Reduction in downstream water quality.** The excrement from the deer, along with any applied fertilizers, would increase the quantity of nutrients available to be leached off-site. The leached nutrients are likely to be both in soluble form and bound in the organic faecal material. Excessive quantities of nutrients are likely to degrade downstream aquatic communities and promote algal blooms in the water supply dam.

  Given the intensity of the stocking rate it is likely that significant quantities of the organic animal waste will be washed into the stream which may consequently cause deoxygenation and bacterial pollution in the watercourse and contribute to water quality problems in the water supply dam further downstream.

- **Erosion.** The stocking density could lead to overgrazing of the site, particularly during the summer months,with the consequent removal of vegetation exposing the soil surface to erosion by both wind and water. Dust blown from the site by south-easterly winds may cause problems in the Darlington townsite.

- **Introduced weeds.** In the feedlot situation faecal matter tends to accumulate on the soil surface and may be washed into nearby streams by overland runoff during rainfall. The faecal matter is likely to contain the seeds of feed crops and other introduced weeds. Therefore both wind blown and runoff mobilized weed seeds may become established within the recommended System 6 Regional Park.

If not managed adequately these factors would lead to the degradation of downstream water quality with consequences for both environmental and potable water uses. However, given the topography, effective management of these impacts on an on-going basis would be difficult and the cost is likely to be high. If expansion of the operation were to occur in the future it would most likely lead to further degradation of the water quality downstream since management of off-site discharges would be difficult on this site.

Pollution risk to groundwater supplies is not considered to be a problem given that there is very little groundwater in the area.

Given the above factors, including the problems of the proposed operation conflicting with the Shire's Town Planning Scheme and the desirability of excluding intensive agricultural enterprises from potable water supply catchments, the Environmental Protection Authority has concluded that the proposal is not environmentally acceptable.

If a modified proposal were to proceed then the stocking density would need to be reduced to a level which the area can support based on advice from the Environmental Protection Authority and the WA Department of Agriculture.

Recommendation

The Environmental Protection Authority concludes that the proposal for an intensive Deer Farm on Lot 38, Nelson Rd, Glen Forrest is environmentally unacceptable and recommends that it should not proceed.

Appendix 1

Summary of submissions

Six submissions were received on the proposal: two from government (Water Authority of Western Australia and Shire of Mundaring) and the remainder from concerned public. All were opposed to approval being given to the Deer Farm.

Four of the submissions were concerned with the likely impacts on the adjacent reserve ecosystems and potable water downstream. These points have already been covered by the assessment report.

The fifth submission dealt with the compatibility of the proposed Deer Farm with planning aspects of the area. The main concern was that while this proposal is compatible with the current Town Planning Scheme, it conflicts with the new draft Town Planning Scheme No 3 which would zone the land as Landscape Protection. This issue had been addressed in the report but was subsequently clarified further.

The sixth submission was concerned with the introduction of Deer to Western Australia and the likely adverse environmental impacts that would result if they were to escape and turn feral, as has occured in many other areas. This was not considered in the report since a number of Deer Farms already exist in WA and hence the precedent has been set.