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BIOLOGICAL SURVEY OF THE

D/B

BURRUP PENINSULA (N95/04 & N95/052)

Progress Report 7 - May 1999

Prepared by: Stephen van Leeuwen

Date: May 1999

TITLE OF PROJECT:

Biological survey of the Burrup Peninsula

AGENCY:

Western Australian Department of Conservation and Land Management (CALM) (undertaken jointly by CALM**Science** Division and the Pilbara Regional office).

PROJECT SUPERVISOR:

Dr Stephen van Leeuwen
Research Scientist
CALMScience****
CALM Karratha
P.O. Box 835
KARRATHA WA 6714 (08) 9143 1628

PROJECT OFFICERS:

1. Dr Stephen van Leeuwen
Research Scientist
2. Dr Peter Kendrick
Regional Ecologist
CALM Karratha
P.O. Box 835
KARRATHA WA 6714 (08) 9143 1625

AIM OF PROPOSAL:

To conduct a comprehensive biological survey of the Burrup Peninsula to facilitate an accurate evaluation of the Peninsula's nature conservation and natural environment heritage values.

SCOPE OF PROPOSAL:

- a. Select sites that represent the array of communities typical of the Burrup Peninsula through aerial photographic interpretation, literature reviews and field inspections.
- b. Establish and sample permanent quadrats at all selected sites recording landform unit, biotic composition, habitat type and the vegetation associations present.
- c. Analyse data sets for each biotic group sampled (flora/vegetation, mammals, birds, reptiles, amphibians, land snails) discussing patterns of community structure, species richness, species abundance and distribution. Prepare descriptions of vegetation associations and landform units present and map their distribution.
- d. Publish results of the survey and subsequent analyses. Discuss implications of these results with reference to the regional representativeness of the study area, its nature conservation values and

its natural environment heritage values. Make recommendations for future management.

WORK COMPLETED

Only minor progress on this project has been made over the past six months. No progress has been made with the ongoing identification of flora and fauna specimens. Details of progress are provided below;

Land Snails

Field work has continued on the collection and identification of land snails on the Peninsula. Several attempts have been made to locate additional populations of a Camaenid taxon which is currently known from only one locality. At this locality the snail is restricted to a habitat of about 1 hectare.

Specimens of all samples collected from the project area have been recently forwarded to specialist zoologists at the Western Australian Museum and in eastern Australia for taxonomic investigation and identification.

During this ongoing land snail survey program records were maintained on birds observed in the project area. Specimens of unknown plants are also regularly collected.

Rare Flora

Field work has progressed with the mapping of *Terminalia supranitifolia* and *Brachychiton acuminatus* populations on selected parts of the Peninsula. Currently 1 977 *Terminalia supranitifolia* and 2 510 *Brachychiton acuminatus* plants have been recorded over about 530 ha of the Pistol Ranges in the central portion of the Burrup Peninsula project area (Figure 1). Densities range from 3.8 to 4.8 per hectare for *Terminalia supranitifolia* and *Brachychiton acuminatus*, respectively. At these frequencies it is estimated that there are approximately 8 600 *Terminalia supranitifolia* and 10 900 *Brachychiton acuminatus* plants on the northern portion of the Peninsula, given a distribution on other rock piles which is analogous to that encountered in the Pistol Ranges.

Soil Analyses

Soil analyses have been completed for all 20 permanent flora sampling sites. Preliminary multivariate analyses on the chemical attributes of the soils tentatively suggest the fusion of sites into three clusters (Figure 2) although the association of these clusters is not a significant fit (Cophenetic correlation, $r = 0.74$). Subjectively sites are associating into the three clusters based on soil development considerations, particularly the extent to which the soil material has been weathered and stoniness.

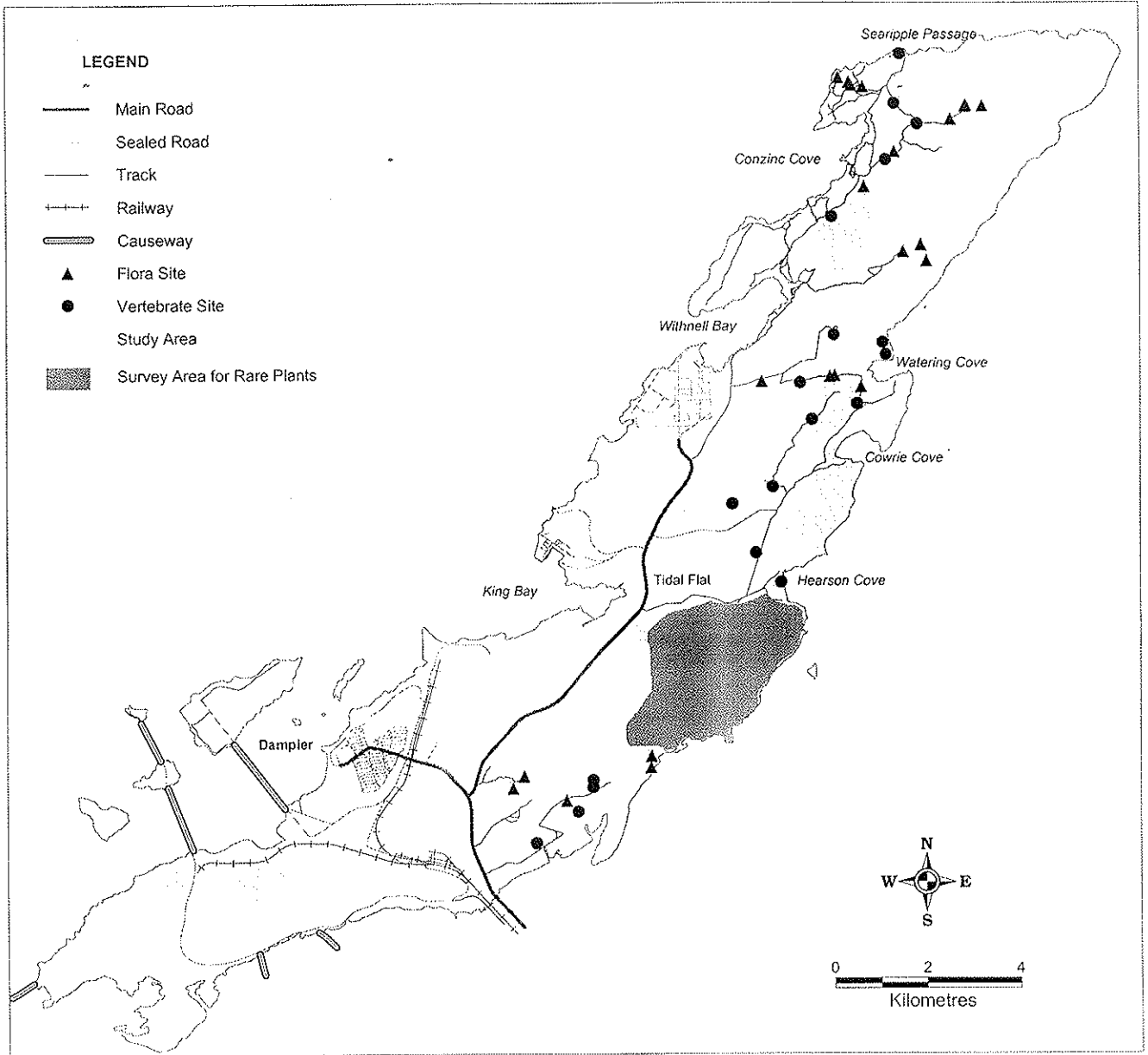


Figure 1 Map of the Burrup Peninsula showing the extent of the biological survey project area, systematic sampling sites and the location of intensive searched area for rare plants.

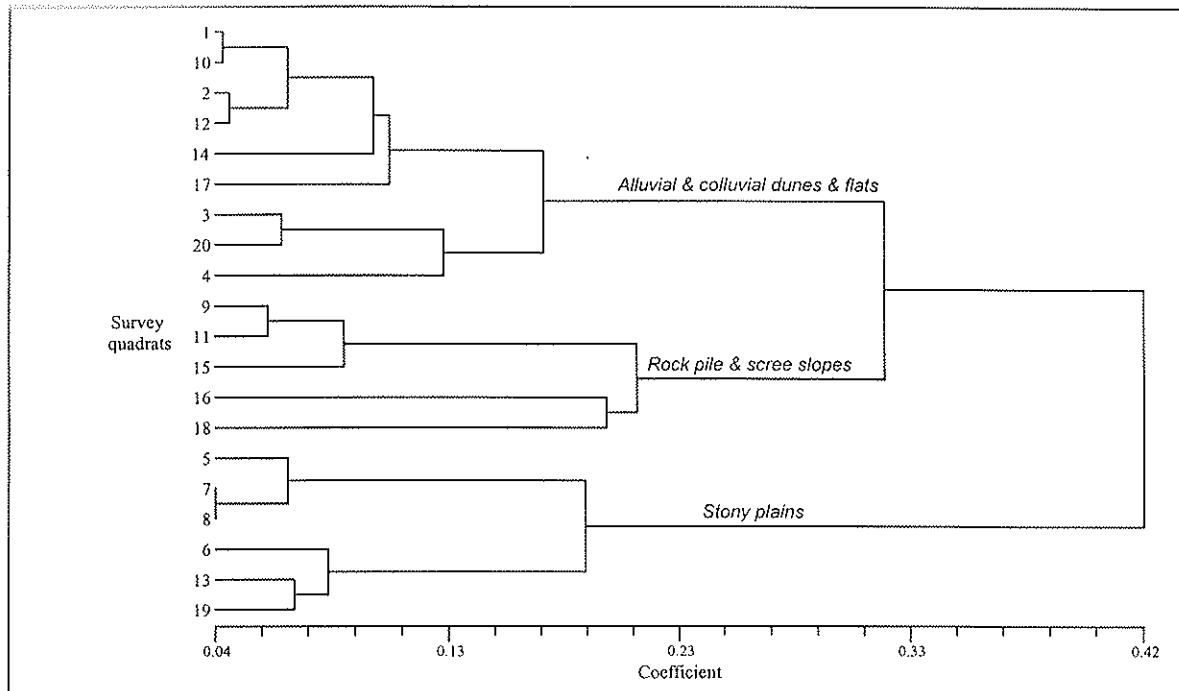


Figure 2 Dendrogram of similarities in soil chemical properties between the 20 sampled Burrup Peninsula permanent flora sampling sites. The clustering undertaken used the Bray-Curtis association measure and the UPGMA fusion method ($\beta = -0.1$).

GIS Atlas

Development of the GIS has progressed with the capture and refinement of themes. The primary themes present in the atlas include: relief and topography; mangal/intertidal coverage; geology; drainage; roads/tracks; infrastructure; and vegetation as well as themes generated by this survey such as rare flora locations and significant land snail rockpiles. The capture of land tenure, vesting and other important cadastral themes, in particularly mining and exploration leases, shire reserves and heritage sites is still outstanding.

Over the next few month research will recommence on the identification of biological specimens. Development of the GIS database will also continue. No more fieldwork is planned apart from continued land snail sampling and opportunistic rare flora searches.

The next progress report will be submitted in August 1999.

EXPENDITURE TO DATE

As this project's Heritage Council budget is now more than 75% spent and thus outside the criteria for reimbursement until submission of the final report no new expenditure statement is attached.

Suffice to say, in the interval since last reimbursement, expenditure totalling approximately \$4 000 has been incurred. These funds have primarily been debited against vehicle running, associated plant hire charges and costs associated with CALM volunteers. Future expenditure will be minimal, primarily being associated with ongoing vehicle charges related to trips to the project area and charges associated with the identification and incorporation of specimens into the appropriate repositories.

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