



**Public Transport Authority**  
Byford Rail Extension  
Flora and Vegetation Assessment

March 2021

# Executive summary

The Public Transport Authority of Western Australia (PTA) are proposing to develop the Byford Rail Extension (BRE) project as part of the Western Australian Government's METRONET program. GHD Pty Ltd (GHD) was engaged by the PTA to undertake a detailed flora and vegetation survey, targeted flora survey and significant vegetation assessment for the BRE project. The purpose of the works were to verify previous results and delineate key flora and vegetation values within the survey area. This report presents the survey results and includes an analysis of previous data from GHD (2012) and AECOM (2020) where these surveys overlap with the current survey area.

The vegetation and flora survey area (referred to as the survey area) is located in the City of Armadale and the Shire of Serpentine Jarrahdale, and extends from near Sherwood Station on the Armadale line, south to Byford with a single area located just north of Cardup Siding Road. The survey area includes the existing PTA rail reserve currently utilised for the Australind train, as well as adjacent areas. The survey area is approximately 9 km long and covers 213.33 hectares (ha).

This report is subject to, and must be read in conjunction with, the limitations and the assumptions and qualifications contained throughout the Report.

## Key findings

Eight vegetation types were described and mapped from the survey area, including planted and revegetation areas. Of the vegetation types described seven represented native vegetation (49.96 ha, 23.42%) and one represented planted vegetation (20.91 ha, 9.8%). The remaining 142.46 ha (66.78%) of the survey area was mapped as cleared.

The vegetation condition of the survey area ranged from Excellent to Completely Degraded. Historical clearing, tracks, infrastructure development and aggressive weed species have influenced the structure and composition of the remaining native vegetation. Areas rated Excellent and Very Good in condition were restricted to Lambert Lane Nature Reserve and Fletcher Park. The majority of vegetation within the survey area was rated Degraded and Completely Degraded.

One Threatened Ecological Community (TEC) was identified within the survey area; *Corymbia calophylla* - *Kingia australis* woodlands on heavy soils, Swan Coastal Plain (SCP) (SCP 3a), listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Critically Endangered under the *Biodiversity Conservation Act 2016* (BC Act). This TEC is represented by Vegetation Type (VT) 01 and in total, there is 16.91 ha of TEC SCP 3a within the survey area ranging in condition from Excellent to Degraded. No other TECs or Priority Ecological Communities (PECs) were identified in the survey area.

Two hundred and twenty-two flora taxa (including subspecies and varieties) have been recorded across the surveys including 57 introduced and/or planted species (25%). Of the introduced species, three are listed as Declared Pests under the *Biosecurity and Agriculture Management Act 2007* and/or as a Weeds of National Significance. Based on described quadrats, species richness within the survey area ranged from 9 to 64 (average 31.5) taxa per 100 m<sup>2</sup>.

Two conservation significant flora taxa were recorded from the survey area, *Eucalyptus x balanites*, listed as Endangered under the EPBC Act and Critically Endangered under the BC Act and *Johnsonia pubescens* subsp. *cygnorum*, listed as Priority 2 by the Department of Biodiversity, Conservation and Attractions (DBCA). The likelihood of occurrence assessment post-field survey concluded that two taxa are known to occur in the survey area (recorded from

the current survey), one taxon may possibly occur in the survey area (as identified in the DBCA Threatened Priority Flora (TPFL) and Western Australian Herbarium (WAHERB) databases) and the remaining 73 taxa identified in the desktop searches are unlikely to occur within the survey area.

# Table of contents

1.	Introduction .....	1
1.1	Background .....	1
1.2	Purpose of this report .....	1
1.3	Project location.....	1
1.4	Scope of works.....	2
1.5	Relevant legislation and conservation codes.....	2
1.6	Limitations and assumptions.....	2
2.	Methodology .....	4
2.1	Desktop review.....	4
2.2	Field assessment .....	4
2.3	Limitations.....	8
3.	Desktop assessment.....	12
3.1	Climate.....	12
3.2	Landform and soils .....	12
3.3	Hydrology.....	13
3.4	Conservation areas .....	15
3.5	Regional biogeography.....	15
3.6	Broad vegetation mapping.....	16
3.7	Significant ecological communities.....	18
3.8	Flora diversity.....	20
3.9	Conservation significant flora.....	20
3.10	Summary of previous vegetation and flora surveys .....	21
4.	Field survey results .....	24
4.1	Vegetation types.....	24
4.2	Floristic analyses.....	29
4.3	Vegetation condition.....	35
4.4	Significant vegetation .....	35
4.5	Flora diversity.....	41
4.6	Significant flora.....	42
4.7	Introduced flora .....	46
4.8	Context area assessment.....	47
5.	Discussion .....	48
6.	Conclusions .....	51
7.	References .....	52

# Table index

Table 1 Survey timing and effort.....	5
Table 2 Quadrat data collection attributes.....	5
Table 3 Vegetation and flora assessment limitations.....	9
Table 4 Soil units occurring within the survey area (DAFWA 2007).....	13
Table 5 Geomorphic wetlands intersecting the survey area (GoWA 2020).....	14
Table 6 Extent of pre-European vegetation associations mapped within the survey area (GoWA 2019a).....	17
Table 7 Extents of vegetation complexes on the Swan Coastal Plain mapped within the survey area (GoWA 2019b).....	17
Table 8 Extents of vegetation complexes in the City of Armadale and Shire of Serpentine Jarrahdale mapped within the survey area (GoWA 2019b).....	17
Table 9 Threatened and Priority Ecological Communities identified in the desktop searches.....	18
Table 10 Summary of previous surveys.....	22
Table 11 Vegetation types recorded from the survey area.....	25
Table 12 Summary of floristic analyses (by vegetation type) to determine relationships of VTs to SCP FCTs.....	31
Table 13 Summary of floristic analyses (by individual quadrat, single site insertion) to determine relationships of BRE quadrats to SCP FCTs.....	32
Table 14 Vegetation condition ratings within the survey area.....	35
Table 15 Indicator species comparison between SCP 3a and GHD quadrats.....	37
Table 16 Status of vegetation within TEC/PEC buffers in the survey area.....	38
Table 17 Significant flora of the Perth Metropolitan Region defined in Bush Forever (GoWA 2000b).....	45
Table 18 Summary of conservation significant species recorded as known, likely or potentially occurring within the survey area.....	46
Table 19 Significant weeds recorded from the survey area.....	47

# Plate index

Plate 1 Climate statistics for Jandakot Aero (BOM 2020).....	12
Plate 2 <i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils, SCP (SCP 3a) occurrence from Lambert Lane Nature Reserve.....	38
Plate 3 Riparian vegetation along Wungong Brook.....	41
Plate 4 Species accumulation curve.....	42
Plate 5 <i>Eucalyptus x balanites</i> habit.....	43
Plate 6 <i>Eucalyptus x balanites</i> fruit.....	43

## **Appendices**

Appendix A – Figures

Appendix B – Relevant legislation and conservation codes

Appendix C – Desktop searches

Appendix D – Quadrat and relevé data

Appendix E – Flora analyses outputs

Appendix F – Flora species list and locations

Appendix G – Flora likelihood of occurrence assessment

# 1. Introduction

## 1.1 Background

The Public Transport Authority of Western Australia (PTA) are proposing to develop the Byford Rail Extension (BRE) project as part of the Western Australian Government's METRONET program aimed at transforming Perth's transport network. The BRE project includes an extension of the current Armadale train line from Armadale station, south to Byford and construction of supporting rail infrastructure. The proposed alignment is approximately 9 kilometres (km) long and will be located within PTA rail reserve land currently utilised for the operation of the Australind train service.

The PTA commissioned a detailed flora and vegetation, and targeted flora survey during spring 2019 for the BRE project. The purpose of this assessment was to delineate key flora and vegetation values within a survey area that was mostly limited to the existing freight rail corridor. This survey was completed by AECOM (2020) and identified the possible presence of significant vegetation and flora. As the BRE project has progressed, assessment of survey gaps and further survey effort were required to inform and support environmental assessments and approvals for the project.

## 1.2 Purpose of this report

GHD Pty Ltd (GHD) was engaged by the PTA to undertake a detailed flora and vegetation survey, targeted flora survey and significant vegetation assessment for the BRE project. The purpose of the works were to verify previous results and delineate key flora and vegetation values within the survey area. This report presents the survey results and includes an analysis of previous data from GHD (2012) and AECOM (2020) where these surveys overlap with the current survey area. The results presented in this report will be used to inform the environmental impact assessment and approvals process.

## 1.3 Project location

### 1.3.1 Survey area

The vegetation and flora survey area (referred to as the survey area) is located in the City of Armadale and the Shire of Serpentine Jarrahdale, and extends from near Sherwood Station on the Armadale line, south to Byford with a single area located just north of Cardup Siding Road. The survey area includes the existing PTA rail reserve currently utilised for the Australind train, as well as adjacent areas. The survey area is approximately 9 km long and covers 213.33 hectares (ha). The project location and survey area are shown on Figure 1, Appendix A.

Previous surveys completed by GHD (2012), AECOM (2020) and Aurora (2020) have assessed survey areas largely limited to the existing Australind rail reserve and rail reserve areas on the Armadale line. Whilst the current vegetation and flora survey area intersected previous survey areas, (notably the majority of the AECOM survey area), the focus of the assessment was on areas not previously surveyed. Previous survey areas relevant to the GHD (2020) vegetation and flora survey area are shown on Figure 2, Appendix A.

### 1.3.2 Context area

A context area was defined in accordance with the *Technical Guidance –Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority (EPA) 2016)

for linear corridor surveys. The context area includes a 500 metre (m) buffer of the survey area. The context area is shown on Figure 1, Appendix A.

### **1.3.3 Desktop study area**

A study area was defined for the desktop-based searches of the assessment and includes a 10 km buffer of the survey area. The study area is shown on Figure 1, Appendix A.

## **1.4 Scope of works**

The scope of works included:

- A desktop review of publicly available information and relevant reports to determine the environmental values of the survey area
- A detailed vegetation and flora survey of the survey area to identify:
  - Vegetation types including identification of native, non-native and/or planted vegetation as well as types that represent wetland or riparian vegetation. This included ground-truthing of mapping completed by AECOM (2020)
  - Vegetation condition including the locations of any Weeds of National Significance (WoNS) or Declared Pest Plants listed under the *Biosecurity and Agriculture Management Act 2007* (BAM Act)
  - Native and introduced flora based on data collected at sample sites and from opportunistic observations throughout the survey area
  - Vegetation types of the context area through extrapolation of survey data, mapping notes and review of aerial imagery
- A significant vegetation assessment to identify:
  - Vegetation types potentially representative of Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs)
  - Floristic Community Type (FCT) composition through classification analyses
  - Assessment of potential TECs against relevant approved conservation advice
- Targeted systematic searches for significant species identified from the desktop review
- Preparation of a technical survey report (this document) that:
  - Documents the results of the desktop assessment and field survey, including mapping
  - Identifies and discusses potentially occurring significant flora and vegetation communities
- Provision of spatial data in GIS format.

## **1.5 Relevant legislation and conservation codes**

In Western Australia (WA) significant communities and flora are protected under both Federal and State Government legislation. In addition, regulatory bodies also provide a range of guidance and information on expected standards and protocols for environmental surveys.

An overview of key legislation and guidelines, conservation codes and background information relevant to this project are provided in Appendix B.

## **1.6 Limitations and assumptions**

This report has been prepared by GHD for PTA and may only be used and relied on by PTA for the purpose agreed between GHD and the PTA as set out in section 1.2 of this report.



GHD otherwise disclaims responsibility to any person other than PTA arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible. The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by PTA and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Site conditions may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

This report has assessed the flora and fauna values within the survey area, as shown in Figure 1, Appendix A .Should the survey area change or be refined, further assessment may be required.

## 2. Methodology

### 2.1 Desktop review

Prior to the commencement of the field survey, a desktop assessment was undertaken to identify relevant ecological information pertaining to the survey area and to assist in survey design. The desktop assessment involved a review of:

- Previous reports and data relevant to the study area (where available) (including interrogation of the Index of Biodiversity Surveys for Assessments (IBSA) website):
  - METRONET – Byford Extension Part One Flora and Fauna Assessment (AECOM 2020)
  - Environmental Advice Armadale Train Line Platform and Signalling Upgrade Program (Aurora 2020)
  - Flora and Fauna Assessment (GHD 2012)
- The Department of Agriculture, Water and the Environment (DAWE) Protected Matters Search Tool (PMST) to identify communities and species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) potentially occurring within the study area (DAWE 2020) (Appendix C)
- The Department of Biodiversity, Conservation and Attractions (DBCA) TEC and PEC database to determine the potential for significant ecological communities to be present within the study area
- The DBCA NatureMap database for flora species previously recorded within the study area (DBCA 2021) (Appendix C)
- The DBCA Threatened (Declared Rare) and Priority Flora database (TPFL) and the WA Herbarium database (WAHERB) for Threatened and Priority flora species listed under the *Biodiversity Conservation Act 2016* (BC Act) and listed as Priority by DBCA, previously recorded within the study area
- Existing datasets including previous vegetation mapping, geology/soils and hydrology information (sourced from Government of Western Australia (GoWA 2020)) to provide background information on the variability of the environment, likely vegetation units and to identify areas with potential to contain TECs, PECs, and Threatened and Priority listed flora species.

### 2.2 Field assessment

A GHD senior botanist and botanist/ecologist completed a detailed vegetation and flora assessment and targeted flora survey of the survey area from 21 to 25 September and 29 September 2020. The field survey was undertaken to verify the results of the desktop assessment, identify and describe the dominant vegetation units, assess vegetation condition, and identify and record vascular flora species present at the time of survey. Searches for significant flora species were also undertaken during the field survey.

The survey methodology employed by GHD was undertaken with reference to the EPA *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016).

The timing and survey effort undertaken for the survey area by AECOM and GHD is shown in Table 1 below. A total of 18 survey days were undertaken across the survey area(s).

**Table 1 Survey timing and effort**

Date	Botanist	Survey type	Area	Total survey effort
8-9 November 2019	AECOM, Floora De Wit	Detailed flora and vegetation assessment	AECOM survey area (Figure 2)	2 days
16 November 2019	AECOM, Floora De Wit	Detailed flora and vegetation assessment	AECOM survey area (Figure 2)	1 day
19 November 2019	AECOM, Floora De Wit	Detailed flora and vegetation assessment	AECOM survey area (Figure 2)	1 day
Late January/early February	PGV Environmental, Paul van der Moezel	Detailed and Targeted flora survey	Aurora survey area (Figure 2)	1 day
21-25 September 2020	GHD, Joel Collins and Sarah Flemington	Detailed and Targeted flora survey	survey area (GHD 2020) (Figure 2)	10 days
29 September 2020	GHD, Joel Collins and Sarah Flemington	Detailed and Targeted flora survey	survey area (GHD 2020) (Figure 2)	2 days
20 November 2020	GHD, Joel Collins	Detailed and Targeted flora survey	survey area (GHD 2020) (Figure 2)	1 day

### 2.2.1 Data collection

Field survey methods involved a combination of sampling quadrats and relevés located in identified vegetation units and traversing the survey area by foot. Sixteen non-permanent quadrats (measuring 10 m x 10 m – area of 100 m<sup>2</sup>) and five relevés (within a radius of approximately 10 m from a central point) were sampled within identified vegetation units throughout the survey area to cover geographic range. Quadrats were only established in vegetation that was spatially large enough, and in Good condition where possible. The quadrat and relevé data were supplemented by previous survey effort by AECOM (2020) to achieve three quadrats per vegetation unit. Where vegetation units had less than three quadrats sampled, the unit was mostly/all Degraded or worse in condition and/or limited in area and distribution across the survey area. A total of 18 quadrats and ten relevés have been described in the survey area when combining the AECOM and GHD data.

Field data at each quadrat was recorded on a proforma data sheet and included the parameters detailed in Table 2. Copies of the quadrat and relevé data are provided in Appendix D. GHD survey effort is shown on Figure 3, Appendix A.

**Table 2 Quadrat data collection attributes**

Aspect	Measurement
Collection attributes	Site code, personnel/recorder, date, quadrat dimensions and photograph of the quadrat
Physical features	Landform, slope, aspect, soil attributes, ground surface cover, leaf and wood litter
Location	Coordinate recorded in GDA94 using a hand-held Global Positioning System (GPS) tool to an accuracy approximately ± 5 m.
Vegetation condition	Vegetation condition using the condition rating scale adapted by EPA (2016) for the South West Botanical Province.

Aspect	Measurement
Disturbance	Level and nature of disturbance (e.g. weed presence, fire and time since last fire, impacts from grazing, anthropogenic impacts)
Flora	List of dominant flora from each structural layer, list of all species within the quadrat including stratum, average height and percentage foliage cover (using National Vegetation Information System (NVIS))

## 2.2.2 Vegetation units and mapping

Vegetation units were identified and boundaries mapped using a combination of aerial photography, field data/observations, previous vegetation mapping and classification analysis of floristic data (see section 2.2.5 for further detail on classification analyses). The classification analysis of survey area floristic data produced a dendrogram that was examined in combination with the previously described vegetation units (e.g. AECOM 2020) and field observations. Final vegetation units were based on a combination of floristic and structural composition classification and were aligned with described vegetation units presented in AECOM (2020). Where discrepancies were present between current and previous mapping, these are noted and discussed in the results.

Vegetation unit descriptions followed NVIS and are consistent with NVIS level V (Association) (NVIS Technical Working Group 2017).

## 2.2.3 Context area mapping

Context area mapping was undertaken by extrapolation of survey data and review of aerial imagery to broadly identify vegetation patterns and vegetation units. Ground-truthing of context area mapping was undertaken over one day but limited to larger patches of vegetation such as local parks and bush blocks.

## 2.2.4 Vegetation condition

The vegetation condition was assessed and mapped in accordance with the vegetation condition rating scale for the South West and Interzone Botanical Provinces of WA (devised by Keighery (1994) and adapted by EPA (2016)). The scale recognises the intactness of vegetation and consists of six rating levels. The vegetation condition rating scale is outlined in Appendix B.

## 2.2.5 Significant vegetation

Floristic analyses were undertaken to determine relationships between the vegetation units described from the survey area and the Swan Coastal Plain (SCP) FCT defined by Gibson et al. (1994) and Government of WA (2000a, b). Two datasets are available and include the Gibson et al. (1994) dataset (referred to as the Gibson Dataset) and the Keighery et al. (2012) dataset (accessed through NatureMap (DBCA 2021), referred to as the Keighery Dataset). The Gibson dataset includes floristic data for 509 sites across the SCP and the Keighery Dataset includes floristic data from the Gibson Dataset as well as data from more than 500 additional sites.

Whilst there is no formal guidance available on the most appropriate analysis methods, a number of different analyses were undertaken based on advice provided by the DBCA Species and Communities Branch. These included:

- Analysis of relevant GHD (2012), AECOM (2020) and GHD quadrats from the survey area with the Gibson Dataset
- Analysis of relevant GHD (2012), AECOM (2020) and GHD quadrats from the survey area with the Keighery Dataset

- Single site insertion (SSI) analysis of GHD quadrats from the survey area with the Gibson Dataset
- SSI analysis of GHD quadrats from the survey area with the Keighery Dataset.

SSI analysis involves running analyses for each quadrat, one at a time, with the respective datasets. SSI is considered an alternate and more reliable means of deriving a classification for each quadrat as it causes less 'disruption' of the clustering of the datasets (DBCA, pers. comm 2020).

PATN software was used to conduct the analyses, and analysis methods undertaken with reference to the methods utilised by Gibson et al. (1994). This included compiling presence/absence matrices that included weed taxa but removed singletons. The dissimilarity between quadrats was determined using the Bray-Curtis measure. A Cluster analysis (using Agglomerative Hierarchical Fusion, flexible unweighted pair-group mean average) was undertaken using the Bray-Curtis matrix and results presented as a dendrogram. Dissimilarity matrices and dendrograms were used to infer vegetation unit and FCT relationships. It is important to note that statistical analyses such as classifications are not absolute. To provide further support for the inferences made, taxon lists from quadrats were also compared to the typical species lists for SCP FCTs presented in Gibson et al. (1994), as well as consideration of landforms, soils, topography and geographical distribution data.

The vegetation of the survey area was assessed against the appropriate listing and approved conservation advice of any TECs considered possible or likely to occur as identified in the desktop assessment. This included assessment for the Banksia Woodlands of the SCP using the *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community* (Threatened Species Scientific Committee (TSSC) 2016).

### **2.2.6 Targeted flora searches**

The results of the desktop assessment were reviewed, and a target list of significant flora taxa compiled. Ecological information (e.g. habitat, associated flora taxa and phenology) was sourced from FloraBase (WA Herbarium 2020) and other relevant publications where available. Existing vegetation mapping (type and condition) was also examined to refine search areas and determine survey intensity.

The targeted flora survey was completed con-currently with the vegetation and flora assessment, with timing occurring in September and November 2020 to coincide with the flowering period of the majority of the target taxa. Appropriate habitat for significant flora taxa in the survey area was traversed on foot at spacings of approximately 10-20 m. Where significant flora taxa were identified the locations and number of plants present were recorded using handheld GPS units. A representative collection was also made for confirmation by the WA Herbarium.

### **2.2.7 Flora inventory, identification and nomenclature**

A flora inventory was compiled from species listed in described quadrats, relevés and from opportunistic floristic records throughout the survey area.

Species well known to the survey botanists were identified in the field; all other species were collected and assigned a unique collection number to facilitate tracking. All specimens collected during the field assessment were dried and processed in accordance with the requirements of the WA Herbarium. Species were identified by the use of taxonomic literature, electronic keys and online electronic databases.

The conservation status of recorded flora was compared against the current lists available on FloraBase (WA Herbarium 2020) and EPBC Act Threatened species database provided by the DAWE. Nomenclature used in this report follows that used by the WA Herbarium (2020) as reported on FloraBase.

### **2.3 Limitations**

The EPA (2016) Technical Guide states flora and vegetation survey reports for environmental impact assessment in WA should contain a section describing the limitations of the survey methods used. The limitations and constraints associated with this field survey are discussed in Table 3. Based on this assessment, the present survey effort has not been subject to any constraints which affect the thoroughness of the assessment and the conclusions which have been formed.

**Table 3 Vegetation and flora assessment limitations**

Aspect	Limitation	Comment
Sources of information and availability of contextual information.	None	Adequate information is available for the survey area, which included previous survey reports and data (e.g. AECOM (2020), Aurora (2020) and GHD (2012)). Sources of information used for the assessment included government databases and other resources pertaining to climate, landforms, soils and hydrology. Of note is that the EPBC Act PMST is based on bioclimatic modelling for the potential presence of communities and species. As such, this does not represent actual records of the communities or species within the search area. The records from the DBCA database searches provide more accurate information for the general area. However, some records of collections cannot be dated or are plain text interpretations of locations which can misrepresent the current range of significant species.
Scope (what life forms were sampled etc.)	None	Vascular flora were sampled during the survey. Non-vascular flora were not surveyed.
Proportion of flora collected and identified (based on sampling, timing and intensity)	None	The vegetation and targeted flora searches were undertaken from 21 to 25, 29 September and 20 November 2020. AECOM (2020) undertook a vegetation and flora survey from 8, 9, 16 and 19 November 2019. The portion of flora collected and identified was considered high, based on survey effort and timing. The species accumulation curve for the survey area, based on flora recorded within quadrats, is approaching an asymptote, which suggests that the current survey effort is sufficient. The total species recorded from the survey area was 267 flora species (185 recorded in the current survey), which is substantially above the predicted species diversity estimate. It is possible some taxa such as grasses and sedges may have been missed due to a lack of vegetative material remaining after seasonal conditions. However, the likelihood of this is considered low due to multiple visits to the survey area and the high diversity recorded during the survey(s).
Flora determination	None	Flora determination was undertaken by the GHD botanist in the field and at the WA Herbarium by a consulting taxonomist. Of the flora records, 98% were identified to a species level. Two taxa could be identified to genus only and two taxa were considered uncertain, due to lack of flowering and/or fruiting material required for positive identification. The taxonomy and conservation status of the WA flora is dynamic. This report was prepared with reliance on taxonomy and conservation status current at the time report development, but it should be noted this may change in response to ongoing research and review of International Union for Conservation Nature criteria.
Completeness and further work which might be needed (e.g. was the relevant area fully surveyed)	None	The survey area was adequately surveyed during the field survey in line with the scope. Some private properties were not accessed, however, these areas were cleared or contained scattered trees (parkland cleared) that could be assessed from adjacent areas. The electrified rail corridor in the vicinity of Armadale Train Station was not accessed at the time of the survey due to safety concerns; this area was assessed from adjacent the fenced rail corridor and recorded as containing planted and remnant trees. Data from Aurora (2020) was used to supplement field observations in this area.

Aspect	Limitation	Comment
Mapping reliability	Minor	The vegetation was mapped using high-resolution ESRI aerial imagery obtained from Landgate, topographical features, previous mapping (AECOM 2020, Aurora 2020) and field data. Data was recorded in the field using hand-held GPS tools (e.g. Samsung S2 Tablets and Garmin GPS). Certain atmospheric factors and other sources can affect the accuracy of GPS receivers. The Garmin GPS units used for this survey are accurate to within $\pm 5$ metres on average. Therefore the data points consisting of coordinates recorded from the GPS may contain inaccuracies.
Timing/weather/season/cycle	None	The vegetation and flora field survey was conducted during spring (21 to 25, 29 September and 20 November 2020). This timing is within the recommended survey timing for vegetation surveys on the SCP (optimal timing spring – September to November; EPA 2016). In the three months prior to the ecological survey (June-August), the Jandakot Aero weather recording station (Site No. 009172, located approximately 20 km north west from the survey area) recorded a total of 303 mm of rainfall. This total is lower than the long-term average for this period (452.5 mm, BoM 2020). The weather conditions recorded during the survey period are considered unlikely to have impacted upon the vegetation and flora survey.
Disturbances (e.g. fire, flood, accidental human intervention)	None	Parts of the survey area have been subjected to historical disturbances (e.g. anthropogenic); however, these disturbances did not impact the survey.
Intensity (in retrospect, was the intensity adequate)	None	The vegetation of the survey area was sampled with reference to the <i>Technical Guidance –Flora and Vegetation Surveys for Environmental Impact Assessment</i> (EPA 2016). A minimum of three quadrats per vegetation type were established where vegetation units were of sufficient size and in Good or better condition. Relevés were used to supplement quadrat data. The survey area was sufficiently covered by the botanists during the survey, especially when considering the combined survey effort by AECOM and GHD.
Resources	None	Adequate resources were employed during the field survey. Thirteen person days were spent undertaking the surveys using two botanists. Combined resources for the survey area include 18 person days across two spring seasons (2019 and 2020) (see Table 1).
Access restrictions	Minor	The survey area was accessed on foot and traversed by vehicle. Some private properties were not accessed, however, these areas were cleared or contained scattered trees (parkland cleared) that could be assessed from adjacent areas. The electrified rail corridor in the vicinity of Armadale Train Station was not accessed at the time of the survey due to safety concerns. This area was assessed adjacent the fenced rail corridor and recorded as containing planted and remnant trees. Data from Aurora (2020) was used to supplement field observations in this area.
Experience levels	None	The personnel involved in the fieldwork, plant identifications and reviews are practitioners suitably qualified and experienced in their respective fields. The field team lead, Joel Collins (flora licence no. FB62000081-2) is a senior botanist with more than 17 years' experience leading and conducting vegetation and flora surveys in the SCP bioregion. Joel was supported by botanist/ecologist Sarah Flemington (flora licence no. FB62000202) who

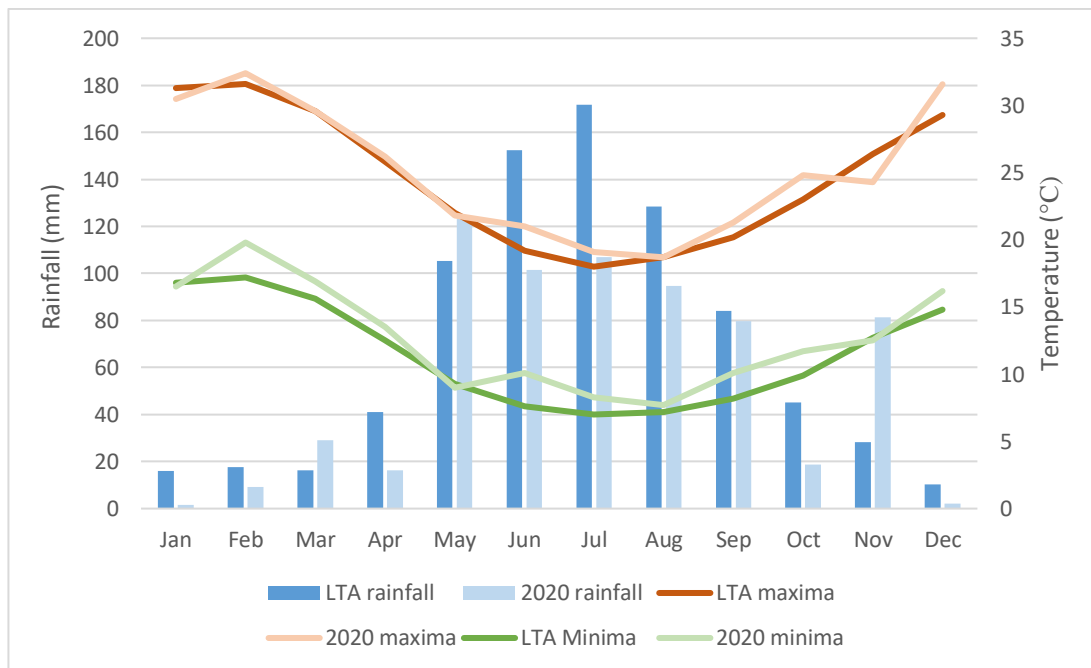


Aspect	Limitation	Comment
		has four years' field experience in conducting flora surveys in WA. Flora identifications were undertaken by Bushtech Consultancy. The project manager and technical reviewer, Jordan Tindiglia has 15 years' experience in conducting and overseeing flora and vegetation assessments in the SCP bioregion.

# 3. Desktop assessment

## 3.1 Climate

The survey area is located on the SCP within the Perth Metropolitan area. This area experiences a Mediterranean climate with cool, wet winters and warm, dry summers. Rainfall is generally received in winter (June-August), however, the area also receives periodic summer rainfall as a result of thunderstorm activity or rain-bearing depressions from tropical cyclones. The closest BoM weather station with sufficient historical data is Jandakot Aero (site number 009172), located approximately 20 km north west of the survey area. Climate data from this station indicates the mean maximum temperature ranges from 31.6 °C in Feb to 18.0 °C in July. The mean minimum temperature ranges from 17.2 °C in February to 7.0 °C in July. The mean annual rainfall is 819.6 mm, with approximately 83 rain days a year (BoM 2020) (Plate 1).



**Plate 1 Climate statistics for Jandakot Aero (BOM 2020)**

## 3.2 Landform and soils

The survey area is located on the SCP, within the eastern portion of the Perth Basin. It is situated on the Pinjarra Plain and Foothills (Ridge Hill Shelf). The Pinjarra Plain is an alluvial tract of unconsolidated clays and loams, with minor amounts of limestone, extending west from the Ridge Hill Shelf. It consists of alluvial fans near the Darling scarp and floodplains along the rivers (Gozzard 2007). In the vicinity of the survey area, the Pinjarra Plain coincides with and is underlain by the predominantly fluvial deposits of the Guildford Formation.

The survey area is located within the Forrestfield and Pinjarra Systems of Pinjarra Zone. The Forrestfield System is characterised by duplex sandy gravels, pale deep sands and grey deep sandy duplexes and the Pinjarra System is characterised by poorly drained coastal plain with variable alluvial and aeolian soils (GoWA 2020).

The Department of Primary Industries and Regional Development (previously Department of Agriculture and Food Western Australia (DAFWA)) soil mapping indicates there are seventeen soil units that intersect the survey area (DAFWA 2007). A description of the soil types present is provided in Table 4.

**Table 4 Soil units occurring within the survey area (DAFWA 2007)**

Unit	Description
213Fo_Csg	White-grey to brown, fine to coarse-grained, subangular to rounded sand, clay of moderate plasticity gravel and silt layers near scarp
213Fo_F2a	Low slopes and foot slopes up to 5-10% with well drained shallow to moderately deep, very gravelly acidic yellow duplex soils and common laterite
213Fo_F2b	Low slopes and foot slopes up to 5-10% with well drained moderately deep to deep, gravelly acidic yellow duplex soils and rare laterite
213Fo_F3	1-3% foot slopes with deep, imperfectly drained yellow and, less commonly, acidic gley duplex soils
213Fo_F4	Incised stream channels within gentle slopes with deep acidic yellow duplex soils and sandy alluvial gradational brown earths
213Fo_F5	Poorly defined stream channels on lowest slopes with deep acidic yellow duplex soils and sandy alluvial gradational brown earths
213Fo_Ff2	Foot and low slopes < 10%. Well drained gravelly yellow or brown duplex soils with sandy topsoil
213Pj_B2	Flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2 m
213Pj_Cs	White-grey to brown, fine to coarse-grained, subangular to rounded sand, clay of moderate plasticity gravel and silt layers near scarp
213Pj_Gf2	'Semi-wet soil & Yellow/brown shallow sandy duplex
213Pj_P1a	Flat to very gently undulating plain with deep acidic mottled yellow duplex (or effective duplex) soils. Shallow pale sand to sandy loam over clay; imperfect to poorly drained and generally not susceptible to salinity
213Pj_P1e	Flat to very gently undulating plain with deep acidic mottled yellow duplex (or effective duplex) soils. Shallow pale sand to sandy loam over very gravelly clay; moderately well drained
213Pj_P3	Flat to very gently undulating plain with deep, imperfect to poorly drained acidic gradational yellow or grey-brown earths and mottled yellow duplex soils, with loam to clay loam surface horizons
213Pj_P9	Shallowly incised stream channels of minor creeks and rivers with deep acidic mottled yellow duplex soils
213PjSWMsc1	Pale brown, angular to rounded sand, low cohesion, of alluvial origin. Clayey sandy silt
213PjSWP6a	Very gently undulating alluvial terraces and low rises contiguous with the plain, with deep moderately well to well drained soils associated with major current river systems and larger streams. Acidic red and yellow duplex soils, less common
213PjSWP6c	Very gently undulating alluvial terraces and fans. Moderate to moderately well drained uniform friable brown loams, or well structured gradational brown earths

### 3.3 Hydrology

Five watercourses intersect the survey area including Neerigen Brook, Wungong Brook and Beenyup Brook and two drains. Neerigen Brook (not mapped, intersects the northern part of the survey area in the vicinity of Armadale Road) and Beenyup Brook both have headwaters in the foothills of the Darling Scarp and flow east to west across the survey area. On the Swan Coastal Plain both brooks have been highly modified as a consequence of urban development and flow into constructed drains. The Wungong Brook is the largest watercourse intersecting the survey area (Figure 4, Appendix A).

There are no Ramsar or Nationally Important wetlands within or nearby the survey area. The closest Ramsar wetland is Forrestdale Lake, approximately 5 km west of the survey area. The survey area intersects 15 geomorphic wetlands (as identified in Geomorphic Wetlands of the Swan Coastal Plain dataset) (Table 5), with eight of these being Conservation Category Wetlands (GoWA 2020).

**Table 5 Geomorphic wetlands intersecting the survey area (GoWA 2020)**

Management category	Identification Code	Wetland type	Wetland description
Multiple Use	UFI 12143	Palusplain	Located adjacently south of Stone Street and north east of Fletcher Park
Conservation	UFI 12149	Palusplain	Intersects Bush Forever Site ID 266 (Wungong Brook, Byford)
Conservation	UFI 12150	Palusplain	Situated on eastern side existing Armadale railways corridor, adjacent to residential area
Conservation	UFI 12184	Palusplain	Located adjacently west of the existing Armadale line, and immediately north of Eleventh Road
Conservation	UFI 14179	Palusplain	Located on Keenan St, west of Eleventh Road
Resource Enhancement	UFI 14538	Palusplain	Located adjacently north of Abernethy Road in the Byford town centre
Resource Enhancement	UFI 15117	Palusplain	Located adjacent to Fletcher Park and Bush Forever Site ID 264
Resource Enhancement	UFI 15118	Palusplain	Located adjacent to Fletcher Park and Bush Forever Site ID 264
Conservation	UFI 15119	Palusplain	Located within Bush Forever Site ID 266 (Wungong Brook, Byford)
Conservation	UFI 15120	Palusplain	Intersecting a large portion of the northern half of the survey area, intersecting Bush Forever Site ID 264 (Lambert Lane, Wungong)
Resource Enhancement	UFI 15432	Palusplain	Associated with a minor tributary of Wungong River
Conservation	UFI 15464	Palusplain	Located immediately west of existing Armadale Railway Corridor, within Lambert Lane Bushland and Bush Forever Site ID 264 ((Lambert Lane, Wungong)
Conservation	UFI 15470	Palusplain	Associated with Fletcher Park and Bush Forever Site ID 264 (Lambert Lane, Wungong)
Resource Enhancement	UFI 15713	Palusplain	This wetland is located adjacent to Abernethy Road
Multiple Use	UFI 15797	Palusplain	Associated with Armadale Palusplain, this wetland covers the majority of the survey area from Harbor Drive to the Byford town centre

## 3.4 Conservation areas

### 3.4.1 DBCA managed lands and reserves

The survey area intersects one DBCA-managed reserve, Lambert Lane Nature Reserve (R42044, Class C) (Figure 4, Appendix A). The Reserve is located on the west side of the existing Australind rail reserve, north of Eleventh Road. Lambert Lane Nature Reserve covers 3.62 ha and is vested with the Conservation Commission of WA for the purposes of conservation of flora and fauna. The Reserve contains vegetation representative of SCP 3a *Corymbia calophylla* – *Kingia australis* woodlands on heavy soils and significant flora taxa. Lambert Lane Nature Reserve is included in Bush Forever site no. 264.

### 3.4.2 Other reserves

One Reserve vested with the City of Armadale intersects the Survey area, Fletcher Park (Class 'C' Reserve) (Figure 4, Appendix A). The Park is located on the east side of the existing Australind rail reserve and extends from Stone Street to Eleventh Road. Fletcher Park (R14217) is approximately 19 ha and is zoned as Parks and Recreation in the City of Armadale Town Planning Scheme 4 and Rural under the Metropolitan Region Scheme (MRS). The Park contains vegetation representative of SCP 3a *Corymbia calophylla* – *Kingia australis* woodlands on heavy soils and significant flora taxa. A portion of the Park is leased to Wallangarra Riding and Pony Club (Inc). (ENV Australia 2010). Fletcher Park is included in Bush Forever site no. 264.

### 3.4.3 Bush Forever

Three Bush Forever sites intersect the Survey area, Bush Forever site no. 264, Lambert Lane Bushland, Wungong, Bush Forever site no. 266, Wungong Brook, Byford and Bush Forever site no. 350, Byford to Serpentine Rail/Road Reserves and Adjacent Bushland (Figure 4, Appendix A).

Bush Forever site no. 264 includes Lambert Lane Bushland, Fletcher Park and adjacent areas of the existing Australind rail reserve. The site is recognised as being regionally significant bushland and includes vegetated upland and wetland areas in varying condition which are representative of the eastern side of the SCP (such as SCP 3a *Corymbia calophylla* – *Kingia australis* woodlands on heavy soils). Bush Forever site no. 264 also contains Conservation Category Wetlands and significant flora and fauna (GoWA 2000a and 2000b).

Bush Forever site no. 266 includes Wungong Brook and extends both upstream and downstream of the survey area. The site comprises vegetated wetland areas in varying condition. No significant vegetation or flora was recorded for this site, but the site is part of a regional ecological linkage (GoWA 2000a and 2000b).

Bush Forever site no. 350 includes areas of the rail reserve extending from Byford to Serpentine. The site comprises vegetated upland, wetland and creek areas in varying condition which are representative of the eastern side of the SCP. The site contains significant flora, is part of a regional ecological linkage and is inferred to contain TECs (GoWA 2000a and 2000b).

## 3.5 Regional biogeography

The survey area is located in the South West Botanical Province of WA within the Perth (SWA2) of the SCP Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. A small section of the survey area intersects the Northern Jarrah Forest subregion of the Jarrah Forest IBRA bioregion. However, for the purposes of this assessment the survey area is considered to occur in the SCP bioregion.

The SCP bioregion comprises the Dandaragan Plateau and the Perth Coastal Plain. The Perth subregion is a low lying coastal plain, mainly covered with woodlands. It is dominated by Banksia or Tuart on sandy soils, *Casuarina obesa* on outwash plains, and paperbark in swampy areas. In the east, the plain rises to duricrusted Mesozoic sediments dominated by Jarrah woodland. Three phases of marine sand dune development provide relief (Mitchell et al. 2002).

## 3.6 Broad vegetation mapping

### 3.6.1 Vegetation associations

Broad scale (1:250,000) pre-European vegetation mapping of the Perth area was completed by Beard (1979) at an association level. The mapping indicates that two vegetation associations intersect the survey area:

- Medium forest; jarrah-marri (association 3)
- Medium woodland; jarrah, marri & wandoo (association 968).

The pre-European mapping has been adapted and digitised by Shepherd et al. (2002). The extent of vegetation associations have been determined by the state-wide vegetation remaining extent calculations maintained by DBCA (latest update March 2019, GoWA 2019a). As shown in Table 6 the current extent remaining of vegetation association 3 is less than 30% at the IBRA bioregion and subregion scales. The current extent remaining of vegetation association 968 is less than 10% at bioregion, subregion and both LGA scales.

### 3.6.2 Vegetation complexes

Regional vegetation has been mapped by Heddle et al. (1980) with updates from Webb et al. (2016) based on major geomorphic units on the Swan Coastal Plain. The mapping indicates that two vegetation complexes are present within the survey area:

- Forreestfield Complex: Vegetation ranges from open forest of *Corymbia calophylla* (Marri) - *Eucalyptus wandoo* (Wandoo) - *Eucalyptus marginata* (Jarrah) to open forest of *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri) - *Allocasuarina fraseriana* (Sheoak) - Banksia species. Fringing woodland of *Eucalyptus rudis* (Flooded Gum) in the gullies that dissect this landform.
- Guildford Complex: A mixture of open forest to tall open forest of *Corymbia calophylla* (Marri) - *Eucalyptus wandoo* (Wandoo) - *Eucalyptus marginata* (Jarrah) and woodland of *Eucalyptus wandoo* (Wandoo) (with rare occurrences of *Eucalyptus lane-poolei* (Salmon White Gum)). Minor components include *Eucalyptus rudis* (Flooded Gum) - *Melaleuca raphiophylla* (Swamp Paperbark).

GoWA (2019b) has assessed the vegetation complexes mapped by Heddle et al. (1980) against presumed pre-European extents within the Swan Coastal Plain and the City of Armadale and the Shire of Serpentine Jarrahdale. The Forreestfield complex has less than 30% of its pre-European extent remaining on SCP and less than 10% of its pre-European extent remaining within both LGAs. The Guildford complex has less than 10% of its pre-European extent remaining at all scales (Table 7 and Table 8).

**Table 6 Extent of pre-European vegetation associations mapped within the survey area (GoWA 2019a)**

Vegetation association	Scale	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	% Current extent in all DBCA managed land
3	State: Western Australia	2,661,404.62	1,803,437.48	67.76	81.50
	IBRA bioregion: SCP	17,364.58	3,150.77	18.14	11.62
	IBRA Subregion: Perth	16,754.96	2,789.47	16.65	13.12
	LGA: City of Armadale	42,944.33	38,717.59	90.16	82.36
	LGA: Shire of Serpentine Jarrahdale	46,915.31	37,963.61	80.92	95.21
968	State: Western Australia	296,877.84	95,048.82	32.02	57.64
	IBRA Bioregion: SCP	136,188.20	9,017.32	6.62	21.61
	IBRA Subregion: Perth	136,188.20	9,017.32	6.62	21.61
	LGA: City of Armadale	5,056.18	306.02	6.05	9.00
	LGA: Shire of Serpentine	24,351.49	1,121.13	4.60	12.49

**Table 7 Extents of vegetation complexes on the Swan Coastal Plain mapped within the survey area (GoWA 2019b)**

Vegetation complex	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	% Current extent in all DBCA managed lands
Forrestfield Complex	22,812.92	2,803.36	12.29	0.32
Guildford Complex	90,513.13	4,607.91	5.09	1.67

**Table 8 Extents of vegetation complexes in the City of Armadale and Shire of Serpentine Jarrahdale mapped within the survey area (GoWA 2019b)**

LGA	Vegetation complex	Pre-European extent (ha)	Current extent (ha)	% of pre-European extent	Proportion of the vegetation complex within the LGA %
City of Armadale	Forrestfield Complex	1,937.18	89.70	4.63	8.49
	Guildford Complex	1,436.09	25.65	1.79	1.59
Shire of Serpentine Jarrahdale	Forrestfield Complex	4,514.76	411.02	9.10	19.79
	Guildford Complex:	12,986.67	552.25	4.25	14.35

### 3.7 Significant ecological communities

Desktop searches of the EPBC Act PMST and DBCA TEC PEC database identified ten TECs and three PECs potentially occurring within the survey area. Of these, five TEC buffers intersect the survey area. Details on these communities are provided in Table 9, with communities identified in the DBCA TEC PEC database mapped on Figure 5, Appendix A.

**Table 9 Threatened and Priority Ecological Communities identified in the desktop searches**

Community name and status	Description
<p><i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils, Swan Coastal Plain (SCP3a) TEC EPBC Act: Endangered BC Act: Critically Endangered</p>	<p>A woodland community located on heavy soils of the eastern side of the SCP between Capel and Hazelmere. Typical and common native taxa in the community are: <i>Corymbia calophylla</i>; the shrubs <i>Banksia nivea</i>, <i>Philotheca spicata</i>, <i>Kingia australis</i> and <i>Xanthorrhoea preissii</i>; herbs, rushes and sedges, <i>Cyathochaeta avenacea</i>, <i>Dampiera linearis</i>, <i>Haemodorum laxum</i>, <i>Desmocladius fasciculatus</i>, <i>Mesomelaena tetragona</i> and <i>Tetraria octandra</i>. The introduced grass <i>Briza maxima</i> is also common in the community. The critical habitat for the community is the heavy soils on which the community occurs, the fresh superficial groundwater, and/ or surface water that helps sustain flora species in this wetland community, and the catchment for this groundwater and surface water.</p> <p>The buffer of this TEC intersects the survey area at Lambert Lane Nature Reserve, Fletcher Park and the southern end of the survey area near Byford and Cardup Siding Road.</p>
<p><i>Corymbia calophylla</i> - <i>Eucalyptus marginata</i> woodlands on sandy clay soils of the southern Swan Coastal Plain (SCP3b) TEC BC Act: Vulnerable</p>	<p>The community is found on alluvial soils and better-drained sites on the eastern side of the southern SCP. It is dominated by both <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> with additional common taxa comprising low shrubs, sedges, grasses and herbs. These include <i>Bossiaea eriocarpa</i>, <i>Conostylis juncea</i>, <i>Hibbertia hypericoides</i>, <i>Tetraria octandra</i>, <i>Chamaescilla corymbosa</i>, <i>Desmocladius fasciculatus</i>, <i>Banksia dallaneyi</i>, <i>Mesomelaena tetragona</i>, <i>Babingtonia camphorosmae</i> and <i>Lepidosperma squamatum</i>.</p> <p>The buffer of this TEC intersects the survey area in the Wungong area and the southern end near Cardup Siding Road.</p>
<p><i>Corymbia calophylla</i> - <i>Xanthorrhoea preissii</i> woodlands and shrublands, Swan Coastal Plain (SCP3c) TEC EPBC Act: Endangered BC Act: Critically Endangered</p>	<p>Plant community located on heavy soils of the eastern side of the SCP between Bullsbrook, and Waterloo near Bunbury. Dominant species in the community are the trees <i>Corymbia calophylla</i> and occasionally <i>Eucalyptus wandoo</i>; the shrubs <i>Xanthorrhoea preissii</i>, <i>Acacia pulchella</i>, <i>Dryandra nivea</i>, <i>Gompholobium marginatum</i>, and <i>Hypocalymma angustifolia</i> and the herbs <i>Burchardia umbellata</i>, <i>Cyathochaeta avenacea</i> and <i>Neurachne alopecuroidea</i>. The introduced species <i>Briza maxima</i> and <i>Romulea rosea</i> are also common.</p> <p>The buffer of this TEC intersects the southern end of the survey area near Byford.</p>
<p>Herb rich shrublands in clay pans (SCP08) TEC <sup>1</sup> EPBC Act: Critically Endangered BC Act: Vulnerable</p>	<p>The surface pools in this community do not generally contain water to the same depth or for as long as in community type 7, but aquatic annuals are still common. <i>Viminaria juncea</i>, <i>Melaleuca viminea</i>, <i>M. lateritia</i> or <i>M. osullivanii</i> and occasionally <i>Eucalyptus wandoo</i> generally</p>



Community name and status	Description
	dominate this community. <i>Hypocalymma angustifolium</i> , <i>Acacia lasiocarpa</i> var. <i>bracteolata</i> (long peduncle form P1) and <i>Verticordia huegelii</i> can also occur. Typical herbs include <i>Centrolepis aristata</i> , <i>Chorizandra enodis</i> , <i>Drosera menziesii</i> subsp. <i>menziesii</i> , <i>Drosera rosulata</i> and <i>Hyalosperma cotula</i> . This community included a relatively high proportion of weeds due to historical disturbance (Gibson et al. 1994).
Dense shrublands on clay flats (SCP09) TEC <sup>1</sup> EPBC Act: Critically Endangered BC Act: Vulnerable	The shrublands or open woodlands of this community are inundated for longer periods and have lower species richness and numbers of weed taxa than the other clay pan types. Sedges including <i>Chorizandra enodis</i> , <i>Cyathochaeta avenacea</i> , <i>Lepidosperma longitudinale</i> and <i>Meeboldina coangustata</i> are more common in this community. Shrubs including <i>Hakea varia</i> , <i>Melaleuca viminea</i> and <i>Eutaxia virgata</i> are common.
Shrublands on dry clay flats (SCP 10a) TEC <sup>1</sup> EPBC Act: Critically Endangered BC Act: Endangered	The community occurs on skeletal soils that have shallow microtopography and the habitat is the most rapidly drying of the four clay pans identified in Gibson et al. (1994). Shrubs in the community include <i>Hakea sulcata</i> , <i>Hakea varia</i> , <i>Pericalymma ellipticum</i> and <i>Verticordia densiflora</i> . Herbs and sedges that are also common include <i>Schoenus rigens</i> , <i>Aphelia cyperoides</i> , <i>Centrolepis aristata</i> , <i>Schoenolaena juncea</i> , <i>Drosera gigantea</i> subsp. <i>gigantea</i> , and <i>Drosera menziesii</i> subsp. <i>menziesii</i> .
<i>Banksia attenuata</i> and/or <i>Eucalyptus marginata</i> woodlands of the eastern side of the Swan Coastal Plain (SCP20b) TEC <sup>2</sup> EPBC Act: Endangered BC Act: Endangered	Community occurs on sands at the base of the Scarp between Byford and Yarloop predominantly on the Pinjarra Plain and Ridge Hill Shelf. Most of the occurrences of this community type are <i>Eucalyptus marginata</i> – <i>Banksia attenuata</i> woodlands but the community also occurs as <i>Banksia</i> woodlands and heaths. A diverse shrub layer comprising <i>Hakea stenocarpa</i> , <i>Conostylis setosa</i> , and <i>Johnsonia</i> aff. <i>pubescens</i> differentiates this community type from the other two subgroups that linked quite closely to this <i>Banksia</i> community in (types 20a and 20c). The buffer of this TEC intersects the southern end of the survey area near Byford and Cardup Siding Road.
<i>Banksia</i> Woodlands of the Swan Coastal Plain TEC and PEC EPBC Act: Endangered DBCA: Priority 3	A woodland associated with the SCP of southwest Western Australia. A key diagnostic feature is a prominent tree layer of <i>Banksia</i> , with scattered eucalypts and other tree species often present among or emerging above the <i>Banksia</i> canopy. The understorey is a species rich mix of sclerophyllous shrubs, graminoids and forbs. The ecological community is characterised by a high endemism and considerable localised variation in species composition across its range. Patches of the TEC and PEC are defined by a range of key characteristics and condition/size thresholds. The buffer of this TEC/PEC intersects the survey area at Lambert Lane Nature Reserve and Armadale Park.
Tuart ( <i>Eucalyptus gomphocephala</i> ) Woodlands and Forests of the Swan Coastal Plain TEC EPBC Act: Critically Endangered DBCA: Priority 3	This Community is mostly confined to Quindalup Dunes and Spearwood Dunes but can also occur on the Bassendean dunes and Pinjarra Plain. Tuart is the key upper canopy species although it may co-occur with trees of other species. Trees commonly co-occurring with Tuart include <i>Agonis flexuosa</i> , <i>Banksia grandis</i> , <i>Banksia attenuata</i> , <i>Eucalyptus marginata</i> ; and less commonly, <i>Corymbia calophylla</i> , <i>Banksia menziesii</i> and <i>Banksia</i>

Community name and status	Description
	<i>prionotes</i> . An understory of native plants is typically present, which may include grasses, herbs and shrubs. Patches of the TEC and PEC are defined by a range of key characteristics and condition/size thresholds.
Shrublands and woodlands on Muchea Limestone of the Swan Coastal Plain TEC EPBC Act: Endangered BC Act: Endangered	The community occurs on the heavy soils of the eastern side of the SCP. Where the best developed limestone occurs, near Gingin, the plant community is located on shallow black clay or sandy clay soils on limestone. Typical and common native species are the tree <i>Casuarina obesa</i> , the mallees <i>Eucalyptus decipiens</i> and <i>E. foecunda</i> and the shrubs <i>Melaleuca huegelii</i> , <i>Alyogyne huegelii</i> var. <i>huegelii</i> , <i>Grevillea curviloba</i> ssp. <i>incurva</i> and ssp. <i>curviloba</i> , <i>G. evanescens</i> , <i>Melaleuca acerosa</i> , <i>M. huegelii</i> , and the herb <i>Thysanotus arenarius</i> .
<i>Casuarina obesa</i> association PEC DBCA: Priority 1	DBCA (2020) describes the community as ‘Thomas Rd to Serpentine River, Swan Coastal Plain. No detailed information to assess if distinct community.’
<i>Eucalyptus haematoxylon</i> - <i>E. marginata</i> woodlands on Whicher foothills (SCP1a) PEC DBCA: Priority 3	Community occurs along the northern edge of State Forest along the base of the Whicher Range and is composed of <i>Eucalyptus haematoxylon</i> – <i>Corymbia calophylla</i> – <i>E. marginata</i> forests and woodlands. Taxa virtually restricted to the type include <i>Acacia varia</i> subsp. <i>varia</i> , <i>Agonis grandiflora</i> and <i>Xanthosia pusilla</i> .
Low lying <i>Banksia attenuata</i> woodlands or shrublands (SCP21c) PEC <sup>2</sup> DBCA: Priority 3	This type occurs sporadically between Gingin and Bunbury, and is largely restricted to the Bassendean system. The type tends to occupy lower lying wetter sites and is variously dominated by <i>Melaleuca preissiana</i> , <i>Banksia attenuata</i> , <i>B. menziesii</i> , <i>Regelia ciliata</i> , <i>Eucalyptus marginata</i> or <i>Corymbia calophylla</i> . Structurally, this community type may be either a woodland or occasionally shrubland.

<sup>1</sup> Part of the EPBC Act listed Clay Pans of the Swan Coastal Plain TEC.

<sup>2</sup> Can be a part of the EPBC Act Banksia Woodlands of the Swan Coastal Plain TEC.

### 3.8 Flora diversity

The *NatureMap* (DBCA 2021) database identified 1,524 flora taxa, representing 130 families and 491 genera previously recorded within the study area. This total comprised 1264 native taxa and 260 naturalised (introduced) taxa. Dominant families recorded included Fabaceae (157 taxa), Myrtaceae (119) and Orchidaceae (105). The *NatureMap* database search is provided in Appendix C.

### 3.9 Conservation significant flora

Searches of the EPBC Act PMST, *NatureMap* database and DBCA TPFL and WAHERB databases identified the presence/potential presence of 76 conservation significance flora taxa within the study area. The desktop searches recorded:

- 28 taxa listed under the EPBC Act and/or as Threatened under the BC Act
- Five Priority 1 taxa
- Six Priority 2 taxa
- 23 Priority 3 taxa
- 14 Priority 4 taxa.

Based on the DBCA TPFL and WAHERB databases, four significant flora taxa have been previously recorded within the survey area. This includes:

- A record of *Johnsonia pubescens* subsp. *cygnorum* (DBCA: Priority 2) from Lambert Lane Nature Reserve
- A record of *Synaphea* sp. Serpentine (G.R. Brand 103) (EPBC Act: Critically Endangered, BC Act: Threatened) from Lambert Lane Nature Reserve. A second record of *Synaphea* sp. Serpentine (G.R. Brand 103) has been recorded from the southern part of the survey area, within a now cleared paddock (see Section 5 for further discussion on the *Synaphea* sp. Serpentine (G.R. Brand 103) record from Lambert Lane Nature Reserve.
- A record of *Eucalyptus xbalanites* (EPBC Act: Endangered, BC Act: Threatened) from the northern part of Fletcher Park
- A record of *Diuris purdiei* (EPBC Act: Endangered, BC Act: Threatened) from the southern end of Fletcher Park, north of Eleventh Road.

The locations of conservation significant flora registered on the DBCA databases are mapped in Figure 5, Appendix A.

### **3.10 Summary of previous vegetation and flora surveys**

Three studies have been undertaken over sections of the survey area. The most recent is the survey completed by AECOM (2020), which included a detailed flora and vegetation, and targeted flora survey. An overview of the previous surveys and key outcomes is presented in Table 10.

**Table 10 Summary of previous surveys**

Survey details	Limitations	Key findings
<p>Environmental Advice Armadale Train Line Platform and Signalling Upgrade Program (Aurora 2020)</p> <p><u>Survey type and date:</u> Flora and vegetation assessment, reconnaissance fauna survey and black cockatoo survey. Survey undertaken on 19 September 2018 and over 5 days between 30 January and 10 February 2020.</p> <p><u>Survey size and location:</u> Survey included 15 station sites along the Perth to Armadale line and covered approximately 180 ha. Overlaps the current survey area from Sherwood Station to Armadale Station.</p>	<p>The survey was undertaken in late January/early February and is considered out of season.</p> <p>Rail corridor was not accessed due safety reasons. Surveyed from adjacent areas.</p>	<p>One area of intact native vegetation recorded south of Kelmscott Station. The remainder of the survey area has been extensively cleared and did not contain intact native vegetation.</p> <p>In total, 43 locally native plant species were recorded during the surveys. Most (33) of these species were recorded in a small area of Jarrah/Marri woodland south of the Kelmscott Station.</p> <p>No conservation listed flora species were recorded.</p> <p>Vegetation condition was too Degraded to assign FCT with no TECs/PECs assigned.</p> <p><u>Area from Sherwood to Armadale Station:</u></p> <p>Marri trees were common in the road reserve on both sides of the rail, with some Jarrah trees present. The Marri and Jarrah currently in the road reserve are a mix of old and young plants likely to be either remnant trees or regenerated from native trees.</p> <p>Common exotic species recorded around Armadale Station includes Sugar Gums, Illawarra Flame Trees, Bottlebrush and Ironbark. Some <i>Xanthorrhoea preissii</i> plants had been used in landscaping.</p>
<p>METRONET – Byford Extension Part One Flora and Fauna Assessment (AECOM 2020)</p> <p><u>Survey type and date:</u> Detailed flora and vegetation survey, level 1 fauna survey and black cockatoo survey. Survey undertaken 8, 9, 16 and 19 November 2019.</p> <p><u>Survey size and location:</u> Survey extent approximately 102 ha and follows the regional rail reserve corridor from Gladstone Road, Armadale to Cardup Siding Road, Byford.</p> <p>Overlaps approximately 68 ha (32 %) of the current survey area.</p>	<p>The survey was successfully completed with no significant limitations identified.</p> <p>FCT statistical analysis had low similarity across several quadrats which made it difficult to infer the FCT based on statistical analysis alone.</p>	<p>Eleven vegetation types were identified and mapped.</p> <p>Three TECs were identified:</p> <ul style="list-style-type: none"> <li>• <i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils, Swan Coastal Plain (SCP3a)</li> <li>• <i>Corymbia calophylla</i> - <i>Xanthorrhoea preissii</i> woodlands and shrublands (SCP3c)</li> <li>• SCP8 Herb rich shrublands in claypans potentially occurs near Brickwood Reserve (low confidence on determination).</li> </ul> <p>A total of 167 species from 93 genera and 39 families were recorded. This included 21 weed species of which two were Declared Pests.</p> <p>No conservation listed flora were recorded. A collection was made of a <i>Johnsonia</i> sp. from Lambert Lane Reserve, however, was not confidently identified as the Priority species <i>J. pubescens</i> subsp. <i>cygnorum</i> (P2).</p> <p>Post-survey two Threatened and five Priority flora species were considered likely or possible to occur. These species are <i>Synaphea</i> sp. Serpentine (G.R.</p>

Survey details	Limitations	Key findings
		<p>Brand 103) (Threatened), <i>Synaphea sp. Pinjarra Plain</i> (A.S. George 17182) (Threatened), <i>Babingtonia urbana</i> (P3), <i>Drosera occidentalis</i> (P4), <i>Johnsonia pubescens</i> subsp. <i>cygnorum</i> (P2), <i>Schoenus pennisetis</i> (P3) and <i>Stylidium aceratum</i> (P3).</p> <p>Of these <i>Babingtonia urbana</i> (P3), <i>Drosera occidentalis</i> (P4), <i>Schoenus pennisetis</i> (P3) and <i>Stylidium aceratum</i> (P3) are associated with wetland environments and were considered likely/present due to the AECOM survey area intersecting part of Brickwood Reserve.</p>
<p>Report for rail Reserves in Shire of Serpentine Jarrahdale, Spring Flora and Vegetation Survey and Fauna and Habitat Assessment (GHD 2012)</p> <p><u>Survey type and date:</u> Level two flora and vegetation survey and level one fauna and habitat assessment. Survey undertaken from 7 to 11 November 2011.</p> <p><u>Survey size and location:</u> The rail corridor within the Shire of Serpentine Jarrahdale, which covered approximately 62 km and 230 ha.</p> <p>Overlaps approximately 29 ha (13.5%) of the current survey area.</p>	<p>The survey was successfully completed with no significant limitations identified.</p>	<p>Thirteen vegetation types were identified and mapped within the study area. The condition of the remnant vegetation remaining range, from excellent to completely degraded, depending on the level of past clearing and the presence of invasive weed species.</p> <p>The presence of five TECs were inferred from the survey area, including TEC SCP3a.</p> <p>A total of 394 plant taxa (including subspecies and varieties) representing 65 families and 197 plant genera were recorded. This total is comprised of 336 native species and 58 introduced (exotic) species.</p> <p>Three weed species recorded from the study area are listed as Declared Plants. Four Priority flora species were recorded, including <i>Grevillea bipinnatifida</i> subsp. <i>pagna</i> (P1), <i>Synaphea odocoileops</i> (P1), <i>Johnsonia pubescens</i> subsp. <i>cygnorum</i> (P2) and <i>Calothamnus rupestris</i> (P4). A <i>Synaphea</i> collection which was considered likely to be sp. Serpentine was also noted. All Priority flora records were recorded outside of the current GHD (2020) survey area.</p>

## 4. Field survey results

### 4.1 Vegetation types



The majority of the survey area is highly disturbed/cleared. Where vegetation is present it occurs in linear strips along the rail corridor and watercourses as well as isolated stands of trees associated with parklands and on private properties. Two remnant vegetation blocks occur within the central part of the survey area, at Lambert Lane and Fletcher Park. These areas contain vegetation in mostly Excellent and Good condition within a largely modified environment (Table 11).

Eight vegetation types (VTs) were described and mapped from the survey area, including planted and revegetation areas. Of the vegetation types described, seven represented native vegetation (49.96 ha, 23.42%) and one represented planted vegetation (20.91 ha, 9.8%). The remaining 142.46 ha (66.78%) of the survey area was mapped as cleared. Table 11 provides a summary of the vegetation types recorded from the survey area and mapping is provided in Figure 6, Appendix A.

The vegetation types included *Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-poolei* open woodlands on flat to gentle slope on plain with brown to light grey sandy clay with some small lateritic gravel. Other types included woodlands on drainage lines (riparian vegetation) and open to scattered woodlands over scattered native shrubs and/or introduced species occurring on private property, road reserves and rail corridor. Some areas contain no overstorey and consist of patches of *Xanthorrhoea preissii* and/or *Kingia australis* occurring within the rail corridor. Planted/revegetation of native, non-local natives and introduced species were also recorded and mapped throughout the survey area.




Previous vegetation types mapped by AECOM (2020) within the rail corridor were ground truthed and at some locations further delineated/refined. In order to have one consolidated vegetation type mapping layer, the AECOM (2020) vegetation types were incorporated within GHD vegetation types. Notes on equivalent vegetation types where relevant are provided in Table 11. Changes to and refinement of the AECOM (2020) mapping included merging AECOM vegetation units CcAhMt and CcXpTo into a single vegetation unit following analysis of floristic data, further delineating native and planted vegetation (redefinition of AECOM (2020) mapped 'Trees' that contained both native and planted trees) and correcting any vegetation unit inconsistencies. Boundaries between vegetation and cleared areas were also refined, and areas previously mapped as 'Hardstand' have been incorporated into 'Cleared'.


**Table 11 Vegetation types recorded from the survey area**

Vegetation type and description	Landform and Substrate	Extent (ha)	Notes and sample locations	Photograph
<p><b><i>Corymbia calophylla</i> and occasionally <i>Eucalyptus marginata</i> and <i>Eucalyptus lane-poolei</i> open woodland (VT01)</b></p> <p><i>Corymbia calophylla</i> and occasionally <i>Eucalyptus marginata</i> and <i>Eucalyptus lane-poolei</i> open woodland to scattered trees over <i>Kingia australis</i> and <i>Hakea trifurcata</i> open shrubland over <i>Allocasuarina humilis</i>, <i>Xanthorrhoea preissii</i> and <i>Banksia dallaneyi</i> low open shrubland over <i>Mesomelaena tetragona</i>, <i>Mesomelaena stygia</i> subsp. <i>stygia</i> and <i>Schoenus grandiflorus</i> sparse sedgeland over <i>Lechenaultia biloba</i>, <i>*Ursinia anthemoides</i> and <i>Siloxerus multiflorus</i> sparse forbland.</p>	Flat to gentle slope on plain with brown to light grey sandy clay with some small lateritic gravel.	<p>Excellent: 6.78</p> <p>Very Good: 1.93</p> <p>Good: 3.32</p> <p>Degraded: 4.88</p> <p>Total: 16.91 ha</p>	<p>GHD samples: BRE01, BRE02, BRE05, BRE06R, BRE07, BRE08, BRE12, BRE13, BRE16, BRE19, BRE21</p> <p>AECOM (2020) samples: Byf15b, Byf16, Byf17, Byf18, Byf19</p> <p>Represents native vegetation.</p> <p>Represents <i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils (SCP3a) TEC</p> <p>Includes AECOM (2020) vegetation types CcAhMt and CcXpTo.</p>	
<p><b>Mixed woodland of <i>Corymbia calophylla</i>, <i>Eucalyptus rudis</i> and <i>Eucalyptus wandoo</i> woodland on drainage line (VT03)</b></p> <p>Mixed woodland of <i>Corymbia calophylla</i>, <i>Eucalyptus rudis</i> and <i>Eucalyptus wandoo</i> woodland over <i>Trymalium odoratissimum</i> subsp. <i>odoratissimum</i> and <i>Xanthorrhoea preissii</i> open shrubland over <i>*Ehrharta longiflora</i> and <i>*Briza maxima</i> sparse grassland over <i>*Oxalis pes-caprae</i>, <i>*Freesia alba x leightlinii</i> and <i>*Fumaria capreolata</i> sparse forbland.</p>	Gentle slope with brown sandy-loam on drainage line.	<p>Good: 1.33</p> <p>Degraded: 0.37</p> <p>Total: 1.70 ha</p>	<p>GHD samples: BRE03, BRE04.</p> <p>Represents native vegetation.</p> <p>Represents riparian vegetation.</p> <p>Area has had active weed control.</p>	

Vegetation type and description	Landform and Substrate	Extent (ha)	Notes and sample locations	Photograph
<p><b><i>Corymbia calophylla</i> and <i>Eucalyptus rudis</i> woodland on drainage line (VT04)</b></p> <p><i>Corymbia calophylla</i> and <i>Eucalyptus rudis</i> woodland over <i>Taxandria linearifolia</i> and <i>Astartea leptophylla</i> open shrubland over *<i>Cenchrus clandestinus</i> grassland.</p>	Light brown clay on drainage line.	Degraded: 2.72 Completely Degraded: 1.91 Total: 3.91 ha	GHD samples: BRE14, BRE15R, BRE20 Represents native vegetation. Represents riparian vegetation. Includes AECOM (2020) vegetation type remnant riparian veg.	
<p><b><i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> open woodland over <i>Xanthorrhoea preissii</i> (VT05)</b></p> <p><i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> open woodland over <i>Xanthorrhoea preissii</i>, <i>Grevillea wilsonii</i> and <i>Banksia dallanneyi</i> open shrubland over * <i>Eragrostis curvula</i> open grassland.</p>	Light brown loam/clay on flat plain.	Degraded: 0.08 Total: 0.08 ha	GHD samples: BRE10R Represents native vegetation.	
<p><b>Scattered <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> (VT06)</b></p> <p><i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> scattered trees over <i>Xanthorrhoea preissii</i> and/or <i>Kingia australis</i> sparse shrubland over introduced grasses and herbs.</p> <p>Some areas contain no overstorey and consist of patches of <i>Xanthorrhoea preissii</i> and/or <i>Kingia australis</i> with occasional scattered native shrubs including <i>Hypocalymma angustifolium</i> and <i>Leschenaultia biloba</i></p>	Light brown sandy loam/clay on plain. Occurs on road verges and rail corridor.	Good: 0.10 Degraded: 2.79 Completely Degraded: 10.03 Total: 12.92 ha	GHD sample locations: BRE11R, BRE17, BRE18 AECOM (2020) samples: Byf11, Byf12 Represents native vegetation. Includes AECOM (2020) vegetation types AfXpEc and Trees.	



Vegetation type and description	Landform and Substrate	Extent (ha)	Notes and sample locations	Photograph
<p><b>Planted/revegetation of both native, non-local natives and introduced species (VT07)</b></p> <p>Areas with planted shrubs and trees of both native, non-local natives and introduced species. Understorey is generally comprised of introduced herbs and grasses or maintained gardens</p>	Light brown sandy loam/clay on plain. Occurs on road verges, maintained gardens, parkland, landscaped areas and rail corridor.	Degraded: 1.46 Completely Degraded: 19.45 Total: 20.91 ha	Represents planted vegetation.  Includes AECOM (2020) vegetation types AfXpEc, Planted and Trees.	
<p><b>Scattered <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> trees with occasional <i>Eucalyptus wandoo</i> or <i>Eucalyptus rudis</i> in paddocks and grazed areas (VT08)</b></p> <p>Scattered <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> trees with occasional <i>Eucalyptus wandoo</i> or <i>Eucalyptus rudis</i>, with some planted non-local native trees, over parkland cleared in paddocks/grazed areas and road reserve.</p>	Light brown sandy loam/clay on plain. Occurs on paddocks/grazed areas on private property and road reserve.	Degraded: 1.56 Completely Degraded: 10.49 Total: 12.05 ha	AECOM (2020) samples: Byf09  Represents native vegetation.  Includes AECOM (2020) vegetation type Trees.	
<p><b><i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> open woodland over introduced grasses and herbs (VT09)</b></p> <p><i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> open woodland over <i>Kingia australis</i> and <i>Xanthorrhoea preissii</i> open shrubland over *<i>Ehrharta calycina</i> and *<i>Ehrharta longiflora</i> grassland over *<i>Watsonia meriana</i> open herbland.</p>	Flat plain with dark grey sandy loam/clay.	Degraded: 2.39 Total: 2.39 ha	GHD samples: BRE09R  Represents native vegetation.  Not representative of <i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils (SCP3a) TEC due to highly disturbed mid and understorey.	

Vegetation type and description		Landform and Substrate	Extent (ha)	Notes and sample locations	Photograph
Cleared	Areas devoid of native vegetation that have been cleared for paddocks, roads, housing and infrastructure.	Urban/built-up areas	142.46 ha	-	

## 4.2 Floristic analyses

Floristic analyses were undertaken to determine relationships between vegetation units and quadrats in the survey area and SCP FCTs defined by Gibson et al. (1994) (analyses methods described in section 2.2.5). Based on the results of the analyses inferences were made on the presence of SCP FCTs within the survey area. All quadrats sampled within the survey area were included in the analysis. This included quadrats from VT01, VT03 and VT04. Vegetation units VT05, VT08 and VT09 represented modified vegetation and no quadrats were sampled. VT06 also represented modified vegetation, however, limited quadrats sampled which were included in the analyses. Quadrat locations are mapped on Figure 6, Appendix A.

The analyses determined that VT01 showed the greatest similarities with SCP quadrats from SCPs 3a, 3b and 3c. With consideration of DBCA mapping and field observations (on surrounding vegetation, landform and soils) VT01 was considered to align with SCP 3a. It was considered sufficient sampling across the survey area was undertaken to map the locations of SCP 3a. None of the other vegetation types described within the survey area aligned with SCP FCTs.

Table 12 provides a summary of VT and FCT alignment based on the analyses with the relevant portions of the dendrograms provided in Appendix E. When all quadrats were included in the analyses, the classifications were influenced by the BRE quadrats being more similar to each other than to the SCP quadrats. For analyses with both the Gibson and Keighery Datasets, BRE quadrats from *Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-poolei* open woodland (VT01) and from Scattered *Corymbia calophylla* and *Eucalyptus marginata* (VT06) grouped together and were part of a larger cluster that included quadrats from SCPs 3a, 3b and 3c. However, these relationships appeared weak. BRE quadrats from other vegetation types did not cluster or align with any SCP FCTs. It is considered this is due to the generally modified and degraded nature of these vegetation types.

Table 13 provides a summary of individual BRE quadrats and FCT alignment based on the analyses with the relevant portions of the dendrograms provided in Appendix E. SSI is an alternate way of assessing the possible FCT relationships. It is noted that it is common for the classification (dendrogram) to indicate a simple result and the similarity/dissimilarity matrix to be less conclusive. This is more a product of the classification process often suggesting an over simplified view than of inconsistency of the analyses (Griffin 2015). Final BRE quadrat determinations were based on consideration of matrices, dendrograms and DBCA database mapping, as well as field observations (including indicator species, landform and soils).

Overall BRE quadrats generally showed low similarity with SCP quadrats. Higher similarity was observed in BRE quadrats with vegetation condition ratings of Very Good and Excellent. BRE quadrats BRE12 and BRE13 showed the highest similarity to SCP quadrats (53.97% and 49.21% respectively); this result was expected as these quadrats represented resampling of SCP quadrats lamb1 and lamb2 in Lambert Lane Nature Reserve.

BRE quadrats from VT01 largely clustered and showed the greatest similarities with SCP quadrats from SCPs 3a, 3b and 3c (Table 13). They also tended to have greater similarities with SCP quadrats in the local area (e.g. Cardup (card), Lambert Lane Nature Reserve (lamb) and Brickwood Reserve (brick)). BRE quadrats BRE08, BRE12, BRE13, BRE16 showed the greatest affinities with SCP quadrats from SCP 3a. The remaining VT01 BRE quadrats showed affinities with SCP quadrats from SCP 3b, 3c and occasionally other FCTs (Table 13). Gibson et al. (1994) states that community type 3 has three distinct subgroups which differ in the relative proportions of species in identified species groups. As the analyses are based on the presence/absence of species only, it is expected the analyses may be limited in differentiating between similar FCT types such as SCP 3a, 3b and 3c.

BRE quadrats from other vegetation types such as VT03, VT04 and VT06 did not group, or clustered with SCP quadrats from a range of FCTs. This result could be attributed to the modified nature of the vegetation at these locations. The final determinations for these BRE quadrats was considered inconclusive (Table 12 and Table 13).

The results highlight some of the problems that arise when trying to align quadrats from a modified landscape (i.e. from the survey area) with floristic data that was sampled within remnant bushland and collected circa 20 years ago. Furthermore, Gibson et al. (1994) states that a number of land systems (including the Pinjarra Plain) on the eastern side of the SCP were under sampled. Therefore, given the location of the survey area, and its largely modified nature these results are not unexpected.

**Table 12 Summary of floristic analyses (by vegetation type) to determine relationships of VTs to SCP FCTs**

VT	Gibson Dataset	Keighery Dataset	Justification and determination
01	Inconclusive Quadrats BRE01, BRE02, BRE05, BRE07, BRE08, BRE12, BRE13, BRE16, BRE19, Q12, Q13 formed own group indicating more similar to each other than other SCP quadrats. Sister clade contained quadrats from FCT 3a, 3b and 3c, however low similarity.	Possible FCT 3a Quadrats BRE01, BRE02, BRE08, BRE12, BRE13 formed own group. Sister clade with quadrats BRE05, BRE07, Q12, Q13, Q15b, Q16, BRE16, BRE19, lamb1 and lamb2 (FCT3a). Indicates BRE quadrats more similar to each other than other SCP quadrats, but some affinities to FCT 3a. Sister clade contained quadrats from FCT 3a, 3b and 3c, however low similarity.	<b>FCT 3a</b> When results examined with SSI analyses results (see Table 13), quadrats from VT01 largely clustered and showed the greatest similarities with SCP quadrats from FCTs 3a, 3b and 3c. Consideration of DBCA mapping and field observations (on surrounding vegetation, landform and soils) to determine FCT 3a.
03	Inconclusive Quadrats BRE03 and BRE04 formed own group. Low affinities with other SCP quadrats. Part of a larger cluster with FCT 13, 15, 16, 17, 18, 19, however low similarity.	Inconclusive Quadrats BRE_03 and BRE_04 formed own group. Grouped with S15. Part of a large clade with quadrats from FCT 6, S8, S16, S18.	<b>Does not align with SCP FCTs.</b> BRE quadrats from VT03 have low affinities to SCP quadrats and do not appear to align with any SCP FCTs. This result is supported by single site insertion analyses
04	Inconclusive Quadrats BRE14 and BRE20 formed own group. Low affinities with other SCP quadrats. Part of a larger cluster with FCT 13, 15, 16, 17, 18, 19, however low similarity.	Inconclusive Quadrats BRE14 and BRE20 formed own group. Low affinities with other SCP quadrats. Part of a larger cluster with quadrats from FCT 11, 12, 13, 14, S3, S17.	<b>Does not align with SCP FCTs.</b> BRE quadrats from VT04 have low affinities to SCP quadrats and do not appear to align with any SCP FCTs. This result is supported by single site insertion analyses.
05	-	-	VT represents modified vegetation and no quadrats sampled. No analyses undertaken.
06	Inconclusive Quadrats BRE17, BRE18 and BRE21 grouped with other BRE quadrats BRE16 and BRE19 indicating more similar to each other than other SCP quadrats. Sister clade contained quadrats from FCT 3a, 3b and 3c, however low similarity.	Inconclusive Quadrats BRE_18 and BRE_21 grouped with other GHD quadrat BRE_19. This was part of a larger clade with other GHD quadrats from VT01. Sister clade contained quadrats from FCT 3a, 3b and 3c.	<b>Does not align with SCP FCTs.</b> VT represents modified vegetation and limited quadrats sampled.
07	-	-	VT represented planted vegetation and no quadrats sampled. No analyses undertaken.
08	-	-	VT represents modified vegetation and no quadrats sampled. No analyses undertaken.

VT	Gibson Dataset	Keighery Dataset	Justification and determination
09	-	-	VT represents modified vegetation and no quadrats sampled. No analyses undertaken.

**Table 13 Summary of floristic analyses (by individual quadrat, single site insertion) to determine relationships of BRE quadrats to SCP FCTs**

Quadrat	Single Site Insertion (Gibson Dataset)				Single Site Insertion (Keighery Dataset)				Final determination
	Similarity	FCT	SCP Q	Dendrogram	Similarity	FCT	SCP Q	Dendrogram	
BRE01	38.83%	3b	card12	Clustered with quadrats from 3c. Part of a larger clade with quadrats from FCT 3a, 3b and 3c.	36.30%	3b	waro 01	Clustered with quadrats from 3c. Part of a larger clade with quadrats from FCT 3a, 3b and 3c.	<b>FCT 3a</b> Part of clade with FCT 3 (3a, 3b and 3c). DBCA database mapping over area is 3a.
VT01	35.71%	3b	card13		36.04%	3b	card12		
VC: E	34.43%	20c	talb2		35.90%	20b	Rush01		
BRE02	35.42%	3b	card12	Clustered with quadrats from 3c. Part of a larger clade with quadrats from FCT 3a, 3b and 3c.	35.19%	3b	card13	Clustered with quadrats from 3b. Part of a larger clade with quadrats from FCT 3a and 3b.	<b>FCT 3a</b> Part of clade with FCT 3 (3a, 3b and 3c). DBCA database mapping over area is 3a.
VT01	34.29%	3b	card13		34.29%	20b	Rush01		
VC: E	33.04%	20c	talb2		33.33%	3a	lamb2		
BRE03	22.22%	11	low10b	Clustered with quadrats from FCT 11. Part of a larger clade with quadrats from FCT 11.	26.32%	S15	Redh05	Clustered with one quadrat (S15). Part of a larger clade with quadrats from FCT S16 and S18	<b>Inconclusive</b>
VT03	22.22%	11	rowe01		24.14%	S16	WN106MNR		
VC: G	20.69%	19	cool 09		21.62%	S16	WN109MOR		
BRE04	30.00%	11	low10b	Clustered with quadrats from FCT 11. Part of a larger clade with quadrats from FCT 11	33.33%	S15	Redh05	Clustered with one quadrat (S15). Part of a larger clade with quadrats from FCT S16 and S18.	<b>Inconclusive</b>
VT03	26.42%	24	TRIG-6		28.57%	11	low10b		
VC: G	22.22%	3c	WATER-3		25.81%	S16	WN106MNR		
BRE05	43.75%	3b	card13		43.75%	3b	card13	Clustered with quadrats from FCT 3b.	<b>FCT 3a</b>
	41.38%	3b	card12		43.68%	3b	card12		

Quadrat	Single Site Insertion (Gibson Dataset)				Single Site Insertion (Keighery Dataset)				Final determination
	Similarity	FCT	SCP Q	Dendrogram	Similarity	FCT	SCP Q	Dendrogram	
VT01 VC: VG	37.97%	3a	BRIX-2	Clustered with quadrats from FCT 3b and 3a.	38.71%	20b	Rush01		Part of clade with FCT 3 (3a and 3b). DBCA database mapping over area is 3a
BRE07	28.99%	3c	talb4	Clustered with quadrats from 3a. Part of a larger clade with quadrats from FCT 3a.	30.77%	25	much04	Clustered with quadrats from 3c. This was part of a larger clade with quadrats from FCT 3a.	<b>FCT 3a</b> Part of clade with FCT 3a. DBCA database mapping over area is 3a.
VT01	27.91%	3b	card12		29.41%	3c	talb1		
VC: G	26.92%	6	card4		28.92%	3b	card12		
BRE08	43.01%	3a	brick7	Clustered with quadrats from 3a. Part of a larger clade with quadrats from FCT 3a.	43.75%	3a	brick7	Clustered with quadrats from 3a. Part of a larger clade with quadrats from FCT 3a.	<b>FCT 3a</b> Part of clade with FCT 3a. DBCA database mapping over area is 3a.
VT01	40.00%	3a	brick8		43.01%	3a	brick6		
VC: VG	36.36%	3a	brick5		42.31%	3a	brick8		
BRE12	53.97%	3a	lamb1	Clustered with quadrats from 3a. Part of a larger clade with quadrats from FCT 3a.	52.71%	3a	lamb1	Clustered with quadrats from 3a. Part of a larger clade with quadrats from FCT 3a.	<b>FCT 3a</b> Part of clade with FCT 3a. DBCA database mapping over area is 3a.
VT01	42.62%	3a	lamb2		43.20%	3a	lamb2		
VC: E	36.19%	3a	brick7		36.97%	3b	card13		
BRE13	49.21%	3a	lamb2	Clustered with quadrats from 3a. Part of a larger clade with quadrats from FCT 3a.	52.71%	3a	lamb2	Clustered with quadrats from 3a. Part of a larger clade with quadrats from FCT 3a.	<b>FCT 3a</b> Part of clade with FCT 3a. DBCA database mapping over area is 3a.
VT01	46.15%	3a	lamb1		43.61%	3a	lamb1		
VC: E	40.65%	3b	card13		42.28%	3b	card13		
BRE14	14.81%	11	hymus01	Inconclusive Did not group.	20.00%	S17	white04	Clustered with quadrats from FCT S17.	<b>Inconclusive</b> Low similarity
VT04	13.33%	11	low10b		19.05%	13	MILT-2		
VC: D	12.50%	13	MILT-2		17.39%	S17	ELE37		
BRE16	38.10%	3a	BRIX-2	Clustered with quadrats from 3a. Part of a larger clade with quadrats from FCT 3a and 3c.	36.59%	3a	BRIX-2	Clustered with quadrats from 3a. Part of a larger clade with quadrats from FCT 3a	<b>FCT 3a</b> Part of clade with FCT 3a.
VT01	33.66%	3b	card13		34.69%	3b	card13		
VC: G	33.33%	3c	DUCK-2		33.71%	3a	MUD-5		

Quadrat	Single Site Insertion (Gibson Dataset)				Single Site Insertion (Keighery Dataset)				Final determination
	Similarity	FCT	SCP Q	Dendrogram	Similarity	FCT	SCP Q	Dendrogram	
BRE17	28.57%	3c	DUCK-2	Clustered with quadrats from FCT 6. Part of a larger clade with quadrats from FCT 6.	30.30%	3c	DUCK-2	Clustered with two quadrats from 3a. Part of a larger clade with quadrats from FCT 5, 6 and other FCTs.	<b>FCT 6</b> Weed dominated wetlands on heavy soils.
VT01	28.00%	6	card4		27.78%	20c	talb6		
VC: D	27.03%	20c	talb6		25.58%	3a	m5306		
BRE18	27.27%	24	NEER-11	Clustered with quadrats from FCT 11. Part of a larger clade with quadrats from FCT 11	29.03%	25	much04	Clustered with quadrats from 18, 24, 25. Part of a larger clade with quadrats from FCT 24 and 29b.	<b>Inconclusive</b>
VT06	27.03%	11	rowe01		27.27%	3c	DUCK-2		
VC: D	26.47%	3c	DUCK-2		26.87%	28	DEPOT-1		
BRE19	31.25%	3c	talb4	Clustered with quadrats from 3c. Part of a larger clade with quadrats from FCT 3a, 3b and 3c.	33.33%	3c	talb4	Clustered with quadrats from 3c. Part of a larger clade with quadrats from FCT 3a, 3b and 3c.	<b>FCT 3a</b> Part of clade with FCT 3.
VT01	30.51%	3c	WATER-3		32.00%	6	card4		
VC: G	30.14%	3a	BRIX-2		31.88%	3a	Punr02		
BRE20	21.43%	11	low10b	Did not group. Part of a larger clade with quadrats from FCT 11, 12 and 14.	26.67%	S07	bold21	Clustered with S07. Part of a larger clade with quadrats from FCT S07 and S15.	<b>Inconclusive</b>
VT04	16.00%	11	hymus01		23.53%	S17	white04		
VC: D	14.29%	13	MILT-2		22.22%	13	MILT-2		
BRE21	24.00%	11	rowe01	Did not group. Part of a larger clade with quadrats from FCT 3a, 3b and 3c.	26.42%	Q16	AECOM 2019	Clustered with quadrats from S15 and 25. Part of a larger clade with quadrats from FCT 24 and 29a.	<b>Inconclusive</b>
VT06	19.23%	3c	ELLEN-6		25.81%	S15	bold17		
VC: CD	19.05%	3c	talb13		24.39%	S18	CH060ASH		

**Abbreviations:** VC = Vegetation Condition, E = Excellent, VG = Very Good, G = Good, D = Degraded and CD = Completely Degraded.



### 4.3 Vegetation condition

The vegetation condition of the survey area ranged from Excellent to Completely Degraded. The extents of the vegetation condition ratings mapped within the survey area are detailed in Table 14 and mapped in Figure 7, Appendix A.

Approximately 67% (142.46 ha) of the survey area was cleared / highly modified, with a further 9.8% (20.91 ha) comprising planted vegetation. Historical clearing, tracks, infrastructure development and aggressive weed species have influenced the structure and composition of the remaining native vegetation. Areas rated Excellent and Very Good condition were restricted to Lambert Lane Nature Reserve and Fletcher Park. The vegetation in these areas was mostly intact, with comparatively high floristic diversity and minimal weed species present. Lambert Lane Nature Reserve did contain a small area, where revegetation had been unsuccessful and contained predominately weeds in the understory. This area was mapped as Degraded and covered approximately 0.26 ha (Figure 7, Appendix A). Several areas within the rail corridor were rated Good; the vegetation structure in these areas was altered and showed signs of disturbance. The remainder of vegetation within the survey area was rated Degraded and Completely Degraded. These areas were largely devoid of native species in the mid and ground strata, however retained remnant tree species that formed a structural layer in the upper stratum.

**Table 14 Vegetation condition ratings within the survey area**

Type	Condition rating	Extent (ha)
Native vegetation	Excellent	6.78
	Very Good	1.93
	Good	4.75
	Degraded	14.80
	Completely Degraded	21.70
	<b>Sub-total</b>	<b>49.96</b>
Planted vegetation	Degraded	1.46
	Completely Degraded	19.45
	<b>Sub-total</b>	<b>20.91</b>
Cleared	No rating	142.46
<b>Total</b>		<b>213.33</b>

### 4.4 Significant vegetation

TECs and PECs were identified by assessing the vegetation types, quadrat sampling, landform features and field observations, coupled with the statistical analyses. One TEC was identified within the survey area; *Corymbia calophylla* - *Kingia australis* woodlands on heavy soils, SCP (SCP 3a). This TEC is listed as Endangered under the EPBC Act and Critically Endangered under the BC Act. No other TECs or PECs were identified in the survey area.

#### ***Corymbia calophylla* - *Kingia australis* woodlands on heavy soils, SCP (SCP 3a)**

SCP 3a is described as a woodland community located on heavy soils of the eastern side of the SCP. It is one of three Marri dominated communities that are considered to have been some of the most extensive on the eastern site of the SCP. These communities have suffered extensive clearing and are now regionally rare (DEC 2011). Typical and common native taxa in SCP 3a include *Corymbia calophylla*; the shrubs *Banksia nivea*, *Philothea spicata*, *Kingia australis* and *Xanthorrhoea preissii*; herbs, rushes and sedges, *Cyathochaeta avenacea*, *Dampiera linearis*, *Haemodorum laxum*, *Desmocladius fasciculatus*, *Mesomelaena tetragona* and *Tetraria*

*octandra*. The introduced grass *Briza maxima* is also common in the community. The floristic composition of the community varies on the water regimes of the area. Groundwater is typically within 3 m of the natural ground surface where this community occurs, indicating a dependence on groundwater (DEC 2011).

AECOM (2020) determined vegetation type CcAhMt to represent TEC SCP 3a. AECOM (2020) did not assign SCP 3a to all mapped areas of CcAhMt, which appears to be mostly based on condition with areas of Degraded or lower condition not assigned to the FCT. AECOM (2020) also considered vegetation type CcXpTo to represent either SCP 3a or SCP 3c, *Corymbia calophylla* – *Xanthorrhoea preissii* woodlands and shrublands, which is also a TEC listed as Endangered under the EPBC Act and Critically Endangered under the BC Act. The statistical analyses undertaken by AECOM were inconclusive for assigning either SCP 3a or SCP 3c to CcXpTo. Similar to SCP 3a, not all mapped areas of CcXpTo were assigned to SCP 3c, which appears mostly based on condition with areas of Degraded or lower condition not assigned to SCP 3c. It is noted that TECs SCP 3a and SCP 3c do not have condition thresholds as stated in the EPBC Act Conservation Advice as long as the description of the ecological community are met (ESSS 2000a, 2000b).

This assessment considers *Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-poolei* open woodland (VT01) to represent TEC SCP 3a. It is noted that VT01 described in this report contains both AECOM vegetation types CcAhMt and CcXpTo. All areas of VT01 are mapped as TEC SCP 3a, with the TEC ranging in condition from Excellent to Degraded. In total, there is 16.91 ha of TEC SCP 3a within the survey area.

SCP 3a was mapped from three locations within the survey area, at Lambert Lane Nature Reserve, Fletcher Park, and within the rail corridor south of Thomas Road (Figure 8, Appendix A). Quadrats sampled in Lambert Lane Nature Reserve and Fletcher Park broadly aligned with SCP 3a (see Table 13). Furthermore, a comparison of typical occurring species (>75%) in Gibson et al. (1994) SCP 3a quadrats with species recorded in VT01 quadrats (GHD quadrats) (Table 15) showed many of the key indicator species were present in these quadrats. Lambert Lane Nature Reserve and Fletcher Park are known to contain TEC SCP 3a and are represented by occurrences 9, 10 and 11 in DEC (2011). DEC (2011) reports that these almost contiguous occurrences form a small cluster adjacent to the rail line and cover approximately 12.9 ha. The occurrences occur within Bush Forever Site No. 264 and extend east into the rail reserve and into Fletcher Park; the Eleventh Road end of the community has been fenced. DEC (2011) notes that weed invasion, and recreational impacts including illegal access pose the most significant threats to TEC SCP 3a in this area.

The southern end of Fletcher Park is mapped as *Corymbia calophylla* and *Eucalyptus marginata* open woodland over introduced grasses and herbs (VT09) (Figure 6, Appendix A) and is not considered to represent TEC SCP 3a. The vegetation structure in this area has been highly modified and was rated as Degraded in condition. In particular, the understorey has been replaced and is dominated by grassy weeds as well as *Watsonia meriana* and *Moraea flaccida*. It is considered that this area no longer represents a functioning occurrence of SCP 3a.

Due to access constraints, no quadrats were sampled in areas south of Thomas Road during the AECOM survey (AECOM, pers. comm. 2021). The vegetation in this area was mapped as CcXpTo by AECOM, but not assigned to represent SCP 3a or 3c. GHD sampled four quadrats within this section of the rail corridor south of Thomas Road. Two of these quadrats showed greatest similarities to SCP quadrats from SCP 3a. At this location TEC SCP 3a is limited to vegetation on both sides of the railway line in Good condition with a patch of Degraded condition present. In supporting the statistical analyses, field observations considered to the vegetation to represent TEC SCP 3a based on landform, soil type (heavy soils) and presence of indicator species that determine SCP 3a including scattered *Kingia australis* through-out (Table

15). As this vegetation is within the rail corridor, the overstorey has been largely reduced, however, some smaller re-growth stems of *Corymbia calophylla* occur. While the condition of the vegetation is Good to Degraded the vegetation still retains basic composition and functioning of the TEC SCP 3a with the presence of a range of native species in the mid and understorey persisting. This occurrence of SCP 3a is not currently noted in the out of date Interim Recovery Plan (DEC 2011) or covered by DBCA mapping.

**Table 15 Indicator species comparison between SCP 3a and GHD quadrats**

Species occurring in >75% of Gibson et al (1994) SCP 3a quadrats	BRE01	BRE02	BRE05	BRE08	BRE12	BRE13	BRE16	BRE19
<i>*Briza maxima</i>	X	X	X			X	X	X
<i>Banksia dallaneyi</i>	X		X	X	X	X		X
<i>Corymbia calophylla</i>	X	X	X	X		X	X	X
<i>Cyathochaeta avenacea</i>			X	X		X		
<i>Dampiera linearis</i>					X	X		
<i>Desmocladus fasciculatus</i>	X	X	X	X	X	X	X	
<i>Haemodorum laxum</i>	X	X	X	X	X	X	X	X
<i>Kingia australis</i>	X		X	X	X	X	X	X
<i>Mesomelaena tetragona</i>	X	X	X	X	X	X	X	X
<i>Philothea spicata</i>				X	X	X		
<i>Tetraria octandra</i>	X	X	X	X	X	X		
<i>Xanthorrhoea preissii</i>	X	X	X	X	X	X	X	X



**Plate 2 *Corymbia calophylla* - *Kingia australis* woodlands on heavy soils, SCP (SCP 3a) occurrence from Lambert Lane Nature Reserve**

#### **Review of TECs and PECs identified in the desktop searches**

The desktop searches identified the potential occurrence of ten TECs and three PECs and/or their buffers within 5 km of the survey area (see section 3.7). Table 16 provides a discussion on the TECs and PECs identified in the desktop searches in relation to the vegetation mapped within the survey area. One TEC was identified within the survey area; *Corymbia calophylla* - *Kingia australis* woodlands on heavy soils, SCP (SCP 3a) as discussed above. No other TECs or PECs were recorded within the survey area.

**Table 16 Status of vegetation within TEC/PEC buffers in the survey area**

Community name and status	Discussion
<p><i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils, Swan Coastal Plain (SCP3a) TEC            EPBC Act: Endangered            BC Act: Critically Endangered</p>	<p>The buffer of this TEC intersects survey area at Lambert Lane Nature Reserve, Fletcher Park and the very southern end of the survey area (Figure 5, Appendix A). This TEC is mapped within the survey area at Lambert Lane Nature Reserve, Fletcher Park and south of Thomas Road (refer to section 4.4, Figure 8, Appendix A).  <b>The TEC occurs within the survey area.</b></p>
<p><i>Corymbia calophylla</i> - <i>Eucalyptus marginata</i> woodlands on sandy clay soils of the southern Swan Coastal Plain (SCP3b) TEC            BC Act: Vulnerable</p>	<p>The buffer of this TEC intersects the survey area in the Wungong area (Figure 5, Appendix A). The vegetation in the survey area mapped within this buffer zone is <i>Corymbia calophylla</i> and <i>Eucalyptus rudis</i> woodland on drainage line (VT04). This vegetation is not considered to represent the TEC based on statistical analyses, vegetation condition and comparison of key indicator/dominant species.  <b>This TEC does not occur in the survey area.</b></p>

Community name and status	Discussion
<p><i>Corymbia calophylla</i> - <i>Xanthorrhoea preissii</i> woodlands and shrublands, Swan Coastal Plain (SCP3c) EPBC Act: Endangered BC Act: Critically Endangered</p>	<p>The buffer of this TEC intersects the southern end of the survey area near Byford (Figure 5, Appendix A). The vegetation in the survey area mapped within this buffer zone is Scattered <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> (VT06) and Planted/revegetation of both native, non-local natives and introduced species (VT07). This vegetation is not considered to represent the TEC based on statistical analyses, vegetation type and condition. <b>This TEC does not occur in the survey area.</b></p>
<p>Herb rich shrublands in clay pans (SCP08) TEC <sup>1</sup> EPBC Act: Critically Endangered BC Act: Vulnerable</p>	<p>No buffers of this TEC intersect the survey area. The vegetation within the survey area is not representative of herb rich shrublands and no clay pan areas were recorded. The statistical analyses did not identify any quadrats or vegetation types with affinities to SCP08. <b>This TEC does not occur in the survey area.</b></p>
<p>Dense shrublands on clay flats (SCP09) TEC <sup>1</sup> EPBC Act: Critically Endangered BC Act: Vulnerable</p>	<p>No buffers of this TEC intersect the survey area. The vegetation within the survey area is not representative of dense shrublands and no clay flats were recorded. The statistical analyses did not identify any quadrats or vegetation types with affinities to SCP09. <b>This TEC does not occur in the survey area.</b></p>
<p>Shrublands on dry clay flats (SCP 10a) <sup>1</sup> EPBC Act: Critically Endangered BC Act: Endangered</p>	<p>No buffers of this TEC intersect the survey area. The vegetation within the survey area is not representative of shrublands and no clay flats were recorded. The statistical analyses did not identify any quadrats or vegetation types with affinities to SCP10a. <b>This TEC does not occur in the survey area.</b></p>
<p><i>Banksia attenuata</i> and/or <i>Eucalyptus marginata</i> woodlands of the eastern side of the Swan Coastal Plain (SCP20b) TEC <sup>2</sup> EPBC Act: Endangered BC Act: Endangered</p>	<p>The buffer of this TEC intersects the southern end of the survey area near Byford and Cardup Siding Road (Figure 5, Appendix A). The vegetation in the survey area mapped within this buffer zone is Scattered <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> (VT06), Planted/revegetation of both native, non-local natives and introduced species (VT07) and Scattered <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> trees with occasional <i>Eucalyptus wandoo</i> or <i>Eucalyptus rudis</i> in paddocks and grazed areas (VT08). This vegetation is not considered to represent the TEC based on statistical analyses, vegetation type and condition. <b>This TEC does not occur in the survey area.</b></p>
<p><i>Banksia</i> Woodlands of the Swan Coastal Plain TEC and PEC EPBC Act: Endangered DBCA: Priority 3</p>	<p>The buffer of this TEC/PEC intersects the survey area at Lambert Lane Nature Reserve and Armadale Park (Figure 5, Appendix A). No <i>Banksia</i> overstorey was observed in the survey area. Mapping of <i>Banksia</i> woodlands in the metropolitan area is based on Commonwealth's "likely to occur" area and represents broad-scale mapping units. <b>This TEC/PEC does not occur in the survey area.</b></p>

Community name and status	Discussion
Tuart ( <i>Eucalyptus gomphocephala</i> ) Woodlands and Forests of the Swan Coastal Plain TEC EPBC Act: Critically Endangered DBCA: Priority 3	No buffers of this TEC intersect the survey area. No Tuart Woodlands were mapped in the survey area. There is no vegetation within the survey area that meets the key characteristics and condition/size thresholds for this TEC/PEC <b>This TEC/PEC does not occur in the survey area.</b>
Shrublands and woodlands on Muchea Limestone of the Swan Coastal Plain TEC EPBC Act: Endangered BC Act: Endangered	No buffers of this TEC intersect the survey area. No Muchea Limestone occurs within the survey area and the vegetation within the survey area is not representative of this community. <b>This TEC does not occur in the survey area.</b>
<i>Casuarina obesa</i> association PEC DBCA: Priority 1	No buffers of this PEC intersect the survey area. No vegetation within the survey area is dominated by <i>Casuarina obesa</i> nor representative of this community. <b>This PEC does not occur in the survey area.</b>
<i>Eucalyptus haematoxylon</i> - <i>E. marginata</i> woodlands on Whicher foothills (SCP1a) PEC DBCA: Priority 3	No buffers of this PEC intersect the survey area. The survey area is not located on the Whicher foothills and no vegetation within the survey area is representative of <i>Eucalyptus haematoxylon</i> - <i>E. marginata</i> woodlands. <b>This PEC does not occur in the survey area.</b>
Low lying <i>Banksia attenuata</i> woodlands or shrublands (SCP21c) PEC <sup>2</sup> DBCA: Priority 3	No buffers of this PEC intersect the survey area. No <i>Banksia</i> overstorey was observed in the survey area and no vegetation within the survey area is representative <i>Banksia attenuata</i> woodlands or shrublands. <b>This PEC does not occur in the survey area.</b>

<sup>1</sup> Part of the EPBC Act listed Clay Pans of the Swan Coastal Plain TEC.

<sup>2</sup> Can be a part of the EPBC Act *Banksia* Woodlands of the Swan Coastal Plain TEC.

### Riparian vegetation

Vegetation that grows in association with watercourses may be considered significant vegetation. VT03 and VT04 represent riparian vegetation and contain remnant trees and shrubs such as *Eucalyptus rudis*, *Corymbia calophylla* and *Taxandria linearifolia*. VT03 was mapped within the north eastern part of Fletcher Park associated with an ephemeral watercourse (unnamed). Vegetation at this location ranged from Good to Degraded. VT04 was mapped along Wungong Brook and ranged in condition from Degraded to Completely Degraded (Plate 3). While the riparian vegetation within the survey area ranged from Good to Completely Degraded, the vegetation provides linkages between areas of native vegetation in an extensively cleared landscape.



**Plate 3 Riparian vegetation along Wungong Brook**

#### **4.5 Flora diversity**

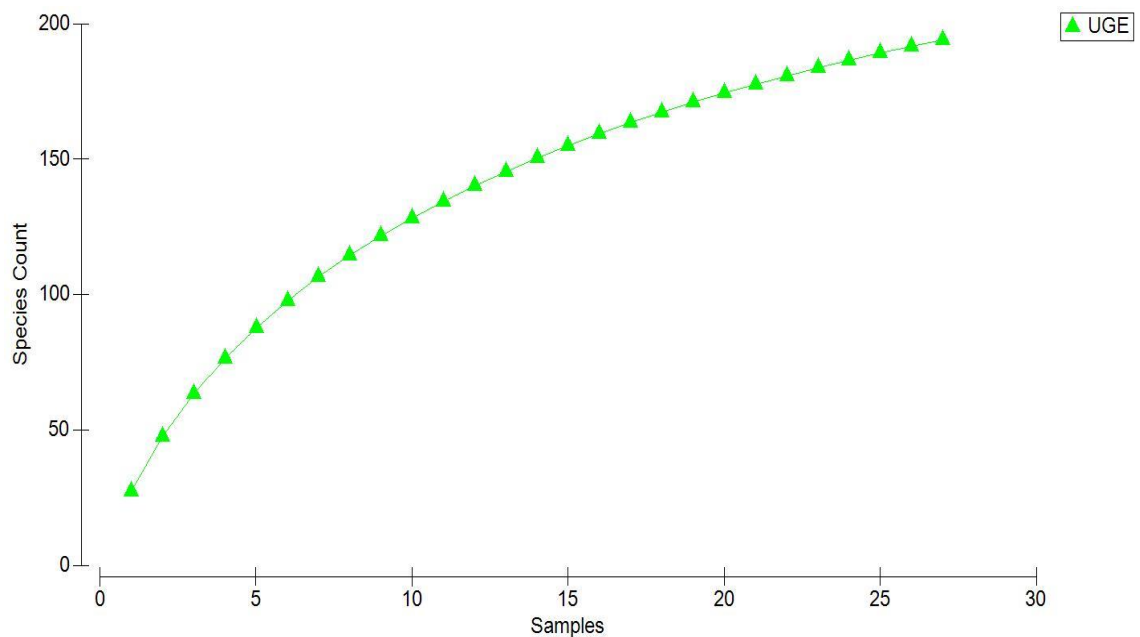
One hundred and eighty nine (189) flora taxa (including subspecies and varieties) from 54 families were recorded from the GHD survey. This total included 133 (70%) native taxa and 56 introduced (30%) species. Dominant families recorded were Fabaceae (21 taxa), Proteaceae (19 taxa) and Myrtaceae (14 taxa).

The floristic diversity of the survey area has been assessed by combining relevant survey data from AECOM (2020) and the current survey. A total of 222 species have been recorded across the surveys including 57 introduced and/or planted species (25%).

Based on described quadrats, species richness ranged from 9 to 64 (average 31.5) taxa per 100 m<sup>2</sup>. The highest floristic diversity was recorded in VT01, which had a mean species richness of 42.5 taxa per 100 m<sup>2</sup>.

A species accumulation curve was generated using PRIMER to assess adequacy of sampling effort within the survey area (Plate 4). The species accumulation curve for the survey area, based on flora recorded within quadrats and relevés (from GHD and AECOM), is approaching an asymptote, which suggests that the current survey effort is sufficient. The bootstrap estimate of species richness generated from this data indicates that 224 species could be expected from the survey area based on the diversity recorded within quadrats and relevés. The total species recorded from the survey area was 222 flora taxa which is approximately the predicted species diversity estimate. The survey area is considered representative of the floristic diversity in the area.

A flora list and matrix of species by quadrat is provided in Appendix F.



## Plate 4 Species accumulation curve

### 4.6 Significant flora

#### 4.6.1 Conservation significant flora

Two conservation significant flora taxa were recorded from the survey area:

- *Eucalyptus x balanites* (Cadda Road Mallee), listed as Endangered under the EPBC Act and Critically Endangered under the BC Act
- *Johnsonia pubescens* subsp. *cygnorum*, listed as Priority 2 by DBCA.

Descriptions of the two taxa are provided below with the locations shown on Figure 8 (Appendix A) and location data and number of plants recorded presented in Appendix F.

#### *Eucalyptus x balanites* (Threatened)

*Eucalyptus x balanites* (Cadda Road Mallee) is a putative hybrid that grows as sprawling tree mallee to 5 m high. The taxon has rough flaky grey bark with white flowers that can be seen from October-December or January-February. It prefers sandy soils with lateritic gravel and recorded habitats include healthlands with emergent mallees and open mallee woodlands over shrublands (WA Herbarium 2020, DEC 2004).

The taxon is endemic to Western Australia and is known from two disjunct populations. A population in bushland at Fletcher Park listed as a single individual (Population 2, DEC 2004) and a population approximately 208 km north of Perth in the Badgingarra National Park in the Geraldton Sandplains region (Population 1, DEC 2004). The Badgingarra National Park population contains 25 clumps of plants as listed in the outdated Recovery Plan (DEC 2004). There is also an additional record approximately 4.7 km west of the Badgingarra National Park population, from a collection made in 1985 (WA Herbarium 2020). There is limited information on this record and whether it is an extant population.

*Eucalyptus x balanites* was recorded from two locations within the survey area at Fletcher Park (Plate 5, Plate 6 and Figure 8, Appendix A), with two individuals observed (one at each location). It is considered unlikely that any further locations of this taxon occur in the survey area. The locations of these records represent Population 2 in the *Cadda Road Mallee* (*Eucalyptus x balanites*) *Recovery Plan* (DEC 2004). However, this survey recorded two



individuals compared with a single individual noted in the Recovery Plan (DEC 2004). Within the survey area, the taxon was recorded from VT01 on a flat plain with brown to light grey sandy clay with some small lateritic gravel.



**Plate 5 *Eucalyptus x balanites* habit**



**Plate 6 *Eucalyptus x balanites* fruit**

### *Johnsonia pubescens* subsp. *cygnorum* (Priority 2)

*Johnsonia pubescens* subsp. *cygnorum* is a tufted perennial herb to 0.25 m high with white-green flowers that can be seen in September. The species grows on flats and seasonally-wet sites with grey-white sand, sandy-clay with laterite gravel (WA Herbarium 2020).

The taxon is endemic to Western Australia and is known from 18 records representing approximately 14 populations with a distribution from south of the Swan River to near Pinjarra, a range of approximately 68 km (DBCA 2021). Two populations are recorded from DBCA managed tenure, within unnamed Nature Reserve (R 51784) and Lambert Lane Nature Reserve.

*Johnsonia pubescens* subsp. *cygnorum* was recorded from six locations within the survey area with eight individuals observed (Plate 7, Figure 8, Appendix A). The taxon was recorded within the PTA rail reserve adjacent to Fletcher Park, from Lambert Lane Nature Reserve and at the southern end of the survey area south of Thomas Road. The record from Lambert Lane Nature Reserve is a known location and record. Previous surveys (AECOM 2020) recorded *Johnsonia pubescens*, however, did not confidently determine the taxon to subspecies level. This survey collected and recorded suitable flowering material of *Johnsonia pubescens* subsp. *cygnorum*, which was confirmed at the WA Herbarium. It is considered unlikely that any further locations of this taxon occur in the survey area. The species was recorded in VT01 on flat plains with brown to light grey sandy clay with some small lateritic gravel.



**Plate 7** *Johnsonia pubescens* subsp. *cygnorum*

#### **4.6.2 Other flora of interest**

Eight taxa recorded within the survey area are listed as significant flora of the Perth metropolitan Region as defined in Bush Forever (GoWA 2000b). A summary of each taxon including its location within the survey area and significance is provided in Table 17.

No other significant flora such as taxa representing range extensions, taxa endemic to the survey area or otherwise anomalous taxa were recorded within the survey area.

See Section 5 for further information on a spurious record of *Synaphea* sp. Serpentine (G.R. Brand 103) from Lambert Lane Nature Reserve.

**Table 17 Significant flora of the Perth Metropolitan Region defined in Bush Forever (GoWA 2000b)**

Taxon	Location with the survey area	Review of significance <sup>1</sup>
<i>Conospermum huegelii</i>	Recorded by GHD opportunistically	Listed as having significant populations (s) in Bush Forever (GoWA 2000b). It is currently known from Jarrah Forest and SCP IBRA regions.
<i>Eucalyptus lane-poolei</i>	Recorded by GHD from BRE06, BRE13, BRE18 and opportunistically. Recorded by AECOM from bfy15b and bfy16	Listed as being poorly reserved (p) in Bush Forever (GoWA 2000b). It is currently known from Geraldton Sandplains, Jarrah Forest and SCP IBRA regions.
<i>Isopogon asper</i>	Recorded by GHD from BRE08 and opportunistically	Listed as having significant populations (s) in Bush Forever (GoWA 2000b). It is currently known from Geraldton Sandplains, Jarrah Forest and SCP IBRA regions.
<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	Recorded by GHD opportunistically (see Figure 8).	Listed as having significant populations (s) in Bush Forever (GoWA 2000b). It is currently known from SCP IBRA region.
<i>Lambertia multiflora</i> var. <i>darlingensis</i>	Recorded by AECOM from byf15b	Listed as being poorly reserved (p) and having significant populations (s) in Bush Forever (GoWA 2000b). It is currently known from Jarrah Forest and SCP IBRA regions.
<i>Lomandra spartea</i>	Recorded by GHD from BRE02, BRE06, BRE12 and opportunistically	Listed as having significant populations (s) and populations at northern/southern limit of known geographic range (r) in Bush Forever (GoWA 2000b). It is currently known from Jarrah Forest and SCP IBRA regions.
<i>Synaphea acutiloba</i>	Recorded by GHD from BRE13, BRE16	Listed as being poorly reserved (p), having significant populations (s) and being endemic to the SCP (e) in Bush Forever (GoWA 2000b). It is currently known from Jarrah Forest and SCP IBRA regions.
<i>Xanthorrhoea acanthostachya</i>	Recorded from AECOM relevé byf19	Listed as having significant populations (s) in Bush Forever (GoWA 2000b). It is currently known from Geraldton Sandplains, Jarrah Forest and SCP IBRA regions.

<sup>1</sup> Adapted from Table 13 (GoWA 2000b), e = taxa endemic to the SCP, p = considered poorly reserved, r = populations at the norther or southern limit of their known geographic range, s = significant populations.

#### 4.6.3 Likelihood of occurrence

A likelihood of occurrence assessment was conducted post-field survey for all conservation significant flora species identified in the desktop assessment (Appendix G). This assessment took into account previous records, habitat requirements, efficacy and intensity of the survey, flowering times and the cryptic nature of the species.

The likelihood of occurrence assessment post-field survey concluded that two taxa are known to occur in the survey area (recorded from the current survey), one taxon may possibly occur in the survey area and the remaining 73 taxa are unlikely to occur within the survey area. A summary of conservation significant taxa which are known or may possibly occur within the survey area are included in Table 18.

**Table 18 Summary of conservation significant species recorded as known, likely or potentially occurring within the survey area**

Species	EPBC Act status	BC Act/ DBCA status	Likelihood of occurrence (post-survey)
<i>Eucalyptus x balanites</i>	EN	CR	<b>Known</b> – recorded during GHD survey from previous record at Fletcher Park. See discussion above under section 4.6.1.
<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	-	P2	<b>Known</b> – recorded during GHD survey and previously recorded in Lambert Lane Nature Reserve. See discussion above under section 4.6.1.
<i>Diuris purdiei</i>	EN	EN	<b>Possible</b> – A previous record in the south of Fletcher Park (outside of the rail corridor) is present in the survey area within VT01. This DBCA TPFL record is from 2005 with nine individuals recorded. Targeted search effort (traverses) during the flowering period did not record this species. <i>Diuris purdiei</i> flowers between late September to mid-October, but only in the season after a hot summer or early autumn fire (Brown et al. 1998). The species is dependent on fire for flowering and may not respond unless a suitable fire event occurs in the area. While the species was not recorded during this survey, in the absence of fire, post-survey it is considered possibly occurring. It is noted that the area has some <i>*Watsonia meriana</i> which may have reduced the ability for the population to persist.

#### 4.7 Introduced flora

Fifty-seven introduced species were recorded from the survey area (combined GHD and AECOM survey results). Of the introduced species, four are listed as Declared Pests under the BAM Act and/or as a WoNS:

- *\*Asparagus asparagoides* (Bridal Creeper)
- *\*Zantedeschia aethiopica* (Arum lily)
- *\*Rubus ulmifolius* (Black berry)
- *\*Moraea flaccida* (One-leaf Cape Tulip)

The remaining introduced species are considered environmental weeds and all have been previously recorded on the SCP. Large *\*Watsonia* infestations were recorded at the southern end of Fletcher Park and south of Thomas Road. These have the potential to invade adjacent native vegetation and cause further degradation.

A summary of the Declared Weeds/WoNS recorded from the survey area is presented in Table 19 with the locations shown in Figure 7, Appendix A. Species location data and number of plants recorded is presented in Appendix F.

**Table 19 Significant weeds recorded from the survey area**

Species	Status	Details
<i>Asparagus asparagoides</i> (Bridal Creeper)	Declared Pest and WoNS	Two individuals of Bridal Creeper were recorded from the southern part of Fletcher Park.
<i>Zantedeschia aethiopica</i> (Arum lily)	Declared Pest	One individual of Arum lily was recorded from the central part of Fletcher Park. Thirteen individuals of Arum lily were also recorded from the southern part of Fletcher Park.
<i>Rubus ulmifolius</i> (Black berry)	Declared Pest	Approximately 141 individuals of Black berry were recorded from Wungung Brook on the west side of the rail corridor.
<i>Moraea flaccida</i> (One-leaf Cape Tulip)	Declared Pest	Approximately 10 individuals of One-leaf Cape Tulip were recorded in the rail corridor south of Thomas Road. Twenty individuals of One-leaf Cape Tulip were also recorded from the southern part of Fletcher Park.

#### 4.8 Context area assessment

The context area includes a 500 m buffer around the survey area. Broad vegetation type and condition mapping of the context area was undertaken through extrapolation of survey data, review of aerial imagery and desktop review of available broad scale vegetation mapping layers such as remnant vegetation mapping extent. The broad vegetation types within the context area, based on mapped VT's within the survey area, are shown on Figure 9, Appendix A.

## 5. Discussion

### *Vegetation types and condition*

Eight vegetation types including planted/ revegetation areas were described and mapped within the survey area. These vegetation types include and expand on those previously described by AECOM (2020) as part of a previous survey for the BRE project.

Vegetation within the survey area is largely restricted to linear strips along the rail corridor and watercourses as well as isolated stands of trees associated with parklands and on private properties. Historical clearing, tracks, infrastructure development and aggressive weed species have influenced the structure and composition of the remaining native vegetation within the survey area. Vegetation condition across the survey area was mostly rated Degraded and Completely Degraded, reflective of the vegetation occurring as thin strips and isolated stands. As shown through the context mapping, Lambert Lane Nature Reserve and Fletcher Park represent the only two remnant vegetation blocks in mostly Excellent and Good condition within a largely modified environment.

From a local and regional perspective, all native vegetation within the survey area is considered of value. This is due to the extensive clearing that has occurred across the SCP and demonstrated through the current extent calculations for the Forrestfield and Guildford Complexes. Both complexes have less than 15% of their pre-European extents remaining on the SCP and less than 10% their pre-European extents remaining within Local Government Areas.

### *Significant vegetation*

*Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-poolei* open woodland (VT01) contained largely intact vegetation with high species diversity and few weed species recorded. This was evident particularly in Fletcher Park and Lambert Lane Nature Reserve outside of the rail corridor. VT01 represents the TEC *Corymbia calophylla* - *Kingia australis* woodlands on heavy soils, Swan Coastal Plain (SCP 3a), listed as Endangered under the EPBC Act and Critically Endangered under the BC Act. SCP 3a is one of three Marri dominated communities known from the eastern side of the SCP. It occurs on the wettest sites from Forrestfield to south near Waroona (Gibson et al. 1994). However, due to extensive land clearing on the Pinjarra Plain this community is regionally rare (DEC 2011). DEC (2011) list threatening processes for SCP 3a as clearing, altered fire regimes, weed invasion, hydrological changes, salinisation, grazing and the introduction of diseases.

The out of date Interim Recovery Plan (DEC 2011) lists 26 occurrences of TEC SCP 3a from 16 locations covering approximately 194 ha in total. Lambert Lane Nature Reserve and Fletcher Park are known to contain TEC SCP 3a and are represented by occurrences 9, 10 and 11 in DEC (2011). While DEC (2011) reported that these occurrences cover approximately 12.9 ha, this survey has mapped approximately 15.83 ha at this location. The difference in area may be attributed to survey extent, with the current survey covering the entirety of Lambert Lane Nature Reserve, Fletcher Park and the existing rail corridor at this location. Furthermore, DBCA noted that at this location SCP 3a may extend further along the rail corridor than currently mapped (DBCA, pers. comm.). This survey also mapped an occurrence of TEC SCP 3a south of Thomas Road within the existing rail corridor covering 1.08 ha. This occurrence is not listed in the out of date Interim Recovery Plan (DEC 2011) and based on current available data represents a new record of TEC SCP 3a. At both local and regional scales, the occurrences of TEC SCP 3a within the survey area are considered important as they represent occurrences of a Critically Endangered TEC, with two occurrences (Lambert Lane Nature Reserve and Fletcher Park) occurring within conservation areas.

## Flora

Two hundred and twenty-two flora taxa were recorded from the survey area when combining relevant survey data from AECOM (2020) and the current survey. This total comprised 57 introduced and/or planted species, which equates to approximately 25% of the total flora recorded. Based on the species accumulation curve, the floristic diversity recorded within the survey area is considered representative of the floristic diversity in the local area.

### Significant flora

Two conservation significant flora taxa were recorded from the survey area, *Eucalyptus x balanites* (EPBC Act – Endangered / BC Act – Critically Endangered) and *Johnsonia pubescens* subsp. *cygnorum* (Priority 2). An additional one conservation significant taxon was considered possible to occur in the survey area post-survey, *Diuris purdiei* (EPBC Act and BC Act – Endangered).

The current survey recorded two individuals of *Eucalyptus x balanites* (Threatened) from Fletcher Park. The locations of these records represent Population 2 in the Cadda Road Mallee (*Eucalyptus x balanites*) Recovery Plan (DEC 2004). However, this survey recorded two individuals compared with a single individual noted in the Recovery Plan (DEC 2004). It is considered unlikely that any further locations of this taxon occur in the survey area. The population in Fletcher Park is the only known record in the Perth region with the other disjunct population occurring approximately 208 km north of Perth in the Badgingarra National Park in the Geraldton Sandplains region (Population 1, DEC 2004).

*Johnsonia pubescens* subsp. *cygnorum* (Priority 2) was recorded from six locations (eight individuals) within the survey area. Locations included within the PTA rail reserve adjacent to Fletcher Park, from Lambert Lane Nature Reserve and south of Thomas Road. The record from Lambert Lane Nature Reserve is a known location and record, however, the other locations represent new records and individuals of the species. It is considered unlikely that any further locations of this taxon occur in the survey area. *Johnsonia pubescens* subsp. *cygnorum* is known from 18 records representing approximately 14 populations (DBCA 2021), three of which are recorded from DBCA managed tenure. Recent surveys completed by Woodman (2020) have also identified additional populations along Tonkin Highway. It is likely with additional surveys further populations could potentially be recorded in the Perth region, including within conservation estate.

*Diuris purdiei* (Endangered) was previously recorded in the south of Fletcher Park outside of the rail corridor. The taxon flowers between late September to mid-October, but only in the season after a hot summer or early autumn fire (Brown et al. 1998). While the species was not recorded during this survey, in the absence of fire, post-survey it is considered possibly occurring. *Diuris purdiei* is known from 55 records from the SCP and Jarrah Forest bioregions with a distribution from the southern suburbs of Perth to near Myalup to the south and east in the Darling Ranges over a range of approximately 150 km (DBCA 2021). Several large populations occur south of Mandurah including within Nature Reserves. However, a number of populations in the Perth metropolitan area occur within small remnants supporting a small number of plants that are subject to disturbance and decline in vegetation condition. Given this species reliance on fire to flower, in the absence of fire, additionally targeted survey work is considered unlikely to locate any individuals if present.

### *Synaphea* sp. Serpentine (G.R. Brand 103)

A previous record *Synaphea* sp. Serpentine (G.R. Brand 103) from plot Lamb01 (located in Lambert Lane Nature Reserve) is present within the survey area within VT01. This DBCA WAHerb record is from 1995, but is not contained in the DBCA TPFL database, nor the Interim Recovery Plan for *Synaphea* sp. Serpentine (G.R. Brand 103) (DPaW 2017). A review of the

specimen label details, indicates the record is from Lambkin Nature Reserve in Serpentine, which is approximately 12.5 km south of the project. The locality aligns with population information provided in the Interim Recovery Plan for *Synaphea* sp. Serpentine (G.R. Brand 103) (DPaW 2017). Furthermore, a review of the Lamb01 plot species list (available from NatureMap) confirms no *Synaphea* sp. Serpentine (G.R. Brand 103) listed.

GHD completed targeted searches (traverses) for *Synaphea* species across the survey area. The searches were completed during the reported flowering period of *Synaphea* sp. Serpentine (G.R. Brand 103) as well as other *Synaphea* species. Multiple collections of *Synaphea* spp. were made from Lambert Lane Nature Reserve, Fletcher Park and across the rail corridor through targeted searching (traverses) and quadrat and opportunistic sampling. Of these collections *Synaphea gracillima*, *S. petiolaris* subsp. *petiolaris* and *S. acutiloba* were identified through the identification services at the WA Herbarium. One collection referred to specialist taxonomist Ryonen Butcher for identification, was confirmed as *S. acutiloba*. No individuals of *Synaphea* sp. Serpentine (G.R. Brand 103) were recorded from this survey, despite adequate survey effort.

Based on the above information regarding the likely error of the *Synaphea* sp. Serpentine (G.R. Brand 103) record within Lambert Lane Nature Reserve and the adequate survey effort undertaken, it is concluded that *Synaphea* sp. Serpentine (G.R. Brand 103) is unlikely to occur in the survey area.



## 6. Conclusions

The survey area comprised eight vegetation types including planted/ revegetation areas. Historical clearing, tracks, infrastructure development and aggressive weed species have influenced the structure and composition of the remaining native vegetation within the survey area. Areas rated Excellent and Very Good condition were restricted to Lambert Lane Nature Reserve and Fletcher Park. The majority of vegetation within the survey area was rated Degraded and Completely Degraded.

One TEC was identified within the survey area; *Corymbia calophylla* - *Kingia australis* woodlands on heavy soils, SCP (SCP 3a), listed as Endangered under the EPBC Act and Critically Endangered under the BC Act. In total, there is 16.91 ha of TEC SCP 3a within the survey area ranging in condition from Excellent to Good and a small area of Degraded vegetation. The occurrences of TEC SCP 3a within the survey area are considered important as they represent occurrences of a Critically Endangered TEC.

Two conservation significant flora taxa were recorded from the survey area, *Eucalyptus x balanites* (Cadda Road Mallee), listed as Endangered under the EPBC Act and Critically Endangered under the BC Act and *Johnsonia pubescens* subsp. *cygnorum*, listed as Priority 2 by DBCA. The likelihood of occurrence assessment post-field survey concluded that two taxa are known to occur in the survey area (recorded from the current survey), one taxon may possibly occur in the survey area and the remaining 73 taxa are unlikely to occur within the survey area.

The survey area is located within a modified environment and on the extensively cleared SCP. The Project should be designed to avoid and/or minimise impacts on vegetation and flora values including all native vegetation, particularly areas of significant vegetation (e.g. TEC SCP 3a) and flora (e.g. records of *Eucalyptus x balanites* and *Johnsonia pubescens* subsp. *cygnorum*). The Project should also avoid impacts to conservations areas including Lambert Lane Nature Reserve, Fletcher Park and Bush Forever sites, which largely contain remanent vegetation within a modified environment.

## 7. References

AECOM 2020, *METRONET – Byford Extension Part One Flora and Fauna Assessment*, unpublished report prepared for the Public Transport Authority, Perth, Western Australia.

Aurora (2020), *Environmental Advice Armadale Train Line Platform and Signalling Upgrade Program*, unpublished report prepared for the Public Transport Authority, Perth, Western Australia.

Beard, JS 1979, *Vegetation Survey of Western Australia: the Vegetation of the Perth Area Western Australia*, map and explanatory memoir 1:250,000 series, Applecross, Vegmap Publications.

BoM 2020, *Climate Data Online*, retrieved October 2020, from <http://www.bom.gov.au/climate/data>.

Department of Agriculture and Food WA (DAFWA) 2007, *Soil-landscape mapping in South-WA*, Perth, Department of Agriculture and Food.

Department of Agriculture, Water and the Environment (DAWE) 2020, *Environmental Protection and Biodiversity Conservation Act 1999 Protected Matters Search Tool Results*, retrieved September 2020, from <http://www.environment.gov.au/epbc/pmst/index.html>.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018, *List of Threatened Ecological Communities Endorsed by the Western Australian Minister for Environment Department of Biodiversity Conservation and Attractions, 28 June 2018*, retrieved September 2020, from [https://www.dpaw.wa.gov.au/images/plants-animals/threatened-species/threatened\\_ecological\\_communities\\_endorsed\\_by\\_the\\_minister\\_for\\_the\\_environment\\_june\\_2018.pdf](https://www.dpaw.wa.gov.au/images/plants-animals/threatened-species/threatened_ecological_communities_endorsed_by_the_minister_for_the_environment_june_2018.pdf).

Department of Biodiversity, Conservation and Attractions (DBCA) 2020, *Priority ecological communities for Western Australia*, version 29, 5 May 2020, retrieved September 2020, from <https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/Listings/Priority%20Ecological%20Communities%20list.pdf>.

Department of Biodiversity, Conservation and Attractions (DBCA) 2021, *NatureMap: Mapping Western Australia's Biodiversity*, retrieved September 2020, from <http://naturemap.dbca.wa.gov.au/default.aspx/>.

Department of Environment and Conservation (DEC) 2004, *Eucalyptus balanites* Interim Recovery Plan 2004-2009. Interim Recovery Plan no. 82, Wanneroo, Western Australia.

Department of Environment and Conservation (DEC) 2011, *Corymbia calophylla - Kingia australis* woodlands on heavy soil (Swan Coastal Plain Community Type 3a – Gibson et al 1994) Interim Recovery Plan 2011-2016, Wanneroo, Western Australia.

Endangered Species Scientific Subcommittee (ESSS) 2000a, *Commonwealth Listing Advice for Corymbia calophylla - Xanthorrhoea preissii* woodlands and shrublands of the Swan Coastal Plain, retrieved August 2020, from <http://www.environment.gov.au/biodiversity/threatened/communities/calophylla-x-preissii.html>

Endangered Species Scientific Subcommittee (ESSS) 2000b, *Commonwealth Listing Advice for Corymbia calophylla - Kingia australis* woodlands on heavy soils of the Swan Coastal Plain, retrieved August 2020, from <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/17-conservation-advice.pdf>

ENV Australia 2010, Fletcher Park, Bushland Management Plan, unpublished report prepared for the City of Armadale, July 2010.

Environmental Protection Authority (EPA) 2016. *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*, Perth, Environmental Protection Authority.

GHD Pty Ltd 2012, *Flora and Fauna Assessment*, Unpublished Report prepared for the PTA, Perth, Western Australia.

Gibson, N, Keighery, BJ, Keighery, GJ, Burbridge, AH and Lyons, MN 1994, *A Floristic Survey of the Southern Swan Coastal Plain*, Perth, Western Australia: Unpublished Report for the Australian Heritage Commission prepared by Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc).

Government of Western Australia (GoWA) 2000a, *Bush Forever Volume 1, Policies, Principles, Processes*, Perth, Department of Environmental Protection.

Government of Western Australia (GoWA) 2000b, *Bush Forever Volume 2, Directory of Bush Forever Sites Perth*, Perth, Department of Environmental Protection.

Government of Western Australia (GoWA) 2019a, *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis* (Full report), Current as of March 2019, Perth, Australia, Department of Biodiversity, Conservation and Attractions, retrieved September 2020, from <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>.

Government of Western Australia (GoWA) 2019b, *2018 South West Vegetation Complex Statistics*, Current as of March 2019, Department of Biodiversity, Conservation and Attractions, retrieved September 2020, from <https://catalogue.data.wa.gov.au/dataset/dbca>.

Government of Western Australia (GoWA) 2020, DataWA, retrieved September 2020, from <https://www.data.wa.gov.au/>.

Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)

Gozzard, JR 2007, *Geology and landforms of the Perth Region*, Western Australia Geological Survey, Perth, Western Australia.

Hedde, EM, Loneragan. OW and Havel JJ 1980, *Vegetation Complexes of the Darling System, Western Australia*, in Atlas of Natural Resources, Darling System Western Australia, Department of Conservation and Environment.

Keighery, BJ 1994, *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*, Nedlands, Australia, Wildflower Society of Western Australia (Inc.).

Mitchell, D, Williams, K & Desmond, A 2002, *Swan Coastal Plain 2 (SWA2 — Swan Coastal Plain subregion)*, in Department of Conservation and Land Management (ed), A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002, pp 724.

NVIS Technical Working Group (2017). *Australian Vegetation Attribute Manual: National Vegetation Information System*, Version 7.0, Department of the Environment and Energy, Canberra.

Shepherd, DP, Beeston, GR, and Hopkins, AJM 2002, *Native Vegetation in Western Australia – Extent, Type and Status*, Resource Management Technical Report 249, Department of Agriculture, Western Australia.

TSSC 2016, Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community, Canberra, Department of the Environment and Energy.

Western Australian (WA) Herbarium (2020). *FloraBase—the Western Australian Flora*, Biodiversity, Conservation and Attractions, retrieved September 2020, from <http://florabase.dpaw.wa.gov.au/>.

# Appendices

# **Appendix A – Figures**

**Figure 1 Project locality**

**Figure 2 Survey area**

**Figure 3 Survey effort track logs**

**Figure 4 Watercourses and conservation areas**

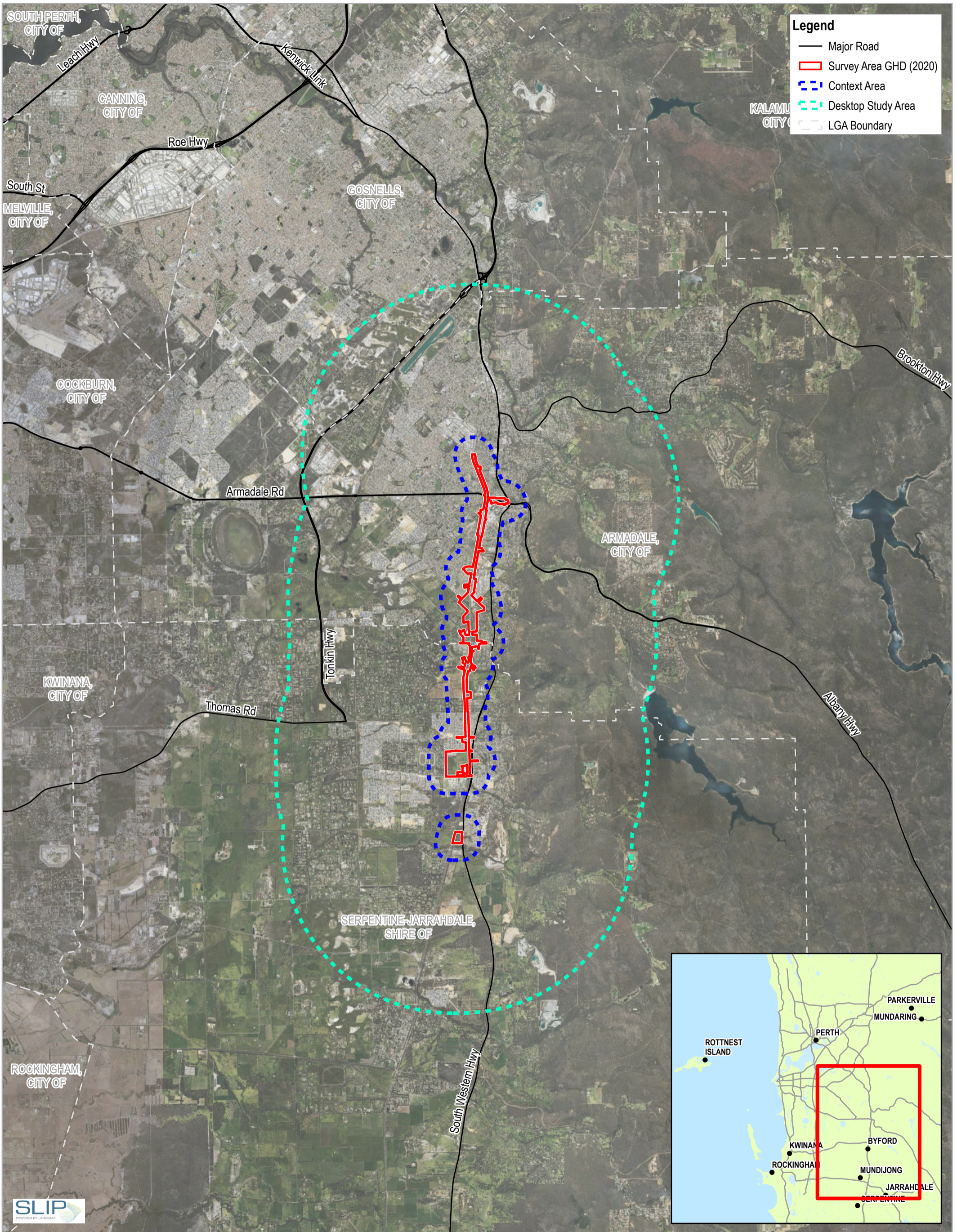
**Figure 5 Vegetation and flora constraints within the survey area**

**Figure 6 Vegetation types and sample locations**

**Figure 7 Vegetation condition and significant weeds**

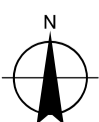
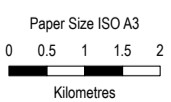
**Figure 8 Significant vegetation and flora locations**

**Figure 9 Context area mapping**



**Legend**

- Major Road
- ▭ Survey Area GHD (2020)
- ▭ Context Area
- ▭ Desktop Study Area
- ▭ LGA Boundary



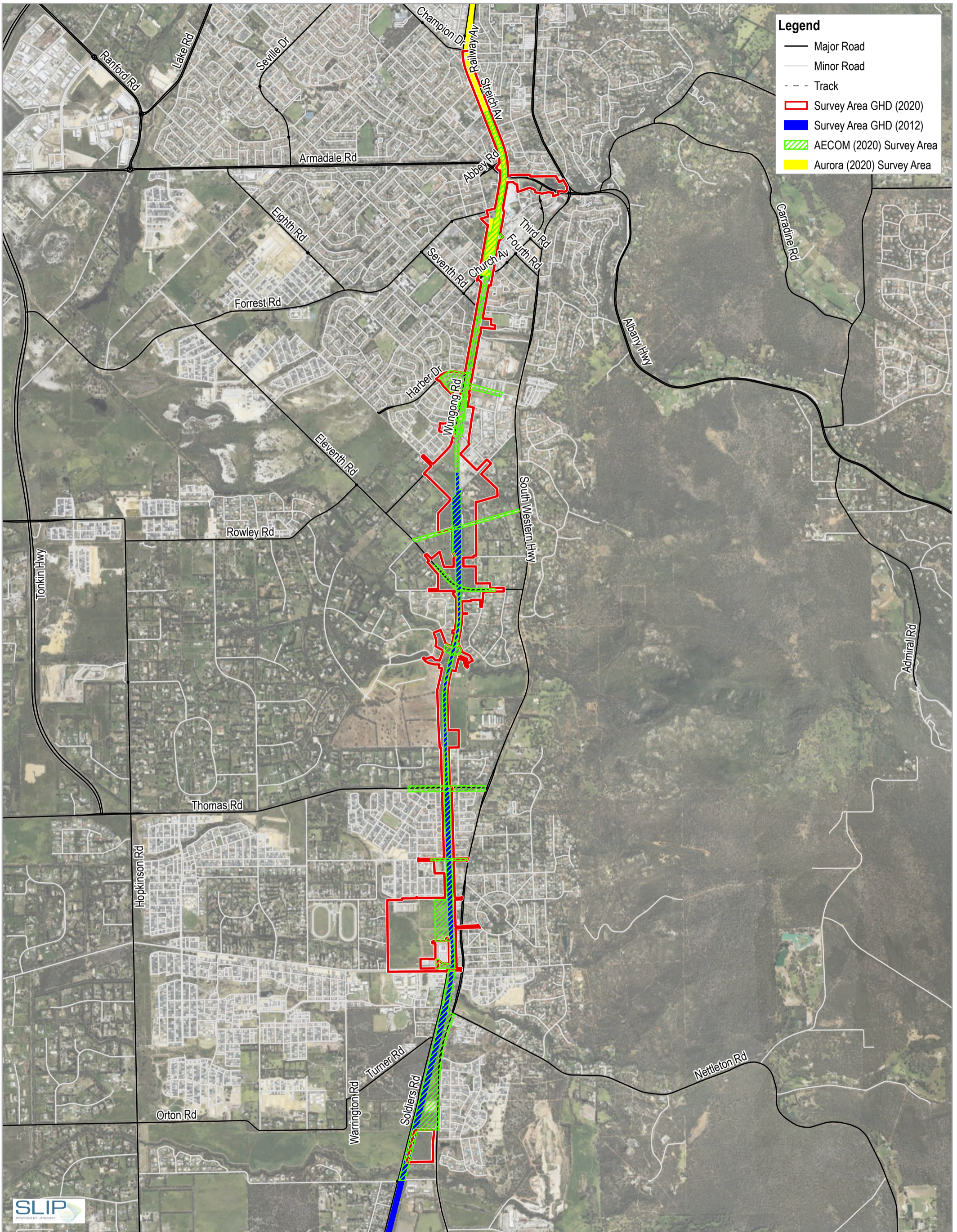
Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 50

Public Transport Authority  
 Byford Rail Extension

Project No. 12532927  
 Revision No. 0  
 Date 22/02/2021

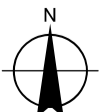
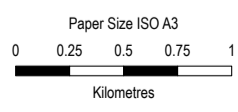
Project Locality

FIGURE 1



**Legend**

- Major Road
- Minor Road
- - - Track
- ▭ Survey Area GHD (2020)
- ▭ Survey Area GHD (2012)
- ▨ AECOM (2020) Survey Area
- ▨ Aurora (2020) Survey Area



Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 50

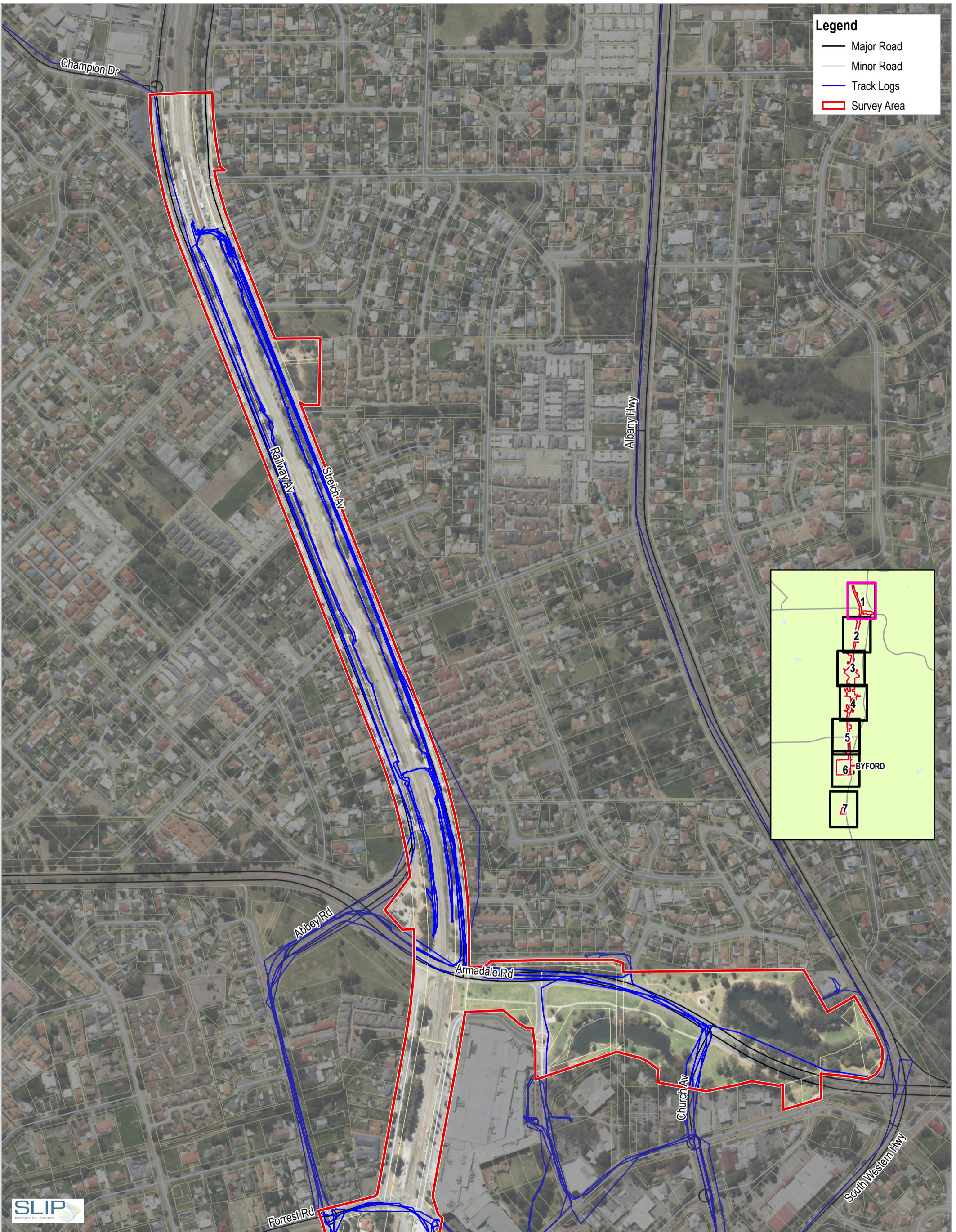
Public Transport Authority  
 Byford Rail Extension

Project No. 12532927  
 Revision No. 0  
 Date 22/02/2021

Survey Area

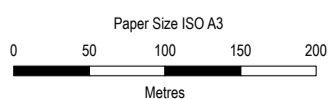
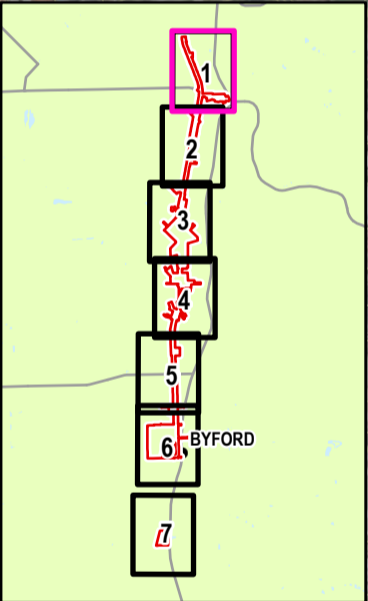
FIGURE 2



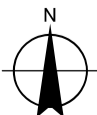


**Legend**

- Major Road
- Minor Road
- Track Logs
- ▭ Survey Area



Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 50



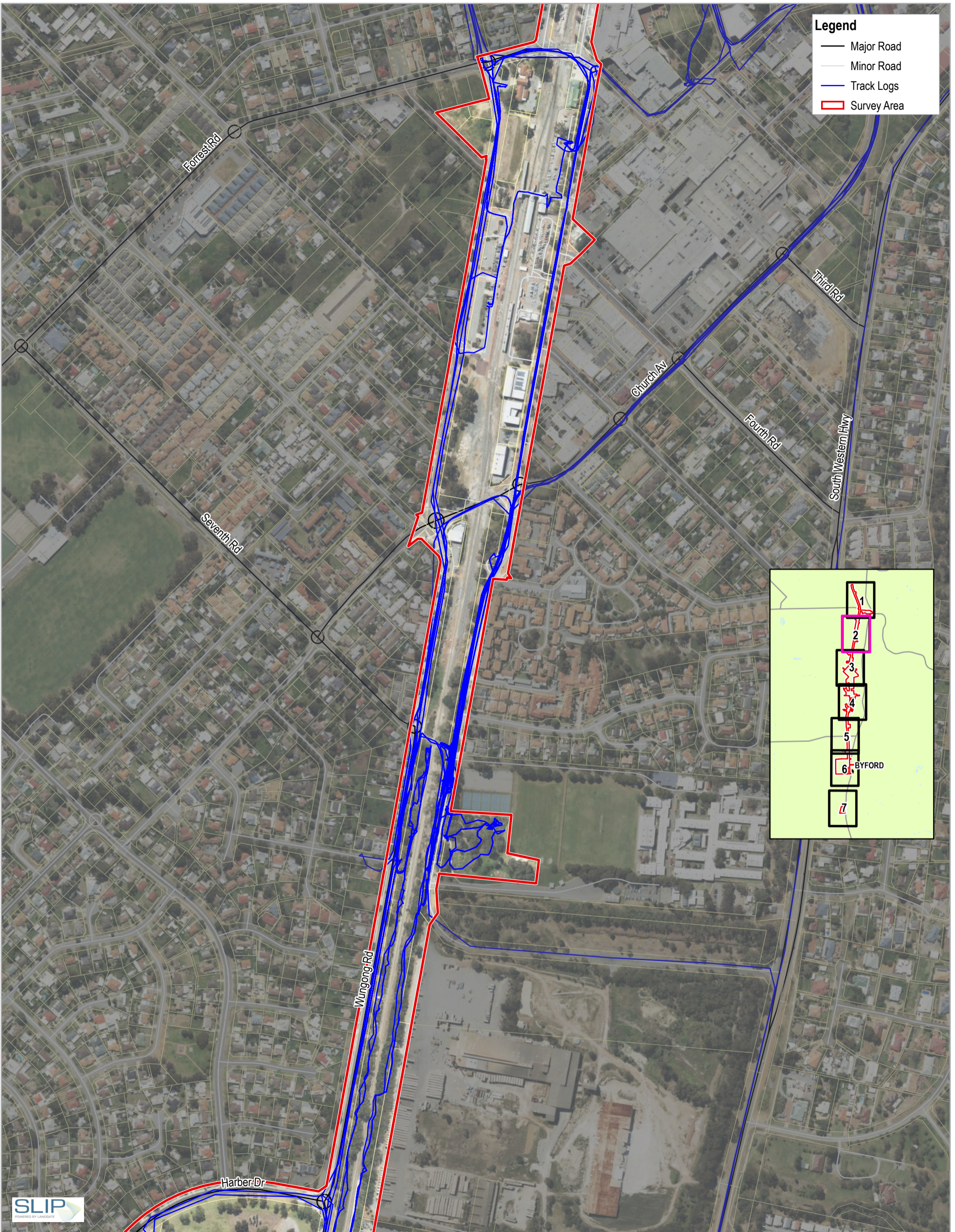
Public Transport Authority  
 Byford Rail Extension

GHD Survey Effort

Project No. 12532927  
 Revision No. 0  
 Date 22/02/2021

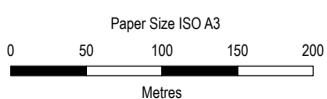
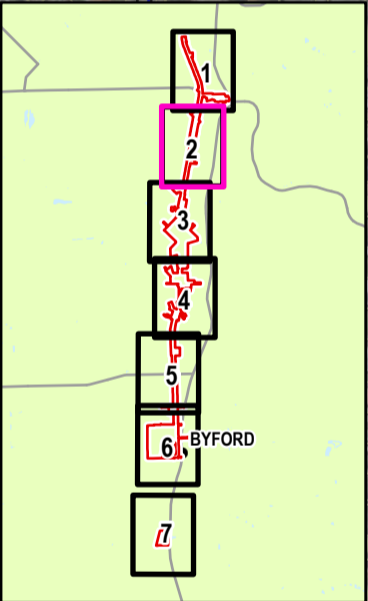
Page 1 of 7

**FIGURE 3**

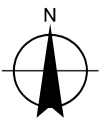


**Legend**

- Major Road
- Minor Road
- Track Logs
- ▭ Survey Area



Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 50



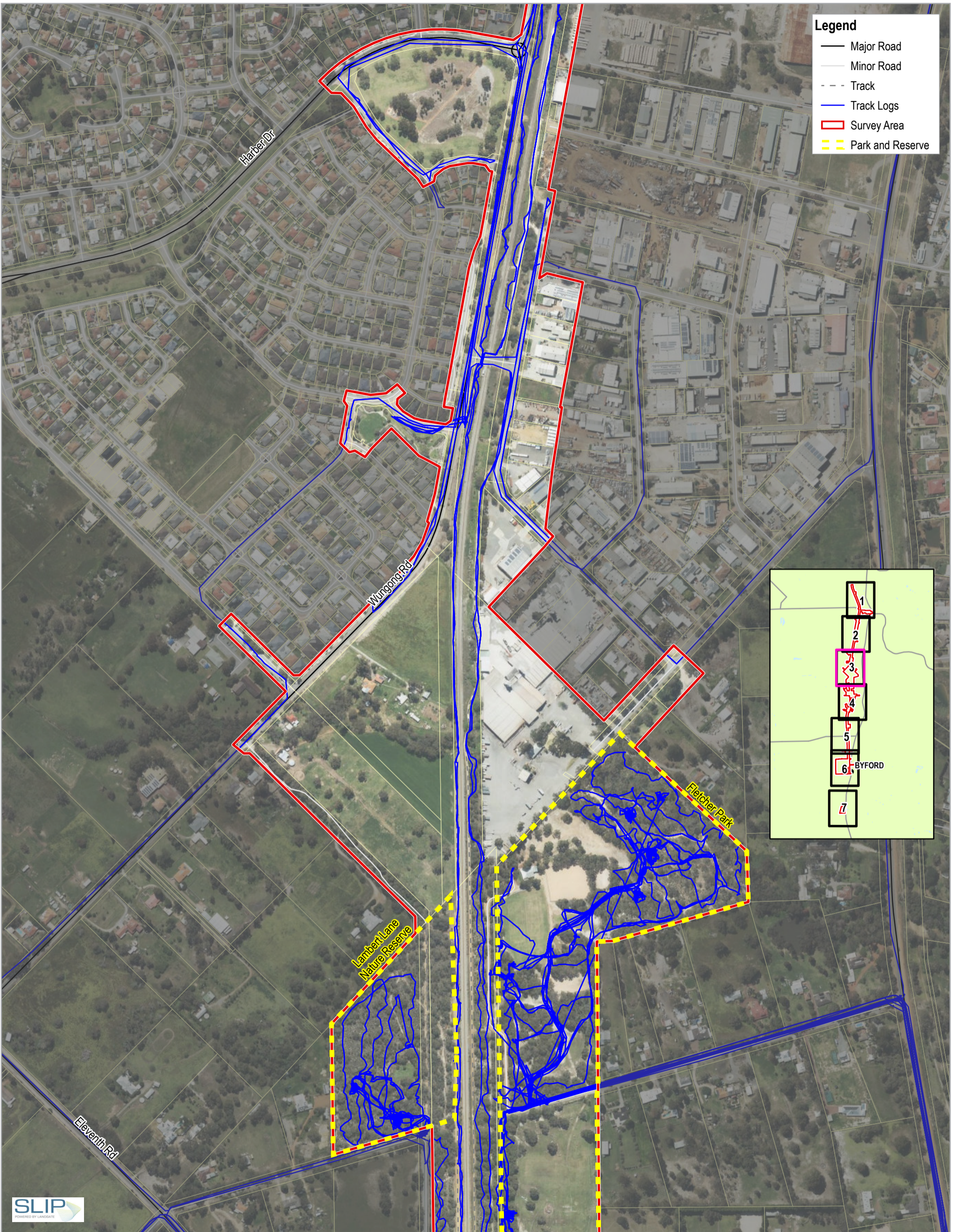
Public Transport Authority  
 Byford Rail Extension

GHD Survey Effort

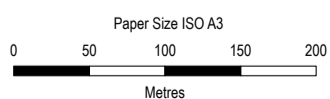
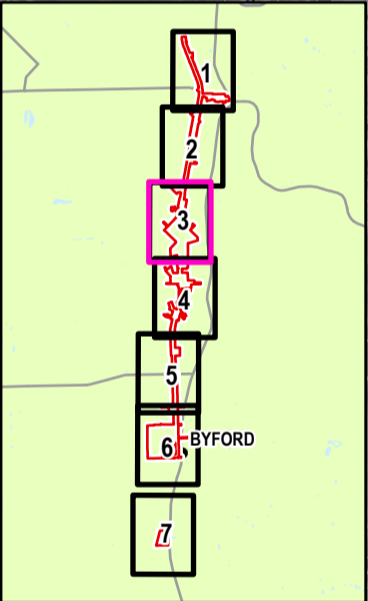
Project No. 12532927  
 Revision No. 0  
 Date 22/02/2021

Page 2 of 7

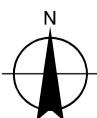
**FIGURE 3**



- Legend**
- Major Road
  - Minor Road
  - - - Track
  - Track Logs
  - Survey Area
  - Park and Reserve



Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 50



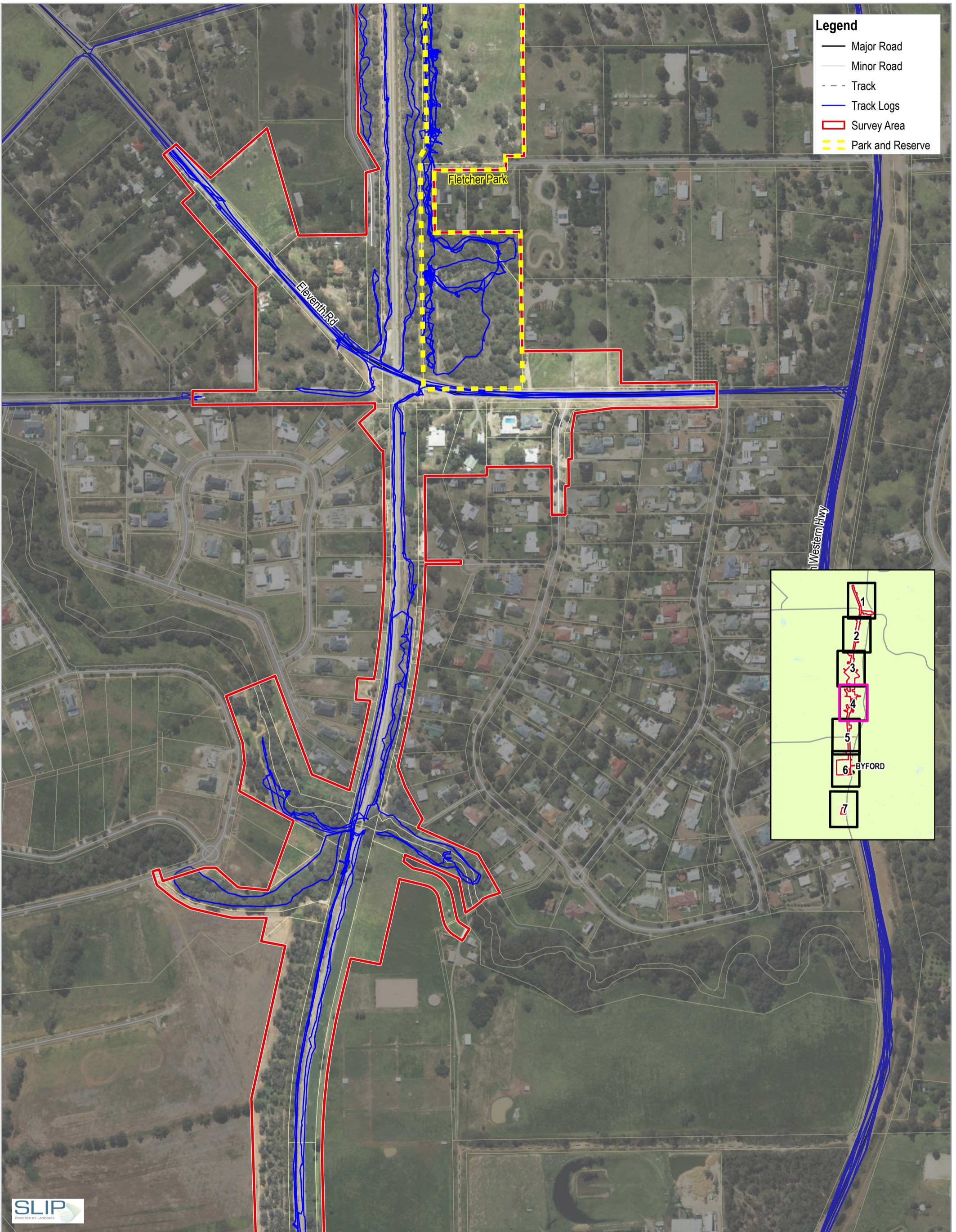
Public Transport Authority  
 Byford Rail Extension

Project No. 12532927  
 Revision No. 0  
 Date 22/02/2021

GHD Survey Effort

Page 3 of 7

**FIGURE 3**

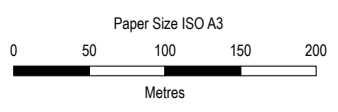
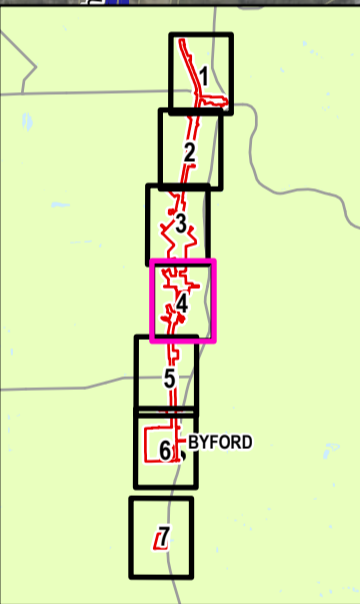


- Legend**
- Major Road
  - Minor Road
  - - - Track
  - Track Logs
  - Survey Area
  - Park and Reserve

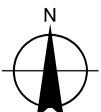
Fletcher Park

Eleventh Rd

Western Hwy



Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

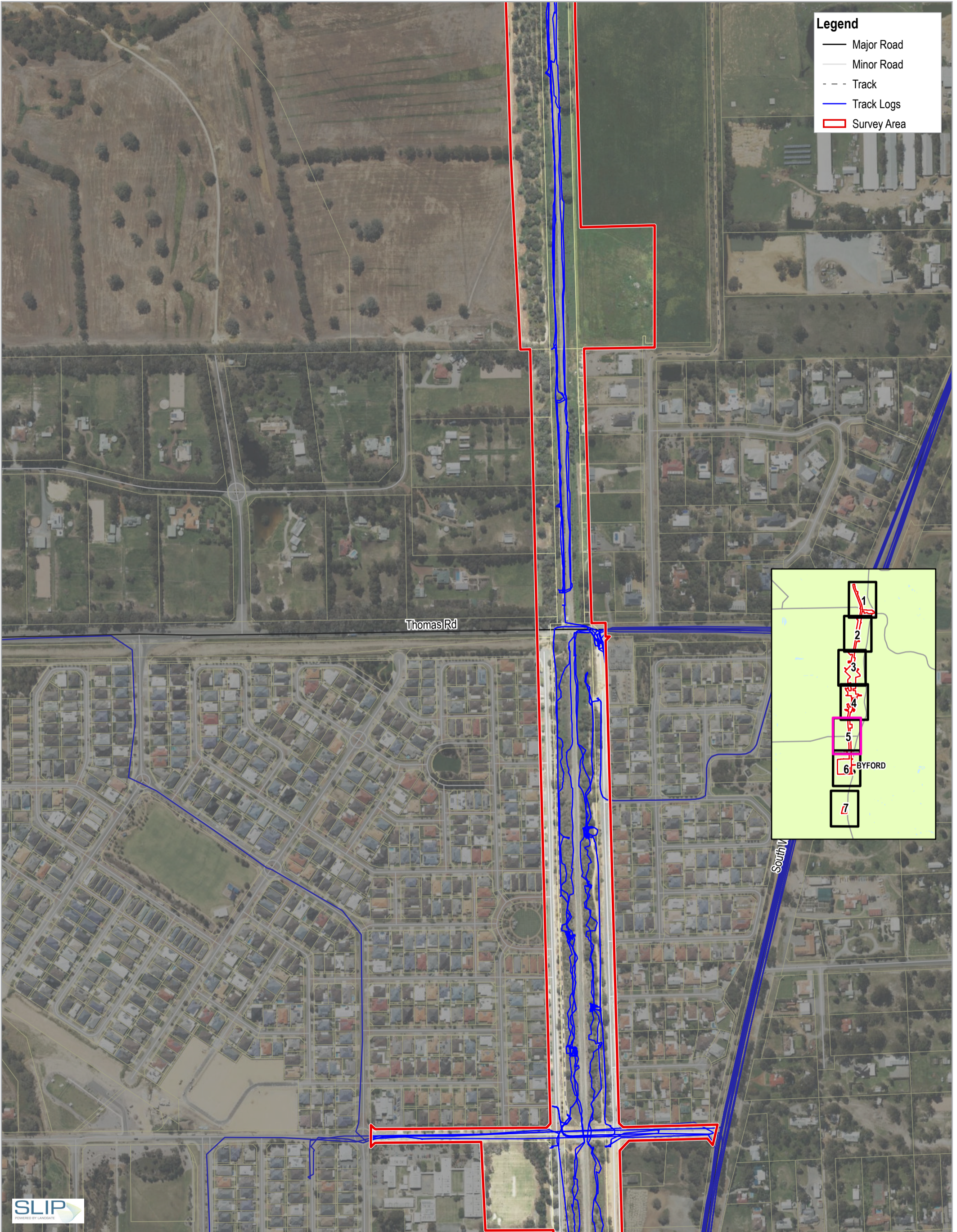


Public Transport Authority  
Byford Rail Extension

GHD Survey Effort

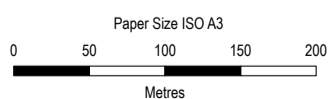
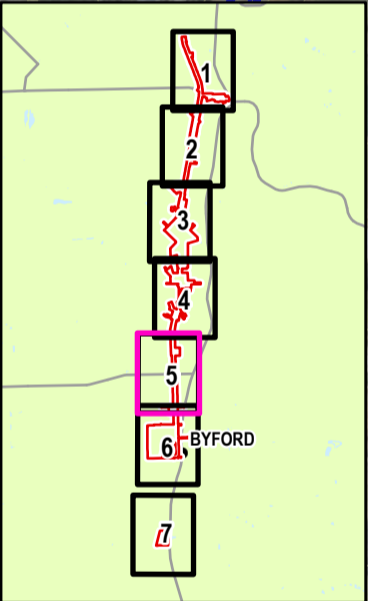
Project No. 12532927  
Revision No. 0  
Date 22/02/2021

Page 4 of 7  
**FIGURE 3**

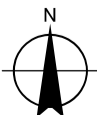


**Legend**

- Major Road
- Minor Road
- - - Track
- Track Logs
- ▭ Survey Area



Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



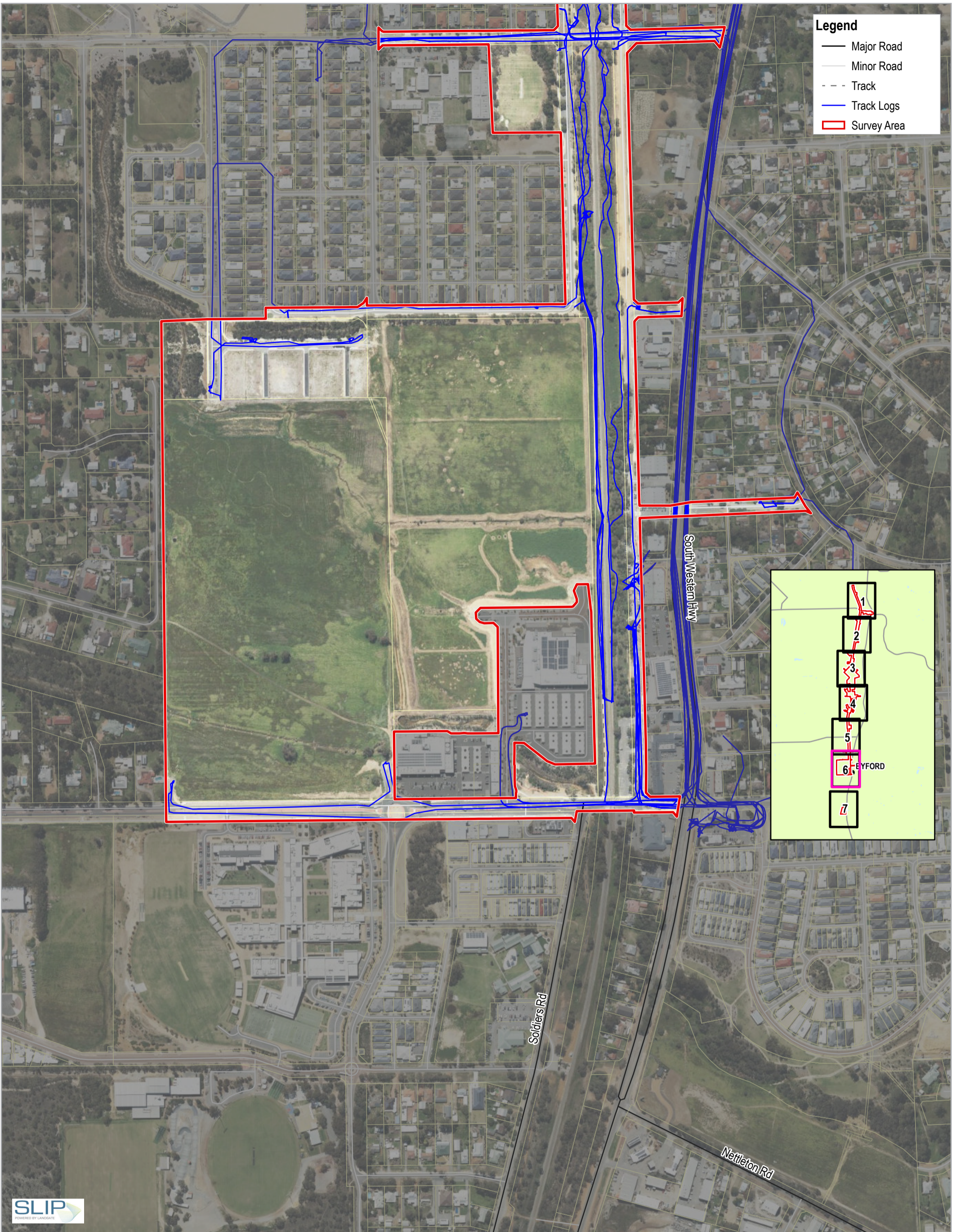
Public Transport Authority  
Byford Rail Extension

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

GHD Survey Effort

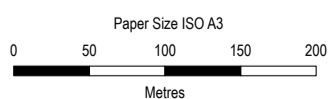
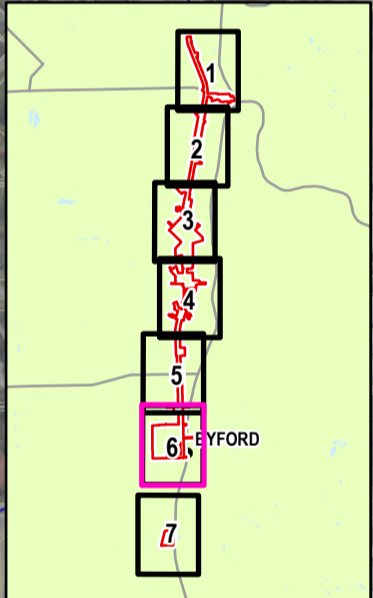
Page 5 of 7

**FIGURE 3**

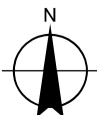


**Legend**

- Major Road
- - - Minor Road
- - - Track
- Track Logs
- ▭ Survey Area



Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 50



Public Transport Authority  
 Byford Rail Extension

Project No. 12532927  
 Revision No. 0  
 Date 22/02/2021

GHD Survey Effort

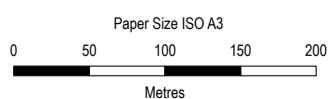
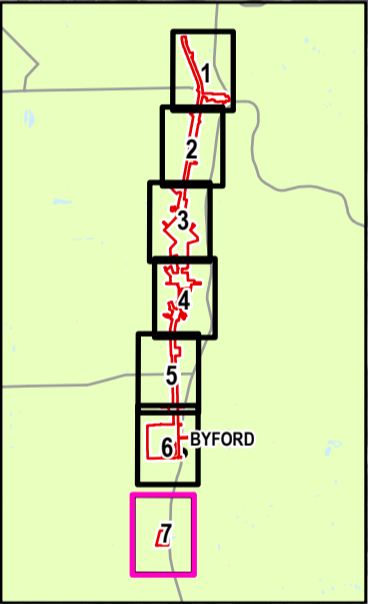
Page 6 of 7

**FIGURE 3**

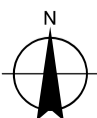


**Legend**

- Major Road
- Minor Road
- - - Track
- ▭ Survey Area



Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



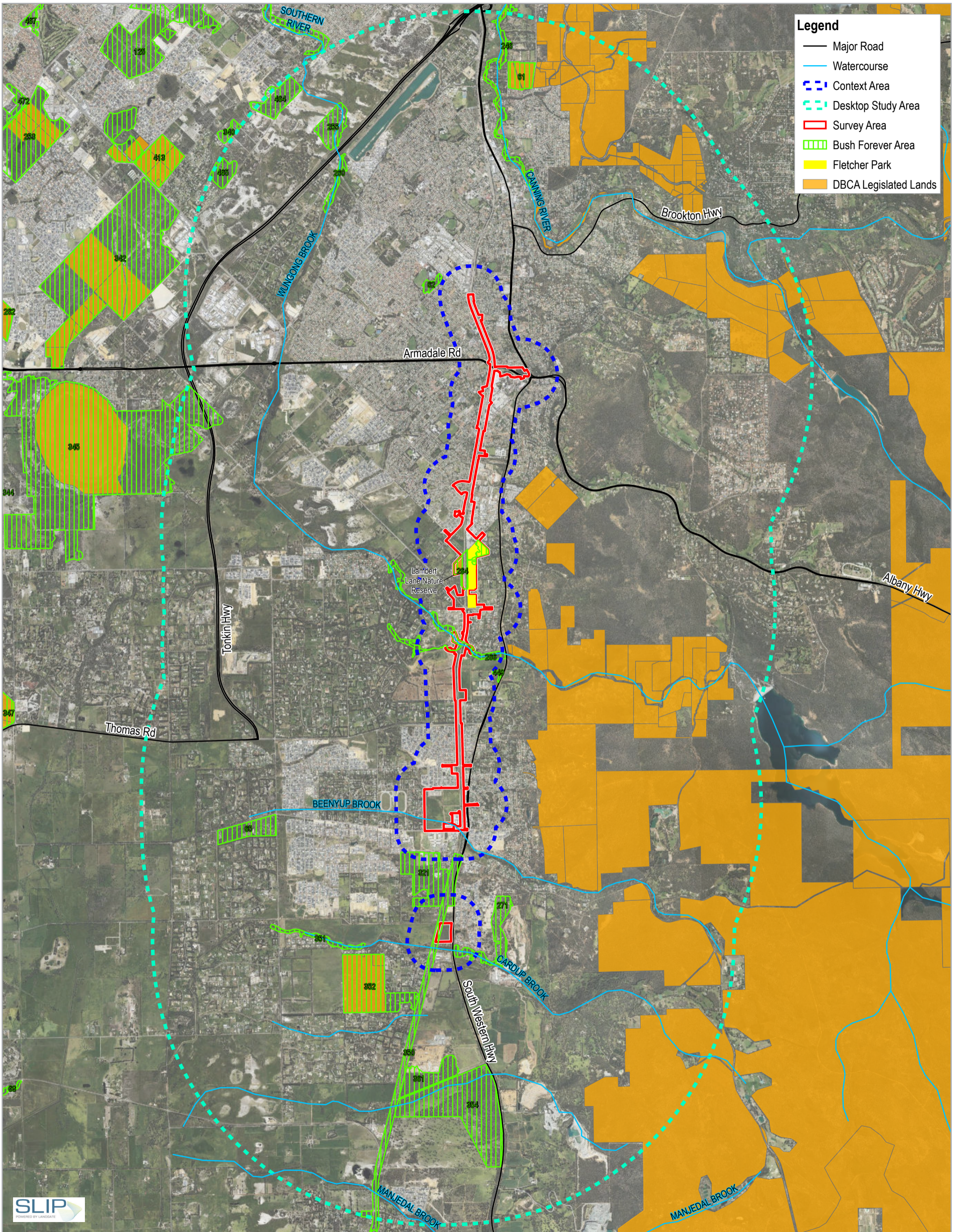
Public Transport Authority  
Byford Rail Extension

GHD Survey Effort

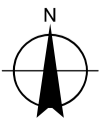
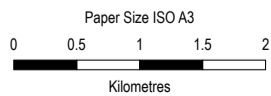
Project No. 12532927  
Revision No. 0  
Date 22/02/2021

Page 7 of 7

**FIGURE 3**



- Legend**
- Major Road
  - Watercourse
  - Context Area
  - Desktop Study Area
  - ▭ Survey Area
  - ▨ Bush Forever Area
  - ▨ Fletcher Park
  - ▨ DBCA Legislated Lands



Public Transport Authority  
Byford Rail Extension

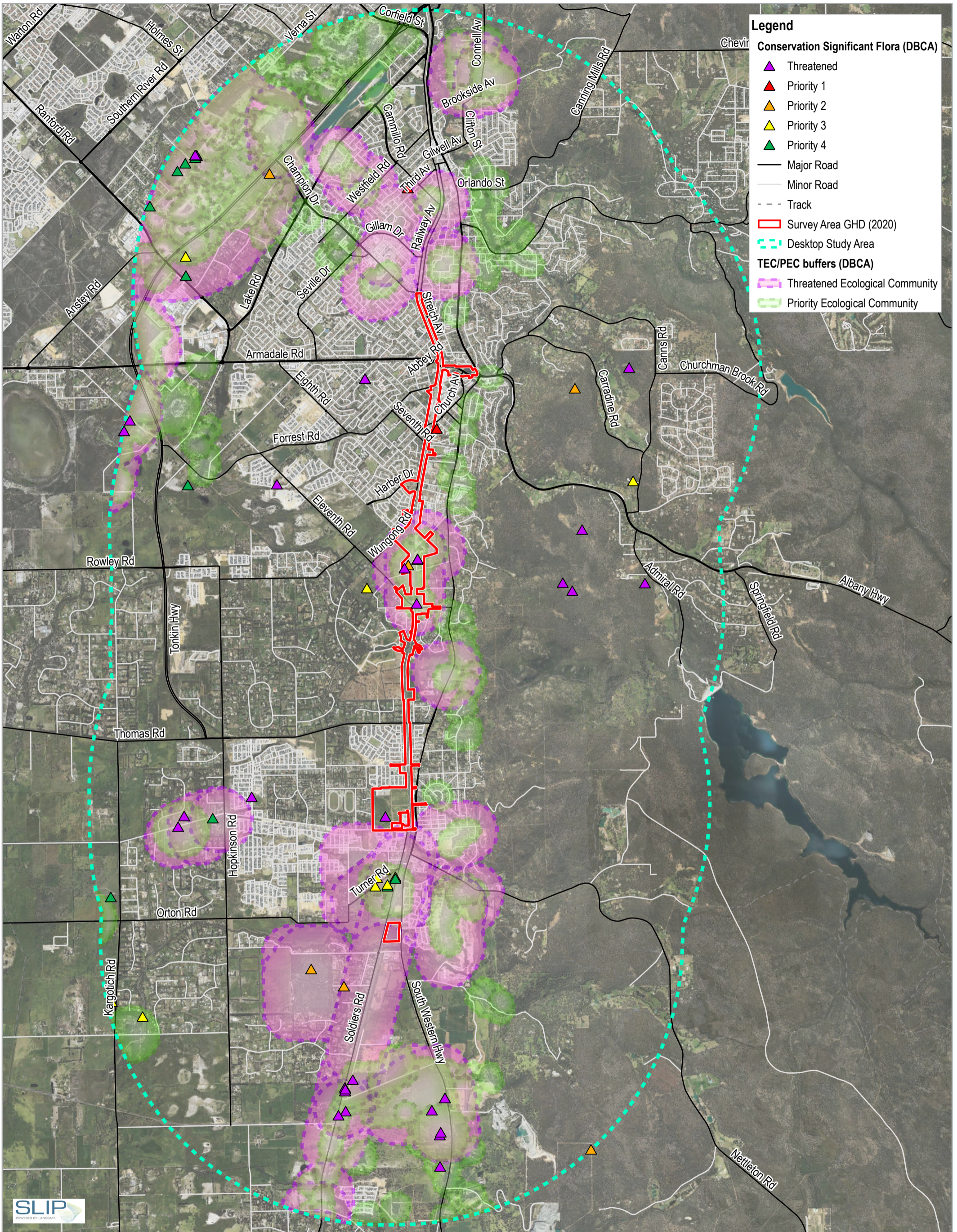
Project No. 12532927  
Revision No. 0  
Date 22/02/2021

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

**Watercourses and Conservation Areas**

**FIGURE 4**





**Legend**

**Conservation Significant Flora (DBCA)**

- ▲ Threatened
- ▲ Priority 1
- ▲ Priority 2
- ▲ Priority 3
- ▲ Priority 4

— Major Road  
 — Minor Road  
 - - - Track

▭ Survey Area GHD (2020)  
 ▭ Desktop Study Area

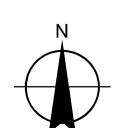
**TEC/PEC buffers (DBCA)**

- ▭ Threatened Ecological Community
- ▭ Priority Ecological Community



Paper Size ISO A3  
 0 500 1,000 1,500  
 Metres

Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 50

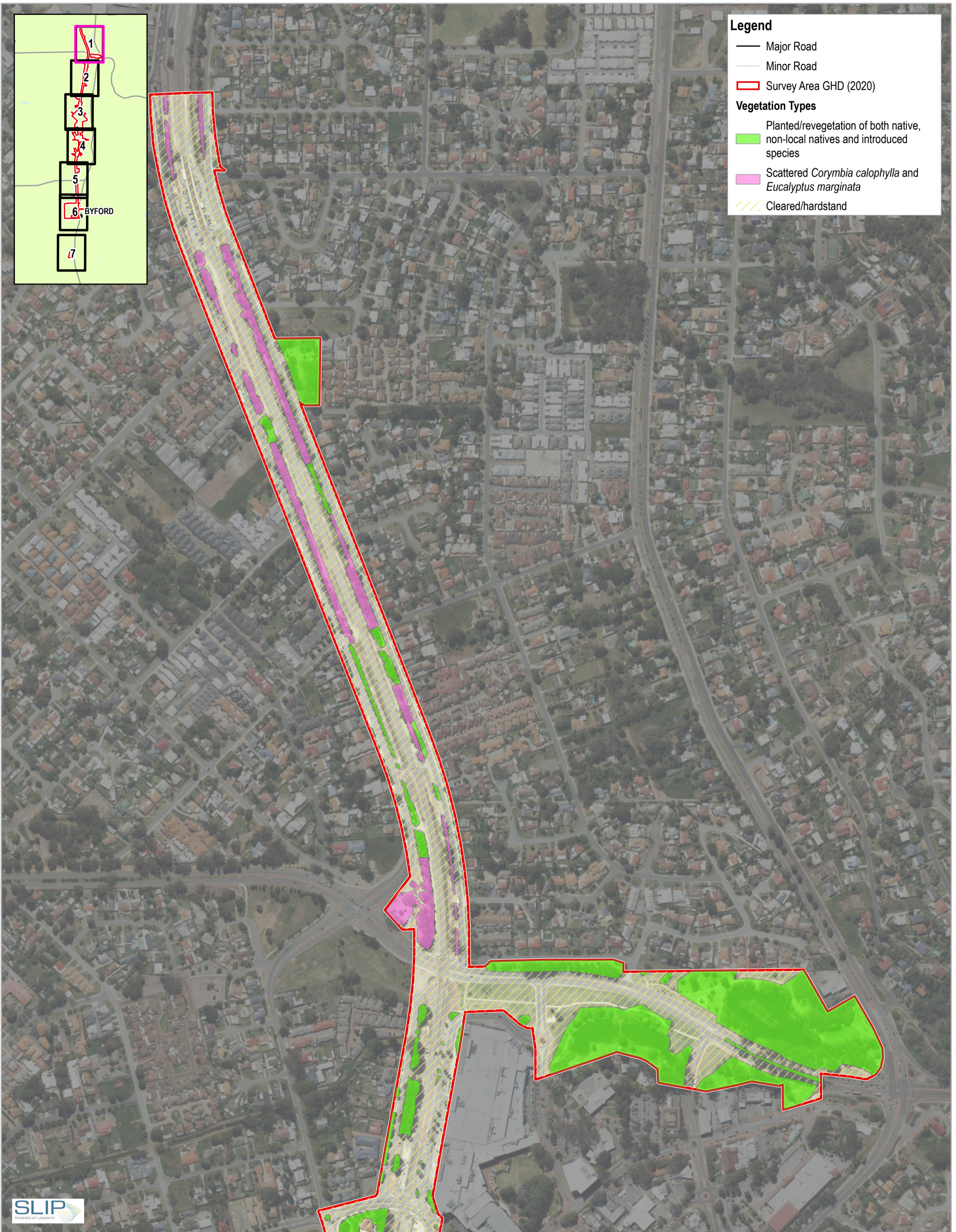


Public Transport Authority  
 Byford Rail Extension

Project No. 12532927  
 Revision No. 0  
 Date 22/02/2021

Vegetation and Flora Constraints

FIGURE 5



**Legend**

- Major Road
- Minor Road
- ▭ Survey Area GHD (2020)

**Vegetation Types**

- ▭ Planted/revegetation of both native, non-local natives and introduced species
- ▭ Scattered *Corymbia calophylla* and *Eucalyptus marginata*
- ▨ Cleared/hardstand

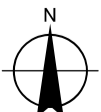


Paper Size ISO A3

0 50 100 150 200

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

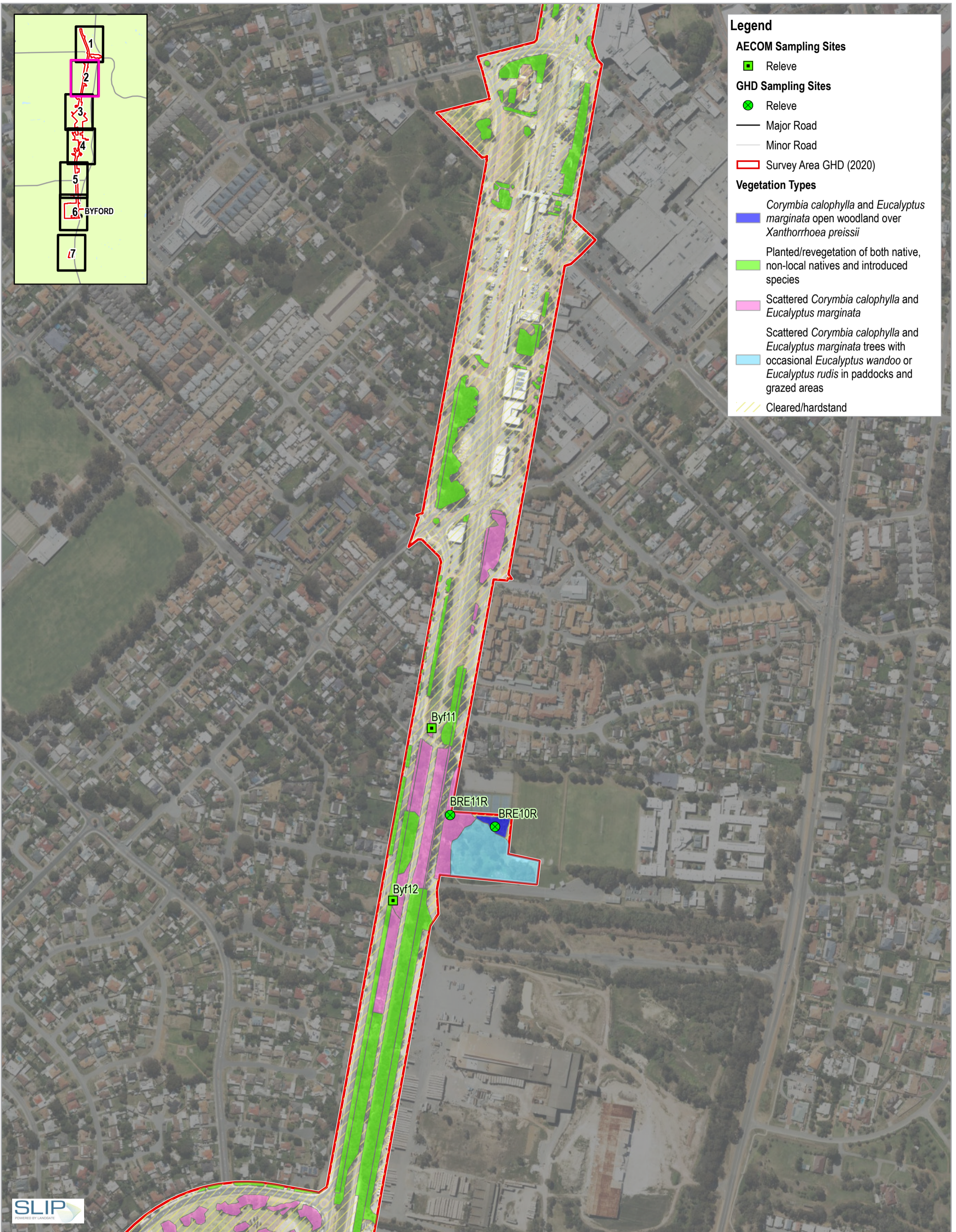


Public Transport Authority  
Byford Rail Extension

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

Vegetation Types and Sample Locations

Page 1 of 7  
**FIGURE 6**



**Legend**

**AECOM Sampling Sites**

- Releve

**GHD Sampling Sites**

- Releve
- Major Road
- Minor Road
- Survey Area GHD (2020)

**Vegetation Types**

- Corymbia calophylla* and *Eucalyptus marginata* open woodland over *Xanthorrhoea preissii*
- Planted/revegetation of both native, non-local natives and introduced species
- Scattered *Corymbia calophylla* and *Eucalyptus marginata*
- Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees with occasional *Eucalyptus wandoo* or *Eucalyptus rudis* in paddocks and grazed areas
- Cleared/hardstand

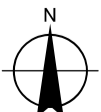


Paper Size ISO A3

0 50 100 150 200

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

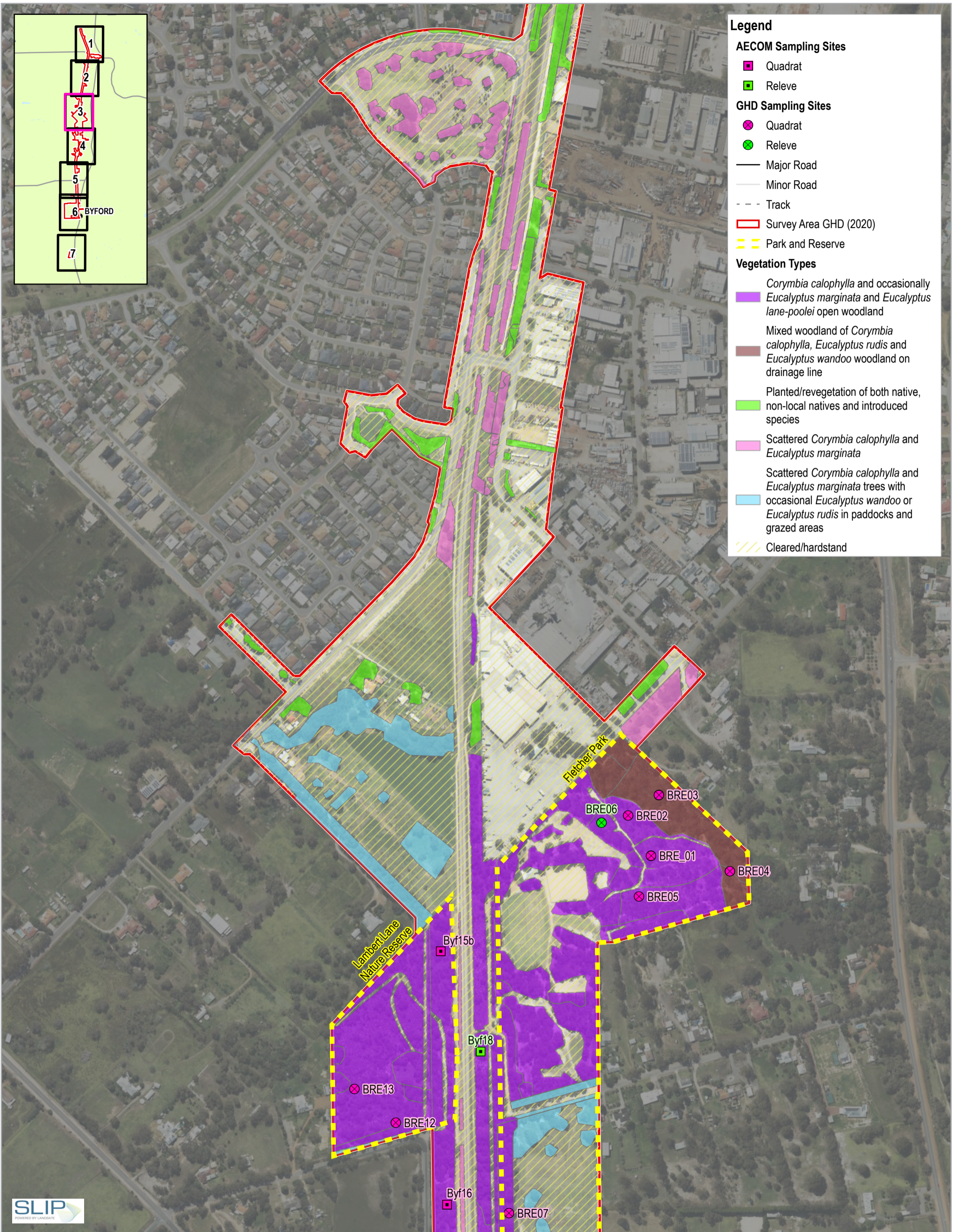


Public Transport Authority  
Byford Rail Extension

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

Vegetation Types and Sample Locations

Page 2 of 7  
**FIGURE 6**



**Legend**

**AECOM Sampling Sites**

- Quadrat (pink square)
- Releve (green square)

**GHD Sampling Sites**

- Quadrat (pink circle)
- Releve (green circle)

Major Road (thick black line)

Minor Road (thin black line)

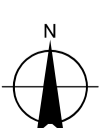
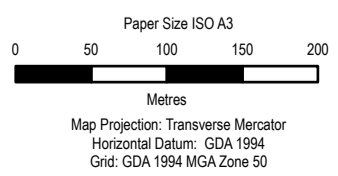
Track (dashed black line)

Survey Area GHD (2020) (red outline)

Park and Reserve (yellow hatched area)

**Vegetation Types**

- Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-pooei* open woodland (purple)
- Mixed woodland of *Corymbia calophylla*, *Eucalyptus rudis* and *Eucalyptus wandoo* woodland on drainage line (brown)
- Planted/revegetation of both native, non-local natives and introduced species (light green)
- Scattered *Corymbia calophylla* and *Eucalyptus marginata* (pink)
- Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees with occasional *Eucalyptus wandoo* or *Eucalyptus rudis* in paddocks and grazed areas (light blue)
- Cleared/hardstand (yellow hatched area)

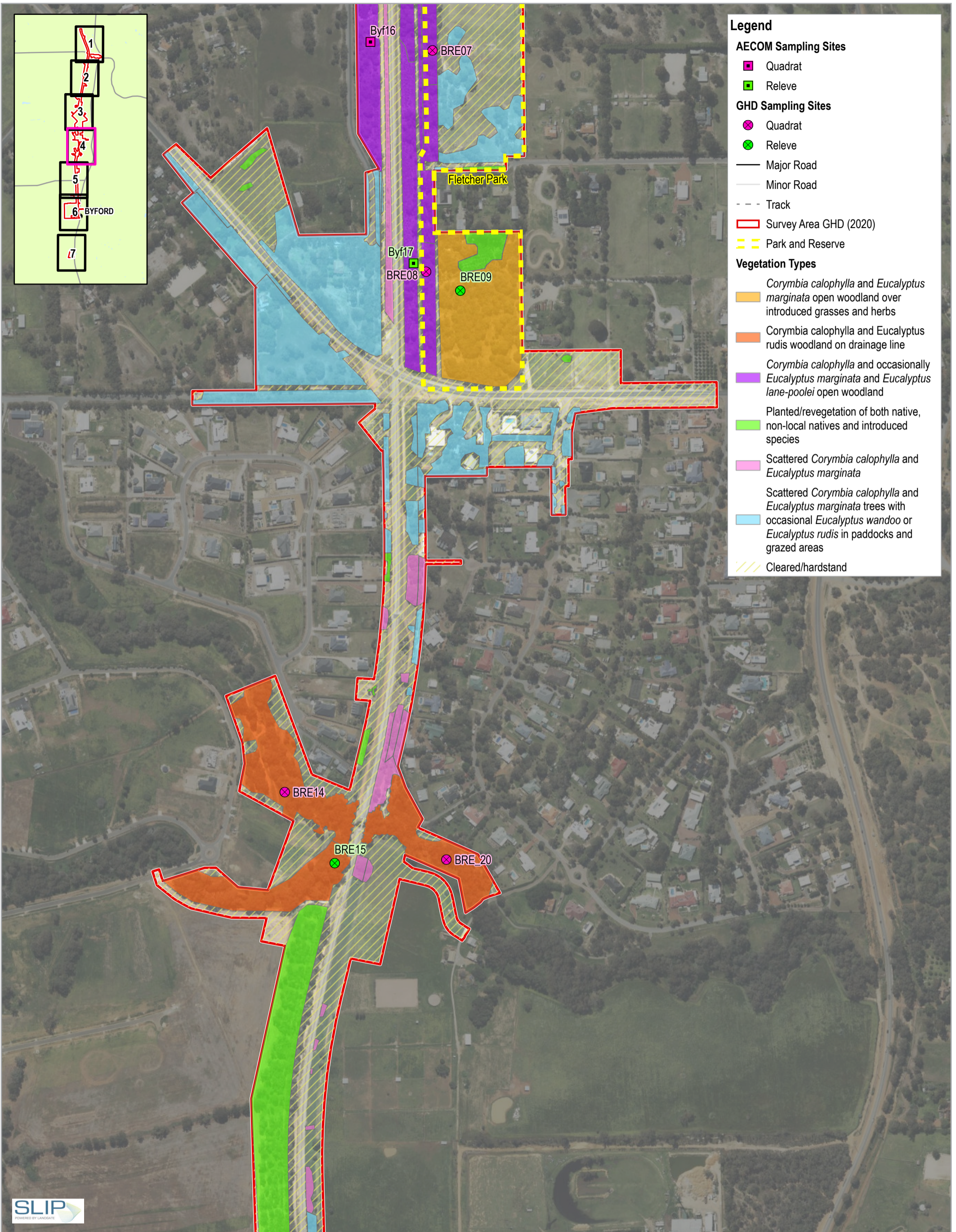


Public Transport Authority  
Byford Rail Extension

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

Vegetation Types and Sample Locations

G:\6112532927\GIS\Mapa\Working\12532927 - PTA Byford\12532927 - PTA Byford.april12532927\_006\_VegTypesSampling\_Rev0  
Print date: 22 Feb 2021 - 14:51  
Data source: GHD: Project boundary, Track Logs - 20200921-20200929; AECOM: Conservation Significant Flora - 20200625; DBCA: Conservation Significant Flora; TEC/PEC - 2020109; LGATE: Roads, Cadastre - 20200927; Imagery accessed on 20210222. Created by: slei



**Legend**

**AECOM Sampling Sites**

- Quadrat (pink square)
- Releve (green square)

**GHD Sampling Sites**

- Quadrat (pink circle with cross)
- Releve (green circle with cross)

Major Road (solid black line)

Minor Road (dashed black line)

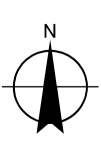
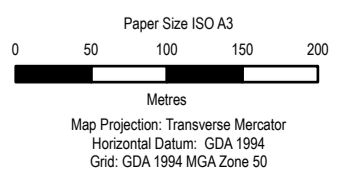
Track (dotted black line)

Survey Area GHD (2020) (red outline)

Park and Reserve (yellow dashed outline)

**Vegetation Types**

- Corymbia calophylla* and *Eucalyptus marginata* open woodland over introduced grasses and herbs (orange)
- Corymbia calophylla* and *Eucalyptus rudis* woodland on drainage line (dark orange)
- Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-pooliei* open woodland (purple)
- Planted/revegetation of both native, non-local natives and introduced species (green)
- Scattered *Corymbia calophylla* and *Eucalyptus marginata* (pink)
- Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees with occasional *Eucalyptus wandoo* or *Eucalyptus rudis* in paddocks and grazed areas (light blue)
- Cleared/hardstand (yellow diagonal hatching)

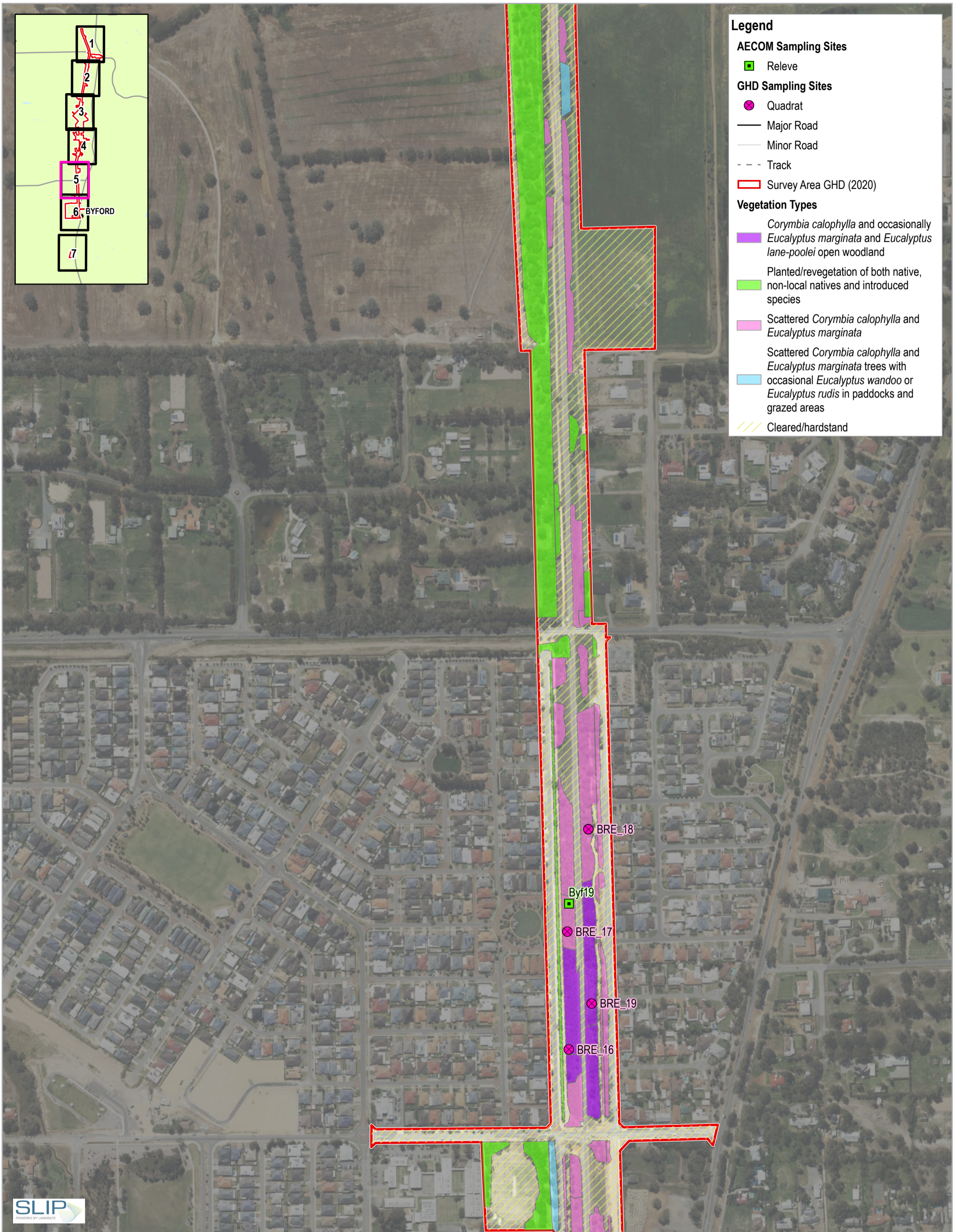


Public Transport Authority  
Byford Rail Extension

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

Vegetation Types and Sample Locations

G:\6112532927\GIS\Map\Working\12532927 - PTA Byford\12532927 - PTA Byford.april12532927\_006\_VegTypesSampling\_Rev0  
Print date: 22 Feb 2021 - 14:51  
Data source: GHD; Project boundary, Track Logs - 20200921-20200929; AECOM; Conservation Significant Flora - 20200625; DBCA; Conservation Significant Flora; TEC/PEC - 2020109; LGATE; Roads, Cadastre - 20200927; Imagery accessed on 20210222. Created by: slel



**Legend**

**AECOM Sampling Sites**

- Releve

**GHD Sampling Sites**

- Quadrat
- Major Road
- Minor Road
- Track
- Survey Area GHD (2020)

**Vegetation Types**

- Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-poolaei* open woodland
- Planted/revegetation of both native, non-local natives and introduced species
- Scattered *Corymbia calophylla* and *Eucalyptus marginata*
- Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees with occasional *Eucalyptus wandoo* or *Eucalyptus rudis* in paddocks and grazed areas
- Cleared/hardstand

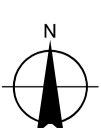


Paper Size ISO A3

0 50 100 150 200

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

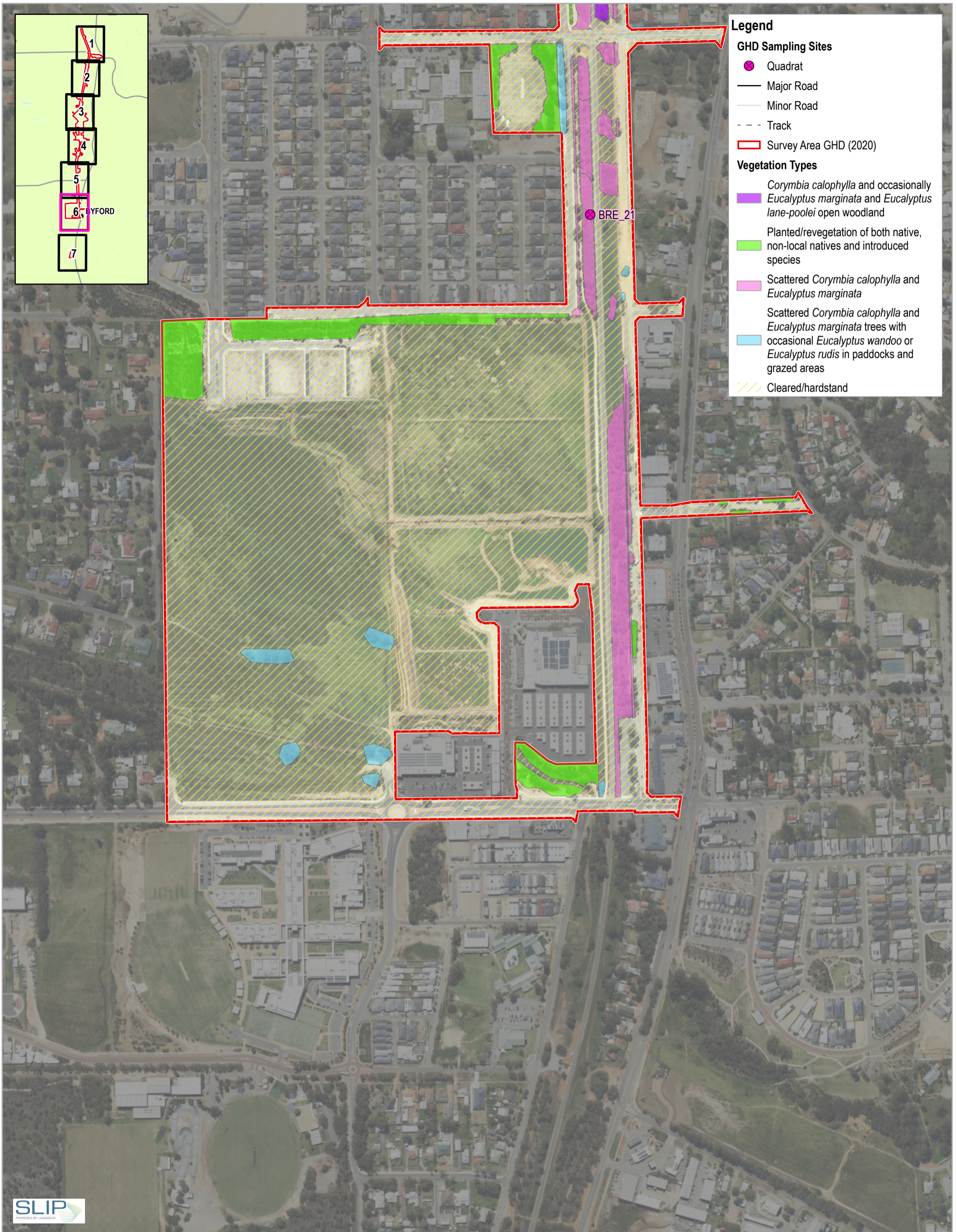


Public Transport Authority  
Byford Rail Extension

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

Vegetation Types and Sample Locations

Page 5 of 7  
**FIGURE 6**



**Legend**

**GHD Sampling Sites**

- ⊗ Quadrat
- Major Road
- Minor Road
- - - Track
- ▭ Survey Area GHD (2020)

**Vegetation Types**

- Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-poolei* open woodland
- Planted/revegetation of both native, non-local natives and introduced species
- Scattered *Corymbia calophylla* and *Eucalyptus marginata*
- Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees with occasional *Eucalyptus wandoo* or *Eucalyptus rudis* in paddocks and grazed areas
- Cleared/hardstand

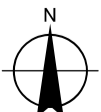


Paper Size ISO A3

0 50 100 150 200

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

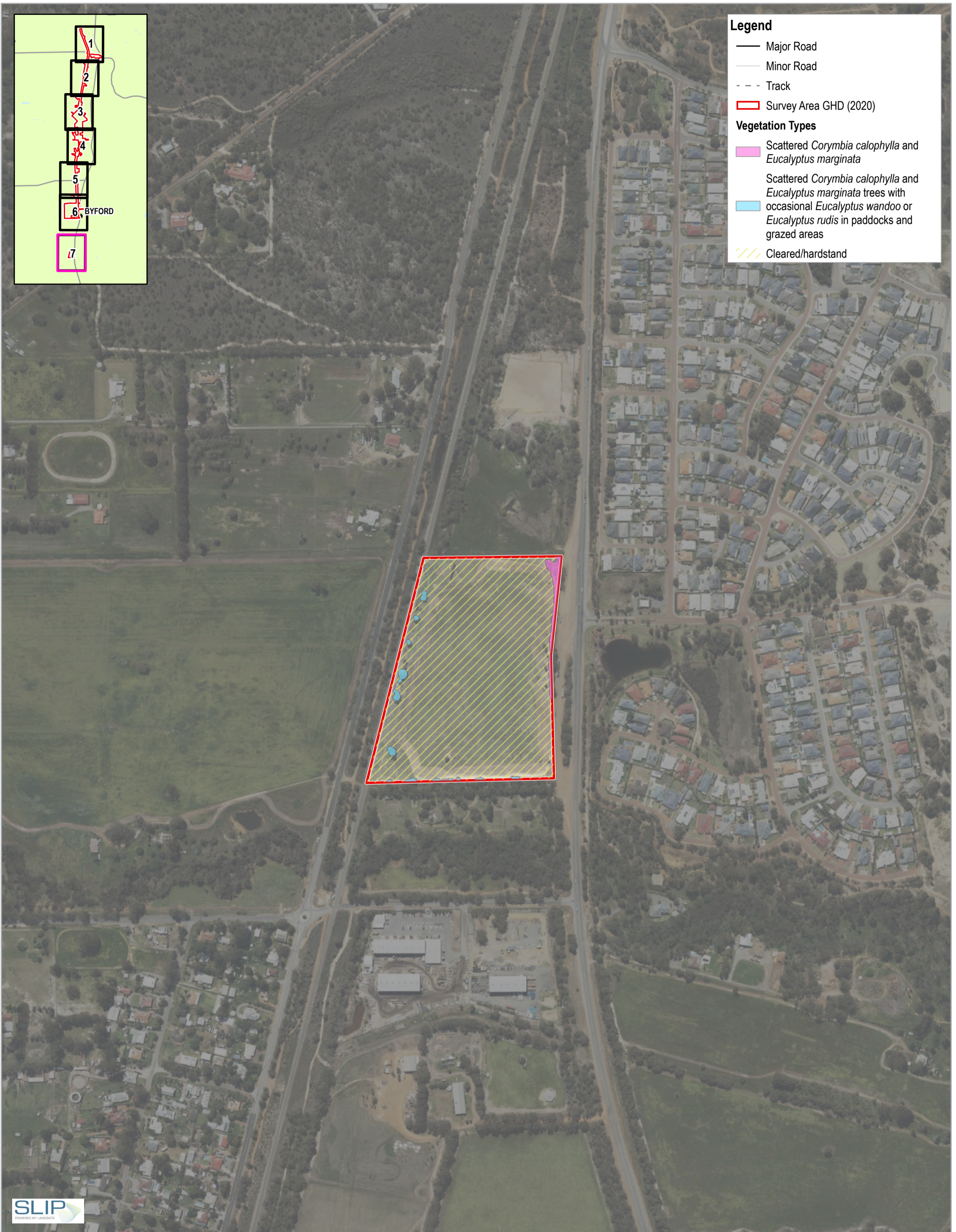


Public Transport Authority  
Byford Rail Extension

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

Vegetation Types and Sample Locations

Page 6 of 7  
**FIGURE 6**



**Legend**

- Major Road
- Minor Road
- - - Track
- ▭ Survey Area GHD (2020)

**Vegetation Types**

- ▭ Scattered *Corymbia calophylla* and *Eucalyptus marginata*
- ▭ Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees with occasional *Eucalyptus wandoo* or *Eucalyptus rudis* in paddocks and grazed areas
- ▨ Cleared/hardstand

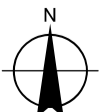


Paper Size ISO A3

0 50 100 150 200

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



Public Transport Authority  
Byford Rail Extension

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

**Vegetation Types and Sample Locations**

G:\6112532927\GIS\Map\Working\12532927 - PTA Byford\12532927 - PTA Byford.april12532927\_006\_VegTypesSampling\_Rev0  
Print date: 22 Feb 2021 - 14:51

Data source: GHD; Project boundary, Track Logs - 20200921-20200929; AECOM; Conservation Significant Flora - 20200625; DBCA; Conservation Significant Flora; TEC/PEC - 20200109; LGATE; Roads, Cadastre - 20200927; Imagery accessed on 20210222. Created by: sle



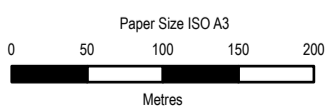
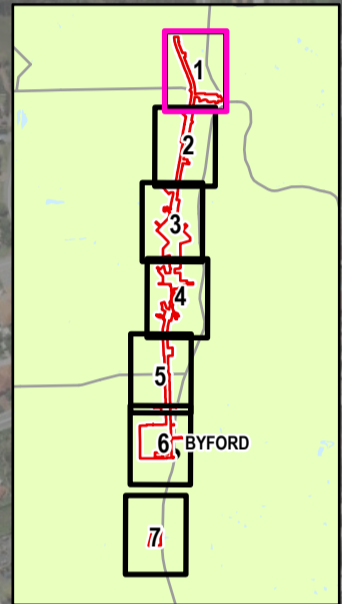


**Legend**

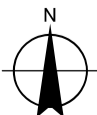
- Major Road
- Minor Road
- ▭ Survey Area GHD (2020)
- ▭ Cadastral boundary

**Vegetation Condition**

- ▭ Completely Degraded
- ▭ Cleared



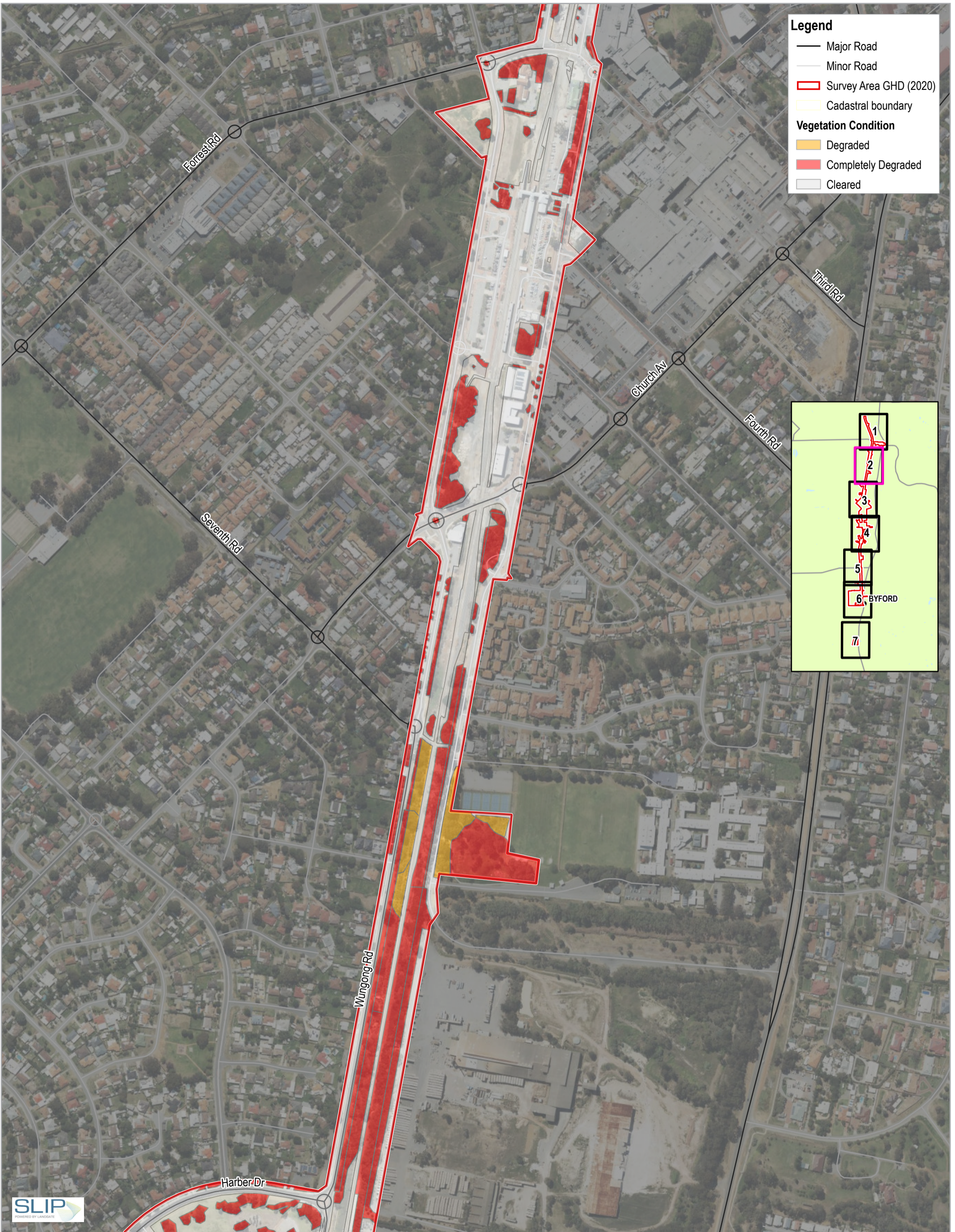
Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



Public Transport Authority  
Byford Rail Extension

**Vegetation Condition and  
Significant Weeds**

Project No. 12532927  
Revision No. 1  
Date 11/03/2021

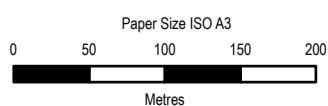
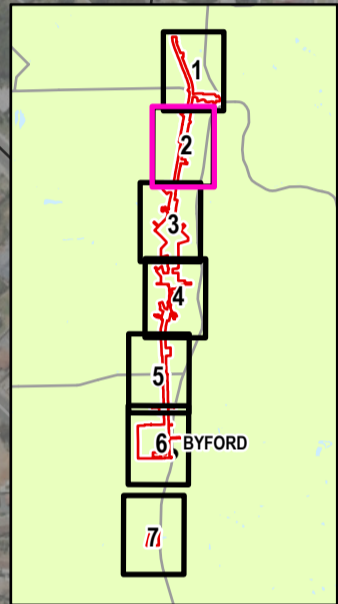


**Legend**

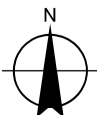
- Major Road
- Minor Road
- ▭ Survey Area GHD (2020)
- ▭ Cadastral boundary

**Vegetation Condition**

- ▭ Degraded
- ▭ Completely Degraded
- ▭ Cleared



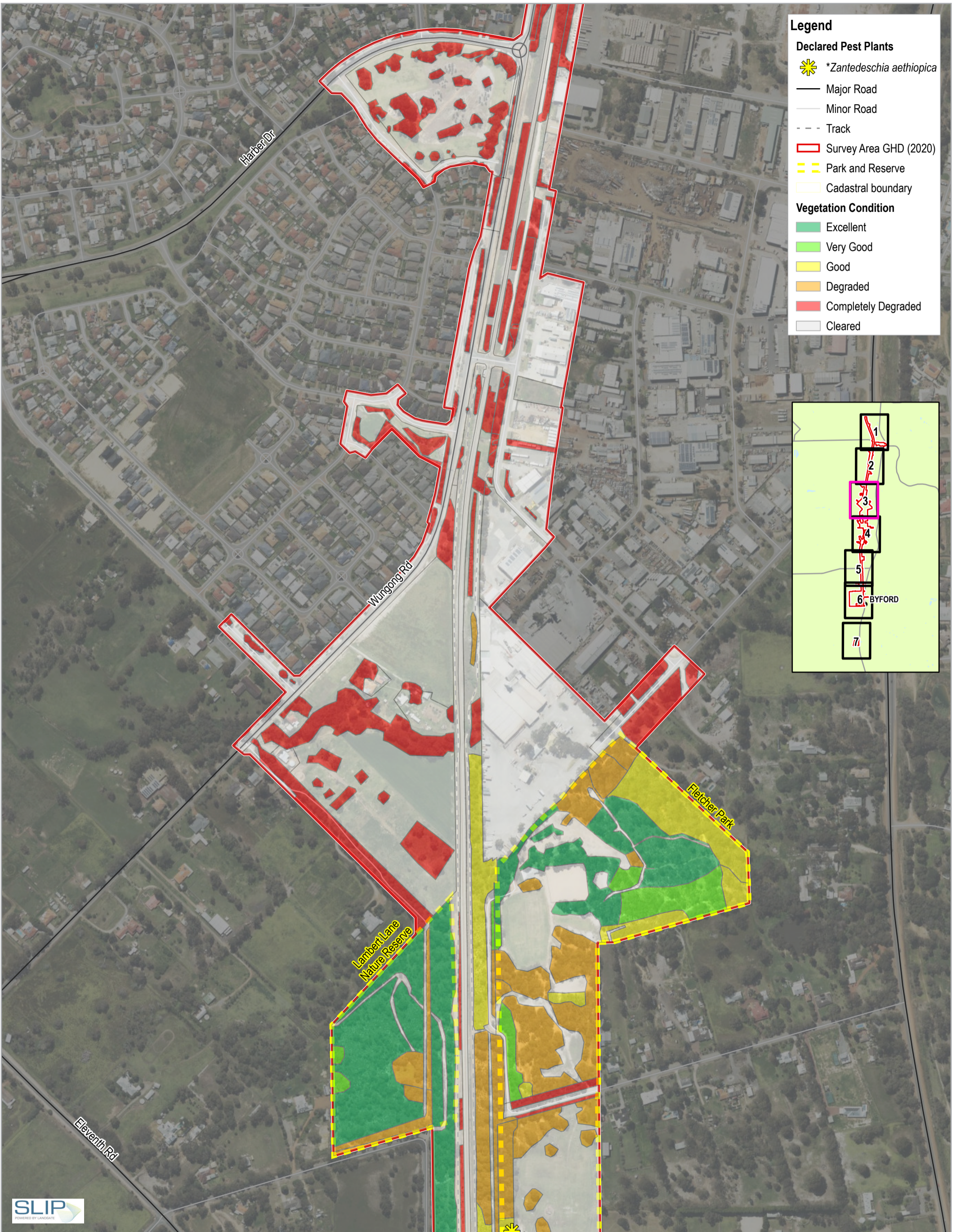
Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



Public Transport Authority  
Byford Rail Extension

**Vegetation Condition and  
Significant Weeds**

Project No. 12532927  
Revision No. 1  
Date 11/03/2021



**Legend**

**Declared Pest Plants**

- \**Zantedeschia aethiopica*

**Infrastructure**

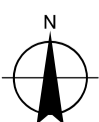
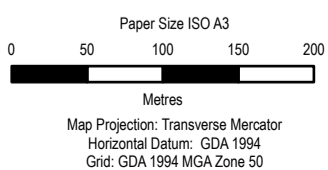
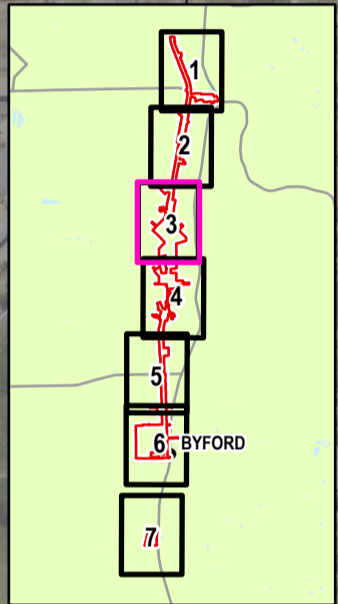
- Major Road
- Minor Road
- Track

**Boundaries**

- Survey Area GHD (2020)
- Park and Reserve
- Cadastral boundary

**Vegetation Condition**

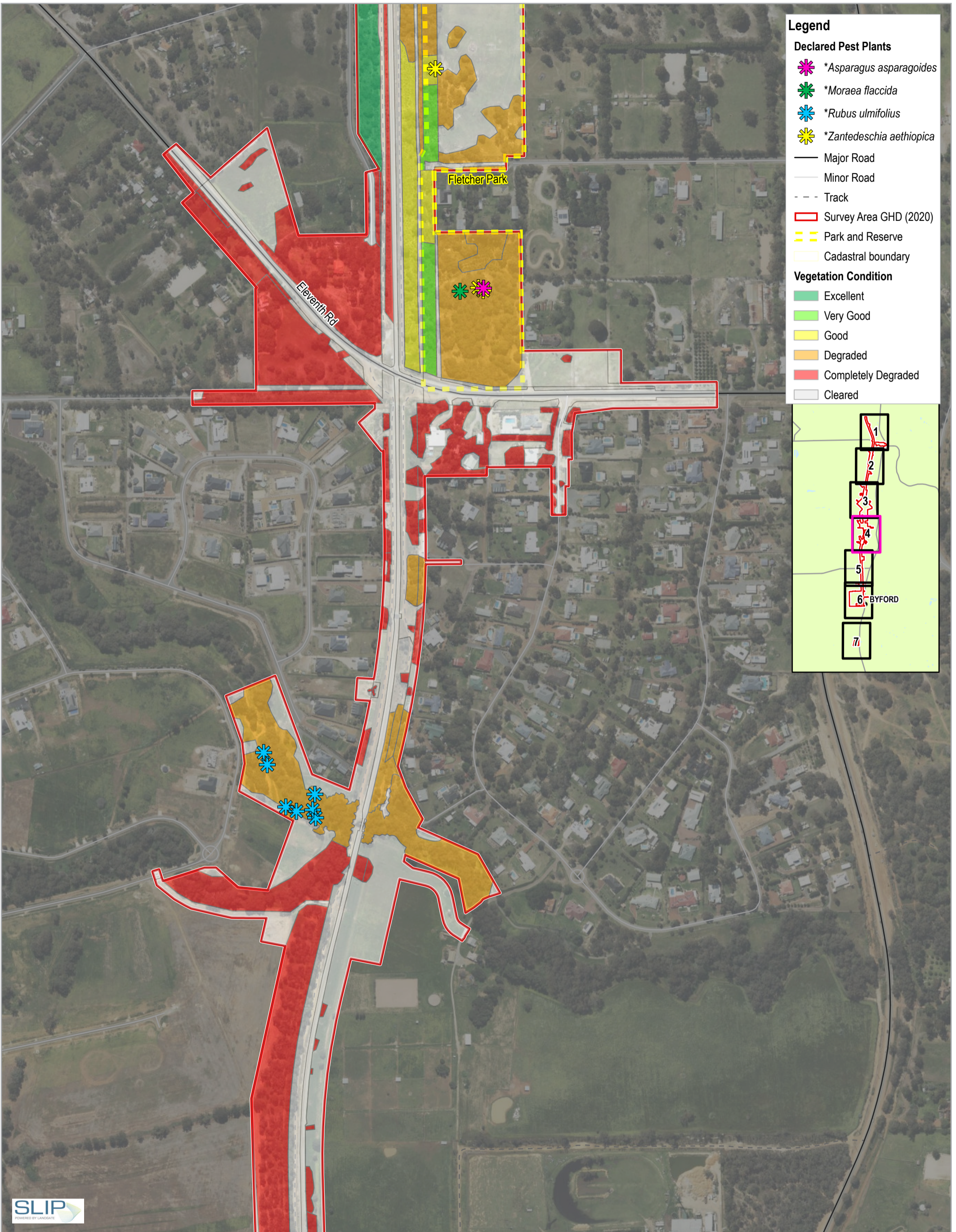
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- Cleared



Public Transport Authority  
Byford Rail Extension

**Vegetation Condition and  
Significant Weeds**

Project No. 12532927  
Revision No. 1  
Date 11/03/2021



**Legend**

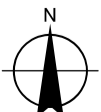
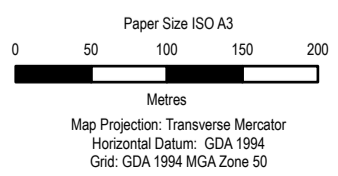
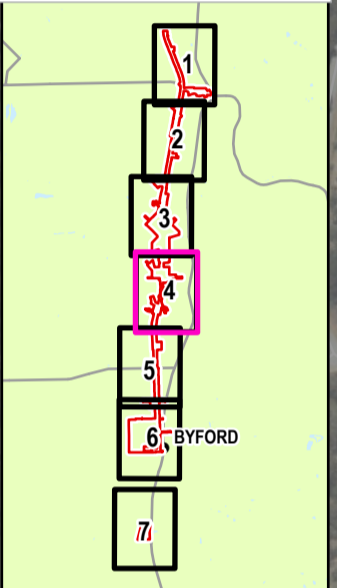
**Declared Pest Plants**

- \**Asparagus asparagoides*
- \**Moraea flaccida*
- \**Rubus ulmifolius*
- \**Zantedeschia aethiopica*

— Major Road  
 — Minor Road  
 - - - Track  
 Survey Area GHD (2020)  
 Park and Reserve  
 Cadastral boundary

**Vegetation Condition**

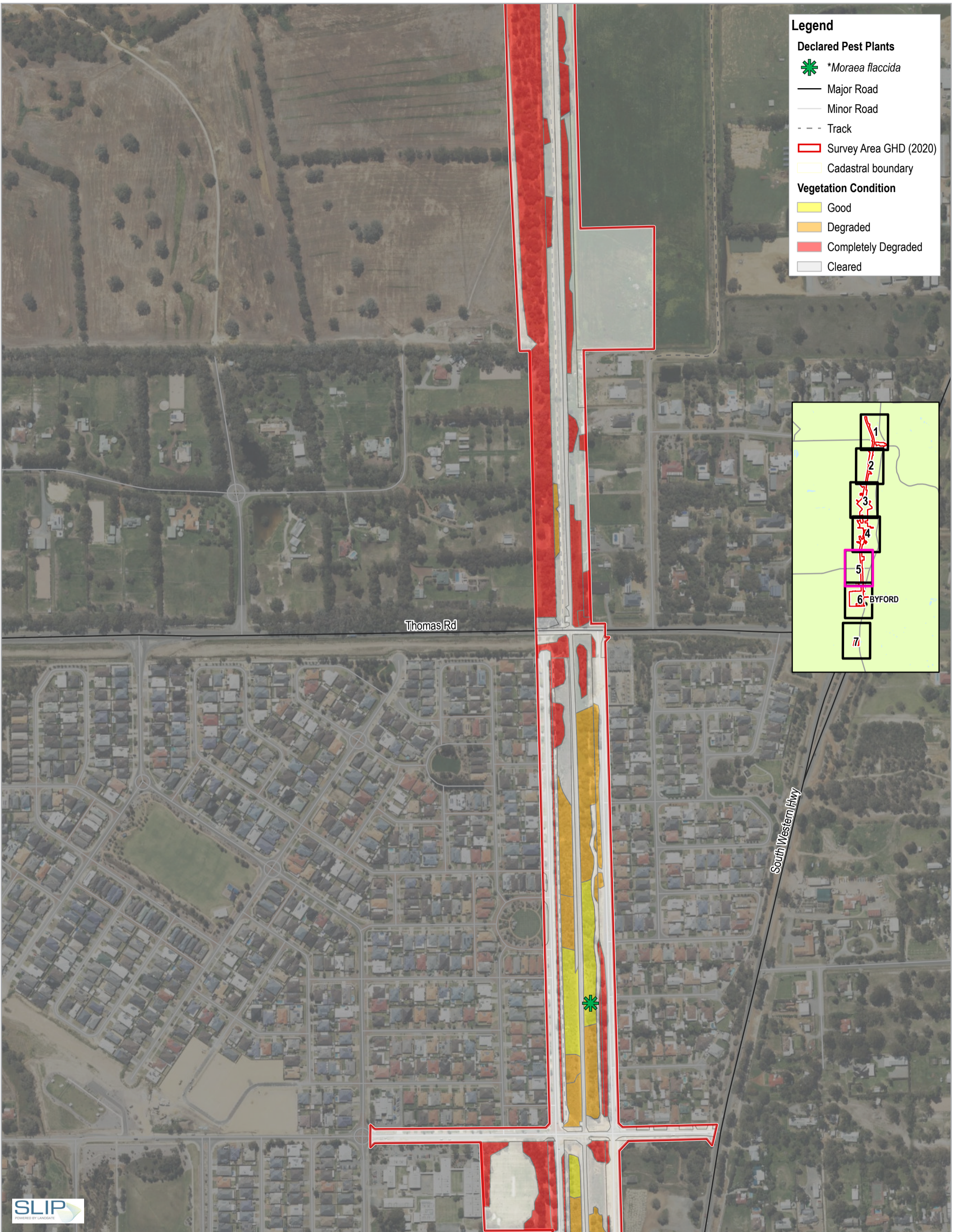
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- Cleared



Public Transport Authority  
 Byford Rail Extension

**Vegetation Condition and  
 Significant Weeds**

Project No. 12532927  
 Revision No. 1  
 Date 11/03/2021



**Legend**

**Declared Pest Plants**

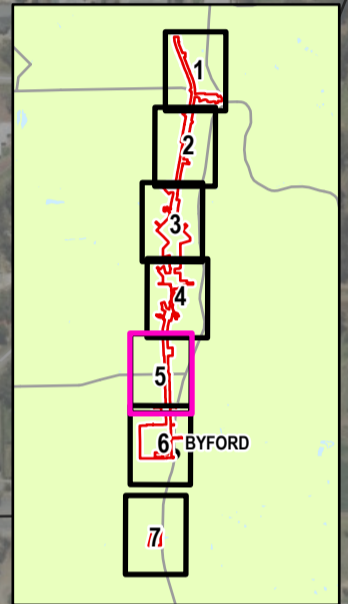
- \**Moraea flaccida*

**Roads and Infrastructure**

- Major Road
- Minor Road
- Track
- Survey Area GHD (2020)
- Cadastral boundary

**Vegetation Condition**

- Good
- Degraded
- Completely Degraded
- Cleared

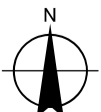


Paper Size ISO A3

0 50 100 150 200

Metres

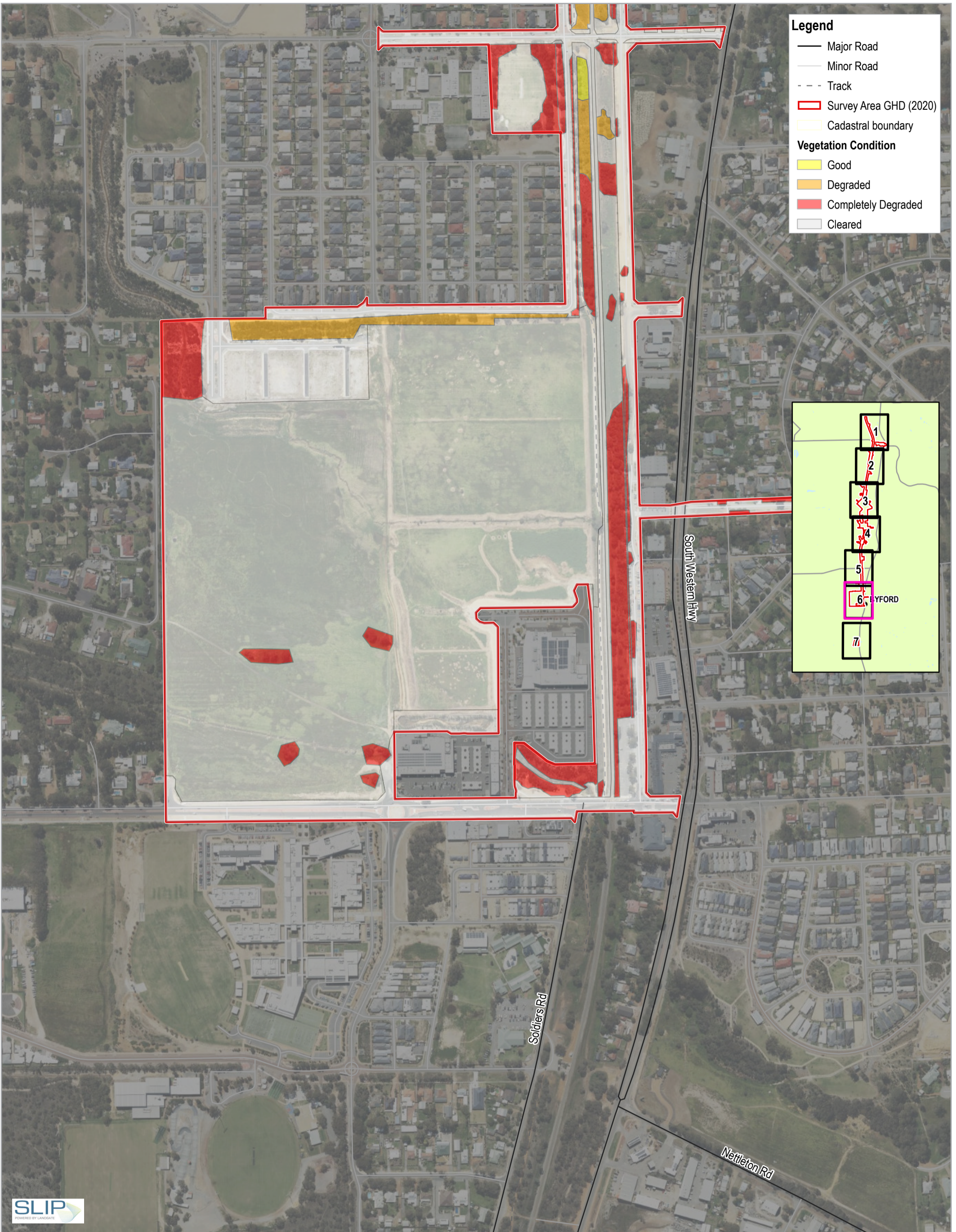
Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



Public Transport Authority  
Byford Rail Extension

**Vegetation Condition and  
Significant Weeds**

Project No. 12532927  
Revision No. 1  
Date 11/03/2021

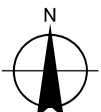
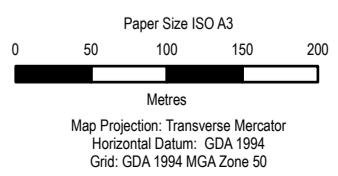
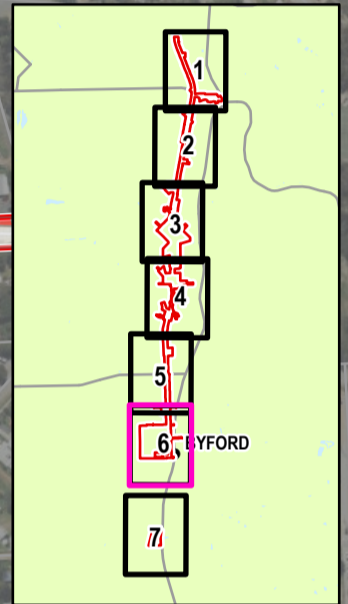


**Legend**

- Major Road
- Minor Road
- - - Track
- ▭ Survey Area GHD (2020)
- ▭ Cadastral boundary

**Vegetation Condition**

- ▭ Good
- ▭ Degraded
- ▭ Completely Degraded
- ▭ Cleared



Public Transport Authority  
Byford Rail Extension

**Vegetation Condition and  
Significant Weeds**

Project No. 12532927  
Revision No. 1  
Date 11/03/2021

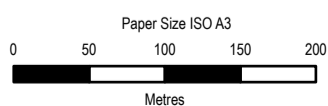
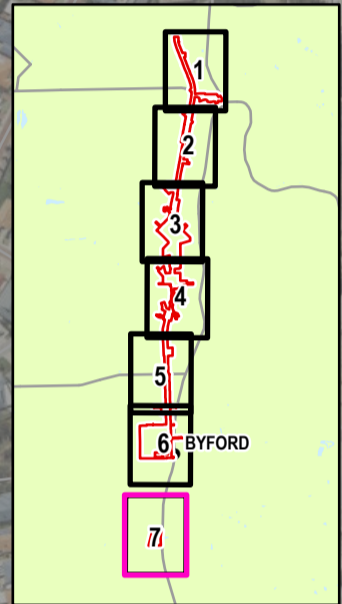


**Legend**

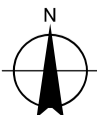
- Major Road
- Minor Road
- - - Track
- ▭ Survey Area GHD (2020)
- ▭ Cadastral boundary

**Vegetation Condition**

- ▭ Completely Degraded
- ▭ Cleared



Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 50



Public Transport Authority  
 Byford Rail Extension

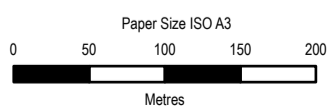
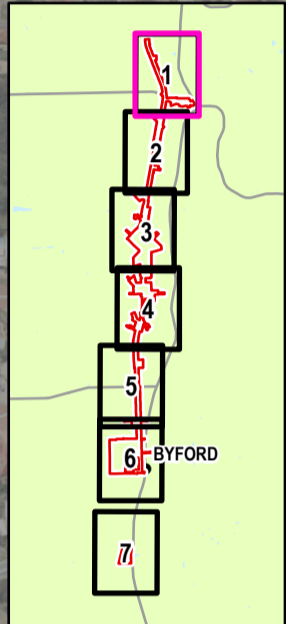
**Vegetation Condition and  
 Significant Weeds**

Project No. 12532927  
 Revision No. 1  
 Date 11/03/2021

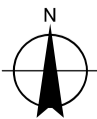


**Legend**

- Major Road
- Minor Road
- ▭ Survey Area GHD (2020)



Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



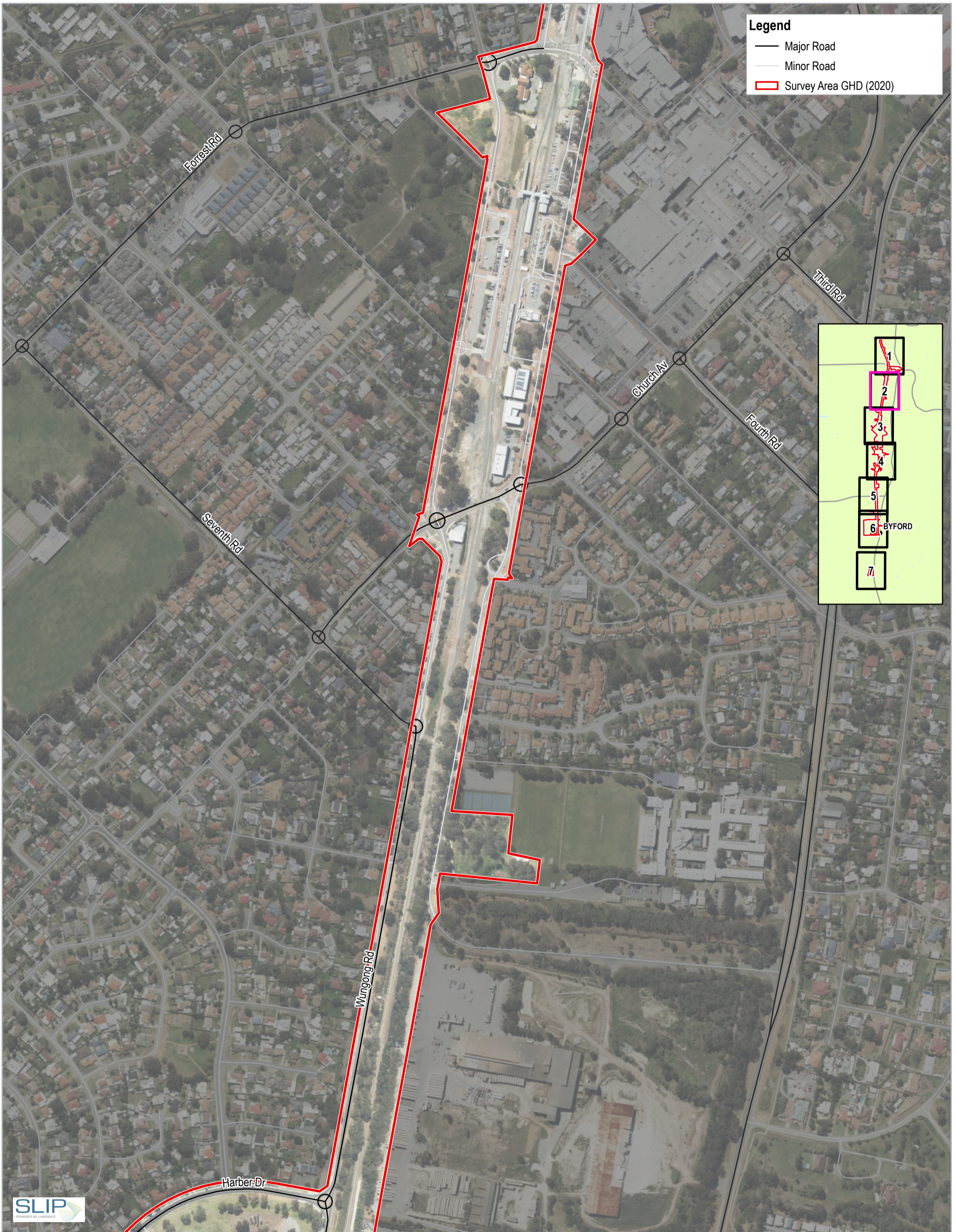
Public Transport Authority  
Byford Rail Extension

**Significant Vegetation and  
Flora Locations**

Project No. 12532927  
Revision No. 1  
Date 11/03/2021

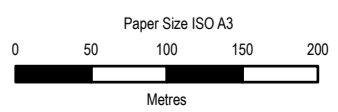
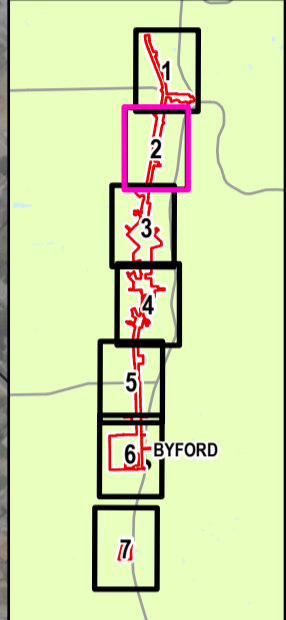
**FIGURE 8**



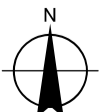


**Legend**

- Major Road
- Minor Road
- ▭ Survey Area GHD (2020)



Paper Size ISO A3  
 Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 50

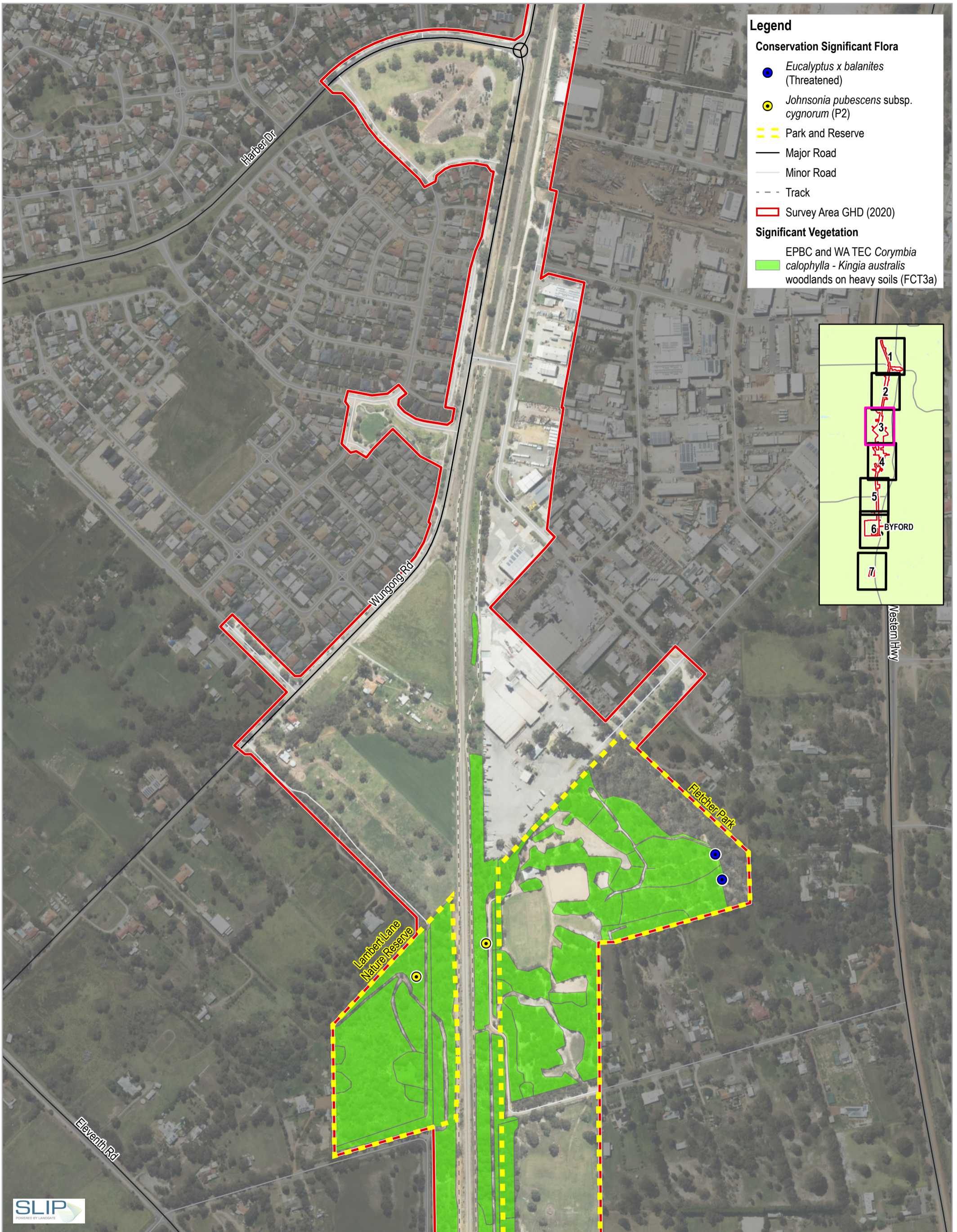


Public Transport Authority  
 Byford Rail Extension

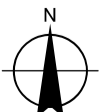
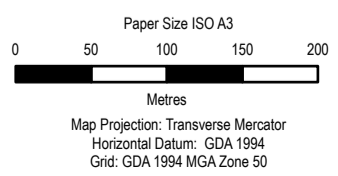
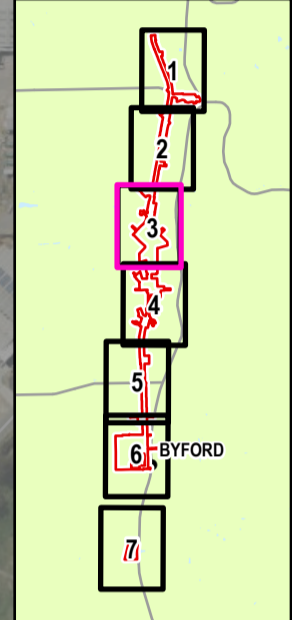
**Significant Vegetation and  
 Flora Locations**

Project No. 12532927  
 Revision No. 1  
 Date 11/03/2021

**FIGURE 8**



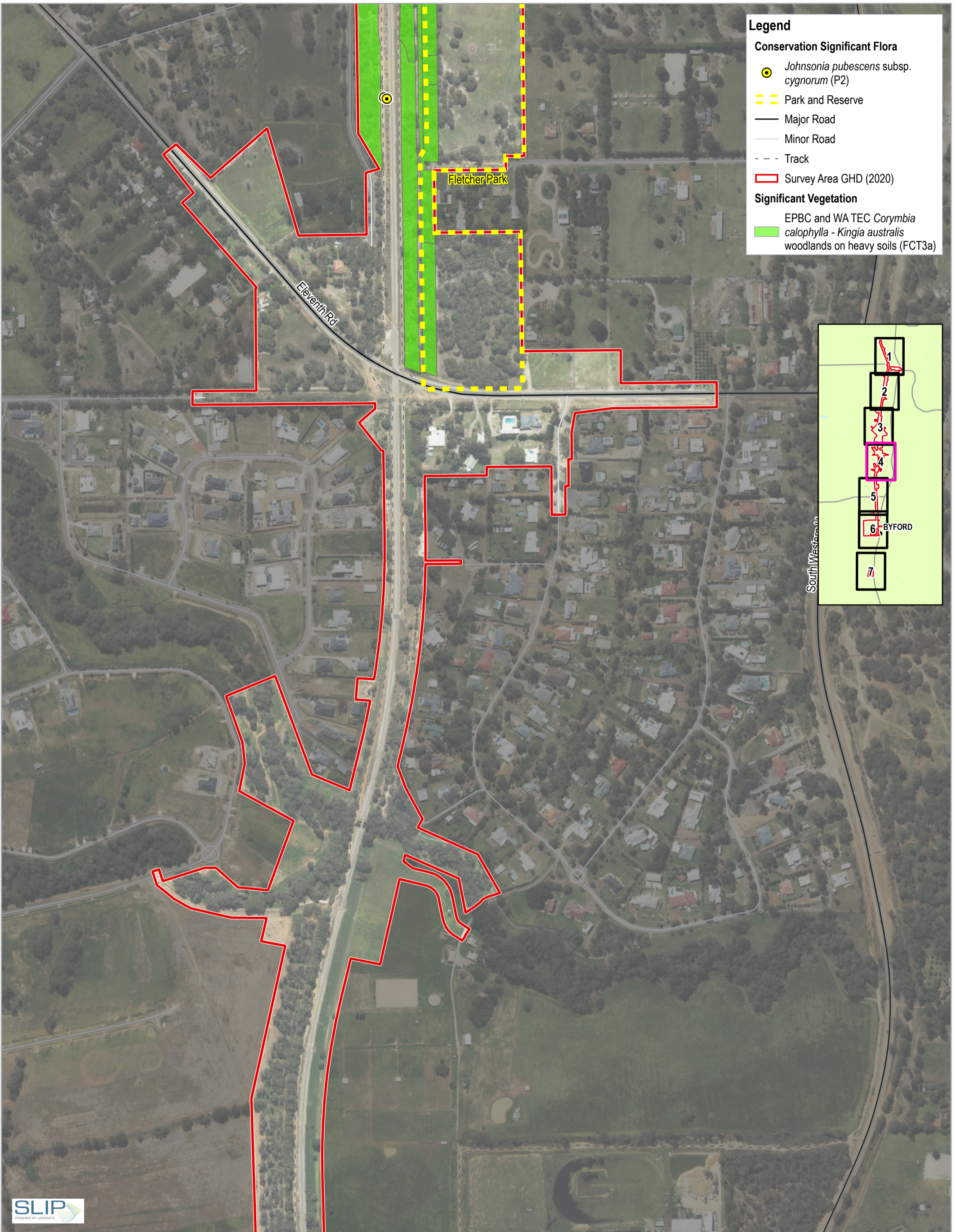
- Legend**
- Conservation Significant Flora**
- *Eucalyptus x balanites* (Threatened)
  - *Johnsonia pubescens* subsp. *cygnorum* (P2)
  - ▭ Park and Reserve
  - Major Road
  - Minor Road
  - - - Track
  - ▭ Survey Area GHD (2020)
- Significant Vegetation**
- ▭ EPBC and WA TEC *Corymbia calophylla* - *Kingia australis* woodlands on heavy soils (FCT3a)



Public Transport Authority  
Byford Rail Extension

**Significant Vegetation and  
Flora Locations**

Project No. 12532927  
Revision No. 1  
Date 11/03/2021



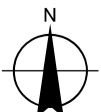
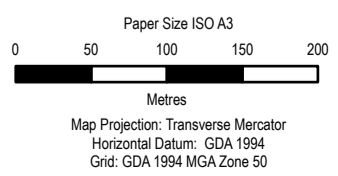
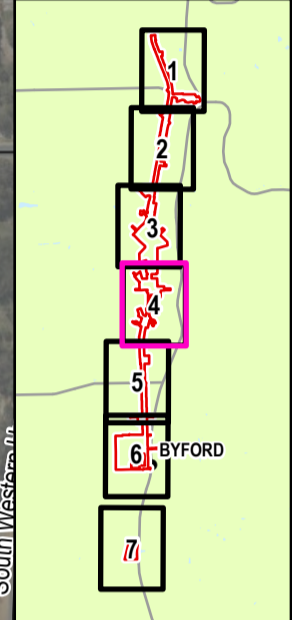
**Legend**

**Conservation Significant Flora**

- Johnsonia pubescens* subsp. *cygnorum* (P2)
- Park and Reserve
- Major Road
- Minor Road
- Track
- Survey Area GHD (2020)

**Significant Vegetation**

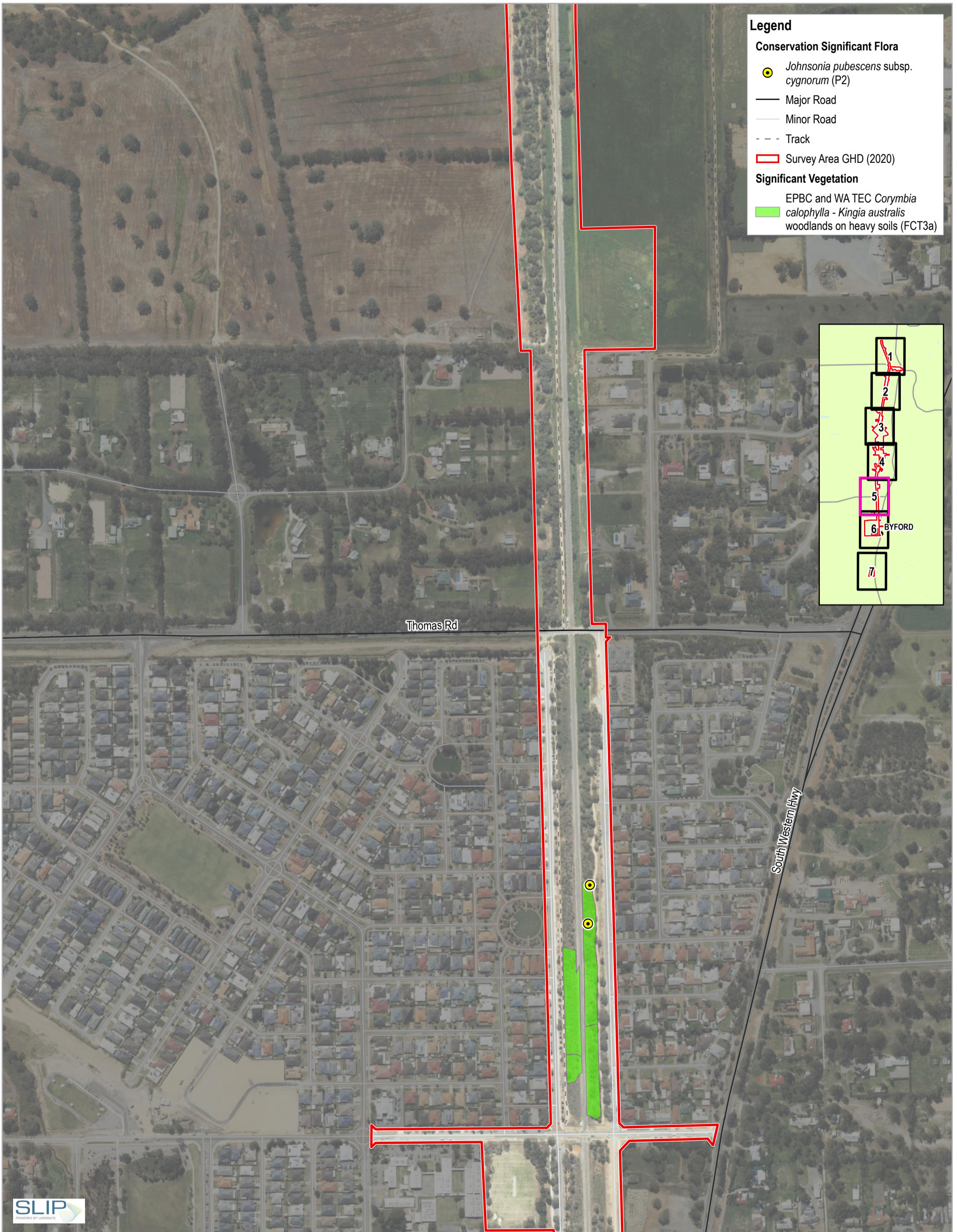
- EPBC and WA TEC *Corymbia calophylla* - *Kingia australis* woodlands on heavy soils (FCT3a)



Public Transport Authority  
Byford Rail Extension

**Significant Vegetation and  
Flora Locations**

Project No. 12532927  
Revision No. 1  
Date 11/03/2021



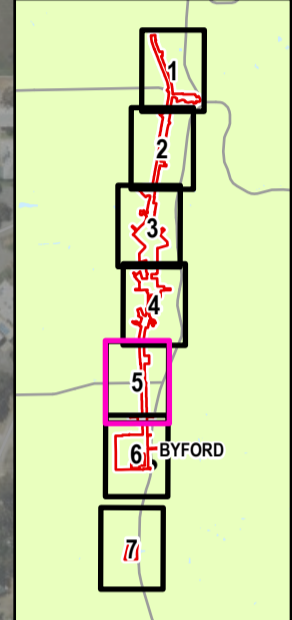
**Legend**

**Conservation Significant Flora**

- *Johnsonia pubescens* subsp. *cygnorum* (P2)
- Major Road
- Minor Road
- - - Track
- Survey Area GHD (2020)

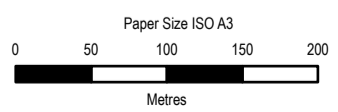
**Significant Vegetation**

- EPBC and WA TEC *Corymbia calophylla* - *Kingia australis* woodlands on heavy soils (FCT3a)

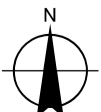


Thomas Rd

South Western Hwy



Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



Public Transport Authority  
Byford Rail Extension

**Significant Vegetation and  
Flora Locations**

Project No. 12532927  
Revision No. 1  
Date 11/03/2021

**FIGURE 8**

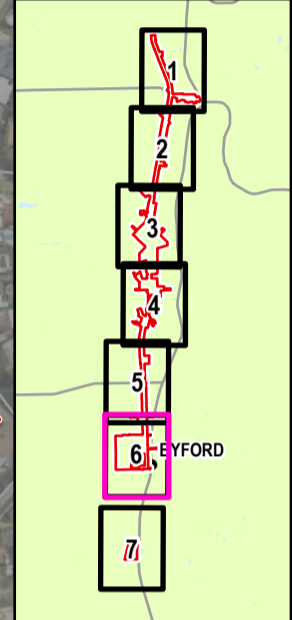


**Legend**

- Major Road
- Minor Road
- - - Track
- ▭ Survey Area GHD (2020)

**Significant Vegetation**

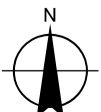
- EPBC and WATEC *Corymbia calophylla - Kingia australis* woodlands on heavy soils (FCT3a)



Paper Size ISO A3

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



Public Transport Authority  
Byford Rail Extension

**Significant Vegetation and  
Flora Locations**

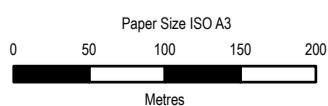
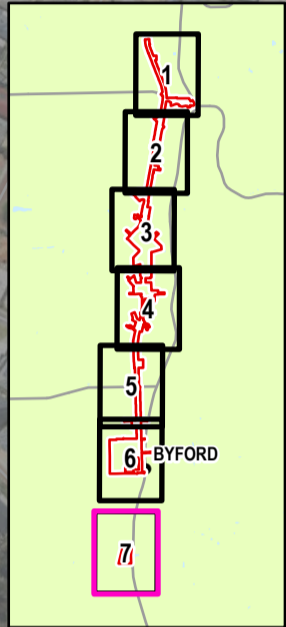
Project No. 12532927  
Revision No. 1  
Date 11/03/2021

**FIGURE 8**

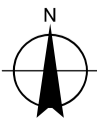


**Legend**

- Major Road
- Minor Road
- - - Track
- ▭ Survey Area GHD (2020)



Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

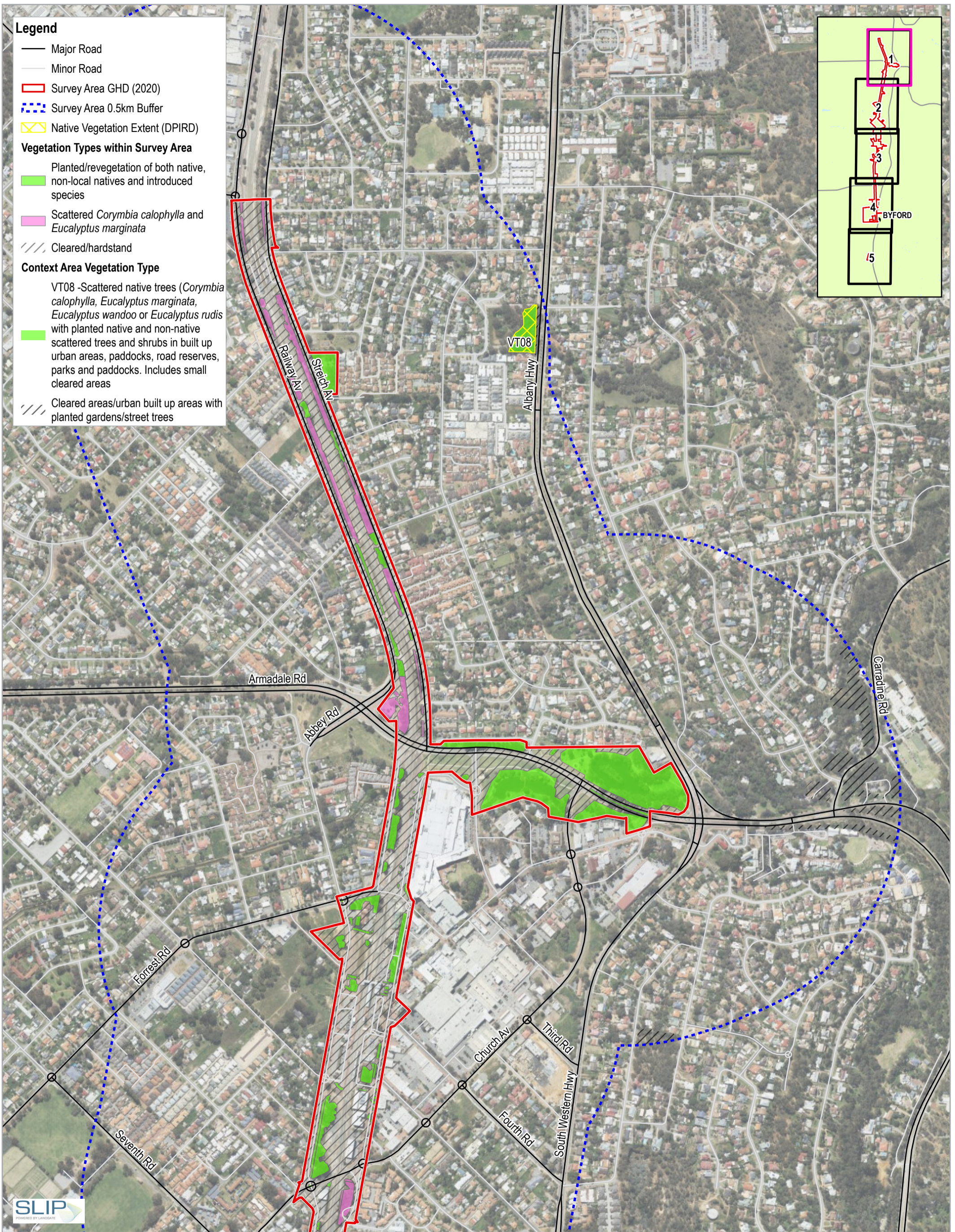


Public Transport Authority  
Byford Rail Extension

**Significant Vegetation and  
Flora Locations**

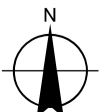
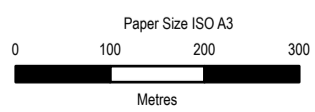
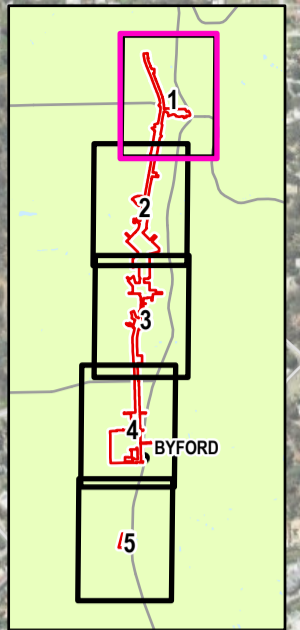
Project No. 12532927  
Revision No. 1  
Date 11/03/2021

**FIGURE 8**



**Legend**

- Major Road
- Minor Road
- ▭ Survey Area GHD (2020)
- ▭ Survey Area 0.5km Buffer
- ▭ Native Vegetation Extent (DPIRD)
- Vegetation Types within Survey Area**
- ▭ Planted/revegetation of both native, non-local natives and introduced species
- ▭ Scattered *Corymbia calophylla* and *Eucalyptus marginata*
- ▭ Cleared/hardstand
- Context Area Vegetation Type**
- VT08 - Scattered native trees (*Corymbia calophylla*, *Eucalyptus marginata*, *Eucalyptus wandoo* or *Eucalyptus rudis* with planted native and non-native scattered trees and shrubs in built up urban areas, paddocks, road reserves, parks and paddocks. Includes small cleared areas
- ▭ Cleared areas/urban built up areas with planted gardens/street trees



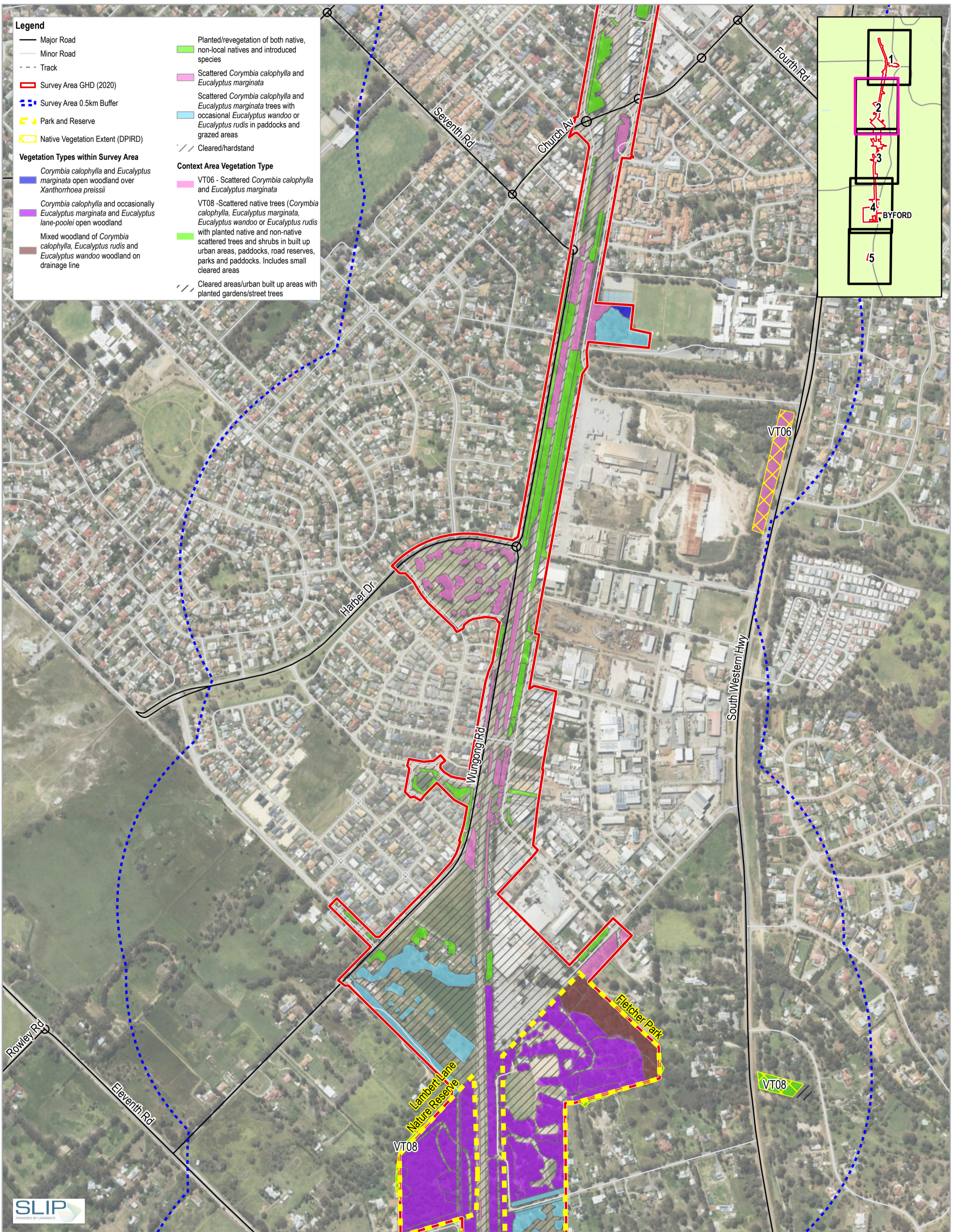
Public Transport Authority  
Byford Rail Extension –  
Environmental Approvals Support

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

**Context Area Vegetation Types**

G:\6112532927\GIS\Map\Working\12532927 - PTA Byford\12532927 - PTA Byford.april12532927\_009\_VegContextMap\_Rev0 Print date: 22 Feb 2021 - 15:02 Data source: GHD: Project boundary, Track Logs - 20200921-20200929; AECOM: Conservation Significant Flora - 20200625; DBCA: Conservation Significant Flora; TEC/PEC - 20200109; LGATE: Roads, Cadastre - 20200927, Imagery accessed on 20210222. Created by: slel



**Legend**

- Major Road
- Minor Road
- Track
- Survey Area GHD (2020)
- Survey Area 0.5km Buffer
- Park and Reserve
- Native Vegetation Extent (DPIRD)

**Vegetation Types within Survey Area**

- Corymbia calophylla* and *Eucalyptus marginata* open woodland over *Xanthorrhoea preissii*
- Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-pooli* open woodland
- Mixed woodland of *Corymbia calophylla*, *Eucalyptus rudis* and *Eucalyptus wandoo* woodland on drainage line

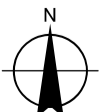
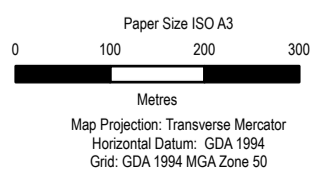
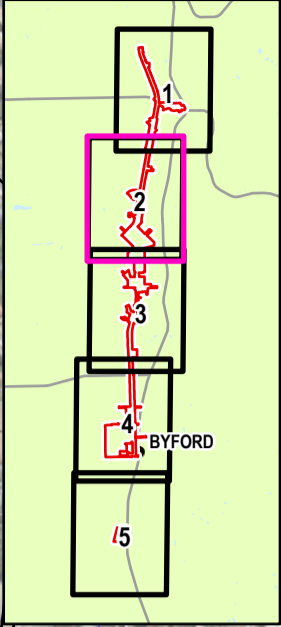
**Context Area Vegetation Type**

- VT06 - Scattered *Corymbia calophylla* and *Eucalyptus marginata*
- VT08 - Scattered native trees (*Corymbia calophylla*, *Eucalyptus marginata*, *Eucalyptus wandoo* or *Eucalyptus rudis* with planted native and non-native scattered trees and shrubs in built up urban areas, paddocks, road reserves, parks and paddocks. Includes small cleared areas
- Cleared areas/urban built up areas with planted gardens/street trees

**Planted/revegetation of both native, non-local natives and introduced species**

- Scattered *Corymbia calophylla* and *Eucalyptus marginata*
- Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees with occasional *Eucalyptus wandoo* or *Eucalyptus rudis* in paddocks and grazed areas

**Cleared/hardstand**



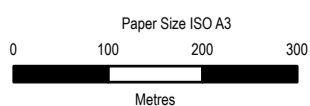
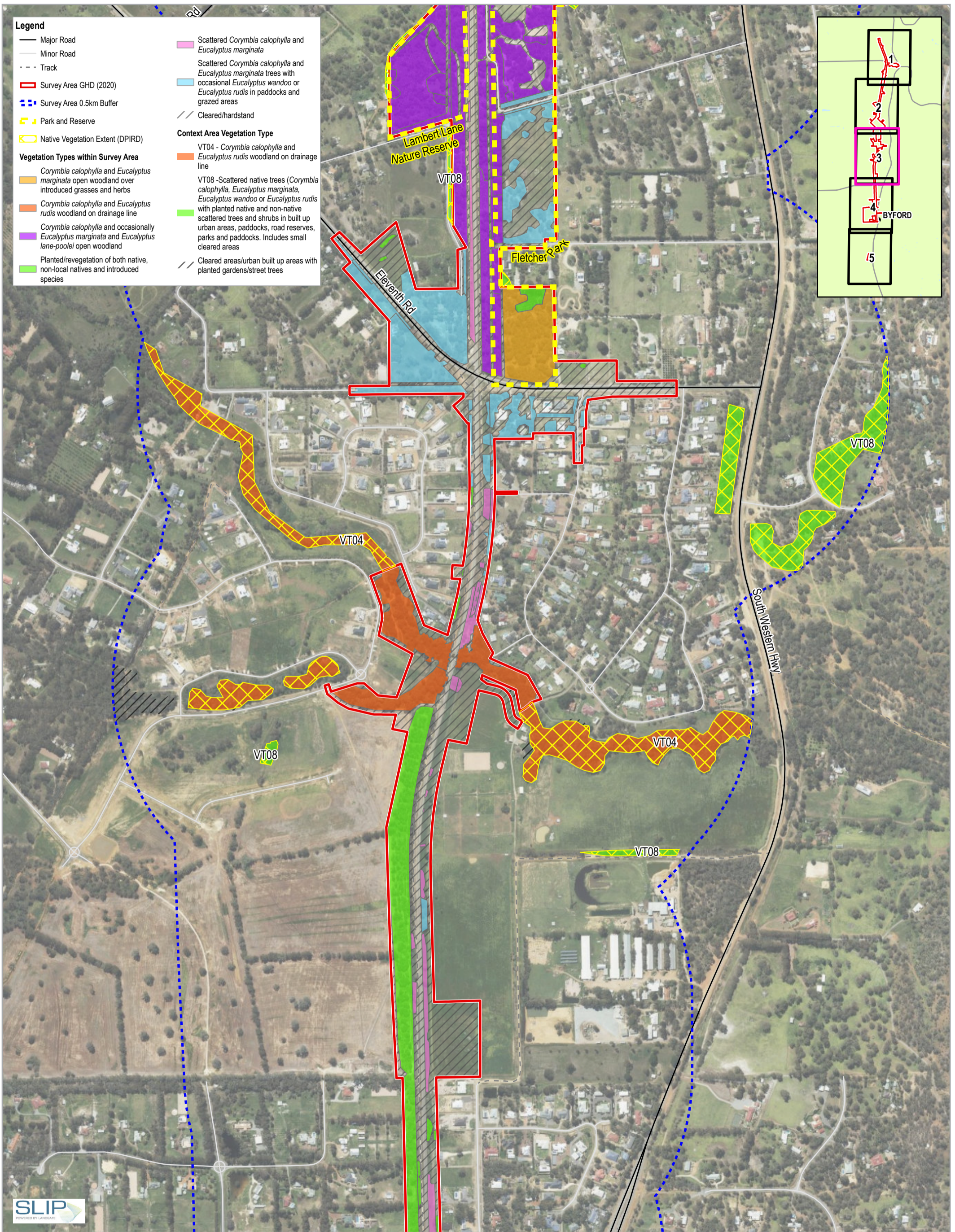
Public Transport Authority  
Byford Rail Extension –  
Environmental Approvals Support

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

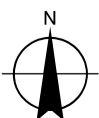
**Context Area Vegetation Types**

G:\6112532927\GIS\Map\Working\12532927 - PTA Byford\12532927 - PTA Byford.april12532927\_009\_VegContextMap\_Rev0  
Print date: 22 Feb 2021 - 15:02  
Data source: GHD; Project boundary, Track Logs - 20200921-20200929; AECOM; Conservation Significant Flora - 20200625; DBCA; Conservation Significant Flora; TEC/PEC - 2020109; LGATE; Roads, Cadastre - 20200927; Imagery accessed on 20210222. Created by: sle





Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



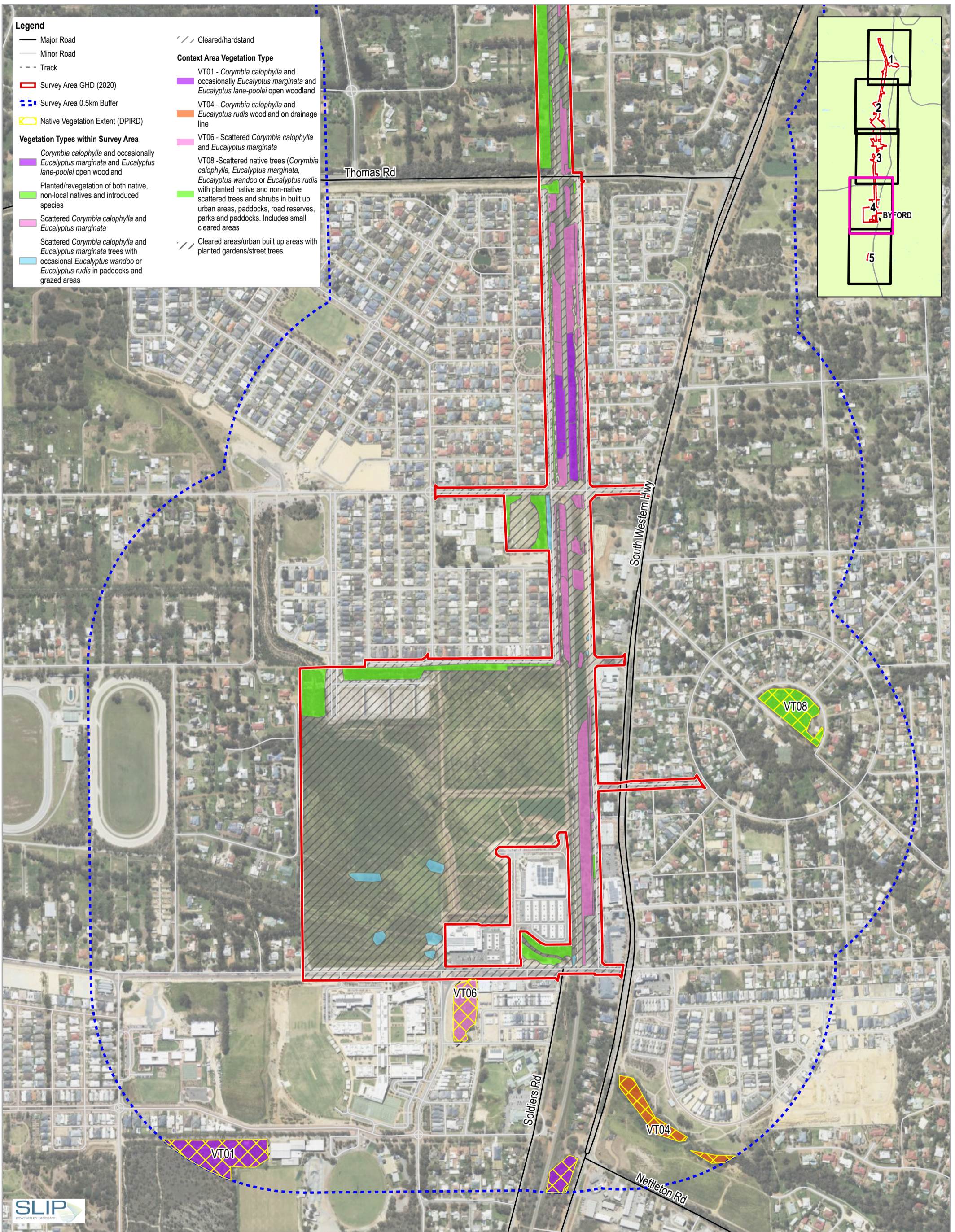
Public Transport Authority  
Byford Rail Extension –  
Environmental Approvals Support

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

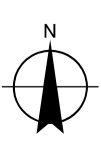
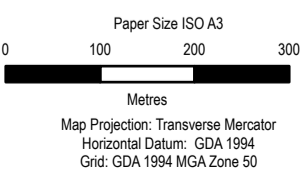
Context Area Vegetation Types

Page 3 of 5

FIGURE 9



- Legend**
- Major Road
  - Minor Road
  - - - Track
  - ▭ Survey Area GHD (2020)
  - ▭ Survey Area 0.5km Buffer
  - ▭ Native Vegetation Extent (DPIRD)
- Vegetation Types within Survey Area**
- ▭ *Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-poollei* open woodland
  - ▭ Planted/revegetation of both native, non-local natives and introduced species
  - ▭ Scattered *Corymbia calophylla* and *Eucalyptus marginata*
  - ▭ Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees with occasional *Eucalyptus wandoo* or *Eucalyptus rudis* in paddocks and grazed areas
- Context Area Vegetation Type**
- ▭ VT01 - *Corymbia calophylla* and occasionally *Eucalyptus marginata* and *Eucalyptus lane-poollei* open woodland
  - ▭ VT04 - *Corymbia calophylla* and *Eucalyptus rudis* woodland on drainage line
  - ▭ VT06 - Scattered *Corymbia calophylla* and *Eucalyptus marginata*
  - ▭ VT08 - Scattered native trees (*Corymbia calophylla*, *Eucalyptus marginata*, *Eucalyptus wandoo* or *Eucalyptus rudis* with planted native and non-native scattered trees and shrubs in built up urban areas, paddocks, road reserves, parks and paddocks. Includes small cleared areas
  - ▭ Cleared areas/urban built up areas with planted gardens/street trees
- ▭ Cleared/hardstand



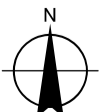
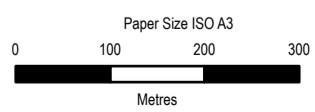
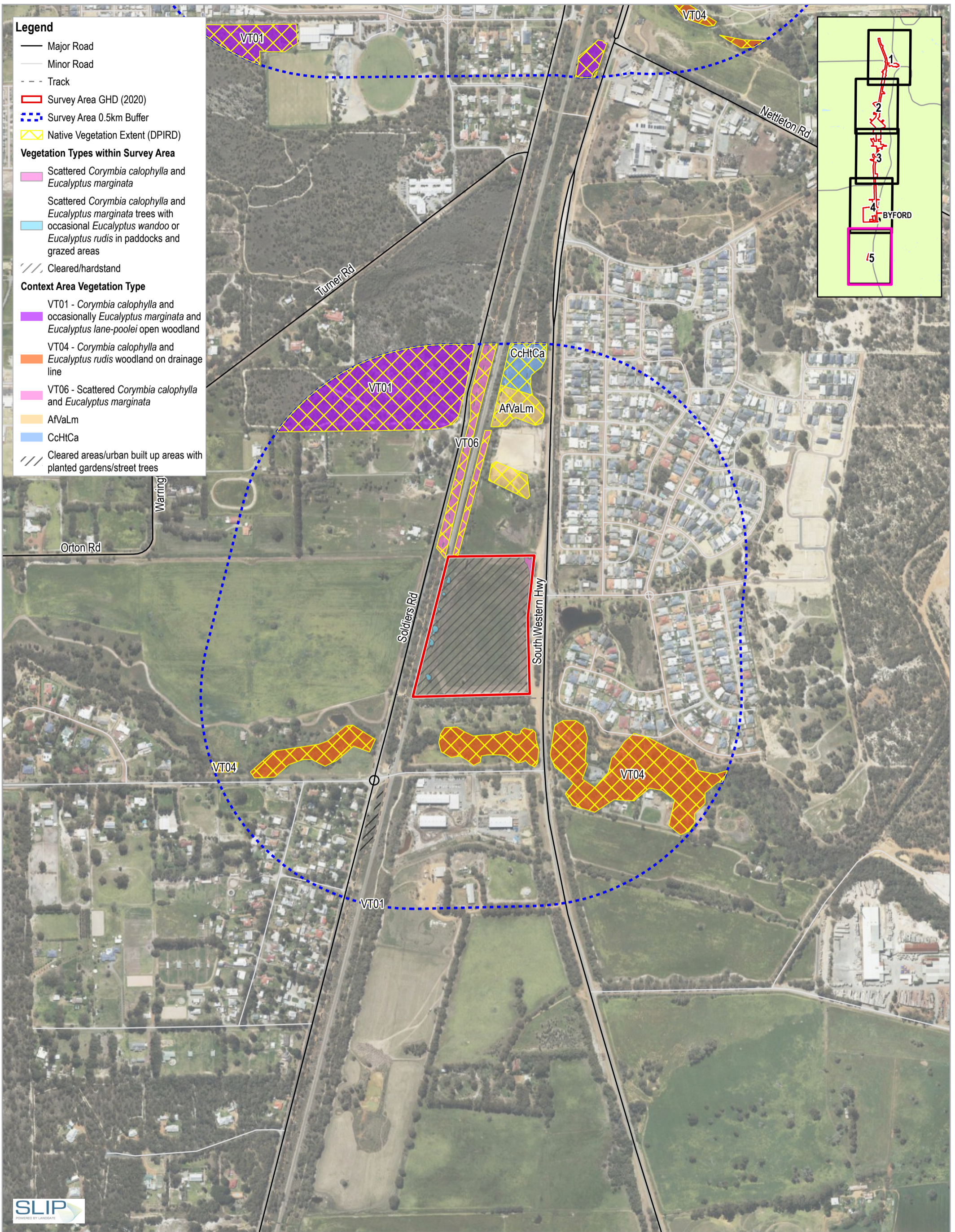
Public Transport Authority  
Byford Rail Extension –  
Environmental Approvals Support

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

**Context Area Vegetation Types**

G:\6112532927\GIS\Map\Working\12532927 - PTA Byford\12532927 - PTA Byford.april12532927\_009\_VegContextMap\_Rev0  
Print date: 22 Feb 2021 - 15:02

Data source: GHD; Project boundary, Track Logs - 20200921-20200929; AECOM; Conservation Significant Flora - 20200625; DBCA; Conservation Significant Flora; TEC/PEC - 2020109; LGATE; Roads, Cadastre - 20200927; Imagery accessed on 20210222. Created by: sle



Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



Public Transport Authority  
Byford Rail Extension –  
Environmental Approvals Support

Project No. 12532927  
Revision No. 0  
Date 22/02/2021

**Context Area Vegetation Types**

## **Appendix B** – Relevant legislation and conservation codes

## Relevant legislation

### **Federal *Environment Protection and Biodiversity Conservation Act 1999***

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Federal Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, which are defined in the EPBC Act as Matters of National Environmental Significance (MNES).

The biological aspects listed as MNES include:

- Nationally threatened flora and fauna species and ecological communities
- Migratory species

A person must not undertake an action that has, will have, or is likely to have a significant impact (direct or indirect) on MNES, without approval from the Federal Minister for the Environment.

The EPBC Act is administered by the Department of Agriculture, Water and the Environment (DAWE).

### **State *Environmental Protection Act 1986***

The *Environmental Protection Act 1986* (EP Act) is the primary legislative Act dealing with the protection of the environment in Western Australia. The Act allows the Environmental Protection Authority (EPA), to prevent, control and abate pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing. Part IV of the EP Act is administered by the EPA and makes provisions for the EPA to undertake environmental impact assessment of significant proposals, strategic proposals and land use planning schemes.

The Department of Water and Environment Regulation (DWER) is responsible for administering the clearing provisions of the EP Act (Part V). Clearing of native vegetation in Western Australia requires a permit from the DWER, unless exemptions apply. Applications for clearing permits are assessed by the Department and decisions are made to grant or refuse the application in accordance with the Act. When making a decision the assessment considers clearing against the ten clearing principles as specified in Schedule 5 of the EP Act:

- a) Native vegetation should not be cleared if it comprises a high level of biodiversity.
- b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a significance habitat for fauna indigenous to Western Australia.
- c) Native vegetation should not be cleared if it includes, or is necessary, for the continued existence of rare flora.
- d) Native vegetation should not be cleared if it comprises the whole or part of native vegetation in an area that has been extensively cleared.
- e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
- f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- g) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
- h) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

- i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.
- j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.

Exemptions for clearing include clearing that is a requirement of a written law or authorised under certain statutory processes (listed in Schedule 6 of the EP Act) and exemptions for prescribed low impact day-to-day activities (prescribed in the Environmental Protection (Clearing of Native Vegetation) Regulations 2004); these exemptions do not apply in environmentally sensitive areas (ESAs).

### **State Biodiversity and Conservation Act 2016**

The *Biodiversity Conservation Act 2016* (BC Act) provides for the conservation and protection of biodiversity and biodiversity components, as well as the promotion of the ecologically sustainable use of biodiversity components in Western Australia. The BC Act replaces both the repealed *Wildlife Conservation Act 1950* (WC Act) and the *Sandalwood Act 1929* (Sandalwood Act), as well as their associated regulations. To attain the objectives of the BC Act, principles of ecological sustainable development have been established:

- Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations
- If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations
- The conservation of biodiversity and ecological integrity should be a fundamental consideration in decision-making
- Improved valuation, pricing and incentive mechanisms should be promoted.

The BC Act is administered by the Department of Biodiversity Conservation and Attractions (DBCA).

### **State Biosecurity and Agriculture Management Act 2007**

The *Biosecurity and Agriculture Management Act 2007* (BAM Act) and associated regulations are administered by the Department of Primary Industries and Regional Development (DPIRD) and replace the repealed *Agriculture and Related Resources Protection Act 1976*. The main purposes of the BAM Act and its regulations are to:

- Prevent new animal and plant pests (vermin and weeds) and diseases from entering WA
- Manage the impact and spread of those pests already present in the state
- Safely manage the use of agricultural and veterinary chemicals
- Increased control over the sale of agricultural products that contain violative chemical residues.

The Western Australian Organism List (WAOL) provides the status of organisms which have been categorised under the BAM Act. A Declared Pest is a prohibited organism or an organism for which a declaration under Section 22(2) of the Act is in force. Declared Pests may be assigned a control category including: C1 (exclusion), C2 (eradication) and C3 (management). The category may apply to the whole of the State, LGAs, districts, individual properties or even paddocks, and all landholders are obliged to comply with the specific category of control. Categories of control are defined below.

## DPIRD Categories for Declared Pests under the BAM Act

Control class code	Description
C1 (Exclusion)	Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.
C2 (Eradication)	Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.
C3 (Management)	Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.

## Background information

### Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are declared by the Minister for Environment under Section 51B of the EP Act. The Table below outlines the aspects of areas declared as ESA in the Environmental Protection (Environmentally Sensitive Areas) Notice 2005.

#### Aspects of ESAs

Aspects of Environmentally Sensitive Areas
A declared World Heritage property as defined in Section 13 of the EPBC Act.
An area that is included on the Register of the National Estate (RNE), because of its natural values, under the <i>Australian Heritage Commission Act 1975</i> of the Commonwealth (the RNE was closed in 2007 and is no longer a statutory list – all references to the RNE were removed from the EPBC Act on 19 February 2012).
A defined wetland and the area within 50 m of the wetland. Defined wetlands include Ramsar wetlands, conservation category wetlands and nationally important wetlands.
The area covered by vegetation within 50 m of rare flora, to the extent to which the vegetation is continuous with the vegetation in which the rare flora is located.
The area covered by a Threatened Ecological Community.
A Bush Forever Site listed in “Bush Forever” Volumes 1 and 2 (2000), published by the Western Australia Planning Commission, except to the extent to which the site is approved to be developed by the Western Australia Planning Commission.
The areas covered by the <i>Environmental Protection (Gnangara Mound Crown Land) Policy 1992</i> .
The areas covered by the <i>Environmental Protection (Western Swamp Tortoise Habitat) Policy 2002</i> .
The areas covered by the lakes to which the <i>Environmental Protection (Swan Coastal Plain Lakes) Policy 1992</i> (EPP Lakes) applies.
Protected wetlands as defined in the <i>Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998</i> .

### Reserves and conservation areas

#### Department of Biodiversity, Conservation and Attractions managed lands and waters

DBCA manages lands and waters throughout Western Australia to conserve ecosystems and species, and to provide for recreation and appreciation of the natural environment. DBCA managed lands and waters include national parks, conservation parks and reserves, marine parks and reserves, regional parks, nature reserves, State forest and timber reserves. Access to, or through, some areas of DBCA managed lands may require a permit or could be restricted due to management activities. Proposed land use changes and development proposals that abut DBCA managed lands will generally be referred to DBCA throughout the assessment process.

#### Wetlands

Wetlands include not only lakes with open water, but areas of seasonally, intermittently or permanently waterlogged soil.

#### Ramsar Wetlands (Wetlands of International Importance)



The Convention of Wetlands of International Importance was signed in 1971 at the Iranian town of Ramsar. The Convention has since been referred to as the Ramsar Convention. Ramsar Listed wetlands are “sites containing representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity ... because of their ecological, botanical, zoological, limnological or hydrological importance” (DAWE 2020b). Once a Ramsar Listed Wetland is designated, the country agrees to manage its conservation and ensure its wise use. Under the Convention, wise use is broadly defined as “maintaining the ecological character of a wetland” (DAWE 2020b).

### **Nationally important wetlands**

Wetlands of national significance are listed under the Directory of Important Wetlands in Australia. Nationally important wetlands are wetlands which meet at least one of the following criteria (DAWE 2020a):

- It is a good example of a wetland type occurring within a biogeographic region in Australia
- It is a wetland which plays an important ecological or hydrological role in the natural functioning of a major wetland system/complex
- It is a wetland which is important as the habitat for animal taxa at a vulnerable stage in their life cycles, or provides a refuge when adverse conditions such as drought prevail
- The wetland supports one percent or more of the national populations of any native plant or animal taxa
- The wetland supports native plant or animal taxa or communities which are considered endangered or vulnerable at the national level
- The wetland is of outstanding historical or cultural significance.

### **Vegetation extent and status**

The National Objectives and Targets for Biodiversity Conservation 2001–2005 (Commonwealth of Australia 2001) recognise that the retention of 30 percent or more of the pre-clearing extent of each ecological community is necessary if Australia’s biological diversity is to be protected. This is the threshold level below which species loss appears to accelerate exponentially and loss below this level should not be permitted. This level of recognition is in keeping with the targets recommended in the review of the National Strategy for the Conservation of Australia’s Biological Diversity (ANZECC 2000).

The extent of remnant native vegetation in WA has been assessed by Shepherd et al. (2002) and the GoWA (2019), based on broadscale vegetation association mapping by Beard (various publications). The GoWA produces Statewide Vegetation Statistics Reports that are used for a number of purposes including conservation planning, land use planning and when assessing development applications. The reports are updated every 2-3 years.

### **Vegetation condition**

The vegetation condition can be assessed in accordance with the vegetation condition rating scale for the South West and Interzone Botanical Provinces (EPA 2016a). The scale recognises the intactness of vegetation and consists of six rating levels as outlined below.

## Vegetation condition rating scale for the South West and Interzone Botanical Provinces

Condition	South West and Interzone Botanical Provinces description
Pristine	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
Completely Degraded	The structure of vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

## Conservation codes

Species of significant flora, fauna and communities are protected under both Federal and State Acts. The Federal EPBC Act provides a legal framework to protect and manage nationally important flora and communities. The State BC Act is the primary wildlife conservation legislation in Western Australia. Information on the conservation codes is summarised in the following sections.

### Ecological communities

#### Significant communities

Ecological communities are defined as naturally occurring biological assemblages that occur in a particular type of habitat (English and Blyth 1997). Federally listed Threatened Ecological Communities (TECs) are protected under the EPBC Act. The BC Act provides for the Minister to list an ecological community as a TEC (section 27), or as a collapsed ecological community (section 31) statutory listing of State TECs by the Minister. The legislation also describes statutory processes for preparing recovery plans for TECs, the registration of their critical habitat, and penalties for unauthorised modification of TECs.

Possible TECs that do not meet survey criteria are added to the DBCA Priority Ecological Community (PEC) List under Priorities 1, 2 and 3. These are ecological communities that are adequately known; are rare but not threatened, or meet criteria for Near Threatened. PECs that have been recently removed from the threatened list are placed in Priority 4. These ecological communities require regular monitoring. Conservation dependent ecological communities are placed in Priority 5. PECs are not listed under any formal Federal or State legislation, however, may be listed as TECs under the EPBC Act.

#### Codes and definitions for TECs listed under the EPBC Act and/ or BC Act

Categories	Definition
<b>Federal Government Conservation Categories (EPBC Act)</b>	
Critically Endangered (CR)	An ecological community if, at that time, is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000)
Endangered (EN)	An ecological community if, at that time: A) is not critically endangered; and B) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000)
Vulnerable (VU)	An ecological community if, at that time: A) is not critically endangered or endangered; and B) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000)
<b>Western Australia Conservation Categories (BC Act)</b>	
<u>Threatened Ecological Communities</u>	
Critically Endangered (CR)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.

Categories	Definition
Endangered (EN)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.
Vulnerable (VU)	An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

#### Collapsed ecological communities

An ecological community is eligible for listing as a collapsed ecological community at a particular time if, at that time –

- (a) there is no reasonable doubt that the last occurrence of the ecological community has collapsed); or
- (b) the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover –
  - (i) its species composition or structure; or
  - (ii) its species composition and structure.

Section 33 of the BC Act provides for a collapsed ecological community to be regarded as a threatened ecological community if it is discovered in a state that no longer makes it eligible for listing as a collapsed ecological community.

### Categories and definitions for PECS as listed by the DBCA

Category	Description
Priority 1	<p>Poorly known ecological communities.</p> <p>Ecological communities that are known from very few occurrences with a very restricted distribution (generally <math>\leq 5</math> occurrences or a total area of <math>\leq 100</math> ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.</p>
Priority 2	<p>Poorly known ecological communities.</p> <p>Communities that are known from few occurrences with a restricted distribution (generally <math>\leq 10</math> occurrences or a total area of <math>\leq 200</math> ha). At least some occurrences are not believed to be under immediate threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.</p>

Category	Description
Priority 3	<p>Poorly known ecological communities.</p> <p>(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:</p> <p>(ii) communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;</p> <p>(iii) communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes.</p> <p>Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.</p>
Priority 4	<p>Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.</p> <p>(i) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.</p> <p>(ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>(iii) Ecological communities that have been removed from the list of threatened communities during the past five years.</p>
Priority 5	<p>Conservation Dependent ecological communities.</p> <p>Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.</p>

### Other significant vegetation

Vegetation may be significant for a range of reasons other than a statutory listing. The EPA (2016a, b) states that significant vegetation may include vegetation that includes the following:

- Restricted distribution
- Degree of historical impact from threatening processes
- A role as a refuge
- Providing an important function required to maintain ecological integrity of a significant ecosystem
- Local endemism in restricted habitats
- Novel combinations of taxa
- A role as a key habitat for Threatened species or large population representing a significant proportion of the local to regional total population of a species
- Being representative of a vegetation unit in 'pristine' condition in a highly cleared landscape, recently discovered range extensions, or isolated outliers of the main range.

This may apply at a number of levels, so the unit may be significant when considered at the fine-scale (intra-locality), intermediate-scale (locality or inter-locality) or broad-scale (local to region).

## **Flora**

### **Significant flora**

Species of significant flora are protected under both Federal and State legislation. Any activities that are deemed to have a significant impact on species that are recognised by the EPBC Act, and/or the BC Act can warrant referral to the DEE and/or the EPA.

The Federal conservation level of flora species and their significance status is assessed under the EPBC Act. The significance levels for flora and fauna used in the EPBC Act align with the International Union for Conservation of Nature (IUCN) Red List criteria, which are internationally recognised as providing best practice for assigning the conservation status of species.

The State conservation level of flora species and their significance status also follows the IUCN Red List criteria. Under the BC Act flora can be listed as Threatened and Extinct.

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

For the purposes of this assessment, all species listed under the EPBC Act, BC Act and DBCA Priority species are considered significant.

## Categories and definitions for EPBC Act and BC Act listed flora species

Conservation category	Definition
Threatened species	
Critically Endangered (CR)	<p>Threatened species considered to be “facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.</p>
Endangered (EN)	<p>Threatened species considered to be “facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines</p>
Vulnerable (VU)	<p>Threatened species considered to be “facing a high risk of extinction in the wild in the medium term future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.</p>
Extinct species	
Extinct (EX)	Species where “there is no reasonable doubt that the last member of the species has died”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).
Extinct in the Wild (EW)	Species that “is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

## Codes for DBCA listed Priority flora

Priority category	Definition
Priority 1	<p>Poorly-known taxa</p> <p>Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.</p>
Priority 2	<p>Poorly-known taxa</p> <p>Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being</p>

Priority category	Definition
	managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
Priority 3	<p>Poorly-known taxa</p> <p>Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.</p>
Priority 4	<p>Rare, Near Threatened and other taxa in need of monitoring</p> <p>A. Rare: Taxa that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.</p> <p>B. Near Threatened. Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>C. Taxa that have been removed from the list of threatened taxa during the past five years for reasons other than taxonomy.</p>

### Other significant flora

Flora species, subspecies, varieties, hybrids and ecotypes may be significant for a range of reasons, other than a statutory listing. The EPA (2016a, b) states that significant flora may include taxa that have/are:

- A keystone role in a particular habitat for Threatened or Priority flora or fauna species, or large populations representing a considerable proportion of the local or regional total population of a species
- Relictual status, being representation of taxonomic or physiognomic groups that no longer occur widely in the broader landscape
- New species or anomalous features that indicate a potential new species
- Being representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range)
- Unusual species, including restricted subspecies, varieties, or naturally occurring hybrids
- Local endemism (a restricted distribution) or association with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems)



## **Introduced plants (weeds)**

### **Declared Pests**

Information on species considered to be Declared Pests is provided under *State Biosecurity and Agriculture Management Act 2007*.

### **Weeds of National Significance**

The spread of weeds across a range of land uses or ecosystems is important in the context of socio-economic and environmental values. The assessment of Weeds of National Significance (WoNS) is based on four major criteria:

- Invasiveness
- Impacts
- Potential for spread
- Socio-economic and environmental values.

Australian state and territory governments have identified thirty-two Weeds of National Significance (WoNS); a list of 20 WoNS was endorsed in 1999 and a further 12 were added in 2012.

## References

- ANZECC 2000, *Core Environmental Indicators for Reporting on the State of Environment*, ANZECC State of the Environment Reporting Task Force.
- Commonwealth of Australia 2001, *National Targets and Objectives for Biodiversity Conservation 2001–2005*, Canberra, AGPS.
- DAWE 2020a, *Criteria for determining nationally important wetlands*, retrieved 2020, from <http://www.environment.gov.au/topics/water/water-our-environment/wetlands/australian-wetlands-database/directory-important>.
- DAWE 2020b, *The Ramsar Convention on Wetlands*, retrieved 2020, from <http://www.environment.gov.au/topics/water/water-our-environment/wetlands/ramsar-convention-wetlands>.
- English, V and Blyth, J 1997, *Identifying and Conserving Threatened Ecological Communities in the South West Botanical Province*, Perth, Department of Conservation and Land Management.
- EPA 2010, *Technical Guide – Terrestrial Fauna Surveys*, EPA, Perth, WA.
- EPA 2016a, *Technical Guide – Flora and Vegetation Surveys for Environmental Impact Assessment*, EPA, Perth, WA.
- EPA 2016b, *Environmental Factor Guideline - Flora and Vegetation*, EPA, Perth, WA.
- GoWA 2019, *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full report)*, Current as of March 2019, Perth Western Australia, Department of Environment and Conservation, from <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>.
- Shepherd, DP, Beeston, GR & Hopkins, AJM 2002, *Native Vegetation in Western Australia – Extent, Type and Status, Resource Management Technical Report 249*, Perth, Department of Agriculture.

# **Appendix C** – Desktop searches

EPBC Act PMST Report

NatureMap Report



# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 16/02/21 11:36:12

## [Summary](#)

## [Details](#)

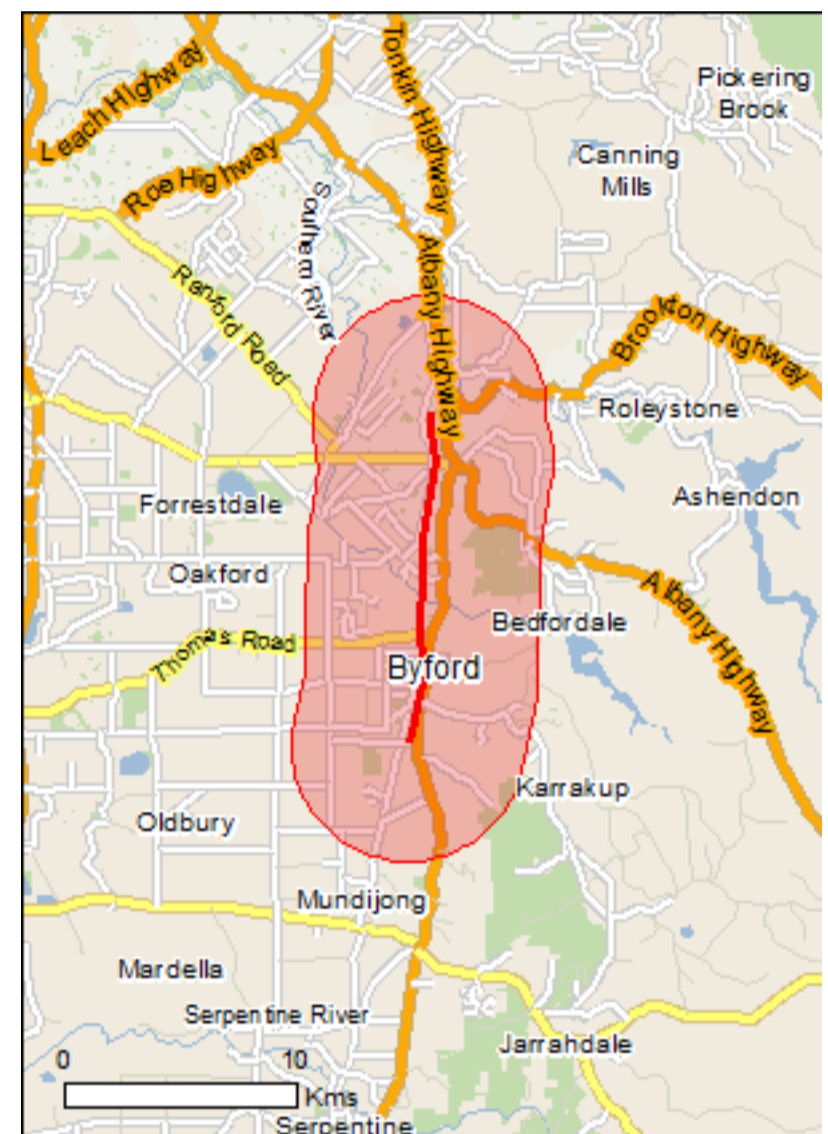
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

## [Caveat](#)

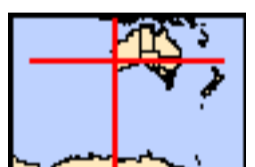
## [Acknowledgements](#)



This map may contain data which are  
©Commonwealth of Australia  
(Geoscience Australia), ©PSMA 2015

[Coordinates](#)

Buffer: 5.0Km



# Summary

## Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	2
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	5
<a href="#">Listed Threatened Species:</a>	38
<a href="#">Listed Migratory Species:</a>	9

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

<a href="#">Commonwealth Land:</a>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	14
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

## Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

<a href="#">State and Territory Reserves:</a>	4
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Invasive Species:</a>	40
<a href="#">Nationally Important Wetlands:</a>	1
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[ Resource Information ]
Name	Proximity
<a href="#">Forrestdale and thomsons lakes</a>	Within 10km of Ramsar
<a href="#">Peel-yalgorup system</a>	30 - 40km upstream

Listed Threatened Ecological Communities	[ Resource Information ]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.	

Name	Status	Type of Presence
<a href="#">Banksia Woodlands of the Swan Coastal Plain ecological community</a>	Endangered	Community likely to occur within area
<a href="#">Clay Pans of the Swan Coastal Plain</a>	Critically Endangered	Community likely to occur within area
<a href="#">Corymbia calophylla - Kingia australis woodlands on heavy soils of the Swan Coastal Plain</a>	Endangered	Community known to occur within area
<a href="#">Corymbia calophylla - Xanthorrhoea preissii woodlands and shrublands of the Swan Coastal Plain</a>	Endangered	Community known to occur within area
<a href="#">Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community</a>	Critically Endangered	Community may occur within area

Listed Threatened Species	[ Resource Information ]	
Name	Status	Type of Presence
Birds		
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calyptorhynchus banksii naso</a> Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Calyptorhynchus baudinii</a> Baudin's Cockatoo, Long-billed Black-Cockatoo [769]	Endangered	Roosting known to occur within area
<a href="#">Calyptorhynchus latirostris</a> Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur

Name	Status	Type of Presence within area
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area
<b>Insects</b>		
<a href="#">Neopasiphae simplicior</a> A native bee [66821]	Critically Endangered	Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#">Bettongia penicillata ogilbyi</a> Woylie [66844]	Endangered	Species or species habitat known to occur within area
<a href="#">Dasyurus geoffroii</a> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pseudocheirus occidentalis</a> Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Setonix brachyurus</a> Quokka [229]	Vulnerable	Species or species habitat known to occur within area
<b>Other</b>		
<a href="#">Westralunio carteri</a> Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area
<b>Plants</b>		
<a href="#">Andersonia gracilis</a> Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
<a href="#">Anthocercis gracilis</a> Slender Tailflower [11103]	Vulnerable	Species or species habitat may occur within area
<a href="#">Austrostipa jacobiana</a> [87809]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Caladenia huegelii</a> King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat likely to occur within area
<a href="#">Calytrix breviseta subsp. breviseta</a> Swamp Starflower [23879]	Endangered	Species or species habitat may occur within area
<a href="#">Diplolaena andrewsii</a> [6601]	Endangered	Species or species habitat may occur within area
<a href="#">Diuris drummondii</a> Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diuris micrantha</a> Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diuris purdiei</a> Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat known to occur within area
<a href="#">Drakaea elastica</a> Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat known to occur within area

Name	Status	Type of Presence
<a href="#">Drakaea micrantha</a> Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Eleocharis keigheryi</a> Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Eucalyptus x balanites</a> Cadda Road Mallee, Cadda Mallee [87816]	Endangered	Species or species habitat known to occur within area
<a href="#">Goodenia arthrotricha</a> [12448]	Endangered	Species or species habitat likely to occur within area
<a href="#">Grevillea curviloba subsp. incurva</a> Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat may occur within area
<a href="#">Lasiopetalum pterocarpum</a> Wing-fruited Lasiopetalum [64922]	Endangered	Species or species habitat may occur within area
<a href="#">Lepidosperma rostratum</a> Beaked Lepidosperma [14152]	Endangered	Species or species habitat likely to occur within area
<a href="#">Synaphea sp. Fairbridge Farm (D. Papenfus 696)</a> Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Synaphea sp. Pinjarra Plain (A.S. George 17182)</a> [86878]	Endangered	Species or species habitat known to occur within area
<a href="#">Synaphea sp. Serpentine (G.R. Brand 103)</a> [86879]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Tetraria australiensis</a> Southern Tetraria [10137]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Thelymitra dedmaniarum</a> Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area
<a href="#">Thelymitra stellata</a> Star Sun-orchid [7060]	Endangered	Species or species habitat known to occur within area
<b>Listed Migratory Species</b>		<b>[ Resource Information ]</b>
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area



Name	Threatened	Type of Presence
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat likely to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

## Other Matters Protected by the EPBC Act

### Commonwealth Land [\[ Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

### Name

Commonwealth Land -

### Listed Marine Species [\[ Resource Information \]](#)

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

### Name Threatened Type of Presence

#### Birds

<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species

Name	Threatened	Type of Presence
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		habitat likely to occur within area  Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat likely to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

## Extra Information

### State and Territory Reserves [\[ Resource Information \]](#)

Name	State
Canning River	WA
Cardup	WA
Unnamed WA42044	WA
Unnamed WA51963	WA

### Regional Forest Agreements [\[ Resource Information \]](#)

Note that all areas with completed RFAs have been included.

Name	State
<a href="#">South West WA RFA</a>	Western Australia

### Invasive Species [\[ Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
<b>Birds</b>		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
<i>Columba livia</i> Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
<i>Passer domesticus</i> House Sparrow [405]		Species or species habitat likely to occur within area
<i>Passer montanus</i> Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
<i>Streptopelia chinensis</i> Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
<i>Streptopelia senegalensis</i> Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
<i>Sturnus vulgaris</i> Common Starling [389]		Species or species habitat likely to occur within area
<i>Turdus merula</i> Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
<b>Mammals</b>		
<i>Bos taurus</i> Domestic Cattle [16]		Species or species habitat likely to occur within area
<i>Canis lupus familiaris</i> Domestic Dog [82654]		Species or species habitat likely to occur within area
<i>Capra hircus</i> Goat [2]		Species or species habitat likely to occur within area
<i>Felis catus</i> Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
<i>Funambulus pennantii</i> Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
<i>Mus musculus</i> House Mouse [120]		Species or species habitat likely to occur within area
<i>Oryctolagus cuniculus</i> Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
<i>Rattus norvegicus</i> Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
<i>Rattus rattus</i> Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
<i>Sus scrofa</i> Pig [6]		Species or species habitat likely to occur within area
<i>Vulpes vulpes</i> Red Fox, Fox [18]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
<b>Plants</b>		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large- leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
<b>Reptiles</b>		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Nationally Important Wetlands	<u>[ Resource Information ]</u>
Name	State
<a href="#">Gibbs Road Swamp System</a>	WA

# Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

# Coordinates

-32.131634 116.011068,-32.13803 116.011068,-32.147913 116.013815,-32.174071 116.008665,-32.191215 116.008665,-32.195864 116.007292,-32.220555 116.007635,-32.240594 116.002485

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

© Commonwealth of Australia

Department of Agriculture Water and the Environment

GPO Box 858

Canberra City ACT 2601 Australia

+61 2 6274 1111

# NatureMap flora

Created By Guest user on 14/10/2020

**Kingdom** Plantae  
**Current Names Only** Yes  
**Core Datasets Only** Yes  
**Method** 'By Line'  
**Vertices** 32° 13' 31" S, 116° 00' 28" E 32° 09' 04" S, 116° 00' 47" E  
**Group By** Family

Family	Species	Records
Acanthaceae	1	2
Acrobolbaceae	1	1
Aizoaceae	2	5
Alliaceae	1	1
Amaranthaceae	6	13
Amaryllidaceae	2	2
Anacardiaceae	1	1
Anarthriaceae	6	46
Apiaceae	19	132
Apocynaceae	3	6
Apodanthaceae	1	1
Aponogetonaceae	1	4
Araceae	2	10
Araliaceae	8	95
Arecaceae	1	1
Aristolochiaceae	1	1
Asparagaceae	44	519
Asphodelaceae	1	2
Aspleniaceae	1	1
Asteraceae	84	484
Aytoniaceae	1	1
Bartramiaceae	3	4
Boodleaceae	1	1
Boraginaceae	2	7
Boryaceae	3	38
Brassicaceae	3	4
Bryaceae	5	6
Byblidaceae	1	2
Campanulaceae	14	81
Caprifoliaceae	2	6
Caryophyllaceae	4	7
Casuarinaceae	7	59
Celastraceae	5	35
Centrolepidaceae	14	123
Cephalozellaceae	2	3
Ceramiaceae	1	1
Chenopodiaceae	5	5
Colchicaceae	6	105
Commelinaceae	1	3
Convolvulaceae	4	6
Crassulaceae	9	23
Cupressaceae	2	8
Cyatheaceae	1	3
Cyperaceae	100	661
Dasygongonaceae	6	95
Dennstaedtiaceae	2	2
Dicranaceae	2	6
Dilleniaceae	21	192
Dioscoreaceae	1	8
Ditrichaceae	3	3
Droseraceae	31	238
Elaeocarpaceae	6	22
Ericaceae	36	229
Euphorbiaceae	10	27
Fabaceae	157	990
Fissidentaceae	1	1
Funariaceae	1	1
Gentianaceae	2	39
Geraniaceae	5	11
Goodeniaceae	23	240
Haemodoraceae	38	360
Haloragaceae	9	32
Hemerocallidaceae	19	181
Hydatellaceae	2	9
Hydrocharitaceae	4	5
Hypoxidaceae	3	5
Iridaceae	34	254
Isoetaceae	1	2
Juncaceae	11	48
Juncaginaceae	5	12
Jungermanniaceae	1	1
Lamiaceae	12	51
Lauraceae	6	54
Lentibulariaceae	6	13
Linaceae	1	11
Loganiaceae	4	15
Lophocoleaceae	1	1



Loranthaceae	4	25
Lycopodiaceae	1	1
Lythraceae	1	1
Macarthuriaceae	2	8
Malvaceae	10	39
Marchantiaceae	1	1
Meliaceae	1	1
Menyanthaceae	5	10
Montiaceae	3	4
Moraceae	1	2
Myrtaceae	119	799
Oiacaceae	2	2
Oleaceae	1	1
Onagraceae	5	7
Ophioglossaceae	1	3
Orchidaceae	105	469
Orobanchaceae	4	18
Oxalidaceae	8	26
Papaveraceae	2	4
Philydraceae	3	28
Phyllanthaceae	5	51
Pinaceae	1	1
Pittosporaceae	8	23
Plantaginaceae	6	9
Poaceae	98	674
Polygalaceae	7	23
Polygonaceae	6	7
Potamogetonaceae	3	3
Pottiaceae	5	6
Primulaceae	3	19
Proteaceae	95	765
Pteridaceae	3	15
Ranunculaceae	3	10
Restionaceae	28	166
Rhamnaceae	9	52
Rosaceae	7	16
Rubiaceae	7	40
Rutaceae	12	46
Salicaceae	1	1
Salviniaceae	1	2
Santalaceae	4	9
Sapindaceae	2	2
Scrophulariaceae	4	7
Selaginellaceae	1	5
Sematophyllaceae	1	2
Solanaceae	3	12
Stylidiaceae	52	405
Tamaricaceae	1	2
Thymelaeaceae	10	61
Violaceae	3	14
Xanthorrhoeaceae	7	144
Xyridaceae	1	2
Zamiaceae	2	30
<b>TOTAL</b>	<b>1524</b>	<b>9750</b>

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
<b>Acanthaceae</b>				
1.	19716 <i>Thunbergia alata</i>	Y		
<b>Acrobolbaceae</b>				
2.	<i>Lethocolea pansa</i>			
<b>Aizoaceae</b>				
3.	48513 <i>Aizoon pubescens</i>	Y		
4.	2795 <i>Carpobrotus edulis</i> (Hottentot Fig)	Y		
<b>Alliaceae</b>				
5.	1378 <i>Allium triquetrum</i> (Three-cornered Garlic)	Y		
<b>Amaranthaceae</b>				
6.	2668 <i>Amaranthus powellii</i> (Powell's Amaranth)	Y		
7.	2718 <i>Ptilotus drummondii</i> (Narrowleaf Mulla Mulla)			
8.	11260 <i>Ptilotus drummondii</i> var. <i>drummondii</i> (Pussytail)			
9.	2742 <i>Ptilotus manglesii</i> (Pom Poms, Mulamula)			
10.	2751 <i>Ptilotus polystachyus</i> (Prince of Wales Feather)			
11.	11615 <i>Ptilotus sericostachyus</i> subsp. <i>roseus</i>		P1	
<b>Amaryllidaceae</b>				
12.	44496 <i>Narcissus tazetta</i> subsp. <i>italicus</i>	Y		
13.	44495 <i>Narcissus tazetta</i> subsp. <i>tazetta</i>	Y		
<b>Anacardiaceae</b>				
14.	17055 <i>Schinus molle</i>	Y		
<b>Anarthriaceae</b>				
15.	1058 <i>Anarthria gracilis</i>			
16.	1059 <i>Anarthria humilis</i>			
17.	1060 <i>Anarthria laevis</i>			
18.	1097 <i>Lyginia barbata</i>			
19.	<i>Lyginia barbata</i> /imberbis			
20.	18049 <i>Lyginia imberbis</i>			
<b>Apiaceae</b>				
21.	6203 <i>Actinotus glomeratus</i>			
22.	6205 <i>Actinotus leucocephalus</i> (Flannel Flower)			
23.	6214 <i>Centella asiatica</i>			
24.	6218 <i>Daucus glochidiatus</i> (Australian Carrot)			
25.	6219 <i>Eryngium pinnatifidum</i> (Blue Devils)			
26.	41801 <i>Eryngium pinnatifidum</i> subsp. <i>Palustre</i> (G.J. Keighery 13459)		P3	
27.	15446 <i>Eryngium pinnatifidum</i> subsp. <i>pinnatifidum</i>			
28.	6222 <i>Homalosciadium homalocarpum</i>			
29.	6245 <i>Pentapeltis peltigera</i>			
30.	6249 <i>Platysace compressa</i> (Tapeworm Plant)			
31.	6253 <i>Platysace filliformis</i>			
32.	6255 <i>Platysace juncea</i>			
33.	6263 <i>Schoenolaena juncea</i>			
34.	<i>Xanthosia</i> ? <i>huegelii</i>			Y
35.	6283 <i>Xanthosia atkinsoniana</i>			
36.	6284 <i>Xanthosia candida</i>			
37.	6285 <i>Xanthosia ciliata</i>			
38.	6289 <i>Xanthosia huegelii</i>			
39.	6293 <i>Xanthosia singuliflora</i>			
<b>Apocynaceae</b>				
40.	6580 <i>Asclepias curassavica</i> (Redhead Cottonbush)	Y		
41.	6587 <i>Gomphocarpus fruticosus</i> (Narrowleaf Cottonbush)	Y		
42.	6575 <i>Vinca major</i> (Blue Periwinkle)	Y		
<b>Apodanthaceae</b>				
43.	2408 <i>Ptilostyles hamiltonii</i>			
<b>Aponogetonaceae</b>				
44.	141 <i>Aponogeton hexatepalus</i> (Stalked Water Ribbons)		P4	
<b>Araceae</b>				
45.	32999 <i>Colocasia esculenta</i> var. <i>esculenta</i>	Y		
46.	1049 <i>Zantedeschia aethiopica</i> (Arum Lily)	Y		
<b>Araliaceae</b>				
47.	? <i>Trachymene pilosa</i>			Y

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
48.	6223 <i>Hydrocotyle alata</i>			
49.	6226 <i>Hydrocotyle callicarpa</i> (Small Pennywort)			
50.	6229 <i>Hydrocotyle diantha</i>			
51.	6236 <i>Hydrocotyle pilifera</i>			
52.	19041 <i>Trachymene coerulea</i> subsp. <i>coerulea</i>			
53.	19045 <i>Trachymene grandis</i>			
54.	6280 <i>Trachymene pilosa</i> (Native Parsnip)			
<b>Arecaceae</b>				
55.	17910 <i>Washingtonia filifera</i>	Y		
<b>Aristolochiaceae</b>				
56.	19718 <i>Aristolochia grandiflora</i>	Y		Y
<b>Asparagaceae</b>				
57.	? <i>Lomandra sericea</i>			Y
58.	1205 <i>Acanthocarpus canaliculatus</i>			
59.	1208 <i>Acanthocarpus preissii</i>			
60.	8779 <i>Asparagus asparagoides</i> (Bridal Creeper)	Y		
61.	1287 <i>Dichopogon capillipes</i>			
62.	13562 <i>Lachenalia aloides</i>	Y		
63.	1307 <i>Laxmannia ramosa</i> (Branching Lily)			
64.	11911 <i>Laxmannia ramosa</i> subsp. <i>ramosa</i>			
65.	11464 <i>Laxmannia sessiliflora</i> subsp. <i>australis</i>			
66.	1309 <i>Laxmannia squarrosa</i>			
67.	<i>Lomandra</i> ? <i>caespitosa</i>			
68.	1222 <i>Lomandra brittanii</i>			
69.	1223 <i>Lomandra caespitosa</i> (Tufted Mat Rush)			
70.	1228 <i>Lomandra hermaphrodita</i>			
71.	1229 <i>Lomandra integra</i>			
72.	1232 <i>Lomandra micrantha</i> (Small-flower Mat-rush)			
73.	14542 <i>Lomandra micrantha</i> subsp. <i>micrantha</i>			
74.	1234 <i>Lomandra nigricans</i>			
75.	1236 <i>Lomandra odora</i> (Tiered Matrush)			
76.	1239 <i>Lomandra preissii</i>			
77.	1240 <i>Lomandra purpurea</i> (Purple Mat Rush)			
78.	1243 <i>Lomandra sericea</i> (Silky Mat Rush)			
79.	<i>Lomandra</i> sp.			
80.	1245 <i>Lomandra spartea</i>			
81.	1246 <i>Lomandra suaveolens</i>			
82.	1312 <i>Sowerbaea laxiflora</i> (Purple Tassels)			
83.	<i>Thysanotus</i> ? <i>thyrsoides</i>			
84.	1317 <i>Thysanotus anceps</i>		P3	
85.	1318 <i>Thysanotus arbuscula</i>			
86.	1319 <i>Thysanotus arenarius</i>			
87.	1320 <i>Thysanotus asper</i> (Hairy Fringe Lily)			
88.	1328 <i>Thysanotus dichotomus</i> (Branching Fringe Lily)			
89.	1330 <i>Thysanotus fastigiatus</i>			
90.	1334 <i>Thysanotus glaucus</i>		P4	
91.	1338 <i>Thysanotus manglesianus</i> (Fringed Lily)			
92.	<i>Thysanotus manglesianus/patersonii</i> complex			
93.	1339 <i>Thysanotus multiflorus</i> (Many-flowered Fringe Lily)			
94.	1343 <i>Thysanotus patersonii</i>			
95.	13783 <i>Thysanotus</i> sp. <i>Badgingarra</i> (E.A. Griffin 2511)		P2	
96.	46055 <i>Thysanotus</i> sp. <i>Coastal plain</i> (N.H. Brittan 66/63)			
97.	1351 <i>Thysanotus sparteus</i>			
98.	1354 <i>Thysanotus tenellus</i>			
99.	1357 <i>Thysanotus thyrsoides</i>			
100.	1358 <i>Thysanotus triandrus</i>			
<b>Asphodelaceae</b>				
101.	1366 <i>Bulbine semibarbata</i> (Leek Lily)			
<b>Aspleniaceae</b>				
102.	66 <i>Pleurosorus subglandulosus</i>			
<b>Asteraceae</b>				
103.	? <i>Symphotrichum squamatum</i>			Y
104.	7829 <i>Angianthus drummondii</i>		P3	
105.	7838 <i>Arctotheca calendula</i> (Cape Weed, African Marigold)	Y		
106.	<i>Asteraceae</i> sp.			
107.	7849 <i>Asteridea gracilis</i>		P3	
108.	7867 <i>Brachyscome bellidioides</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
109.	7878 <i>Brachyscome iberidifolia</i>			
110.	7883 <i>Brachyscome pusilla</i>			
111.	7909 <i>Carduus pycnocephalus</i> (Slender Thistle)	Y		
112.	11900 <i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	Y		
113.	7935 <i>Cichorium intybus</i> (Chicory)	Y		
114.	7937 <i>Cirsium vulgare</i> (Spear Thistle, Scotch Thistle)	Y		
115.	7939 <i>Conyza bonariensis</i> (Flaxleaf Fleabane)	Y		
116.	7941 <i>Conyza parva</i>	Y		
117.	<i>Conyza</i> sp.			
118.	<i>Conyza</i> sp. Mud07			Y
119.	20074 <i>Conyza sumatrensis</i>	Y		
120.	7943 <i>Cotula australis</i> (Common Cotula)			
121.	7945 <i>Cotula coronopifolia</i> (Waterbuttons)	Y		
122.	7946 <i>Cotula cotuloides</i> (Smooth Cotula)			
123.	13354 <i>Craspedia variabilis</i>			
124.	7953 <i>Crepis foetida</i> (Foetid Hawksbeard)	Y		
125.	29054 <i>Crepis foetida</i> subsp. <i>foetida</i> (Stinking Hawksbeard)	Y		
126.	7961 <i>Dittrichia graveolens</i> (Stinkwort)	Y		
127.	15137 <i>Euchiton sphaericus</i>			
128.	12624 <i>Gnephosis angianthoides</i>			
129.	7991 <i>Gnephosis drummondii</i>			
130.	12741 <i>Hyalosperma cotula</i>			
131.	12742 <i>Hyalosperma demissum</i>			
132.	8086 <i>Hypochaeris glabra</i> (Smooth Catsear)	Y		
133.	9352 <i>Hypochaeris radicata</i> (Flat Weed, Cats-ear)	Y		
134.	8095 <i>Lactuca saligna</i> (Wild Lettuce, Willow-leaf Lettuce)	Y		
135.	8096 <i>Lactuca serriola</i> (Prickly Lettuce)	Y		
136.	18585 <i>Lagenophora huegelii</i>			
137.	8099 <i>Leontodon saxatilis</i> (Hairy Hawkbit)	Y		
138.	9356 <i>Logfia gallica</i>	Y		
139.	8105 <i>Millotia myosotidifolia</i>			
140.	8106 <i>Millotia tenuifolia</i> (Soft Millotia)			
141.	14337 <i>Millotia tenuifolia</i> var. <i>laevis</i>		P2	
142.	14344 <i>Millotia tenuifolia</i> var. <i>tenuifolia</i> (Soft Millotia)			
143.	8117 <i>Myriocephalus helichrysoides</i>			
144.	8133 <i>Olearia elaeophila</i>			
145.	32716 <i>Olearia lehmanniana</i>			
146.	8143 <i>Olearia paucidentata</i> (Autumn Scrub Daisy)			
147.	17756 <i>Osteospermum ecklonis</i>	Y		
148.	8163 <i>Pithocarpa corymbulosa</i> (Corymbose Pithocarpa)		P3	
149.	8165 <i>Pithocarpa pulchella</i> (Beautiful Pithocarpa)			
150.	18353 <i>Pithocarpa pulchella</i> var. <i>pulchella</i>			
151.	8175 <i>Podolepis gracilis</i> (Slender Podolepis)			
152.	8177 <i>Podolepis lessonii</i>			
153.	<i>Podotheca ?gnaphalioides</i>			
154.	8182 <i>Podotheca angustifolia</i> (Sticky Longheads)			
155.	8183 <i>Podotheca chrysantha</i> (Yellow Podotheca)			
156.	8184 <i>Podotheca gnaphalioides</i> (Golden Long-heads)			
157.	<i>Podotheca</i> sp.			
158.	8188 <i>Pogonolepis stricta</i>			
159.	13255 <i>Pterochaeta paniculata</i>			
160.	8195 <i>Quinetia urvillei</i>			
161.	13300 <i>Rhodanthe citrina</i>			
162.	15035 <i>Rhodanthe corymbosa</i>			
163.	13234 <i>Rhodanthe manglesii</i>			
164.	13312 <i>Rhodanthe pyrethrum</i>			
165.	25878 <i>Senecio condylus</i>			
166.	8203 <i>Senecio diaschides</i>			
167.	20663 <i>Senecio multicaulis</i> subsp. <i>multicaulis</i>			
168.	25884 <i>Senecio pinnatifolius</i> var. <i>latilobus</i>			
169.	8217 <i>Senecio quadridentatus</i>			
170.	8220 <i>Senecio vulgaris</i> (Common Groundsel)	Y		
171.	8224 <i>Siloxerus filifolius</i>			
172.	8225 <i>Siloxerus humifusus</i> (Procumbent Siloxerus)			
173.	14583 <i>Siloxerus multiflorus</i>			
174.	45036 <i>Solidago chilensis</i>	Y		
175.	8230 <i>Sonchus asper</i> (Rough Sowthistle)	Y		
176.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
177.	25902 <i>Symphytichum squamatum</i> (Bushy Starwort)	Y		
178.	8248 <i>Tolpis barbata</i> (Yellow Hawkweed)	Y		

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
179.	8251 <i>Trichocline spathulata</i> (Native Gerbera)			
180.	8254 <i>Urospermum picroides</i> (False Hawkbit)	Y		
181.	8255 <i>Ursinia anthemoides</i> (Ursinia)	Y		
182.	38388 <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Y		
183.	8257 <i>Vellereophyton dealbatum</i> (White Cudweed)	Y		
184.	13328 <i>Waitzia nitida</i>			
185.	8282 <i>Waitzia suaveolens</i> (Fragrant Waitzia)			
186.	8287 <i>Xanthium spinosum</i> (Bathurst Burr, Common Cocklebur, Spiny Cocklebur, Spiny Clotbur)	Y		
<b>Aytoniaceae</b>				
187.	<i>Asterella drummondii</i>			
<b>Bartramiaceae</b>				
188.	32459 <i>Bartramia hampeana</i> subsp. <i>hampei</i>			
189.	32323 <i>Bartramia pseudostricta</i>			
190.	32411 <i>Philonotis tenuis</i>			
<b>Boodleaceae</b>				
191.	27318 <i>Struvea plumosa</i>			
<b>Boraginaceae</b>				
192.	6681 <i>Echium plantagineum</i> (Paterson's Curse)	Y		
193.	6686 <i>Halgania corymbosa</i>		P3	
<b>Boryaceae</b>				
194.	1267 <i>Borya constricta</i>			
195.	1272 <i>Borya scirpoidea</i>			
196.	1273 <i>Borya sphaerocephala</i> (Pincushions)			
<b>Brassicaceae</b>				
197.	3061 <i>Raphanus raphanistrum</i> (Wild Radish)	Y		
198.	3066 <i>Rorippa nasturtium-aquaticum</i> (Watercress)	Y		
199.	19403 <i>Stenopetalum gracile</i>			
<b>Bryaceae</b>				
200.	32375 <i>Gemmabryum chrysoneuron</i>			
201.	32379 <i>Gemmabryum inaequale</i>			
202.	32380 <i>Gemmabryum pachythecum</i>			
203.	32417 <i>Ptychostomum angustifolium</i>			
204.	32429 <i>Rosulabryum torquescens</i>			
<b>Byblidaceae</b>				
205.	3178 <i>Byblis gigantea</i> (Rainbow Plant)		P3	
<b>Campanulaceae</b>				
206.	37500 <i>Grammatotheca bergiana</i> var. <i>bergiana</i>	Y		
207.	7396 <i>Isotoma hypocrateriformis</i> (Woodbridge Poison)			
208.	9289 <i>Lobelia anceps</i> (Angled Lobelia)			
209.	7402 <i>Lobelia gibbosa</i> (Tall Lobelia)			
210.	7403 <i>Lobelia heterophylla</i> (Wing-seeded Lobelia)			
211.	7406 <i>Lobelia rhombifolia</i> (Tufted Lobelia)			
212.	7407 <i>Lobelia rhytidosperra</i> (Wrinkled-seeded Lobelia)			
213.	7408 <i>Lobelia tenuior</i> (Slender Lobelia)			
214.	7410 <i>Monopsis debilis</i>	Y		
215.	37440 <i>Monopsis debilis</i> var. <i>depressa</i>	Y		
216.	7384 <i>Wahlenbergia capensis</i> (Cape Bluebell)	Y		
217.	7386 <i>Wahlenbergia gracilentia</i> (Annual Bluebell)			
218.	7388 <i>Wahlenbergia multicaulis</i>			
219.	7389 <i>Wahlenbergia preissii</i>			
<b>Caprifoliaceae</b>				
220.	35322 <i>Centranthus ruber</i> subsp. <i>ruber</i>	Y		
221.	7365 <i>Lonicera japonica</i> (Japanese Honeysuckle)	Y		
<b>Caryophyllaceae</b>				
222.	2889 <i>Cerastium glomeratum</i> (Mouse Ear Chickweed)	Y		
223.	2909 <i>Silene gallica</i> (French Catchfly)	Y		
224.	2912 <i>Spergula arvensis</i> (Corn Spurry)	Y		
225.	2918 <i>Stellaria media</i> (Chickweed)	Y		
<b>Casuarinaceae</b>				
226.	1728 <i>Allocasuarina fraseriana</i> (Sheoak, Kondii)			
227.	1729 <i>Allocasuarina grevilleoides</i>		P3	
228.	1732 <i>Allocasuarina humilis</i> (Dwarf Sheoak)			
229.	1734 <i>Allocasuarina microstachya</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
230.	1739 <i>Allocasuarina thuyoides</i> (Horned Sheoak)			
231.	18321 <i>Casuarina glauca</i>	Y		
232.	1742 <i>Casuarina obesa</i> (Swamp Sheoak, Kuli)			
<b>Celastraceae</b>				
233.	4733 <i>Stackhousia monogyna</i>			
234.	9070 <i>Stackhousia pubescens</i> (Downy Stackhousia)			
235.	43540 <i>Stackhousia</i> sp. Red-blotched corolla (A. Markey 911)		P3	
236.	4737 <i>Tripterococcus brunonis</i> (Winged Stackhousia)			
237.	44444 <i>Tripterococcus</i> sp. <i>Brachylobus</i> (A.S. George 14234)		P4	
<b>Centrolepidaceae</b>				
238.	1117 <i>Aphelia cyperoides</i>			
239.	1118 <i>Aphelia drummondii</i>			
240.	1119 <i>Aphelia nutans</i>			
241.	43548 <i>Aphelia</i> sp. Albany (B.G. Briggs 596)			
242.	1120 <i>Centrolepis alepyroides</i>			
243.	1121 <i>Centrolepis aristata</i> (Pointed Centrolepis)			
244.	1123 <i>Centrolepis caespitosa</i>			
245.	13122 <i>Centrolepis cephaliformis</i> subsp. <i>cephaloformis</i>			
246.	1125 <i>Centrolepis drummondiana</i>			
247.	1129 <i>Centrolepis glabra</i> (Smooth Centrolepis)			
248.	1130 <i>Centrolepis humillima</i> (Dwarf Centrolepis)			
249.	1131 <i>Centrolepis inconspicua</i>			
250.	1132 <i>Centrolepis mutica</i>			
251.	1134 <i>Centrolepis polygyna</i> (Wiry Centrolepis)			
<b>Cephaloziellaceae</b>				
252.	<i>Cephaloziella exiliflora</i>			
253.	<i>Cephaloziella varians</i>			
<b>Ceramiaceae</b>				
254.	26587 <i>Centroceras clavulatum</i>			
<b>Chenopodiaceae</b>				
255.	2471 <i>Atriplex prostrata</i> (Hastate Orache)	Y		
256.	2483 <i>Chenopodium album</i> (Fat Hen)	Y		
257.	33500 <i>Dysphania ambrosioides</i> (Mexican Tea)	Y		
258.	2501 <i>Dysphania glomulifera</i>			
259.	11368 <i>Dysphania glomulifera</i> subsp. <i>glomulifera</i>			
<b>Colchicaceae</b>				
260.	1383 <i>Burchardia bairdiae</i>			
261.	12770 <i>Burchardia congesta</i>			
262.	1385 <i>Burchardia multiflora</i> (Dwarf Burchardia)			
263.	12072 <i>Wurmbea dioica</i> subsp. <i>alba</i>			
264.	1401 <i>Wurmbea pygmaea</i>			
265.	1403 <i>Wurmbea tenella</i> (Eight Nancy)			
<b>Commelinaceae</b>				
266.	1162 <i>Cartonema philydroides</i>			
<b>Convolvulaceae</b>				
267.	6611 <i>Convolvulus arvensis</i> (Field Bindweed)	Y		
268.	6614 <i>Convolvulus remotus</i>			
269.	6663 <i>Cuscuta epithymum</i> (Lesser Dodder, Greater Dodder)	Y		
270.	<i>Ipomoea</i> sp.			
<b>Crassulaceae</b>				
271.	3136 <i>Crassula alata</i>	Y		
272.	17701 <i>Crassula closiana</i>			
273.	3137 <i>Crassula colorata</i> (Dense Stonecrop)			
274.	11563 <i>Crassula colorata</i> var. <i>colorata</i>			
275.	3138 <i>Crassula decumbens</i> (Rufous Stonecrop)			
276.	3139 <i>Crassula exserta</i>			
277.	20271 <i>Crassula extrorsa</i>			
278.	15706 <i>Crassula natans</i> var. <i>minus</i>	Y		
279.	3144 <i>Crassula peduncularis</i> (Purple Stonecrop)			
<b>Cupressaceae</b>				
280.	36520 <i>Callitris acuminata</i> (Dwarf Cypress)			
281.	36600 <i>Callitris pyramidalis</i> (Swamp Cypress)			
<b>Cyatheaceae</b>				
282.	51 <i>Cyathea cooperi</i>	Y		

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Cyperaceae</b>				
283.	? <i>Lepidosperma squamatum</i>			Y
284.	? <i>Lepidosperma squamatum</i> s.l.			
285.	739 <i>Baumea acuta</i> (Pale Twig-rush)			
286.	740 <i>Baumea arthropphylla</i>			
287.	741 <i>Baumea articulata</i> (Jointed Rush)			
288.	743 <i>Baumea juncea</i> (Bare Twigrush)			
289.	744 <i>Baumea laxa</i>			
290.	748 <i>Baumea vaginalis</i> (Sheath Twigrush)			
291.	43241 <i>Carex thecata</i>			
292.	763 <i>Chorizandra enodis</i> (Black Bristlerush)			
293.	768 <i>Cyathochaeta avenacea</i>			
294.	776 <i>Cyperus brevifolius</i> (Kyllinga Weed)	Y		
295.	783 <i>Cyperus congestus</i> (Dense Flat-sedge)	Y		
296.	18318 <i>Cyperus involucratus</i>	Y		
297.	806 <i>Cyperus polystachyos</i> (Bunchy Sedge)			
298.	815 <i>Cyperus tenellus</i> (Tiny Flatsedge)	Y		
299.	816 <i>Cyperus tenuiflorus</i> (Scaly Sedge)	Y		
300.	822 <i>Eleocharis acuta</i> (Common Spikerush)			
301.	17605 <i>Eleocharis keigheryi</i>		T	
302.	835 <i>Evandra pauciflora</i>			
303.	894 <i>Fimbristylis velata</i>			
304.	899 <i>Gahnia ancistrophylla</i> (Hooked-leaf Saw Sedge)			
305.	900 <i>Gahnia aristata</i>			
306.	902 <i>Gahnia decomposita</i>			
307.	907 <i>Gahnia trifida</i> (Coast Saw-sedge)			
308.	910 <i>Isolepis cernua</i> (Nodding Club-rush)			
309.	20200 <i>Isolepis cernua</i> var. <i>setiformis</i>			
310.	911 <i>Isolepis congrua</i>			
311.	912 <i>Isolepis cyperoides</i>			
312.	14540 <i>Isolepis hystrix</i>	Y		
313.	917 <i>Isolepis marginata</i> (Coarse Club-rush)			
314.	919 <i>Isolepis oldfieldiana</i>			
315.	10831 <i>Isolepis prolifera</i> (Budding Club-rush)	Y		
316.	924 <i>Isolepis stellata</i> (Star Club-rush)			
317.	<i>Lepidosperma</i> aff. <i>coastale</i> (#134)			Y
318.	<i>Lepidosperma</i> aff. <i>pubisquameum</i> (#166)			
319.	<i>Lepidosperma</i> aff. <i>resinosum</i>			
320.	925 <i>Lepidosperma angustatum</i>			
321.	42741 <i>Lepidosperma apricola</i>			
322.	41620 <i>Lepidosperma asperatum</i>			
323.	929 <i>Lepidosperma carphoides</i> (Black Rapier Sedge)			
324.	930 <i>Lepidosperma costale</i>			
325.	931 <i>Lepidosperma drummondii</i>			
326.	<i>Lepidosperma eastern terete scps</i> (BJK&NG 232)			
327.	936 <i>Lepidosperma leptostachyum</i>			
328.	937 <i>Lepidosperma longitudinale</i> (Pithy Sword-sedge)			
329.	14642 <i>Lepidosperma obtusum</i>			
330.	940 <i>Lepidosperma pubisquameum</i>			
331.	<i>Lepidosperma pubisquameum</i> "flat form"			
332.	941 <i>Lepidosperma resinosum</i>			
333.	942 <i>Lepidosperma rostratum</i>		T	
334.	944 <i>Lepidosperma scabrum</i>			
335.	<i>Lepidosperma</i> sp.			
336.	<i>Lepidosperma</i> sp. <i>Brixton Street</i>			Y
337.	<i>Lepidosperma</i> sp. <i>Brixton Street broad inflorescence</i>			
338.	<i>Lepidosperma</i> sp. <i>Darling Scarp</i>			
339.	29141 <i>Lepidosperma</i> sp. <i>Gosnells (A. Markey 1145)</i>			
340.	29150 <i>Lepidosperma</i> sp. <i>Margaret River (B.J. Lepschi 1841)</i>			
341.	<i>Lepidosperma</i> sp. <i>Mud3</i>			Y
342.	945 <i>Lepidosperma squamatum</i>			
343.	<i>Lepidosperma squamatum</i> s.l.			
344.	948 <i>Lepidosperma tetraquetrum</i>			
345.	949 <i>Lepidosperma tuberculatum</i>			
346.	953 <i>Mesomelaena graciliceps</i>			
347.	955 <i>Mesomelaena pseudostygia</i>			
348.	956 <i>Mesomelaena stygia</i>			
349.	11473 <i>Mesomelaena stygia</i> subsp. <i>stygia</i>			
350.	957 <i>Mesomelaena tetragona</i> (Semaphore Sedge)			
351.	<i>Schoenus</i> aff. <i>brevisetis</i> (Mud2, #135)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
352.	973 <i>Schoenus asperocarpus</i> (Poison Sedge)			
353.	974 <i>Schoenus benthamii</i>		P3	
354.	975 <i>Schoenus bifidus</i>			
355.	978 <i>Schoenus brevisetis</i>			
356.	979 <i>Schoenus caespitius</i>			
357.	980 <i>Schoenus capillifolius</i>		P3	
358.	982 <i>Schoenus clandestinus</i>			
359.	983 <i>Schoenus cruentus</i>			
360.	984 <i>Schoenus curvifolius</i>			
361.	986 <i>Schoenus efoliatus</i>			
362.	991 <i>Schoenus grammatophyllus</i>			
363.	992 <i>Schoenus grandiflorus</i> (Large Flowered Bogrush)			
364.	1002 <i>Schoenus nanus</i> (Tiny Bog Rush)			
365.	1006 <i>Schoenus odontocarpus</i>			
366.	1008 <i>Schoenus pennisetis</i>		P3	
367.	17614 <i>Schoenus plumosus</i>			
368.	1011 <i>Schoenus rigens</i>			
369.	17731 <i>Schoenus</i> sp. Waroona (G.J. Keighery 12235)		P3	
370.	<i>Schoenus</i> sp. aff. <i>breviculmis</i> sthct			Y
371.	1016 <i>Schoenus subbarbatus</i> (Bearded Bog-rush)			
372.	1017 <i>Schoenus subbulbosus</i>			
373.	1018 <i>Schoenus subfascicularis</i>			
374.	1019 <i>Schoenus subflavus</i> (Yellow Bog-rush)			
375.	1020 <i>Schoenus sublateralis</i>			
376.	1023 <i>Schoenus tenellus</i>			
377.	1026 <i>Schoenus unispiculatus</i>			
378.	1033 <i>Tetraria australiensis</i>		T	
379.	1034 <i>Tetraria capillaris</i> (Hair Sedge)			
380.	1036 <i>Tetraria octandra</i>			
381.	35579 <i>Tetraria</i> sp. Jarrah Forest (R. Davis 7391)			
382.	1038 <i>Tricostularia neesii</i>			

#### Dasypogonaceae

383.	1213 <i>Calectasia cyanea</i> (Blue Tinsel Lily)		T	
384.	1214 <i>Calectasia grandiflora</i> (Blue Tinsel Lily)			
385.	19309 <i>Calectasia narragara</i>			
386.	1218 <i>Dasypogon bromeliifolius</i> (Pineapple Bush)			
387.	1220 <i>Dasypogon obliquifolius</i>			
388.	1221 <i>Kingia australis</i> (Kingia, Pulonok)			

#### Dennstaedtiaceae

389.	57 <i>Pteridium esculentum</i> (Bracken)			
390.	41651 <i>Pteridium esculentum</i> subsp. <i>esculentum</i>			

#### Dicranaceae

391.	32461 <i>Campylopus bicolor</i> var. <i>bicolor</i>			
392.	32338 <i>Campylopus introflexus</i>	Y		

#### Dilleniaceae

393.	5108 <i>Hibbertia acerosa</i> (Needle Leaved Guinea Flower)			
394.	5109 <i>Hibbertia amplexicaulis</i>			
395.	5112 <i>Hibbertia aurea</i>			
396.	5114 <i>Hibbertia commutata</i>			
397.	20051 <i>Hibbertia diamesogenos</i>			
398.	5129 <i>Hibbertia glomerata</i>			
399.	19778 <i>Hibbertia glomerata</i> subsp. <i>darlingensis</i>			
400.	5134 <i>Hibbertia huegelii</i>			
401.	<i>Hibbertia huegelii</i> complex			
402.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			
403.	45534 <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>			
404.	5150 <i>Hibbertia nymphaea</i>			
405.	5152 <i>Hibbertia ovata</i>			
406.	5154 <i>Hibbertia perfoliata</i>			
407.	5162 <i>Hibbertia racemosa</i> (Stalked Guinea Flower)			
408.	5169 <i>Hibbertia serrata</i> (Serrate Leaved Guinea Flower)			
409.	11481 <i>Hibbertia spicata</i> subsp. <i>spicata</i>			
410.	5172 <i>Hibbertia stellaris</i> (Orange Stars)			
411.	48381 <i>Hibbertia striata</i>			
412.	5173 <i>Hibbertia subvaginata</i>			
413.	5176 <i>Hibbertia vaginata</i>			

#### Dioscoreaceae

414.	1509 <i>Dioscorea hastifolia</i> (Warrine, Warrarn)			
------	---	--	--	--



Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Ditrichaceae</b>				
415.	32347 <i>Ditrichum difficile</i>			
416.	32351 <i>Eccremidium pulchellum</i>			
417.	32413 <i>Pleuridium ecklonii</i>			
<b>Droseraceae</b>				
418.	<i>Drosera ?paleacea</i>			Y
419.	<i>Drosera ?porrecta</i>			
420.	3091 <i>Drosera bulbigena</i> (Midget Sundew)			
421.	3092 <i>Drosera bulbosa</i> (Red-leaved Sundew)			
422.	48724 <i>Drosera collina</i>			
423.	48751 <i>Drosera drummondii</i>			
424.	3095 <i>Drosera erythrorhiza</i> (Red Ink Sundew)			
425.	48747 <i>Drosera geniculata</i>			
426.	3097 <i>Drosera gigantea</i> (Giant Sundew)			
427.	3098 <i>Drosera glanduligera</i> (Pimpernel Sundew)			
428.	3101 <i>Drosera heterophylla</i> (Swamp Rainbow)			
429.	48768 <i>Drosera hirsuta</i>			
430.	48769 <i>Drosera indumenta</i>			
431.	3106 <i>Drosera macrantha</i> (Bridal Rainbow)			
432.	3109 <i>Drosera menziesii</i> (Pink Rainbow)			
433.	15710 <i>Drosera miniata</i> (Orange Sundew)			
434.	3113 <i>Drosera neesii</i> (Jewel Rainbow)			
435.	3114 <i>Drosera nitidula</i> (Shining Sundew)			
436.	3115 <i>Drosera occidentalis</i> (Western Sundew)		P4	
437.	13189 <i>Drosera oreopodium</i>			
438.	3118 <i>Drosera pallida</i> (Pale Rainbow)			
439.	3123 <i>Drosera platystigma</i> (Black-eyed Sundew)			
440.	29178 <i>Drosera porrecta</i>			
441.	3124 <i>Drosera pulchella</i> (Pretty Sundew)			
442.	8911 <i>Drosera rosulata</i>			
443.	<i>Drosera</i> sp. "climbing"			
444.	49090 <i>Drosera</i> sp. Branched styles (S.C. Coffey 193)			
445.	13185 <i>Drosera spilos</i>			
446.	3131 <i>Drosera stolonifera</i> (Leafy Sundew)			
447.	3133 <i>Drosera subhirtella</i> (Sunny Rainbow)			
448.	3135 <i>Drosera zonaria</i> (Painted Sundew)			
<b>Elaeocarpaceae</b>				
449.	4528 <i>Tetratheca confertifolia</i>			
450.	4535 <i>Tetratheca hirsuta</i> (Black Eyed Susan)			
451.	48342 <i>Tetratheca hirsuta</i> subsp. <i>hirsuta</i>			
452.	48341 <i>Tetratheca hirsuta</i> subsp. <i>viminea</i>			
453.	4537 <i>Tetratheca nuda</i>			
454.	4544 <i>Tetratheca setigera</i>			
<b>Ericaceae</b>				
455.	6300 <i>Andersonia aristata</i> (Rice Flower)			
456.	6311 <i>Andersonia heterophylla</i>			
457.	6314 <i>Andersonia lehmanniana</i>			
458.	11471 <i>Andersonia lehmanniana</i> subsp. <i>lehmanniana</i>			
459.	41732 <i>Andersonia</i> sp. <i>Blepharifolia</i> (F. & J. Hort 1919)		P2	
460.	6323 <i>Astroloma ciliatum</i> (Candle Cranberry)			
461.	6327 <i>Astroloma foliosum</i> (Candle Cranberry)			
462.	6328 <i>Astroloma glaucescens</i>			
463.	6334 <i>Astroloma pallidum</i> (Kick Bush)			
464.	6337 <i>Astroloma stomarrhena</i> (Red Swamp Cranberry)			
465.	6339 <i>Astroloma xerophyllum</i>			
466.	6341 <i>Brachyloma preissii</i> (Globe Heath)			
467.	6348 <i>Conostephium pendulum</i> (Pearl Flower)			
468.	6349 <i>Conostephium preissii</i>			
469.	13527 <i>Croninia kingiana</i>			
470.	6367 <i>Leucopogon capitellatus</i>			
471.	6374 <i>Leucopogon conostephioides</i>			
472.	6400 <i>Leucopogon gracillimus</i>			
473.	6416 <i>Leucopogon nutans</i> (Drooping Leucopogon)			
474.	6425 <i>Leucopogon oxycedrus</i>			
475.	6434 <i>Leucopogon polymorphus</i>			
476.	6436 <i>Leucopogon propinquus</i>			
477.	6439 <i>Leucopogon pulchellus</i> (Beard-heath)			
478.	28311 <i>Leucopogon</i> sp. Great Southern (R.S. Cowan A 586)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
479.	28302 <i>Leucopogon</i> sp. <i>Parkerville</i> (A. Meebold 11654)			
480.	6444 <i>Leucopogon sprengelioides</i>			
481.	6445 <i>Leucopogon squarrosus</i>			
482.	40803 <i>Leucopogon squarrosus</i> subsp. <i>squarrosus</i>			
483.	6447 <i>Leucopogon strictus</i>			
484.	6451 <i>Leucopogon tenuis</i>			
485.	6454 <i>Leucopogon verticillatus</i> ( <i>Tassel Flower</i> )			
486.	6456 <i>Lysinema ciliatum</i> ( <i>Curry Flower</i> )			
487.	6458 <i>Lysinema elegans</i>			
488.	34736 <i>Lysinema pentapetalum</i>			
489.	48297 <i>Styphelia filifolia</i>		P3	
490.	6476 <i>Styphelia tenuiflora</i> ( <i>Common Pinheath</i> )			

**Euphorbiaceae**

491.	13753 <i>Euphorbia dallachyana</i>			
492.	29940 <i>Euphorbia maculata</i>	Y		
493.	34757 <i>Euphorbia prostrata</i>	Y		
494.	4648 <i>Euphorbia terracina</i> ( <i>Geraldton Carnation Weed</i> )	Y		
495.	9051 <i>Homalanthus novo-guineensis</i>			
496.	4662 <i>Monotaxis grandiflora</i> ( <i>Diamond of the Desert</i> )			
497.	19585 <i>Monotaxis grandiflora</i> var. <i>grandiflora</i>			
498.	4666 <i>Monotaxis occidentalis</i>			
499.	4705 <i>Ricinus communis</i> ( <i>Castor Oil Plant</i> )	Y		
500.	4716 <i>Stachystemon vermicularis</i>			

**Fabaceae**

501.	? <i>Jacksonia furcellata</i>			Y
502.	? <i>Kennedia prostrata</i>			Y
503.	<i>Acacia</i> ? <i>longifolia</i>			Y
504.	3207 <i>Acacia alata</i> ( <i>Winged Wattle</i> )			
505.	15429 <i>Acacia alata</i> var. <i>alata</i>			
506.	15466 <i>Acacia appplanata</i>			
507.	3233 <i>Acacia barbinervis</i>			
508.	15469 <i>Acacia barbinervis</i> subsp. <i>barbinervis</i>			
509.	3237 <i>Acacia benthamii</i>		P2	
510.	3254 <i>Acacia celastrifolia</i> ( <i>Glowing Wattle</i> )			
511.	3282 <i>Acacia cyclops</i> ( <i>Coastal Wattle</i> )			
512.	3294 <i>Acacia dentifera</i>			
513.	3307 <i>Acacia divergens</i>			
514.	3310 <i>Acacia drewiana</i>			
515.	11926 <i>Acacia drewiana</i> subsp. <i>drewiana</i>			
516.	3311 <i>Acacia drummondii</i> ( <i>Drummond's Wattle</i> )			
517.	18287 <i>Acacia elata</i>	Y		
518.	3331 <i>Acacia extensa</i> ( <i>Wiry Wattle</i> )			
519.	3373 <i>Acacia horridula</i>		P3	
520.	3374 <i>Acacia huegelii</i>			
521.	3383 <i>Acacia incurva</i>			
522.	18217 <i>Acacia iteaphylla</i>	Y		
523.	3409 <i>Acacia lasiocarpa</i> ( <i>Panjang</i> )			
524.	11519 <i>Acacia lasiocarpa</i> var. <i>bracteolata</i>			
525.	14932 <i>Acacia lasiocarpa</i> var. <i>bracteolata</i> long peduncle variant (G.J. Keighery 5026)		P1	
526.	3410 <i>Acacia lateriticola</i>			
527.	17861 <i>Acacia longifolia</i>	Y		
528.	3442 <i>Acacia microbotrya</i> ( <i>Manna Wattle, Kalyang</i> )			
529.	3454 <i>Acacia nervosa</i> ( <i>Rib Wattle</i> )			
530.	3464 <i>Acacia obovata</i>			
531.	14131 <i>Acacia oncinophylla</i> subsp. <i>patulifolia</i>		P4	
532.	17860 <i>Acacia podalyriifolia</i>	Y		
533.	3502 <i>Acacia pulchella</i> ( <i>Prickly Moses</i> )			
534.	15481 <i>Acacia pulchella</i> var. <i>glaberrima</i>			
535.	15483 <i>Acacia pulchella</i> var. <i>pulchella</i>			
536.	15480 <i>Acacia pulchella</i> var. <i>reflexa</i>			
537.	3527 <i>Acacia saligna</i> ( <i>Orange Wattle, Kudjong</i> )			
538.	30032 <i>Acacia saligna</i> subsp. <i>saligna</i>			
539.	3541 <i>Acacia sessilis</i>			
540.	<i>Acacia</i> sp.			
541.	<i>Acacia</i> sp. <i>F13 seedling</i>			Y
542.	3557 <i>Acacia stenoptera</i> ( <i>Narrow Winged Wattle</i> )			
543.	3574 <i>Acacia teretifolia</i>			
544.	3591 <i>Acacia urophylla</i>			
545.	3602 <i>Acacia willdenowiana</i> ( <i>Grass Wattle</i> )			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
546.	3686 <i>Aotus cordifolia</i>			
547.	3688 <i>Aotus gracillima</i>			
548.	3692 <i>Aotus procumbens</i>			
549.	48782 <i>Bossiaea angustifolia</i>			
550.	14396 <i>Bossiaea aquifolium</i> subsp. <i>aquifolium</i>			
551.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
552.	3714 <i>Bossiaea ornata</i> (Broad Leaved Brown Pea)			
553.	3718 <i>Bossiaea rufa</i>			
554.	18156 <i>Chamaecytisus palmensis</i> (Tagasaste)	Y		
555.	8971 <i>Chorizema cordatum</i>			
556.	3753 <i>Chorizema dicksonii</i> (Yellow-eyed Flame Pea)			
557.	12765 <i>Chorizema nanum</i>			
558.	3761 <i>Chorizema rhombeum</i>			
559.	35838 <i>Cristonia biloba</i> subsp. <i>biloba</i>			
560.	3799 <i>Daviesia cordata</i> (Bookleaf)			
561.	3800 <i>Daviesia costata</i>			
562.	3805 <i>Daviesia decurrens</i> (Prickly Bitter-pea)			
563.	19747 <i>Daviesia decurrens</i> subsp. <i>decurrens</i>			
564.	18560 <i>Daviesia divaricata</i> subsp. <i>divaricata</i>			
565.	3815 <i>Daviesia horrida</i> (Prickly Bitter-pea)			
566.	3819 <i>Daviesia longifolia</i>			
567.	16585 <i>Daviesia nudiflora</i> subsp. <i>nudiflora</i>			
568.	3832 <i>Daviesia physodes</i>			
569.	3835 <i>Daviesia preissii</i>			
570.	3839 <i>Daviesia rhombifolia</i>			
571.	3845 <i>Daviesia triflora</i>			
572.	20367 <i>Dillwynia laxiflora</i>			
573.	3867 <i>Dipogon lignosus</i> (Dolichos Pea)	Y		
574.	3872 <i>Euchilopsis linearis</i> (Swamp Pea)			
575.	3880 <i>Eutaxia virgata</i>			
576.	3887 <i>Gastrolobium acutum</i>			
577.	20484 <i>Gastrolobium alternifolium</i>			
578.	3891 <i>Gastrolobium bilobum</i> (Heart Leaf Poison)			
579.	20475 <i>Gastrolobium capitatum</i>			
580.	20513 <i>Gastrolobium dilatatum</i>			
581.	20473 <i>Gastrolobium ebracteolatum</i>			
582.	20482 <i>Gastrolobium nervosum</i>			
583.	3910 <i>Gastrolobium obovatum</i> (Boat-leaved Poison)			
584.	3923 <i>Gastrolobium spathulatum</i> (Poison Bush)			
585.	3924 <i>Gastrolobium spinosum</i> (Prickly Poison)			
586.	18143 <i>Genista monspessulana</i>	Y		
587.	3945 <i>Gompholobium aristatum</i>			
588.	3948 <i>Gompholobium capitatum</i>			
589.	10909 <i>Gompholobium confertum</i>			
590.	3950 <i>Gompholobium knightianum</i>			
591.	3951 <i>Gompholobium marginatum</i>			
592.	3953 <i>Gompholobium ovatum</i>			
593.	3954 <i>Gompholobium polymorphum</i>			
594.	3955 <i>Gompholobium preissii</i>			
595.	3956 <i>Gompholobium shuttleworthii</i>			
596.	3957 <i>Gompholobium tomentosum</i> (Hairy Yellow Pea)			
597.	<i>Hardenbergia violacea</i>			
598.	3964 <i>Hovea chorizemifolia</i> (Holly-leaved Hovea)			
599.	3966 <i>Hovea pungens</i> (Devil's Pins, Puyenak)			
600.	3968 <i>Hovea trisperma</i> (Common Hovea)			
601.	12859 <i>Hovea trisperma</i> var. <i>trisperma</i>			
602.	3992 <i>Isotropis cuneifolia</i> (Granny Bonnets)			
603.	3997 <i>Jacksonia alata</i>			
604.	4012 <i>Jacksonia furcellata</i> (Grey Stinkwood)			
605.	20462 <i>Jacksonia gracillima</i>		P3	
606.	4018 <i>Jacksonia lehmannii</i>			
607.	4027 <i>Jacksonia sericea</i> (Waldjumi)		P4	
608.	4029 <i>Jacksonia sternbergiana</i> (Stinkwood, Kapur)			
609.	4036 <i>Kennedia carinata</i>			
610.	4037 <i>Kennedia coccinea</i> (Coral Vine)			
611.	37940 <i>Kennedia coccinea</i> subsp. <i>coccinea</i>			
612.	4041 <i>Kennedia microphylla</i>			
613.	4044 <i>Kennedia prostrata</i> (Scarlet Runner)			
614.	4045 <i>Kennedia stirlingii</i> (Bushy Kennedia)			
615.	3667 <i>Labiichea lanceolata</i> (Tall Labichea)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
616.	11289 <i>Labichea lanceolata</i> subsp. <i>lanceolata</i>			
617.	3669 <i>Labichea punctata</i> (Lance-leaved Cassia)			
618.	4047 <i>Lathyrus tingitanus</i> (Tangier Pea)	Y		
619.	4052 <i>Latrobea tenella</i>			
620.	4059 <i>Lotus angustissimus</i> (Narrowleaf Trefoil)	Y		
621.	<i>Lotus</i> sp. <i>Mud3</i>			Y
622.	8564 <i>Lotus subbiflorus</i>	Y		
623.	4067 <i>Lupinus luteus</i> (Yellow Lupin)	Y		
624.	4072 <i>Medicago arabica</i> (Spotted Medic)	Y		
625.	4090 <i>Mirbelia dilatata</i> (Holly-leaved Mirbelia)			
626.	4097 <i>Mirbelia ramulosa</i>			
627.	4100 <i>Mirbelia spinosa</i>			
628.	4113 <i>Ornithopus compressus</i> (Yellow Serradella)	Y		
629.	4114 <i>Ornithopus pinnatus</i> (Slender Serradella)	Y		
630.	4115 <i>Ornithopus sativus</i> (French Serradella)	Y		
631.	3618 <i>Paraserianthes lophantha</i> (Albizia)			
632.	17114 <i>Paraserianthes lophantha</i> subsp. <i>lophantha</i>			
633.	4141 <i>Phyllota gracilis</i>			
634.	4172 <i>Pultenaea ericifolia</i>			
635.	4177 <i>Pultenaea ochreatea</i>			
636.	4181 <i>Pultenaea reticulata</i>			
637.	4205 <i>Sphaerolobium linophyllum</i>			
638.	4207 <i>Sphaerolobium medium</i>			
639.	4211 <i>Sphaerolobium vimineum</i> (Leafless Globe Pea)			
640.	4289 <i>Trifolium angustifolium</i> (Narrowleaf Clover)	Y		
641.	4291 <i>Trifolium arvense</i> (Hare's Foot Clover)	Y		
642.	17542 <i>Trifolium arvense</i> var. <i>arvense</i>	Y		
643.	4292 <i>Trifolium campestre</i> (Hop Clover)	Y		
644.	17763 <i>Trifolium campestre</i> var. <i>campestre</i> (Hop Clover)	Y		
645.	4293 <i>Trifolium cernuum</i> (Drooping Flower Clover)	Y		
646.	4295 <i>Trifolium dubium</i> (Suckling Clover)	Y		
647.	4298 <i>Trifolium hirtum</i> (Rose Clover)	Y		
648.	17541 <i>Trifolium incarnatum</i> var. <i>incarnatum</i>	Y		
649.	19970 <i>Trifolium resupinatum</i> var. <i>majus</i>	Y		
650.	4309 <i>Trifolium scabrum</i> (Rough Clover)	Y		
651.	4312 <i>Trifolium striatum</i> (Knotted Clover)	Y		
652.	4313 <i>Trifolium subterraneum</i> (Subterranean Clover)	Y		
653.	4319 <i>Vicia benghalensis</i> (Purple Vetch)	Y		
654.	4320 <i>Vicia hirsuta</i> (Hairy Vetch)	Y		
655.	4322 <i>Vicia sativa</i> (Common Vetch)	Y		
656.	12070 <i>Vicia sativa</i> subsp. <i>sativa</i>	Y		
657.	4325 <i>Viminaria juncea</i> (Swishbush, Koweda)			
<b>Fissidentaceae</b>				
658.	32367 <i>Fissidens megalotis</i>			
<b>Funariaceae</b>				
659.	32463 <i>Entosthodon subnudus</i> var. <i>gracilis</i>			
<b>Gentianaceae</b>				
660.	6539 <i>Centaureum erythraea</i> (Common Centaury)	Y		
661.	6543 <i>Cicendia filiformis</i> (Slender Cicendia)	Y		
<b>Geraniaceae</b>				
662.	4332 <i>Erodium botrys</i> (Long Storksbill)	Y		
663.	4335 <i>Erodium cygnorum</i> (Blue Heronsbill)			
664.	4341 <i>Geranium solanderi</i> (Native Geranium)			
665.	4343 <i>Pelargonium capitatum</i> (Rose Pelargonium)	Y		
666.	4346 <i>Pelargonium littorale</i>			
<b>Goodeniaceae</b>				
667.	7411 <i>Anthotium humile</i> (Dwarf Anthotium)			
668.	12724 <i>Anthotium junciforme</i>			
669.	7420 <i>Dampiera alata</i> (Winged-stem Dampiera)			
670.	7451 <i>Dampiera lavandulacea</i>			
671.	7454 <i>Dampiera linearis</i> (Common Dampiera)			
672.	7462 <i>Dampiera pedunculata</i>			
673.	7484 <i>Dampiera trigona</i> (Angled-stem Dampiera)			
674.	7491 <i>Goodenia arthrotricha</i>			T
675.	29362 <i>Goodenia coerulea</i>			
676.	12520 <i>Goodenia fasciculata</i>			
677.	12551 <i>Goodenia micrantha</i>			
678.	7538 <i>Goodenia pulchella</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
679.	19286	<i>Goodenia pulchella</i> subsp. <i>Coastal Plain A (M. Hislop 634)</i>		
680.	7568	<i>Lechenaultia biloba</i> ( <i>Blue Leschenaultia</i> )		
681.	7572	<i>Lechenaultia expansa</i>		
682.	7574	<i>Lechenaultia floribunda</i> ( <i>Free-flowering Leschenaultia</i> )		
683.	7602	<i>Scaevola calliptera</i>		
684.	7613	<i>Scaevola glandulifera</i> ( <i>Viscid Hand-flower</i> )		
685.	7619	<i>Scaevola lanceolata</i> ( <i>Long-leaved Scaevola</i> )		
686.	7635	<i>Scaevola pilosa</i> ( <i>Hairy Fan-flower</i> )		
687.	7636	<i>Scaevola platyphylla</i> ( <i>Broad-leaved Fanflower</i> )		
688.	13182	<i>Scaevola repens</i> var. <i>repens</i>		
689.	7665	<i>Velleia trinervis</i>		

### Haemodoraceae

690.		? <i>Haemodorum spicatum</i>		
691.	11470	<i>Anigozanthos bicolor</i> subsp. <i>bicolor</i>		
692.	1409	<i>Anigozanthos humilis</i> ( <i>Catspaw</i> )		
693.	11434	<i>Anigozanthos humilis</i> subsp. <i>humilis</i>		
694.	1411	<i>Anigozanthos manglesii</i> ( <i>Mangles Kangaroo Paw, Kurulbrang</i> )		
695.	11261	<i>Anigozanthos manglesii</i> subsp. <i>manglesii</i>		
696.	29487	<i>Anigozanthos manglesii</i> var. <i>x angustifolius</i>		
697.	1416	<i>Anigozanthos viridis</i> ( <i>Green Kangaroo Paw, Kurulbardang</i> )		
698.	11566	<i>Anigozanthos viridis</i> subsp. <i>viridis</i>		
699.	1417	<i>Blancoa canescens</i> ( <i>Winter Bell</i> )		
700.	1418	<i>Conostylis aculeata</i> ( <i>Prickly Conostylis</i> )		
701.	11826	<i>Conostylis aculeata</i> subsp. <i>aculeata</i>		
702.	12109	<i>Conostylis aculeata</i> subsp. <i>preissii</i>		
703.	1420	<i>Conostylis androstemma</i> ( <i>Trumpets</i> )		
704.	1423	<i>Conostylis aurea</i> ( <i>Golden Conostylis</i> )		
705.	11438	<i>Conostylis candicans</i> subsp. <i>candicans</i>		
706.	1429	<i>Conostylis caricina</i>		
707.	12035	<i>Conostylis caricina</i> subsp. <i>caricina</i>		
708.	11695	<i>Conostylis festuceacea</i> subsp. <i>festuceacea</i>		
709.	1436	<i>Conostylis juncea</i>		
710.	1453	<i>Conostylis serrulata</i>		
711.	1454	<i>Conostylis setigera</i> ( <i>Bristly Cottonhead</i> )		
712.	11597	<i>Conostylis setigera</i> subsp. <i>setigera</i>		
713.	1455	<i>Conostylis setosa</i> ( <i>White Cottonhead</i> )		
714.	1464	<i>Haemodorum brevisepalum</i>		
715.	1465	<i>Haemodorum discolor</i>		
716.	1468	<i>Haemodorum laxum</i>		
717.	1470	<i>Haemodorum paniculatum</i> ( <i>Mardja</i> )		
718.	1472	<i>Haemodorum simplex</i>		
719.	1473	<i>Haemodorum simulans</i>		
720.	1474	<i>Haemodorum sparsiflorum</i>		
721.	1475	<i>Haemodorum spicatum</i> ( <i>Mardja</i> )		
722.	1478	<i>Phlebocarya ciliata</i>		
723.	1479	<i>Phlebocarya filifolia</i>		
724.	1481	<i>Tribonanthes australis</i> ( <i>Southern Tiurmdin</i> )		
725.	1482	<i>Tribonanthes brachypetala</i> ( <i>Nodding Tiurmdin</i> )		
726.	1483	<i>Tribonanthes longipetala</i> ( <i>Branching Tiurmdin</i> )		
727.	1485	<i>Tribonanthes violacea</i> ( <i>Violet Tiurmdin</i> )		

### Haloragaceae

728.	6143	<i>Glischrocaryon aureum</i> ( <i>Common Popflower</i> )		
729.	16746	<i>Gonocarpus benthamii</i> subsp. <i>benthamii</i>		
730.	6149	<i>Gonocarpus cordiger</i>		
731.	6150	<i>Gonocarpus diffusus</i>		
732.	6159	<i>Gonocarpus nodulosus</i>		
733.	6160	<i>Gonocarpus paniculatus</i>		
734.	6161	<i>Gonocarpus pithyoides</i>		
735.	33638	<i>Meionectes tenuifolia</i>		P3
736.	6189	<i>Myriophyllum crispatum</i>		

### Hemerocallidaceae

737.		? <i>Amocrinum preissii</i>		
738.	23474	<i>Agrostocrinum hirsutum</i>		
739.	1261	<i>Agrostocrinum scabrum</i> ( <i>Blue Grass Lily</i> )		
740.	23501	<i>Agrostocrinum scabrum</i> subsp. <i>scabrum</i>		
741.	1264	<i>Amocrinum preissii</i>		
742.	1276	<i>Caesia micrantha</i> ( <i>Pale Grass Lily</i> )		
743.	1277	<i>Caesia occidentalis</i>		
744.		<i>Caesia</i> sp.		

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
745.	1285 <i>Corynotheca micrantha</i> (Sand Lily)			
746.	1259 <i>Dianella revoluta</i> (Blueberry Lily)			
747.	11636 <i>Dianella revoluta</i> var. <i>divaricata</i>			
748.	1293 <i>Hensmania turbinata</i>			
749.	1298 <i>Johnsonia pubescens</i> (Pipe Lily)			
750.	19272 <i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>		P2	
751.	19632 <i>Johnsonia pubescens</i> subsp. <i>pubescens</i>			
752.	1260 <i>Stypantra glauca</i> (Blind Grass)			
753.	1361 <i>Tricoryne elatior</i> (Yellow Autumn Lily)			
754.	1362 <i>Tricoryne humilis</i>			
755.	1363 <i>Tricoryne tenella</i>			
<b>Hydatellaceae</b>				
756.	1139 <i>Trithuria bibracteata</i>			
757.	1141 <i>Trithuria submersa</i>			
<b>Hydrocharitaceae</b>				
758.	168 <i>Ottelia ovalifolia</i> (Swamp Lily)			
759.	14532 <i>Ottelia ovalifolia</i> subsp. <i>chrysobasis</i>			
760.	14531 <i>Ottelia ovalifolia</i> subsp. <i>ovalifolia</i>			
761.	33537 <i>Vallisneria australis</i>	Y		
<b>Hypoxidaceae</b>				
762.	43780 <i>Pauridia gardneri</i>			
763.	43760 <i>Pauridia occidentalis</i>			
764.	43762 <i>Pauridia occidentalis</i> var. <i>quadriloba</i>			
<b>Iridaceae</b>				
765.	18279 <i>Babiana angustifolia</i>	Y		
766.	1515 <i>Ferraria crispa</i> (Black Flag)	Y		
767.	18392 <i>Freesia alba</i> x <i>leichtlinii</i>	Y		
768.	20643 <i>Freesia laxa</i>	Y		
769.	1518 <i>Gladiolus angustus</i> (Long Tubed Painted Lady)	Y		
770.	1520 <i>Gladiolus caryophyllaceus</i> (Wild Gladiolus)	Y		
771.	1524 <i>Gladiolus undulatus</i> (Wild Gladiolus)	Y		
772.	1532 <i>Ixia maculata</i> (Yellow Ixia)	Y		
773.	1534 <i>Ixia polystachya</i> (Variable Ixia)	Y		
774.	19179 <i>Moraea flaccida</i> (One-leaf Cape Tulip)	Y		
775.	19177 <i>Moraea setifolia</i>	Y		
776.	11749 <i>Orthrosanthus laxus</i> var. <i>laxus</i> (Morning Iris)			
777.	1542 <i>Patersonia babianoides</i>			
778.	1546 <i>Patersonia juncea</i> (Rush Leaved Patersonia)			
779.	1550 <i>Patersonia occidentalis</i> (Purple Flag, Koma)			
780.	30476 <i>Patersonia occidentalis</i> var. <i>latifolia</i>			
781.	30472 <i>Patersonia occidentalis</i> var. <i>occidentalis</i>			
782.	1551 <i>Patersonia pygmaea</i> (Pygmy Patersonia)			
783.	14433 <i>Patersonia rudis</i> subsp. <i>rudis</i>			
784.	11550 <i>Patersonia umbrosa</i> var. <i>xanthina</i> (Yellow Flags)			
785.	14485 <i>Romulea flava</i> var. <i>minor</i>	Y		
786.	1556 <i>Romulea rosea</i> (Guildford Grass)	Y		
787.	11544 <i>Romulea rosea</i> var. <i>australis</i> (Guildford Grass)	Y		
788.	1558 <i>Sparaxis bulbifera</i>	Y		
789.	1560 <i>Sparaxis pillansii</i> (Harlequin Flower)	Y		
790.	38401 <i>Tritonia gladiolaris</i> (Lined Tritonia)	Y		
791.	13103 <i>Watsonia borbonica</i>	Y		
792.	18375 <i>Watsonia knysnana</i>	Y		
793.	1566 <i>Watsonia marginata</i>	Y		
794.	1567 <i>Watsonia meriana</i> (Bulbil Watsonia)	Y		
795.	18108 <i>Watsonia meriana</i> var. <i>bulbillifera</i>	Y		
796.	18118 <i>Watsonia meriana</i> var. <i>meriana</i>	Y		
797.	<i>Watsonia</i> sp. <i>Mud09</i>			Y
798.	1569 <i>Watsonia versfeldii</i>	Y		
<b>Isoetaceae</b>				
799.	11 <i>Isoetes drummondii</i> (Quillwort)			
<b>Juncaceae</b>				
800.	20454 <i>Juncus acutus</i> subsp. <i>acutus</i>	Y		
801.	8328 <i>Juncus amabilis</i>			
802.	1177 <i>Juncus articulatus</i> (Jointed Rush)	Y		
803.	1178 <i>Juncus bufonius</i> (Toad Rush)	Y		
804.	1179 <i>Juncus caespiticus</i> (Grassy Rush)			
805.	1180 <i>Juncus capitatus</i> (Capitate Rush)	Y		

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
806.	1184 <i>Juncus holoschoenus</i> (Jointleaf Rush)			
807.	1186 <i>Juncus microcephalus</i>	Y		
808.	1188 <i>Juncus pallidus</i> (Pale Rush)			
809.	1195 <i>Juncus subsecundus</i> (Finger Rush)			
810.	1198 <i>Luzula meridionalis</i> (Field Woodrush)			
<b>Juncaginaceae</b>				
811.	40661 <i>Cycnogeton lineare</i>			
812.	33676 <i>Triglochin calcitrapa</i>			
813.	148 <i>Triglochin muelleri</i>			
814.	18587 <i>Triglochin nana</i>			
815.	<i>Triglochin</i> sp. FL-3 (possibly <i>T. nana</i> )			Y
<b>Jungermanniaceae</b>				
816.	<i>Jamesoniella colorata</i>			
<b>Lamiaceae</b>				
817.	<i>Hemiandra</i> ?sp. Jurien			Y
818.	16933 <i>Hemiandra glabra</i>			
819.	6839 <i>Hemiandra pungens</i> (Snakebush)			
820.	38320 <i>Hemiandra</i> sp. Jurien (B.J. Conn & M.E. Tozer BJC 3885)			
821.	6856 <i>Hemigenia incana</i> (Silky Hemigenia)			
822.	6866 <i>Hemigenia pritzelii</i>			
823.	41020 <i>Hemiphora bartlingii</i> (Woolly Dragon)			
824.	17209 <i>Lachnostachys verbascifolia</i> var. <i>verbascifolia</i>			
825.	38323 <i>Lavandula stoechas</i> subsp. <i>stoechas</i>	Y		
826.	6885 <i>Mentha suaveolens</i> (Apple Mint)	Y		
827.	6897 <i>Microcorys longifolia</i>			
828.	6930 <i>Stachys arvensis</i> (Staggerweed)	Y		
<b>Lauraceae</b>				
829.	2951 <i>Cassytha flava</i> (Dodder Laurel)			
830.	2952 <i>Cassytha glabella</i> (Tangled Dodder Laurel)			
831.	11501 <i>Cassytha glabella</i> forma <i>casuarinae</i>			
832.	2956 <i>Cassytha pomiformis</i> (Dodder Laurel)			
833.	2957 <i>Cassytha racemosa</i> (Dodder Laurel)			
834.	11799 <i>Cassytha racemosa</i> forma <i>racemosa</i>			
<b>Lentibulariaceae</b>				
835.	<i>Polypompholyx tenella</i> scps			
836.	12493 <i>Utricularia gibba</i>			
837.	7145 <i>Utricularia menziesii</i> (Redcoats)			
838.	7148 <i>Utricularia multifida</i>			
839.	7153 <i>Utricularia tenella</i>			
840.	7157 <i>Utricularia violacea</i> (Violet Bladderwort)			
<b>Linaceae</b>				
841.	4363 <i>Linum trigynum</i> (French Flax)	Y		
<b>Loganiaceae</b>				
842.	6504 <i>Logania buxifolia</i>			
843.	46316 <i>Orianthera serpyllifolia</i> subsp. <i>angustifolia</i>			
844.	16825 <i>Phyllangium divergens</i>			
845.	16177 <i>Phyllangium paradoxum</i>			
<b>Lophocoleaceae</b>				
846.	<i>Chiloscyphus semiteres</i> var. <i>semiteres</i>			
<b>Loranthaceae</b>				
847.	13267 <i>Amyema linophylla</i> subsp. <i>linophylla</i>			
848.	2380 <i>Amyema miquelii</i> (Stalked Mistletoe)			
849.	2383 <i>Amyema preissii</i> (Wireleaf Mistletoe)			
850.	2401 <i>Nuytsia floribunda</i> (Christmas Tree, Mudja)			
<b>Lycopodiaceae</b>				
851.	4 <i>Phylloglossum drummondii</i> (Pigmy Clubmoss)			
<b>Lythraceae</b>				
852.	5281 <i>Lythrum hyssopifolia</i> (Lesser Loosestrife)	Y		
<b>Macarthuriaceae</b>				
853.	2838 <i>Macarthuria apetala</i>			
854.	2839 <i>Macarthuria australis</i>			
<b>Malvaceae</b>				
855.	10915 <i>Brachychiton populneus</i> (Kurrajong)	Y		
856.	48634 <i>Commersonia corniculata</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
857.	5025 <i>Lasiopetalum bracteatum</i> (Helena Velvet Bush)		P4	
858.	5033 <i>Lasiopetalum floribundum</i> (Free Flowering Lasiopetalum)			
859.	45081 <i>Lasiopetalum glutinosum</i> subsp. <i>glutinosum</i>		P3	
860.	45082 <i>Lasiopetalum glutinosum</i> subsp. <i>latifolium</i>			
861.	5080 <i>Thomasia foliosa</i>			
862.	5084 <i>Thomasia grandiflora</i> (Large Flowered Thomasia)			
863.	5087 <i>Thomasia macrocarpa</i> (Large Fruited Thomasia)			
864.	5091 <i>Thomasia paniculata</i>			
<b>Marchantiaceae</b>				
865.	<i>Marchantia berteroa</i>			
<b>Meliaceae</b>				
866.	4516 <i>Melia azedarach</i> (White Cedar)			
<b>Menyanthaceae</b>				
867.	36160 <i>Liparophyllum capitatum</i>			
868.	36180 <i>Liparophyllum latifolium</i>			
869.	36179 <i>Liparophyllum violifolium</i>			
870.	36177 <i>Ornduffia albiflora</i>			
871.	36200 <i>Ornduffia submersa</i>		P4	
<b>Montiaceae</b>				
872.	2846 <i>Calandrinia calyptata</i> (Pink Purslane)			
873.	2854 <i>Calandrinia granulifera</i> (Pygmy Purslane)			
874.	16365 <i>Calandrinia</i> sp. Kenwick (G.J. Keighery 10905)			
<b>Moraceae</b>				
875.	1747 <i>Ficus carica</i> (Common Fig)	Y		
<b>Myrtaceae</b>				
876.	? <i>Kunzea glabrescens</i>			
877.	<i>Astartea</i> aff. <i>fascicularis</i> sthst			
878.	20350 <i>Astartea affinis</i> (West-coast Astartea)			
879.	20249 <i>Astartea leptophylla</i> (River-bank Astartea)			
880.	20283 <i>Astartea scoparia</i> (Common Astartea)			
881.	36441 <i>Babingtonia camphorosmae</i> (Camphor Myrtle)			
882.	45403 <i>Babingtonia pelloeae</i> (Pelloe's Babingtonia)			
883.	45402 <i>Babingtonia urbana</i> (Coastal Plain Babingtonia)		P3	
884.	5385 <i>Beaufortia incana</i> (Grey-leaved Beaufortia)			
885.	5387 <i>Beaufortia macrostemon</i> (Darling Range Beaufortia)			
886.	5390 <i>Beaufortia purpurea</i> (Purple Beaufortia)		P3	
887.	5393 <i>Beaufortia squarrosa</i> (Sand Beaufortia, Sand Bottlebrush, Puno)			
888.	5396 <i>Calothamnus accedens</i>		P4	
889.	11333 <i>Calothamnus graniticus</i> subsp. <i>leptophyllus</i>		P4	
890.	5411 <i>Calothamnus hirsutus</i>			
891.	5415 <i>Calothamnus lateralis</i>			
892.	35797 <i>Calothamnus lateralis</i> var. <i>lateralis</i>			
893.	5426 <i>Calothamnus quadrifidus</i> (One-sided Bottlebrush, Kwowdjard)			
894.	35816 <i>Calothamnus quadrifidus</i> subsp. <i>quadrifidus</i>			
895.	5428 <i>Calothamnus rupestris</i> (Mouse Ears)			
896.	5431 <i>Calothamnus torulosus</i>			
897.	5437 <i>Calytrix acutifolia</i>			
898.	5439 <i>Calytrix angulata</i> (Yellow Starflower)			
899.	5441 <i>Calytrix aurea</i>			
900.	13653 <i>Calytrix breviseta</i> subsp. <i>breviseta</i>		T	
901.	5450 <i>Calytrix depressa</i>			
902.	5458 <i>Calytrix flavescens</i> (Summer Starflower)			
903.	5460 <i>Calytrix fraseri</i> (Pink Summer Calytrix)			
904.	5461 <i>Calytrix glutinosa</i>			
905.	5476 <i>Calytrix sapphirina</i>			
906.	13656 <i>Calytrix simplex</i> subsp. <i>simplex</i>		P1	
907.	13655 <i>Calytrix simplex</i> subsp. <i>suboppositifolia</i>			
908.	5485 <i>Calytrix variabilis</i>			
909.	5498 <i>Chamelaucium uncinatum</i> (Geraldton Wax)			
910.	5502 <i>Conothamnus trinervis</i>			
911.	17104 <i>Corymbia calophylla</i> (Marri)			
912.	5505 <i>Darwinia apiculata</i> (Scarp Darwinia)		T	
913.	5508 <i>Darwinia citriodora</i> (Lemon-scented Darwinia)			
914.	5524 <i>Darwinia pinifolia</i>			
915.	5531 <i>Darwinia thymoides</i>			
916.	18193 <i>Darwinia thymoides</i> subsp. <i>thymoides</i>			
917.	13949 <i>Eremaea asterocarpa</i>			



Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
918.	13950 <i>Eremaea asterocarpa</i> subsp. <i>asterocarpa</i>			
919.	14097 <i>Eremaea asterocarpa</i> subsp. <i>brachyclada</i>			
920.	5541 <i>Eremaea pauciflora</i>			
921.	14104 <i>Eremaea pauciflora</i> var. <i>pauciflora</i>			
922.	5615 <i>Eucalyptus decipiens</i> (Limestone Marlock, Moit)			
923.	48440 <i>Eucalyptus grandis</i>	Y		
924.	5688 <i>Eucalyptus laeliae</i> (Darling Range Ghost Gum)			
925.	5690 <i>Eucalyptus lane-poolei</i> (Salmon White Gum)			
926.	5708 <i>Eucalyptus marginata</i> (Jarrah, Djara)			
927.	13547 <i>Eucalyptus marginata</i> subsp. <i>marginata</i> (Jarrah)			
928.	13548 <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> (Blue-leaved Jarrah)			
929.	5739 <i>Eucalyptus patens</i> (Swan River Blackbutt, Dwuda)			
930.	5763 <i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
931.	13511 <i>Eucalyptus rudis</i> subsp. <i>rudis</i>			
932.	<i>Eucalyptus</i> sp.			
933.	5790 <i>Eucalyptus todtiana</i> (Coastal Blackbutt)			
934.	5797 <i>Eucalyptus wandoo</i> (Wandoo, Wondu)			
935.	12906 <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>			
936.	13090 <i>Eucalyptus x balanites</i> (Cadda Road Mallee)		T	
937.	5817 <i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)			
938.	35074 <i>Hypocalymma angustifolium</i> subsp. <i>Dandaragan plateau</i> (S. Patrick 702A)			
939.	35070 <i>Hypocalymma angustifolium</i> subsp. <i>Swan Coastal Plain</i> (G.J. Keighery 16777)			
940.	5825 <i>Hypocalymma robustum</i> (Swan River Myrtle)			
941.	5832 <i>Kunzea ericifolia</i> (Spearwood, Pondil)			
942.	15498 <i>Kunzea glabrescens</i> (Spearwood)			
943.	5835 <i>Kunzea micrantha</i>			
944.	17461 <i>Kunzea micrantha</i> subsp. <i>micrantha</i>			
945.	5840 <i>Kunzea pulchella</i> (Granite Kunzea, Silky Kunzea)			
946.	5841 <i>Kunzea recurva</i>			
947.	5847 <i>Leptospermum erubescens</i> (Roadside Teatree)			
948.	5850 <i>Leptospermum laevigatum</i> (Coast Teatree)	Y		
949.	37580 <i>Melaleuca acutifolia</i>			
950.	36296 <i>Melaleuca armillaris</i> subsp. <i>armillaris</i>	Y		
951.	5881 <i>Melaleuca brevifolia</i>			
952.	5900 <i>Melaleuca cuticularis</i> (Saltwater Paperbark)			
953.	5921 <i>Melaleuca incana</i> (Grey Honeymyrtle)			
954.	13273 <i>Melaleuca incana</i> subsp. <i>incana</i>			
955.	5925 <i>Melaleuca lateriflora</i> (Gorada)			
956.	5926 <i>Melaleuca lateritia</i> (Robin Redbreast Bush)			
957.	20297 <i>Melaleuca osullivanii</i>			
958.	18394 <i>Melaleuca parviceps</i>			
959.	5946 <i>Melaleuca pauciflora</i>			
960.	5952 <i>Melaleuca preissiana</i> (Moonah)			
961.	5958 <i>Melaleuca radula</i> (Graceful Honeymyrtle)			
962.	5959 <i>Melaleuca rhapsiophylla</i> (Swamp Paperbark)			
963.	5964 <i>Melaleuca seriata</i>			
964.	5978 <i>Melaleuca teretifolia</i> (Banbar)			
965.	5980 <i>Melaleuca thymoides</i>			
966.	5983 <i>Melaleuca trichophylla</i>			
967.	5984 <i>Melaleuca uncinata</i> (Broom Bush, Kwidjard)			
968.	5987 <i>Melaleuca viminea</i> (Mohan)			
969.	13280 <i>Melaleuca viminea</i> subsp. <i>viminea</i>			
970.	20101 <i>Paragonis grandiflora</i>			
971.	6006 <i>Pericalymma ellipticum</i> (Swamp Teatree)			
972.	16477 <i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			
973.	16478 <i>Pericalymma ellipticum</i> var. <i>floridum</i>			
974.	15501 <i>Pericalymma spongiocaula</i>			
975.	6012 <i>Regelia ciliata</i>			
976.	6014 <i>Regelia inops</i>			
977.	6033 <i>Scholtzia involucrata</i> (Spiked Scholtzia)			
978.	20135 <i>Taxandria linearifolia</i>			
979.	6070 <i>Verticordia acerosa</i>			
980.	15431 <i>Verticordia acerosa</i> var. <i>acerosa</i>			
981.	12388 <i>Verticordia acerosa</i> var. <i>preissii</i>			
982.	6076 <i>Verticordia densiflora</i> (Compacted Featherflower)			
983.	12411 <i>Verticordia densiflora</i> var. <i>cespitosa</i>			
984.	15432 <i>Verticordia densiflora</i> var. <i>densiflora</i>			
985.	6077 <i>Verticordia drummondii</i> (Drummond's Featherflower)			
986.	6088 <i>Verticordia huegelii</i> (Variegated Featherflower)			
987.	15433 <i>Verticordia huegelii</i> var. <i>huegelii</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
988.	12430 <i>Verticordia huegellii</i> var. <i>stylosa</i>			
989.	15434 <i>Verticordia insignis</i> subsp. <i>insignis</i>			
990.	14714 <i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>		P4	
991.	6107 <i>Verticordia pennigera</i>			
992.	6110 <i>Verticordia plumosa</i> (Plumed Featherflower)			
993.	12449 <i>Verticordia plumosa</i> var. <i>brachyphylla</i>			
994.	15618 <i>Verticordia plumosa</i> var. <i>plumosa</i>			
<b>Olacaceae</b>				
995.	2365 <i>Olax benthamiana</i>			
996.	2367 <i>Olax scalariformis</i>			
<b>Oleaceae</b>				
997.	31894 <i>Ligustrum ovalifolium</i>	Y		
<b>Onagraceae</b>				
998.	? <i>Epilobium</i> sp.			
999.	6131 <i>Epilobium billardioreanum</i> (Glabrous Willow Herb)			
1000.	6137 <i>Oenothera affinis</i> (Longflower Evening Primrose)	Y		
1001.	6140 <i>Oenothera mollissima</i>	Y		
1002.	14292 <i>Oenothera stricta</i> subsp. <i>stricta</i>	Y		
<b>Ophioglossaceae</b>				
1003.	17 <i>Ophioglossum lusitanicum</i> (Adders Tongue)			
<b>Orchidaceae</b>				
1004.	? <i>Microtis media</i>			Y
1005.	<i>Caladenia</i> ? <i>flava</i>			
1006.	15330 <i>Caladenia arenicola</i>			
1007.	13853 <i>Caladenia arrecta</i>			
1008.	11136 <i>Caladenia denticulata</i>			
1009.	1586 <i>Caladenia discoidea</i> (Dancing Orchid)			
1010.	1590 <i>Caladenia ferruginea</i> (Rusty Spider Orchid)			
1011.	1592 <i>Caladenia flava</i> (Cowslip Orchid)			
1012.	15348 <i>Caladenia flava</i> subsp. <i>flava</i>			
1013.	15354 <i>Caladenia hirta</i> subsp. <i>hirta</i>			
1014.	1596 <i>Caladenia huegellii</i> (Grand Spider Orchid)		T	
1015.	1599 <i>Caladenia latifolia</i> (Pink Fairy Orchid)			
1016.	1602 <i>Caladenia longicauda</i> (Common White Spider Orchid)			
1017.	15361 <i>Caladenia longicauda</i> subsp. <i>calcigena</i>			
1018.	15365 <i>Caladenia longicauda</i> subsp. <i>longicauda</i>			
1019.	1604 <i>Caladenia macrostylis</i> (Leaping Spider Orchid)			
1020.	1605 <i>Caladenia marginata</i> (White Fairy Orchid)			
1021.	15503 <i>Caladenia paludosa</i>			
1022.	1613 <i>Caladenia reptans</i> (Little Pink Fairy Orchid)			
1023.	15377 <i>Caladenia reptans</i> subsp. <i>reptans</i>			
1024.	15379 <i>Caladenia serotina</i>			
1025.	<i>Caladenia</i> sp.			
1026.	15380 <i>Caladenia splendens</i>			
1027.	15398 <i>Caladenia xantha</i>			
1028.	15114 <i>Cyanicula gemmata</i>			
1029.	15404 <i>Cyanicula sericea</i>			
1030.	10916 <i>Cyrtostylis huegellii</i>			
1031.	19649 <i>Disa bracteata</i>	Y		
1032.	12943 <i>Diuris brumalis</i>			
1033.	10791 <i>Diuris carinata</i> (Bee Orchid)			
1034.	11049 <i>Diuris corymbosa</i>			
1035.	<i>Diuris corymbosa/magnifica</i>			
1036.	42231 <i>Diuris decremента</i>			
1037.	1632 <i>Diuris emarginata</i> (Tall Donkey Orchid)			
1038.	1634 <i>Diuris laxiflora</i> (Bee Orchid)			
1039.	1635 <i>Diuris longifolia</i> (Common Donkey Orchid)			
1040.	12939 <i>Diuris magnifica</i>			
1041.	46859 <i>Diuris ostrina</i>			
1042.	15436 <i>Diuris porrifolia</i>			
1043.	1637 <i>Diuris purdiei</i> (Purdie's Donkey Orchid)		T	
1044.	1638 <i>Diuris setacea</i> (Bristly Donkey Orchid)			
1045.	1639 <i>Drakaea elastica</i> (Glossy-leaved Hammer Orchid)		T	
1046.	1640 <i>Drakaea glyptodon</i> (King-in-his-carriage)			
1047.	11156 <i>Drakaea livida</i>			
1048.	13635 <i>Drakaea micrantha</i>		T	
1049.	1643 <i>Elythranthera brunonis</i> (Purple Enamel Orchid)			
1050.	1644 <i>Elythranthera emarginata</i> (Pink Enamel Orchid)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1051.	1645 <i>Epiblema grandiflorum</i> (Babe-in-a-cradle)			
1052.	1646 <i>Eriochilus dilatatus</i> (White Bunny Orchid)			
1053.	15410 <i>Eriochilus dilatatus</i> subsp. <i>dilatatus</i>			
1054.	15411 <i>Eriochilus dilatatus</i> subsp. <i>magnus</i>			
1055.	15412 <i>Eriochilus dilatatus</i> subsp. <i>multiflorus</i>			
1056.	15413 <i>Eriochilus dilatatus</i> subsp. <i>undulatus</i>			
1057.	15414 <i>Eriochilus helonomos</i>			
1058.	15415 <i>Eriochilus scaber</i> subsp. <i>scaber</i>			
1059.	25903 <i>Eriochilus</i> sp. <i>Roleystone</i> (G. Brockman 1140)		P1	Y
1060.	1653 <i>Leporella fimbriata</i> (Hare Orchid)			
1061.	15418 <i>Leptoceras menziesii</i>			
1062.	1656 <i>Lyperanthus serratus</i> (Rattle Beak Orchid)			
1063.	1657 <i>Microtis alba</i> (White Mignonette Orchid)			
1064.	34158 <i>Microtis alboviridis</i>			
1065.	1658 <i>Microtis atrata</i> (Swamp Mignonette Orchid)			
1066.	10954 <i>Microtis media</i> (Tall Mignonette Orchid)			
1067.	12761 <i>Microtis media</i> subsp. <i>densiflora</i>			
1068.	15419 <i>Microtis media</i> subsp. <i>media</i>			
1069.	<i>Orchidaceae</i> sp.			Y
1070.	1667 <i>Paracaleana nigrita</i> (Flying Duck Orchid)			
1071.	20460 <i>Pheladenia deformis</i>			
1072.	48252 <i>Prasophyllum cuneatum</i>			
1073.	1669 <i>Prasophyllum cyphochilum</i> (Pouched Leek Orchid)			
1074.	1670 <i>Prasophyllum drummondii</i> (Swamp Leek Orchid)			
1075.	1671 <i>Prasophyllum elatum</i> (Tall Leek Orchid)			
1076.	1672 <i>Prasophyllum fimbria</i> (Fringed Leek Orchid)			
1077.	1673 <i>Prasophyllum gibbosum</i> (Humped Leek Orchid)			
1078.	1674 <i>Prasophyllum giganteum</i> (Bronze Leek Orchid)			
1079.	1676 <i>Prasophyllum hians</i> (Yawning Leek Orchid)			
1080.	1680 <i>Prasophyllum parvifolium</i> (Autumn Leek Orchid)			
1081.	10853 <i>Prasophyllum plumiforme</i>			
1082.	<i>Pterostylis</i> aff. <i>nana</i>			
1083.	48675 <i>Pterostylis atrosanguinea</i>			
1084.	1686 <i>Pterostylis barbata</i> (Bird Orchid)			
1085.	17267 <i>Pterostylis brevisepala</i>			
1086.	48484 <i>Pterostylis crebriflora</i>			
1087.	48677 <i>Pterostylis ectypha</i>			
1088.	44723 <i>Pterostylis glebosa</i>			
1089.	<i>Pterostylis nana</i> "short sepal"			
1090.	48674 <i>Pterostylis orbiculata</i>			
1091.	1693 <i>Pterostylis recurva</i> (Jug Orchid)			
1092.	12217 <i>Pterostylis sanguinea</i>			
1093.	<i>Pterostylis</i> sp.			
1094.	18655 <i>Pterostylis</i> sp. <i>crinkled leaf</i> (G.J. Keighery 13426)			
1095.	1698 <i>Pterostylis vittata</i> (Banded Greenhood)			
1096.	16367 <i>Pyrorchis nigricans</i> (Red beaks, Elephants ears)			
1097.	<i>Thelymitra</i> ? <i>graminea</i>			Y
1098.	1701 <i>Thelymitra antennifera</i> (Vanilla Orchid)			
1099.	10856 <i>Thelymitra benthamiana</i> (Leopard Orchid)			
1100.	1702 <i>Thelymitra campanulata</i> (Shirt Orchid)			
1101.	1705 <i>Thelymitra crinita</i> (Blue Lady Orchid)			
1102.	1707 <i>Thelymitra flexuosa</i> (Twisted Sun Orchid)			
1103.	11143 <i>Thelymitra graminea</i>			
1104.	11053 <i>Thelymitra macrophylla</i>			
1105.	20729 <i>Thelymitra magnifica</i> (Crystal Brook Star Orchid)		P1	
1106.	10862 <i>Thelymitra stellata</i> (Star Orchid)		T	
1107.	20731 <i>Thelymitra vulgaris</i>			
1108.	20728 <i>Thelymitra xanthotricha</i>			
<b>Orobanchaceae</b>				
1109.	7046 <i>Bellardia trixago</i> (Bellardia)	Y		
1110.	48868 <i>Bellardia viscosa</i>	Y		
1111.	7122 <i>Orobanche minor</i> (Lesser Broomrape)	Y		
1112.	7089 <i>Parentucellia latifolia</i> (Common Bartsia)	Y		
<b>Oxalidaceae</b>				
1113.	4349 <i>Oxalis corniculata</i> (Yellow Wood Sorrel)	Y		
1114.	18331 <i>Oxalis debilis</i> var. <i>corymbosa</i> (Pink Shamrock)	Y		
1115.	30375 <i>Oxalis exilis</i>			
1116.	4352 <i>Oxalis glabra</i>	Y		
1117.	4354 <i>Oxalis incarnata</i>	Y		

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1118.	4355 <i>Oxalis perennans</i>			
1119.	4356 <i>Oxalis pes-caprae</i> (Soursob)	Y		
1120.	4358 <i>Oxalis purpurea</i> (Largeflower Wood Sorrel)	Y		
<b>Papaveraceae</b>				
1121.	2969 <i>Fumaria capreolata</i> (Whiteflower Fumitory)	Y		
1122.	31532 <i>Fumaria muralis</i> subsp. <i>muralis</i>	Y		
<b>Philydraceae</b>				
1123.	1172 <i>Philydrella drummondii</i>			
1124.	1173 <i>Philydrella pygmaea</i> (Butterfly Flowers)			
1125.	14306 <i>Philydrella pygmaea</i> subsp. <i>pygmaea</i>			
<b>Phyllanthaceae</b>				
1126.	4675 <i>Phyllanthus calycinus</i> (False Boronia)			
1127.	4685 <i>Phyllanthus scaber</i>			
1128.	4690 <i>Poranthera huegelii</i>			
1129.	4691 <i>Poranthera microphylla</i> (Small Poranthera)			
1130.	<i>Poranthera microphylla</i> /moorokatta			
<b>Pinaceae</b>				
1131.	87 <i>Pinus pinaster</i> (Pinaster Pine)	Y		
<b>Pittosporaceae</b>				
1132.	3157 <i>Billardiera floribunda</i> (White-flowered Billardiera)			
1133.	25788 <i>Billardiera fraseri</i> (Elegant Pronaya)			
1134.	25798 <i>Billardiera fusiformis</i> (Australian Bluebell)			
1135.	25796 <i>Billardiera heterophylla</i> (Australian Bluebell)			
1136.	3169 <i>Cheiranthra preissiana</i>			
1137.	17637 <i>Marianthus candidus</i> (White Marianthus)			
1138.	17636 <i>Marianthus coeruleopunctatus</i> (Blue-spotted Marianthus)			
1139.	17630 <i>Marianthus tenuis</i>			
<b>Plantaginaceae</b>				
1140.	4717 <i>Callitriche stagnalis</i> (Common Starwort)	Y		
1141.	14282 <i>Gratiola pubescens</i>			
1142.	11898 <i>Kickxia elatine</i> subsp. <i>elatine</i>	Y		
1143.	7068 <i>Kickxia spuria</i> (Roundleaf Toadflax)	Y		
1144.	7085 <i>Misopates orontium</i> (Lesser Snapdragon)	Y		
1145.	7303 <i>Plantago lanceolata</i> (Ribwort Plantain)	Y		
<b>Poaceae</b>				
1146.	? <i>Rytidosperma occidentale</i>			
1147.	? <i>Rytidosperma</i> sp.			Y
1148.	? <i>Vulpia</i> sp.			Y
1149.	184 <i>Aira caryophyllea</i> (Silvery Hairgrass)	Y		
1150.	<i>Aira caryophyllea</i> /cupaniana group			
1151.	185 <i>Aira cupaniana</i> (Silvery Hairgrass)	Y		
1152.	186 <i>Aira elegantissima</i>	Y		
1153.	187 <i>Aira praecox</i> (Early Hairgrass)	Y		
1154.	13380 <i>Amphibromus nervosus</i>			
1155.	194 <i>Amphipogon amphipogonoides</i>			
1156.	197 <i>Amphipogon debilis</i>			
1157.	198 <i>Amphipogon laguroides</i>			
1158.	20184 <i>Amphipogon laguroides</i> subsp. <i>laguroides</i>			
1159.	199 <i>Amphipogon strictus</i> (Greybeard Grass)			
1160.	200 <i>Amphipogon turbinatus</i>			
1161.	201 <i>Andropogon distachyos</i>	Y		Y
1162.	202 <i>Anthoxanthum odoratum</i> (Sweet Vernal Grass)	Y		
1163.	207 <i>Aristida contorta</i> (Bunched Kerosene Grass)			
1164.	210 <i>Aristida holathera</i>			
1165.	226 <i>Arundo donax</i> (Giant Reed)	Y		
1166.	<i>Austrostipa</i> ? <i>compressa</i>			
1167.	17233 <i>Austrostipa campylachne</i>			
1168.	17234 <i>Austrostipa compressa</i>			
1169.	17237 <i>Austrostipa elegantissima</i>			
1170.	17241 <i>Austrostipa hemipogon</i>			
1171.	38481 <i>Austrostipa jacobsiana</i>		T	
1172.	17253 <i>Austrostipa semibarbata</i>			
1173.	<i>Austrostipa semibarbata</i> /campylachne			Y
1174.	17257 <i>Austrostipa variabilis</i>			
1175.	231 <i>Avellinia michelii</i>	Y		
1176.	233 <i>Avena barbata</i> (Bearded Oat)	Y		
1177.	235 <i>Avena sativa</i> (Common Oat)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
		Y		
1178.	8661 <i>Brachypodium distachyon</i> (False Brome)	Y		
1179.	<i>Briza ?maxima</i>			Y
1180.	244 <i>Briza maxima</i> (Blowfly Grass)	Y		
1181.	245 <i>Briza minor</i> (Shivery Grass)	Y		
1182.	<i>Briza</i> sp.			
1183.	249 <i>Bromus diandrus</i> (Great Brome)	Y		
1184.	250 <i>Bromus hordeaceus</i> (Soft Brome)	Y		
1185.	41567 <i>Cenchrus macrourus</i> (African Feather Grass)	Y		
1186.	41563 <i>Cenchrus purpureus</i> (Elephant Grass)	Y		
1187.	41568 <i>Cenchrus setaceus</i> (Fountain Grass)	Y		
1188.	267 <i>Chloris gayana</i> (Rhodes Grass)	Y		
1189.	283 <i>Cynodon dactylon</i> (Couch)	Y		
1190.	287 <i>Dactylis glomerata</i> (Cocksfoot)	Y		
1191.	306 <i>Dichelachne crinita</i> (Longhair Plumegrass)			
1192.	11105 <i>Echinochloa crus-galli</i>	Y		
1193.	347 <i>Ehrharta calycina</i> (Perennial Veldt Grass)	Y		
1194.	349 <i>Ehrharta longiflora</i> (Annual Veldt Grass)	Y		
1195.	<i>Ehrharta</i> sp.			
1196.	376 <i>Eragrostis curvula</i> (African Lovegrass)	Y		
1197.	379 <i>Eragrostis elongata</i> (Clustered Lovegrass)			
1198.	434 <i>Gastridium phleoides</i> (Nitgrass)	Y		
1199.	17043 <i>Glyceria declinata</i>	Y		
1200.	438 <i>Hainardia cylindrica</i> (Common Barbgrass)	Y		
1201.	444 <i>Holcus lanatus</i> (Yorkshire Fog)	Y		
1202.	445 <i>Holcus setiger</i> (Annual Fog)	Y		
1203.	450 <i>Hordeum marinum</i>	Y		
1204.	452 <i>Hyparrhenia hirta</i> (Tambookie Grass)	Y		
1205.	19954 <i>Lachnagrostis aemula</i>			
1206.	20019 <i>Lachnagrostis filiformis</i>			
1207.	19955 <i>Lachnagrostis plebeia</i>			
1208.	476 <i>Lolium perenne</i> (Perennial Ryegrass)	Y		
1209.	478 <i>Lolium rigidum</i> (Wimmera Ryegrass)	Y		
1210.	<i>Lolium</i> sp.			
1211.	14985 <i>Melinis repens</i>	Y		
1212.	485 <i>Microlaena stipoides</i> (Weeping Grass)			
1213.	486 <i>Miscanthus sinensis</i> (Eulalia)	Y		
1214.	492 <i>Neurachne alopecuroidea</i> (Foxtail Mulga Grass)			
1215.	502 <i>Panicum capillare</i> (Witchgrass)	Y		
1216.	527 <i>Paspalum dilatatum</i>	Y		
1217.	528 <i>Paspalum distichum</i> (Water Couch)	Y		
1218.	532 <i>Paspalum urvillei</i> (Vasey Grass)	Y		
1219.	40424 <i>Pentameris airoides</i> subsp. <i>airoides</i>	Y		
1220.	547 <i>Phalaris angusta</i>	Y		
1221.	548 <i>Phalaris aquatica</i> (Phalaris)	Y		
1222.	549 <i>Phalaris arundinacea</i> (Reed Canary Grass)	Y		
1223.	11494 <i>Phalaris arundinacea</i> var. <i>arundinacea</i>	Y		
1224.	554 <i>Phleum pratense</i> (Timothy)	Y		
1225.	571 <i>Poa annua</i> (Winter Grass)	Y		
1226.	573 <i>Poa drummondiana</i> (Knotted Poa)			
1227.	582 <i>Polypogon monspeliensis</i> (Annual Beardgrass)	Y		
1228.	583 <i>Polypogon tenellus</i>			
1229.	40431 <i>Rytidosperma acerosum</i>			
1230.	40425 <i>Rytidosperma caespitosum</i>			
1231.	40426 <i>Rytidosperma occidentale</i>			
1232.	40430 <i>Rytidosperma pilosum</i>			
1233.	40427 <i>Rytidosperma setaceum</i>			
1234.	11880 <i>Setaria pumila</i> subsp. <i>pumila</i>	Y		
1235.	613 <i>Setaria verticillata</i> (Whorled Pigeon Grass)	Y		
1236.	617 <i>Sorghum halepense</i> (Johnson Grass)	Y		
1237.	636 <i>Stenotaphrum secundatum</i> (Buffalo Grass)	Y		
1238.	667 <i>Tetrarrhena laevis</i> (Forest Ricegrass)			
1239.	673 <i>Themeda triandra</i>			
1240.	11112 <i>Tribolium uniolae</i>	Y		
1241.	722 <i>Vulpia bromoides</i> (Squirrel Tail Fescue)	Y		
1242.	724 <i>Vulpia myuros</i> (Rat's Tail Fescue)	Y		
1243.	33101 <i>Vulpia myuros</i> forma <i>myuros</i>	Y		

**Polygalaceae**

1244.	4550 <i>Comesperma calymega</i> (Blue-spike Milkwort)			
1245.	4551 <i>Comesperma ciliatum</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1246.	4554 <i>Comesperma flavum</i>			
1247.	<i>Comesperma</i> sp. FL-3 (too young to be id)			Y
1248.	4564 <i>Comesperma virgatum</i> (Milkwort)			
1249.	8395 <i>Polygala myrtifolia</i> (Myrtleleaf Milkwort)	Y		
1250.	4578 <i>Polygala virgata</i>	Y		
<b>Polygonaceae</b>				
1251.	11020 <i>Persicaria hydropiper</i>			
1252.	11052 <i>Persicaria prostrata</i>			
1253.	2419 <i>Polygonum aviculare</i> (Wireweed)	Y		
1254.	2429 <i>Rumex acetosella</i> (Sorrel)	Y		
1255.	2432 <i>Rumex conglomeratus</i> (Clustered Dock)	Y		
1256.	2443 <i>Rumex vesicarius</i> (Ruby Dock)	Y		
<b>Potamogetonaceae</b>				
1257.	48626 <i>Althenia australis</i>			
1258.	48620 <i>Althenia preissii</i>			
1259.	111 <i>Potamogeton ochreateus</i> (Blunt Pondweed)			
<b>Pottiaceae</b>				
1260.	32315 <i>Barbula calycina</i>			
1261.	32318 <i>Barbula indica</i>			
1262.	44532 <i>Bryoerythrophyllum dubium</i>			
1263.	32439 <i>Syntrichia papillosa</i>			
1264.	32455 <i>Weissia controversa</i>			
<b>Primulaceae</b>				
1265.	36375 <i>Lysimachia arvensis</i> (Pimpernel)	Y		
1266.	36373 <i>Lysimachia minima</i>	Y		
1267.	6484 <i>Samolus repens</i> (Creeping Brookweed)			
<b>Proteaceae</b>				
1268.	? <i>Persoonia saccata</i>			Y
1269.	14970 <i>Adenanthos barbiger</i>			
1270.	1775 <i>Adenanthos cygnorum</i> (Common Woollybush)			
1271.	11837 <i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i> (Common Woollybush)			
1272.	1790 <i>Adenanthos meisneri</i>			
1273.	1791 <i>Adenanthos obovatus</i> (Basket Flower)			
1274.	32682 <i>Banksia armata</i> var. <i>armata</i>			
1275.	1800 <i>Banksia attenuata</i> (Slender Banksia, Piara)			
1276.	32678 <i>Banksia bipinnatifida</i> subsp. <i>bipinnatifida</i>			
1277.	32576 <i>Banksia dallanneyi</i> (Couch Honeyypot)			
1278.	32580 <i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> var. <i>dallanneyi</i>			
1279.	32577 <i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> var. <i>mellicula</i>			
1280.	32523 <i>Banksia fraseri</i> var. <i>fraseri</i>			
1281.	1819 <i>Banksia grandis</i> (Bull Banksia, Pulgarla)			
1282.	1822 <i>Banksia ilicifolia</i> (Holly-leaved Banksia)			
1283.	<i>Banksia ilicifolia</i> / <i>menziesii</i>			Y
1284.	1823 <i>Banksia incana</i>			
1285.	32214 <i>Banksia kippistiana</i>			
1286.	32216 <i>Banksia kippistiana</i> var. <i>paenepeccata</i>		P3	
1287.	1830 <i>Banksia littoralis</i> (Swamp Banksia, Pungura)			
1288.	1834 <i>Banksia menziesii</i> (Firewood Banksia)			
1289.	32211 <i>Banksia mimica</i> (Summer Honeyypot)		T	
1290.	32202 <i>Banksia nivea</i> (Honeyypot Dryandra, Pudjarn)			
1291.	32080 <i>Banksia sessilis</i> var. <i>sessilis</i>			
1292.	12111 <i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i> (Fox Banksia)			
1293.	1852 <i>Banksia telmatiaea</i> (Swamp Fox Banksia)			
1294.	32053 <i>Banksia undata</i> (Urchin Dryandra)			
1295.	1858 <i>Conospermum amoenum</i> (Blue Smokebush)			
1296.	16857 <i>Conospermum amoenum</i> subsp. <i>amoenum</i>			
1297.	15513 <i>Conospermum boreale</i> subsp. <i>boreale</i>			
1298.	15041 <i>Conospermum canaliculatum</i>			
1299.	15516 <i>Conospermum canaliculatum</i> subsp. <i>canaliculatum</i>			
1300.	1875 <i>Conospermum huegelii</i> (Slender Smokebush)			
1301.	1882 <i>Conospermum stoechadis</i> (Common Smokebush)			
1302.	15611 <i>Conospermum stoechadis</i> subsp. <i>stoechadis</i> (Common Smokebush)			
1303.	13999 <i>Conospermum undulatum</i>		T	
1304.	1964 <i>Grevillea bipinnatifida</i> (Fuchsia Grevillea)			
1305.	19628 <i>Grevillea bipinnatifida</i> subsp. <i>bipinnatifida</i>			
1306.	13429 <i>Grevillea diversifolia</i> subsp. <i>diversifolia</i>			
1307.	1997 <i>Grevillea endlicheriana</i> (Spindly Grevillea)			
1308.	13449 <i>Grevillea manglesii</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1309.	13450 <i>Grevillea manglesii</i> subsp. <i>manglesii</i>			
1310.	2066 <i>Grevillea pilulifera</i> (Woolly-flowered Grevillea)			
1311.	13086 <i>Grevillea pimeleoides</i>		P4	
1312.	2080 <i>Grevillea quercifolia</i> (Oak-leaf Grevillea)			
1313.	<i>Grevillea robusta</i>			Y
1314.	2101 <i>Grevillea synapheae</i> (Catkin Grevillea)			
1315.	14421 <i>Grevillea synapheae</i> subsp. <i>synapheae</i>			
1316.	2102 <i>Grevillea tenuiflora</i> (Tassel Grevillea)			
1317.	2122 <i>Grevillea wilsonii</i> (Native Fuchsia)			
1318.	2128 <i>Hakea amplexicaulis</i> (Prickly Hakea)			
1319.	2131 <i>Hakea auriculata</i>			
1320.	2137 <i>Hakea ceratophylla</i> (Horned Leaf Hakea)			
1321.	2152 <i>Hakea cyclocarpa</i> (Ramshorn)			
1322.	2158 <i>Hakea erinacea</i> (Hedge-hog Hakea)			
1323.	2166 <i>Hakea incrassata</i> (Marble Hakea)			
1324.	2170 <i>Hakea lasianthoides</i>			
1325.	2175 <i>Hakea lissocarpha</i> (Honey Bush)			
1326.	2179 <i>Hakea marginata</i>			
1327.	2185 <i>Hakea myrtoides</i> (Myrtle Hakea)			
1328.	45333 <i>Hakea neospathulata</i>			
1329.	2194 <i>Hakea petiolaris</i> (Sea Urchin Hakea)			
1330.	2197 <i>Hakea prostrata</i> (Harsh Hakea)			
1331.	2203 <i>Hakea ruscifolia</i> (Candle Hakea)			
1332.	2206 <i>Hakea stenocarpa</i> (Narrow-fruited Hakea)			
1333.	2212 <i>Hakea sulcata</i> (Furrowed Hakea)			
1334.	2214 <i>Hakea trifurcata</i> (Two-leaf Hakea)			
1335.	2215 <i>Hakea undulata</i> (Wavy-leaved Hakea)			
1336.	2216 <i>Hakea varia</i> (Variable-leaved Hakea)			
1337.	2221 <i>Isopogon asper</i>			
1338.	2227 <i>Isopogon divergens</i> (Spreading Coneflower)			
1339.	2229 <i>Isopogon dubius</i> (Pincushion Coneflower)			
1340.	2237 <i>Isopogon sphaerocephalus</i> (Drumstick Isopogon)			
1341.	14083 <i>Lambertia multiflora</i> var. <i>darlingensis</i>			
1342.	2255 <i>Persoonia angustiflora</i>			
1343.	2267 <i>Persoonia longifolia</i> (Snottygobble)			
1344.	2273 <i>Persoonia saccata</i> (Snottygobble)			
1345.	2284 <i>Petrophile biloba</i> (Granite Petrophile)			
1346.	20391 <i>Petrophile juncifolia</i>			
1347.	2299 <i>Petrophile linearis</i> (Pixie Mops)			
1348.	2301 <i>Petrophile macrostachya</i>			
1349.	2308 <i>Petrophile seminuda</i>			
1350.	2311 <i>Petrophile squamata</i>			
1351.	2312 <i>Petrophile striata</i>			
1352.	2316 <i>Stirlingia latifolia</i> (Blueboy)			
1353.	2321 <i>Synaphea acutiloba</i> (Granite Synaphea)			
1354.	2323 <i>Synaphea gracillima</i>			
1355.	2324 <i>Synaphea petiolaris</i> (Synaphea)			
1356.	16864 <i>Synaphea petiolaris</i> subsp. <i>petiolaris</i>			
1357.	2325 <i>Synaphea pinnata</i> (Helena Synaphea)			
1358.	30751 <i>Synaphea</i> sp. <i>Pinjarra Plain</i> (A.S. George 17182)		T	
1359.	28354 <i>Synaphea</i> sp. <i>Serpentine</i> (G.R. Brand 103)		T	
1360.	29186 <i>Synaphea</i> sp. <i>Udumung</i> (A.S. George 17058)			
1361.	15532 <i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>			
1362.	2331 <i>Xylomelum occidentale</i> (Woody Pear, Djandin)			

#### Pteridaceae

1363.	25 <i>Adiantum aethiopicum</i> (Common Maidenhair)			
1364.	31 <i>Cheilanthes austrotenuifolia</i>			
1365.	12818 <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			

#### Ranunculaceae

1366.	2929 <i>Clematis pubescens</i> (Common Clematis)			
1367.	2932 <i>Ranunculus colonorum</i> (Common Buttercup)			
1368.	2938 <i>Ranunculus trilobus</i> (Buttercup)	Y		

#### Restionaceae

1369.	? <i>Desmodcladus flexuosus</i>			Y
1370.	? <i>Hypolaena exsulca</i>			Y
1371.	17845 <i>Apodasmia ceramophila</i>			
1372.	17685 <i>Chaetanthus aristatus</i>			
1373.	17706 <i>Chordifex sinuosus</i>			
1374.	17692 <i>Cytogonidium leptocarpoides</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1375.	17663 <i>Desmocladius asper</i>			
1376.	15831 <i>Desmocladius castaneus</i>			
1377.	17691 <i>Desmocladius fasciculatus</i>			
1378.	16595 <i>Desmocladius flexuosus</i>			
1379.	46362 <i>Desmocladius lateriflorus</i>			
1380.	17838 <i>Dielsia stenostachya</i>			
1381.	1070 <i>Hypolaena exsulca</i>			
1382.	1071 <i>Hypolaena fastigiata</i>			
1383.	17841 <i>Hypolaena pubescens</i>			
1384.	1075 <i>Lepidobolus preissianus</i>			
1385.	18074 <i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>			
1386.	1077 <i>Leptocarpus canus</i> (Hoary Twine-rush)			
1387.	1078 <i>Leptocarpus coangustatus</i>			
1388.	46375 <i>Leptocarpus decipiens</i>			
1389.	46380 <i>Leptocarpus kraussii</i>			
1390.	19833 <i>Leptocarpus laxus</i>			
1391.	46382 <i>Leptocarpus roycei</i>			
1392.	1088 <i>Lepyrodia macra</i> (Large Scale Rush)			
1393.	1090 <i>Lepyrodia muirii</i>			
1394.	15562 <i>Lepyrodia riparia</i>			
1395.	1092 <i>Loxocarya cinerea</i>			
1396.	17684 <i>Tremulina tremula</i>			

#### Rhamnaceae

1397.	4792 <i>Cryptandra arbutiflora</i> (Waxy Cryptandra)			
1398.	13470 <i>Cryptandra arbutiflora</i> var. <i>arbutiflora</i>			
1399.	9076 <i>Cryptandra myriantha</i>			
1400.	4804 <i>Cryptandra nutans</i>			
1401.	4809 <i>Cryptandra pungens</i>			
1402.	16197 <i>Stenanthemum emarginatum</i>			
1403.	19704 <i>Stenanthemum sublineare</i>		P2	
1404.	13479 <i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>			
1405.	33418 <i>Trymalium odoratissimum</i> subsp. <i>odoratissimum</i>			

#### Rosaceae

1406.	3184 <i>Acaena echinata</i> (Sheep's Burr)			
1407.	18320 <i>Cotoneaster pannosus</i>	Y		
1408.	18301 <i>Eriobotrya japonica</i>	Y		
1409.	10931 <i>Rosa chinensis</i> x <i>moschata</i>	Y		
1410.	20496 <i>Rubus laudatus</i>	Y		
1411.	17718 <i>Rubus rugosus</i>	Y		
1412.	3191 <i>Rubus ulmifolius</i> (Blackberry)	Y		

#### Rubiaceae

1413.	17348 <i>Galium aparine</i> (Goosegrass)	Y		
1414.	7321 <i>Galium divaricatum</i>	Y		
1415.	7323 <i>Galium murale</i> (Small Goosegrass)	Y		
1416.	18254 <i>Opercularia apiciflora</i>			
1417.	7346 <i>Opercularia echinocephala</i> (Bristly Headed Stink Weed)			
1418.	7348 <i>Opercularia hispidula</i> (Hispid Stinkweed)			
1419.	18255 <i>Opercularia vaginata</i> (Dog Weed)			

#### Rutaceae

1420.	11503 <i>Boronia crenulata</i> subsp. <i>crenulata</i> var. <i>crenulata</i>			
1421.	16636 <i>Boronia crenulata</i> subsp. <i>viminea</i>			
1422.	4414 <i>Boronia cymosa</i> (Granite Boronia)			
1423.	4417 <i>Boronia dichotoma</i>			
1424.	4420 <i>Boronia fastigiata</i> (Bushy Boronia)			
1425.	4429 <i>Boronia molloyae</i> (Tall Boronia)			
1426.	4432 <i>Boronia ovata</i>			
1427.	4438 <i>Boronia ramosa</i>			
1428.	11381 <i>Boronia ramosa</i> subsp. <i>anethifolia</i>			
1429.	4441 <i>Boronia spathulata</i> (Boronia)			
1430.	4444 <i>Boronia tenuis</i> (Blue Boronia)		P4	
1431.	18529 <i>Philotheca spicata</i> (Pepper and Salt)			

#### Salicaceae

1432.	31695 <i>Populus nigra</i> cv. <i>italica</i>	Y		
-------	---	---	--	--

#### Salviniaceae

1433.	42902 <i>Azolla rubra</i>			
-------	---------------------------	--	--	--

#### Santalaceae

1434.	2342 <i>Leptomeria cunninghamii</i>			
-------	-------------------------------------	--	--	--



Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1435.	2350 <i>Leptomeria pauciflora</i> (Sparse-flowered Currant Bush)			
1436.	2355 <i>Leptomeria squarrulosa</i>			
1437.	2356 <i>Santalum acuminatum</i> (Quandong, Warnga)			
<b>Sapindaceae</b>				
1438.	4757 <i>Dodonaea ceratocarpa</i>			
1439.	4775 <i>Dodonaea pinifolia</i>			
<b>Scrophulariaceae</b>				
1440.	7055 <i>Dischisma capitatum</i> (Woolly-headed Dischisma)	Y		
1441.	7189 <i>Eremophila clarkei</i> (Turpentine Bush)			
1442.	<i>Eremophila</i> sp.			
1443.	7107 <i>Verbascum virgatum</i> (Twiggy Mullein)	Y		
<b>Selaginellaceae</b>				
1444.	6 <i>Selaginella gracillima</i> (Tiny Clubmoss)			
<b>Sematophyllaceae</b>				
1445.	32433 <i>Sematophyllum homomallum</i>			
<b>Solanaceae</b>				
1446.	6978 <i>Nicotiana rotundifolia</i> (Round-leaved Tobacco)			
1447.	7020 <i>Solanum linnaeanum</i> (Apple of Sodom)	Y		
1448.	7022 <i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
<b>Stylidiaceae</b>				
1449.	7670 <i>Levenhookia dubia</i> (Hairy Stylewort)			
1450.	7675 <i>Levenhookia pulcherrima</i> (Beautiful Stylewort)		P2	
1451.	7676 <i>Levenhookia pusilla</i> (Midget Stylewort)			
1452.	7677 <i>Levenhookia stipitata</i> (Common Stylewort)			
1453.	18564 <i>Stylidium aceratum</i>		P3	
1454.	<i>Stylidium</i> aff. <i>androsaceum</i>			
1455.	7681 <i>Stylidium affine</i> (Queen Triggerplant)			
1456.	7684 <i>Stylidium amoenum</i> (Lovely Triggerplant)			
1457.	30278 <i>Stylidium androsaceum</i>			
1458.	25831 <i>Stylidium araeophyllum</i> (Stilt Walker)			
1459.	<i>Stylidium araeophyllum/neurophyllum</i>			
1460.	7692 <i>Stylidium breviscapum</i> (Boomerang Triggerplant)			
1461.	7693 <i>Stylidium brunonianum</i> (Pink Fountain Triggerplant)			
1462.	7694 <i>Stylidium bulbiferum</i> (Circus Triggerplant)			
1463.	7696 <i>Stylidium calcaratum</i> (Book Triggerplant)			
1464.	7698 <i>Stylidium caricifolium</i> (Milkmaids)			
1465.	7699 <i>Stylidium carnosum</i> (Fleshy-leaved Triggerplant)			
1466.	7702 <i>Stylidium ciliatum</i> (Golden Triggerplant)			
1467.	7712 <i>Stylidium despectum</i> (Dwarf Triggerplant)			
1468.	7713 <i>Stylidium dichotomum</i> (Pins-and-needles)			
1469.	7716 <i>Stylidium diuroides</i> (Donkey Triggerplant)			
1470.	11808 <i>Stylidium diuroides</i> subsp. <i>diuroides</i>			
1471.	7717 <i>Stylidium divaricatum</i> (Daddy-long-legs)			
1472.	7718 <i>Stylidium diversifolium</i> (Touch-me-not)			
1473.	7719 <i>Stylidium ecome</i> (Foot Triggerplant)			
1474.	7721 <i>Stylidium emarginatum</i> (Biddy-four-legs)			
1475.	19251 <i>Stylidium eriopodum</i>			
1476.	7734 <i>Stylidium guttatum</i> (Dotted Triggerplant)			
1477.	7736 <i>Stylidium hispidum</i> (White Butterfly Triggerplant)			
1478.	7742 <i>Stylidium inundatum</i> (Hundreds and Thousands)			
1479.	7749 <i>Stylidium leptophyllum</i> (Needle-leaved Triggerplant)			
1480.	7752 <i>Stylidium lineatum</i> (Sunny Triggerplant)			
1481.	7756 <i>Stylidium longitubum</i> (Jumping Jacks)		P4	
1482.	25829 <i>Stylidium neurophyllum</i> (Coastal Plain Triggerplant)			
1483.	7768 <i>Stylidium obtusatum</i> (Pinafore Triggerplant)			
1484.	7773 <i>Stylidium petiolare</i> (Horn Triggerplant)			
1485.	7774 <i>Stylidium piliferum</i> (Common Butterfly Triggerplant)			
1486.	7782 <i>Stylidium pulchellum</i> (Thumbelina Triggerplant)			
1487.	7783 <i>Stylidium pycnostachyum</i> (Downy Triggerplant)			
1488.	33106 <i>Stylidium recurvum</i>			
1489.	7785 <i>Stylidium repens</i> (Matted Triggerplant)			
1490.	7787 <i>Stylidium rhynchocarpum</i> (Black-beaked Triggerplant)			
1491.	<i>Stylidium roseo-alatum</i>			
1492.	7790 <i>Stylidium roseoalatum</i> (Pink-wing Triggerplant)			
1493.	25806 <i>Stylidium scariosum</i>			
1494.	7798 <i>Stylidium schoenoides</i> (Cow Kicks)			
1495.	<i>Stylidium</i> sp.			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1496.	14736 <i>Stylidium</i> sp. Boulder Rock (A.H. Burbidge 2536)			
1497.	45594 <i>Stylidium tenue</i> subsp. <i>majusculum</i> (Showy Fountain Triggerplant)			
1498.	23511 <i>Stylidium thesioides</i> (Delicate Triggerplant)			
1499.	7806 <i>Stylidium utricularioides</i> (Pink Fan Triggerplant)			
1500.	40947 <i>Stylidium xanthellum</i>			

#### Tamaricaceae

1501.	37360 <i>Tamarix ramosissima</i>	Y		
-------	----------------------------------	---	--	--

#### Thymelaeaceae

1502.	5238 <i>Pimelea ciliata</i> (White Banjine)			
1503.	11928 <i>Pimelea ciliata</i> subsp. <i>ciliata</i>			
1504.	11404 <i>Pimelea imbricata</i> var. <i>major</i>			
1505.	11402 <i>Pimelea imbricata</i> var. <i>piligera</i>			
1506.	5252 <i>Pimelea lanata</i>			
1507.	5259 <i>Pimelea preissii</i>			
1508.	5264 <i>Pimelea spectabilis</i> (Bunjong)			
1509.	5266 <i>Pimelea suaveolens</i> (Scented Banjine)			
1510.	12041 <i>Pimelea suaveolens</i> subsp. <i>suaveolens</i>			
1511.	5269 <i>Pimelea sylvestris</i>			

#### Violaceae

1512.	5216 <i>Hybanthus calycinus</i> (Wild Violet)			
1513.	5221 <i>Hybanthus floribundus</i>			
1514.	12007 <i>Hybanthus floribundus</i> subsp. <i>floribundus</i>			

#### Xanthorrhoeaceae

1515.	1280 <i>Chamaescilla corymbosa</i> (Blue Squill)			
1516.	11299 <i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>			
1517.	8788 <i>Chamaescilla versicolor</i>			
1518.	1249 <i>Xanthorrhoea acanthostachya</i>			
1519.	1253 <i>Xanthorrhoea gracilis</i> (Graceful Grass Tree, Mimidi)			
1520.	1256 <i>Xanthorrhoea preissii</i> (Grass tree, Palga)			
1521.	<i>Xanthorrhoea</i> sp.			

#### Xyridaceae

1522.	15819 <i>Xyris atrovirida</i>			
-------	-------------------------------	--	--	--

#### Zamiaceae

1523.	18119 <i>Macrozamia fraseri</i>			
1524.	85 <i>Macrozamia riedlei</i> ( <i>Zamia</i> , Djiridji)			

#### Conservation Codes

T - Rare or likely to become extinct  
 X - Presumed extinct  
 IA - Protected under international agreement  
 S - Other specially protected fauna  
 1 - Priority 1  
 2 - Priority 2  
 3 - Priority 3  
 4 - Priority 4  
 5 - Priority 5

<sup>1</sup> For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

## **Appendix D** – Quadrat and relevé data

Site ID:	BRE01	VT:	VT01
Type:	Quadrat	Size: 10 x 10 m	
Date:	21/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Gentle, downslope from scarp		
Condition:	Excellent		
Aspect:	East		
Soil colour & type:	Grey brown, gritty sand		
Vegetation condition:	Very good		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Weeds		
Leaf litter:	11-30%		
Bare ground	2-10%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Casuarinaceae	<i>Allocasuarina humilis</i>		M	10-30%	1.25
Ericaceae	<i>Andersonia lehmanniana</i> subsp. <i>lehmanniana</i>		M	<2% T	0.25
Poaceae	<i>Austrostipa campylachne</i>		G	<2% T	0.25
Proteaceae	<i>Banksia armata</i> var. <i>armata</i>		M	<2% N	0.5
Proteaceae	<i>Banksia dallanneyi</i>		M	<2% N	0.5
Pittosporaceae	<i>Billardiera fusiformis</i>		G	<2% N	0.5
Fabaceae	<i>Bossiaea eriocarpa</i>		M	2-10%	0.5
Poaceae	<i>Briza maxima</i>	*	G	<2% T	0.1

Family	Taxon	Status	Stratum	Cover (%)	Height
Poaceae	<i>Briza minor</i>	*	G	<2% T	0.1
Poaceae	<i>Bromus</i> sp.	*	G	<2% T	0.1
Colchicaceae	<i>Burchardia congesta</i>		G	<2% N	0.1
Loranthaceae	<i>Cassytha pomiformis</i>		G	<2% T	0.5
Centrolepidaceae	<i>Centrolepis aristata</i>		G	<2% N	0.1
Centrolepidaceae	<i>Centrolepis drummondiana</i>		G	<2% N	0.1
Xanthorrhoeaceae	<i>Chamaescilla corymbosa</i>		G	<2% T	0.1
Fabaceae	<i>Chorizema dicksonii</i>		M	<2% N	1.25
Myrtaceae	<i>Corymbia calophylla</i>		U	2-10%	12
Crassulaceae	<i>Crassula closiana</i>		G	<2% N	0.1
Restionaceae	<i>Desmocladus fasciculatus</i>		G	<2% T	0.1
Droseraceae	<i>Drosera glanduligera</i>		G	<2% N	0.1
Droseraceae	<i>Drosera menziesii</i>		G	<2% N	0.1
Droseraceae	<i>Drosera stolonifera</i>		G	<2% N	0.1
Geraniaceae	<i>Erodium botrys</i>	*	G	<2% N	0.1
Myrtaceae	<i>Eucalyptus marginata</i>		U	<2% T	3
Iridaceae	<i>Freesia alba x leichtlinii</i>	*	G	<2% T	0.25
Cyperaceae	<i>Gahnia ?aristata</i>		G	<2% N	0.25
Fabaceae	<i>Gompholobium marginatum</i>		G	<2% T	0.25
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% N	0.75
Proteaceae	<i>Hakea trifurcata</i>		M	2-10%	3
Proteaceae	<i>Hakea undulata</i>		M	<2% N	1.75
Dilleniaceae	<i>Hibbertia hypericoides</i>		M	<2% N	0.25
Fabaceae	<i>Hovea trisperma</i>		M	<2% N	0.1
Asteraceae	<i>Hypochaeris glabra</i>	*	G	<2% N	0.1
Juncaceae	<i>Juncus capitatus</i>	*	G	<2% N	0.1
Dasypogonaceae	<i>Kingia australis</i>		M	<2% T	3.25
Myrtaceae	<i>Kunzea glabrescens</i>		M	<2% T	1.25
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25
Asparagaceae	<i>Lomandra purpurea</i>		G	<2% N	0.5
Cyperaceae	<i>Mesomelaena tetragona</i>		G	2-10%	0.25
Loranthaceae	<i>Nuytsia floribunda</i>		U	<2% T	3
Orobanchaceae	<i>Parentucellia latifolia</i>	*	G	<2% N	0.1
Iridaceae	<i>Patersonia pygmaea</i>		G	<2% T	0.1
Poaceae	<i>Pentameris airoides</i>	*	G	<2% N	0.1
Asteraceae	<i>Quinetia urvillei</i>		G	<2% N	0.1
Iridaceae	<i>Romulea rosea</i>	*	G	<2% T	0.1
Asteraceae	<i>Siloxerus multiflorus</i>		G	<2% N	0.1
Fabaceae	<i>Sphaerolobium medium</i>		M	<2% T	0.5
Stylidiaceae	<i>Stylidium ciliatum</i>		G	<2% T	0.1
Cyperaceae	<i>Tetraria octandra</i>		G	<2% N	0.25

Family	Taxon	Status	Stratum	Cover (%)	Height
Asparagaceae	<i>Thysanotus manglesianus</i>		G	<2% N	0.1
Asteraceae	<i>Tolpis barbata</i>	*	G	<2% N	0.1
Hemerocallidaceae	<i>Tricoryne elatior</i>		G	<2% N	0.25
Rhamnaceae	<i>Trymalium odoratissimum</i> subsp. <i>odoratissimum</i>		M	<2% T	1.5
Asteraceae	<i>Ursinia anthemoides</i>	*	G	<2% N	0.1
Iridaceae	<i>Watsonia meriana</i>	*	G	<2% T	0.5
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	2-10%	1.5

Site ID:	BRE02	VT:	VT01
Type:	Quadrat	Size: 10 x 10 m	
Date:	21/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Gentle slope		
Condition:	Excellent		
Aspect:	North		
Soil colour & type:	Brown sand		
Vegetation condition:	Excellent		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Minor weeds, tracks nearby		
Leaf litter:	2-10%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Fabaceae	<i>Acacia pulchella</i> var. <i>glaberrima</i>		M	<2% N	1.5
Hemerocallidaceae	<i>Agrostocrinum scabrum</i>		G	<2% T	0.25
Casuarinaceae	<i>Allocasuarina humilis</i>		M	2-10%	1.25
Poaceae	<i>Austrostipa campylachne</i>		G	<2% T	0.25
Myrtaceae	<i>Babingtonia camphorosmae</i>		M	<2% T	0.25
Boryaceae	<i>Borya sphaerocephala</i>		G	<2% N	0.1
Poaceae	<i>Briza maxima</i>	*	G	<2% T	0.1

Family	Taxon	Status	Stratum	Cover (%)	Height
Colchicaceae	<i>Burchardia congesta</i>		G	<2% N	0.25
Loranthaceae	<i>Cassytha pomiformis</i>		G	<2% T	0.5
Centrolepidaceae	<i>Centrolepis aristata</i>		G	<2% N	0.1
Xanthorrhoeaceae	<i>Chamaescilla corymbosa</i>		G	<2% T	0.1
Fabaceae	<i>Chorizema dicksonii</i>		M	<2% N	1.25
Haemodoraceae	<i>Conostylis caricina</i> subsp. <i>caricina</i>		G	<2% N	0.1
Myrtaceae	<i>Corymbia calophylla</i>		U	2-10%	12
Crassulaceae	<i>Crassula closiana</i>		G	<2% N	0.1
Fabaceae	<i>Daviesia decurrens</i> subsp. <i>decurrens</i>		M	<2% T	0.25
Restionaceae	<i>Desmocladus fasciculatus</i>		G	<2% T	0.1
Droseraceae	<i>Drosera glanduligera</i>		G	<2% N	0.1
Droseraceae	<i>Drosera menziesii</i>		G	<2% N	0.1
Cyperaceae	<i>Gahnia ?aristata</i>		G	<2% N	0.5
Goodeniaceae	<i>Goodenia coerulea</i>		G	<2% T	0.1
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% N	0.75
Proteaceae	<i>Hakea incrassata</i>		G	<2% T	0.1
Proteaceae	<i>Hakea stenocarpa</i>		M	<2% T	0.75
Dilleniaceae	<i>Hibbertia hypericoides</i>		M	<2% N	1.25
Fabaceae	<i>Hovea trisperma</i>		M	<2% N	0.1
Asteraceae	<i>Hypochaeris glabra</i>	*	G	<2% N	0.1
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25
Cyperaceae	<i>Lepidosperma apicola</i>		G	<2% N	0.5
Asparagaceae	<i>Lomandra spartea</i>		G	<2% N	0.25
Orchidaceae	<i>Lyperanthus serratus</i>		G	#N/A	0.1
Cyperaceae	<i>Mesomelaena tetragona</i>		G	10-30%	0.25
Poaceae	<i>Neurachne alopecuroidea</i>		G	2-10%	0.1
Iridaceae	<i>Patersonia juncea</i>		M	<2% T	0.5
Iridaceae	<i>Romulea rosea</i>	*	G	<2% T	0.1
Asteraceae	<i>Siloxerus multiflorus</i>		G	<2% N	0.1
Fabaceae	<i>Sphaerolobium medium</i>		M	<2% T	1.25
Cyperaceae	<i>Tetragonia octandra</i>		G	<2% N	0.25
Asparagaceae	<i>Thysanotus manglesianus</i>		G	<2% N	0.5
Hemerocallidaceae	<i>Tricoryne elatior</i>		G	<2% N	0.5
Asteraceae	<i>Ursinia anthemoides</i>	*	G	<2% N	0.1
Campanulaceae	<i>Wahlenbergia gracilentia</i>		G	<2% N	0.1
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	2-10%	1.5



Site ID:	BRE03	VT:	VT03
Type:	Quadrat	Size: 10 x 10 m	
Date:	21/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Gentle		
Condition:	Good		
Aspect:	West		
Soil colour & type:	Brown sandy loam		
Vegetation condition:	Degraded		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Reduced understorey, weeds, rubbish, track nearby		
Leaf litter:	2-10%		
Bare ground	2-10%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Fabaceae	<i>Acacia pulchella</i> var. <i>glaberrima</i>		M	<2% T	1.5
Fabaceae	<i>Acacia saligna</i>		M	<2% T	1.25
Poaceae	<i>Briza maxima</i>	*	G	<2% T	0.1
Myrtaceae	<i>Calothamnus quadrifidus</i>	Planted	M	<2% T	1
Myrtaceae	<i>Corymbia calophylla</i>		U	10-30%	12
Poaceae	<i>Ehrharta longiflora</i>	*	G	2-10%	0.25
Myrtaceae	<i>Eucalyptus wandoo</i>		U	10-30%	12

Family	Taxon	Status	Stratum	Cover (%)	Height
Iridaceae	<i>Freesia alba x leichtlinii</i>	*	G	<2% T	0.25
Oxalidaceae	<i>Oxalis glabra</i>	*	G	<2% T	0.1
Oxalidaceae	<i>Oxalis pes-caprae</i>	*	G	<2% T	0.1
Hemerocallidaceae	<i>Tricoryne elatior</i>		G	<2% T	0.5
Rhamnaceae	<i>Trymalium odoratissimum</i> subsp. <i>odoratissimum</i>		M	30-17%	2
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	<2% T	1.5

Site ID:	BRE04	VT:	VT03
Type:	Quadrat	Size: 10 x 10 m	
Date:	21/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Drainage line, gentle		
Condition:	Good		
Aspect:	West		
Soil colour & type:	Brown sandy loam		
Vegetation condition:	Degraded		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Reduced understorey, weeds, rubbish, track nearby, weed spraying		
Leaf litter:	2-10%		
Bare ground	31-70%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Fabaceae	<i>Acacia saligna</i>		M	<2% T	1.25
Casuarinaceae	<i>Allocasuarina humilis</i>		M	<2% T	1.25
Poaceae	<i>Briza maxima</i>	*	G	<2% T	0.1
Myrtaceae	<i>Calothamnus quadrifidus</i>	Planted	M	2-10%	1.5
Myrtaceae	<i>Corymbia calophylla</i>		U	<2% T	12
Poaceae	<i>Ehrharta longiflora</i>	*	G	<2% T	0.25
Myrtaceae	<i>Eucalyptus rudis</i>		U	30-17%	10
Myrtaceae	<i>Eucalyptus wandoo</i>		U	10-30%	12

Family	Taxon	Status	Stratum	Cover (%)	Height
Iridaceae	<i>Freesia alba</i> × <i>leichtlinii</i>	*	G	<2% T	0.25
Papaveraceae	<i>Fumaria capreolata</i>	*	G	<2% T	0.25
Proteaceae	<i>Hakea lissocarpa</i>		M	<2% T	1.5
Proteaceae	<i>Hakea trifurcata</i>		M	<2% N	3
Oxalidaceae	<i>Oxalis glabra</i>	*	G	<2% T	0.1
Oxalidaceae	<i>Oxalis pes-caprae</i>	*	G	<2% T	0.1
Phyllanthaceae	<i>Phyllanthus calycinus</i>		M	<2% T	0.25
Asteraceae	<i>Sonchus oleraceus</i>	*	G	<2% T	0.1
Rhamnaceae	<i>Trymalium odoratissimum</i> subsp. <i>odoratissimum</i>		M	<2% N	2
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	<2% T	1.5

Site ID:	BRE05	VT:	VT01
Type:	Quadrat	Size: 10 x 10 m	
Date:	21/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Sandplain, negligible		
Condition:	Very Good		
Aspect:	Flat		
Soil colour & type:	Brown/grey sandy loam		
Vegetation condition:	Very good		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Edge of track, minor weeds		
Leaf litter:	2-10%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Proteaceae	<i>Banksia dallanneyi</i>		M	<2% N	0.5
Fabaceae	<i>Bossiaea eriocarpa</i>		M	<2% T	0.25
Poaceae	<i>Briza maxima</i>	*	G	<2% T	0.1
Poaceae	<i>Bromus sp.</i>	*	G	<2% T	0.1
Colchicaceae	<i>Burchardia congesta</i>		G	<2% N	0.1
Hemerocallidaceae	<i>Caesia micrantha</i>		G	<2% N	0.25
Fabaceae	<i>Chorizema dicksonii</i>		M	<2% N	1.25
Myrtaceae	<i>Corymbia calophylla</i>		U	10-30%	12

Family	Taxon	Status	Stratum	Cover (%)	Height
Fabaceae	<i>Cristonia biloba</i> subsp. <i>biloba</i>		M	<2% T	0.25
Restionaceae	<i>Cyathochaeta avenacea</i>		G	10-30%	0.5
Restionaceae	<i>Desmocladius fasciculatus</i>		G	<2% T	0.1
Droseraceae	<i>Drosera erythrorhiza</i>		G	<2% N	0.1
Poaceae	<i>Ehrharta calycina</i>	*	G	<2% T	0.5
Fabaceae	<i>Gompholobium marginatum</i>		G	<2% T	0.25
Haloragaceae	<i>Gonocarpus cordiger</i>		G	<2% N	0.25
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% N	0.75
Dilleniaceae	<i>Hibbertia hypericoides</i>		M	<2% N	0.25
Fabaceae	<i>Hovea trisperma</i>		M	<2% N	0.1
Asteraceae	<i>Hypochaeris glabra</i>	*	G	<2% N	0.1
Dasygogonaceae	<i>Kingia australis</i>		M	<2% T	1.5
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25
Asparagaceae	<i>Lomandra caespitosa</i>		G	<2% T	0.25
Asparagaceae	<i>Lomandra purpurea</i>		G	<2% N	0.5
Cyperaceae	<i>Mesomelaena tetragona</i>		G	10-30%	0.25
Poaceae	<i>Neurachne alopecuroidea</i>		G	10-30%	0.1
Asteraceae	<i>Siloxerus multiflorus</i>		G	<2% N	0.1
Cyperaceae	<i>Tetragia octandra</i>		G	<2% N	0.25
Araliaceae	<i>Trachymene pilosa</i>		G	<2% T	0.1
Haemodoraceae	<i>Tricoryne elatior</i>		G	<2% T	0.25
Celastraceae	<i>Tripterococcus brunonis</i>		G	<2% T	0.25
Asteraceae	<i>Ursinia anthemoides</i>	*	G	<2% N	0.1
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	10-30%	1.5
Apiaceae	<i>Xanthosia huegelii</i>		G	<2% N	0.1

Site ID:	BRE6R	VT:	VT01
Type:	Relevé	Size: 10 m around a central point	
Date:	21/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Sand plain, negligible		
Condition:	Excellent		
Aspect:	South		
Soil colour & type:	Pale yellow sandy loam		
Vegetation condition:	Good		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Edge of track, minor weeds, reduced diversity, clearing on edge		
Leaf litter:	11-30%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Proteaceae	<i>Banksia dallanneyi</i>		M	<2% N	0.5
Fabaceae	<i>Chorizema dicksonii</i>		M	<2% N	1.25
Myrtaceae	<i>Corymbia calophylla</i>		U	30-17%	12
Restionaceae	<i>Cyathochaeta avenacea</i>		G	10-30%	0.5
Myrtaceae	<i>Eucalyptus lane-poolei</i>		U	<2% T	6
Myrtaceae	<i>Eucalyptus wandoo</i>		U	<2% T	11
Fabaceae	<i>Gompholobium marginatum</i>		G	<2% T	0.25
Asteraceae	<i>Hypochaeris glabra</i>	*	G	<2% N	0.1

Family	Taxon	Status	Stratum	Cover (%)	Height
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25
Asparagaceae	<i>Lomandra spartea</i>		G	<2% N	0.25
Cyperaceae	<i>Mesomelaena tetragona</i>		G	10-30%	0.25
Poaceae	<i>Neurachne alopecuroidea</i>		G	2-10%	0.1
Cyperaceae	<i>Tetragonia octandra</i>		G	<2% N	0.25
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	2-10%	1.5



Site ID:	BRE07	VT:	VT01
Type:	Quadrat	Size: 10 x 10 m	
Date:	22/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Negligible		
Condition:	Good		
Aspect:	Flat		
Soil colour & type:	Dark grey sandy loam		
Vegetation condition:	Good		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Edge effects, linear patch, reduced diversity, clearing on edge, high weeds		
Leaf litter:	2-10%		
Bare ground	<2%		
Comments	Some gravel		



Family	Taxon	Status	Stratum	Cover (%)	Height
Casuarinaceae	<i>Allocasuarina humilis</i>		M	<2% T	1.25
Poaceae	<i>Austrostipa</i> sp.		G	<2% T	0.5
Proteaceae	<i>Banksia armata</i> var. <i>armata</i>		M	<2% N	0.5
Proteaceae	<i>Banksia dallanneyi</i>		M	<2% T	0.5
Hemerocallidaceae	<i>Caesia micrantha</i>		G	<2% N	0.25
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>		G	<2% T	0.25
Myrtaceae	<i>Corymbia calophylla</i>		U	2-10%	12

Family	Taxon	Status	Stratum	Cover (%)	Height
Asteraceae	<i>Cotula turbinata</i>	*	G	<2% N	0.1
Asteraceae	<i>Crepis foetida</i> subsp. <i>foetida</i>	*	G	<2% T	0.5
Restionaceae	<i>Cyathochaeta avenacea</i>		G	<2% T	0.5
Droseraceae	<i>Drosera glanduligera</i>		G	<2% T	0.1
Poaceae	<i>Ehrharta calycina</i>	*	G	10-30%	1
Poaceae	<i>Ehrharta longiflora</i>	*	G	30-17%	0.5
Proteaceae	<i>Grevillea wilsonii</i>		M	<2% T	0.25
Proteaceae	<i>Hakea incrassata</i>		M	<2% T	0.5
Dilleniaceae	<i>Hibbertia hypericoides</i>		M	<2% N	0.25
Asteraceae	<i>Hypochaeris glabra</i>	*	G	<2% N	0.1
Restionaceae	<i>Hypolaena exsulca</i>		G	<2% T	0.25
Dasypogonaceae	<i>Kingia australis</i>		M	<2% T	3.25
Cyperaceae	<i>Lepidosperma pubisquameum</i>		G	<2% N	0.75
Fabaceae	<i>Lotus angustissimus</i>	*	G	<2% N	0.1
Poaceae	<i>Melinis repens</i>	*	G	<2% N	0.75
Cyperaceae	<i>Mesomelaena tetragona</i>		G	<2% T	0.25
Loranthaceae	<i>Nuytsia floribunda</i>		U	<2% T	4
Iridaceae	<i>Romulea rosea</i>	*	G	<2% N	0.25
Asteraceae	<i>Sonchus oleraceus</i>	*	G	<2% T	0.5
Cyperaceae	<i>Tetraria octandra</i>		G	<2% T	0.25
Fabaceae	<i>Trifolium angustifolium</i>	*	G	<2% N	0.1
Fabaceae	<i>Trifolium campestre</i>	*	G	<2% N	0.1
Iridaceae	<i>Watsonia meriana</i>	*	G	<2% T	0.5
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	10-30%	1.5

Site ID:	BRE08	VT:	VT01
Type:	Quadrat	Size: 10 x 10 m	
Date:	22/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Negligible		
Condition:	Very Good		
Aspect:	Flat		
Soil colour & type:	Dark grey sandy loam		
Vegetation condition:	Excellent		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Minimum dust, narrow but holding condition		
Leaf litter:	<2%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Hemerocallidaceae	<i>Agrostocrinum scabrum</i>		G	<2% T	0.25
Proteaceae	<i>Banksia dallanneyi</i>		M	2-10%	0.5
Pittosporaceae	<i>Billardiera fusiformis</i>		G	<2% N	0.5
Poaceae	<i>Briza maxima</i>	*	G	<2% T	0.1
Colchicaceae	<i>Burchardia congesta</i>		G	<2% T	0.1
Hemerocallidaceae	<i>Caesia micrantha</i>		G	<2% N	0.25
Loranthaceae	<i>Cassytha pomiformis</i>		G	<2% T	0.5
Xanthorrhoeaceae	<i>Chamaescilla corymbosa</i>		G	<2% T	0.1

Family	Taxon	Status	Stratum	Cover (%)	Height
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>		G	<2% T	0.25
Myrtaceae	<i>Corymbia calophylla</i>		U	2-10%	12
Crassulaceae	<i>Crassula closiana</i>		G	<2% N	0.1
Restionaceae	<i>Cyathochaeta avenacea</i>		G	30-17%	0.5
Goodeniaceae	<i>Dampiera alata</i>		G	<2% N	0.25
Dasypogonaceae	<i>Dasypogon bromeliifolius</i>		G	2-10%	0.25
Fabaceae	<i>Daviesia decurrens</i> subsp. <i>decurrens</i>		M	<2% T	0.25
Restionaceae	<i>Desmocladius fasciculatus</i>		G	2-10%	0.1
Droseraceae	<i>Drosera glanduligera</i>		G	<2% N	0.1
Droseraceae	<i>Drosera menziesii</i>		G	<2% N	0.1
Poaceae	<i>Ehrharta calycina</i>	*	G	<2% T	1
Fabaceae	<i>Gastrolobium capitatum</i>		M	<2% T	0.5
Proteaceae	<i>Grevillea pilulifera</i>		M	<2% T	0.25
Proteaceae	<i>Grevillea wilsonii</i>		M	<2% N	0.25
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% N	0.75
Proteaceae	<i>Hakea ruscifolia</i>		M	<2% T	1.75
Fabaceae	<i>Hovea trisperma</i>		M	<2% N	0.1
Asteraceae	<i>Hypochaeris glabra</i>	*	G	<2% N	0.1
Proteaceae	<i>Isopogon asper</i>		M	<2% N	0.25
Dasypogonaceae	<i>Kingia australis</i>		M	<2% T	1.25
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25
Orchidaceae	<i>Lyperanthus serratus</i>		G	<2% T	0.25
Cyperaceae	<i>Mesomelaena tetragona</i>		G	10-30%	0.25
Loranthaceae	<i>Nuytsia floribunda</i>		U	<2% T	4
Rutaceae	<i>Philotheca spicata</i>		M	<2% N	0.25
Iridaceae	<i>Romulea rosea</i>	*	G	<2% T	0.1
Cyperaceae	<i>Schoenus unispiculatus</i>		G	<2% N	0.1
Proteaceae	<i>Stirlingia latifolia</i>		M	<2% N	1.5
Stylidiaceae	<i>Stylidium emarginatum</i>		G	<2% T	0.1
Proteaceae	<i>Synaphea petiolaris</i> subsp. <i>petiolaris</i>		M	<2% N	0.5
Cyperaceae	<i>Tetraria octandra</i>		G	2-10%	0.25
Haemodoraceae	<i>Tricoryne elatior</i>		G	<2% N	0.25
Asteraceae	<i>Ursinia anthemoides</i>	*	G	<2% N	0.1
Myrtaceae	<i>Verticordia densiflora</i>		M	<2% N	0.25
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	10-30%	1.5

Site ID:	BRE09R	VT:	VT09
Type:	Relevé	Size: 10 m around central point	
Date:	21/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Negligible		
Condition:	Degraded		
Aspect:	Flat		
Soil colour & type:	Dark grey sandy loam		
Vegetation condition:	Degraded		
Fire age & intensity:	Moderate (3 to 5 yr)		
Disturbances:	High weeds, low diversity		
Leaf litter:	11-30%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Poaceae	<i>Briza maxima</i>	*	G	<2% T	0.1
Hemerocallidaceae	<i>Caesia micrantha</i>		G	<2% N	0.25
Myrtaceae	<i>Calothamnus quadrifidus</i>	Planted	M	<2% N	1.5
Myrtaceae	<i>Corymbia calophylla</i>		U	30-17%	12
Poaceae	<i>Ehrharta calycina</i>	*	G	30-17%	1
Poaceae	<i>Ehrharta longiflora</i>	*	G	2-10%	0.5
Myrtaceae	<i>Eucalyptus marginata</i>		U	<2% N	6
Proteaceae	<i>Grevillea wilsonii</i>		M	<2% N	0.25

Family	Taxon	Status	Stratum	Cover (%)	Height
Dasygongonaceae	<i>Kingia australis</i>		M	<2% T	1.25
Iridaceae	<i>Moraea flaccida</i>	*	G	<2% N	0.5
Iridaceae	<i>Watsonia meriana</i>	*	G	<2% T	0.5
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	2-10%	1.5

Site ID:	BRE10R	VT:	VT05
Type:	Relevé	Size: 10 m around a central point	
Date:	23/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Negligible		
Condition:	Degraded		
Aspect:	Flat		
Soil colour & type:	Light brown clay		
Vegetation condition:	Degraded		
Fire age & intensity:	Moderate (3 to 5 yr)		
Disturbances:	Edge effects, tracks, some weeds		
Leaf litter:	<2%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Fabaceae	<i>Acacia pulchella</i> var. <i>glaberrima</i>		M	<2% N	0.25
Proteaceae	<i>Banksia dallanneyi</i>		M	<2% N	0.5
Myrtaceae	<i>Calothamnus quadrifidus</i>	Planted	M	<2% N	1.5
Myrtaceae	<i>Corymbia calophylla</i>		U	30-17%	12
Poaceae	<i>Eragrostis curvula</i>	*	G	<2% T	1
Myrtaceae	<i>Eucalyptus marginata</i>		U	<2% N	6
Proteaceae	<i>Grevillea wilsonii</i>		M	<2% N	0.25
Proteaceae	<i>Hakea stenocarpa</i>		M	<2% N	1.5

Family	Taxon	Status	Stratum	Cover (%)	Height
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25
Cyperaceae	<i>Tetraria octandra</i>		G	2-10%	0.25
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	2-10%	1.5



Site ID:	BRE11R	VT:	VT06
Type:	Relevé	Size: 10 m around a central point	
Date:	23/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Negligible		
Condition:	Degraded		
Aspect:	Flat		
Soil colour & type:	Light brown clay		
Vegetation condition:	Degraded		
Fire age & intensity:	Moderate (3 to 5 yr)		
Disturbances:	Edge effects, tracks, weeds, rubbish		
Leaf litter:	11-30%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Casuarinaceae	<i>Allocasuarina fraseriana</i>		U	2-10%	9
Myrtaceae	<i>Corymbia calophylla</i>		U	30-17%	12
Poaceae	<i>Eragrostis curvula</i>	*	G	<2% T	1
Myrtaceae	<i>Eucalyptus marginata</i>		U	<2% N	12
Proteaceae	<i>Grevillea wilsonii</i>		M	<2% N	0.25
Dilleniaceae	<i>Hibbertia hypericoides</i>		M	<2% N	0.25
Cyperaceae	<i>Mesomelaena tetragona</i>		G	<2% T	0.25
Loranthaceae	<i>Nuytsia floribunda</i>		U	<2% T	4
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	2-10%	1.5

Site ID:	BRE12	VT:	VT01
Type:	Quadrat	Size: 10 x 10 m	
Date:	24/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Negligible		
Condition:	Excellent		
Aspect:	Flat		
Soil colour & type:	Light grey		
Vegetation condition:	Excellent		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Minimal		
Leaf litter:	2-10%		
Bare ground	<2%		
Comments	Light grey sandy clay with some laterite gravel		



Family	Taxon	Status	Stratum	Cover (%)	Height
Fabaceae	<i>Acacia lateriticola</i>		M	<2% T	0.25
Fabaceae	<i>Acacia nervosa</i>		M	<2% T	0.5
Casuarinaceae	<i>Allocasuarina humilis</i>		M	<2% N	1.25
Anarthriaceae	<i>Anarthria humilis</i>		G	<2% N	0.25
Ericaceae	<i>Andersonia lehmanniana</i> subsp. <i>lehmanniana</i>		M	<2% T	0.25
Ericaceae	<i>Astroloma pallidum</i>		M	<2% T	0.5

Family	Taxon	Status	Stratum	Cover (%)	Height
Iridaceae	<i>Babiana angustifolia</i>	*	G	<2% N	0.25
Myrtaceae	<i>Babingtonia camphorosmae</i>		M	<2% T	0.25
Proteaceae	<i>Banksia armata</i> var. <i>armata</i>		M	<2% N	0.5
Proteaceae	<i>Banksia dallanneyi</i>		M	2-10%	0.5
Boryaceae	<i>Borya sphaerocephala</i>		G	<2% N	0.1
Poaceae	<i>Briza maxima</i>	*	G	<2% T	0.1
Hemerocallidaceae	<i>Caesia micrantha</i>		G	<2% N	0.25
Dasypogonaceae	<i>Calectasia grandiflora</i>		M	<2% T	0.25
Loranthaceae	<i>Cassytha pomiformis</i>		G	<2% T	0.5
Centrolepidaceae	<i>Centrolepis aristata</i>		G	<2% N	0.1
Xanthorrhoeaceae	<i>Chamaescilla corymbosa</i>		G	<2% T	0.1
Haemodoraceae	<i>Conostylis caricina</i> subsp. <i>caricina</i>		G	<2% N	0.25
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>		G	<2% N	0.25
Crassulaceae	<i>Crassula closiana</i>		G	<2% N	0.1
Fabaceae	<i>Cristonia biloba</i> subsp. <i>biloba</i>		M	<2% N	0.25
Goodeniaceae	<i>Dampiera linearis</i>		G	<2% N	0.1
Dasypogonaceae	<i>Dasypogon bromeliifolius</i>		G	<2% N	0.25
Fabaceae	<i>Daviesia decurrens</i> subsp. <i>decurrens</i>		M	<2% T	0.25
Restionaceae	<i>Desmocladius fasciculatus</i>		G	<2% T	0.1
Droseraceae	<i>Drosera glanduligera</i>		G	<2% N	0.1
Droseraceae	<i>Drosera menziesii</i>		G	<2% N	0.1
Myrtaceae	<i>Eucalyptus marginata</i>		U	2-10%	3
Iridaceae	<i>Freesia alba</i> x <i>leichtlinii</i>	*	G	<2% T	0.25
Cyperaceae	<i>Gahnia ?aristata</i>		G	<2% N	0.25
Fabaceae	<i>Gompholobium marginatum</i>		G	<2% T	0.25
Proteaceae	<i>Grevillea pilulifera</i>		M	<2% T	0.25
Proteaceae	<i>Grevillea wilsonii</i>		M	<2% T	0.5
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% N	0.75
Proteaceae	<i>Hakea incrassata</i>		M	<2% N	0.25
Proteaceae	<i>Hakea neospathulata</i>		M	<2% N	0.5
Proteaceae	<i>Hakea trifurcata</i>		M	10-30%	3
Dilleniaceae	<i>Hibbertia hypericoides</i>		M	2-10%	0.25
Araliaceae	<i>Hydrocotyle callicarpa</i>		G	<2% N	0.1
Dasypogonaceae	<i>Kingia australis</i>		M	<2% T	3.25
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25
Cyperaceae	<i>Lepidosperma leptostachyum</i>		G	<2% N	0.25
Asparagaceae	<i>Lomandra spartea</i>		G	<2% N	0.25

Family	Taxon	Status	Stratum	Cover (%)	Height
Cyperaceae	<i>Mesomelaena stygia</i> subsp. <i>stygia</i>		G	<2% N	0.25
Cyperaceae	<i>Mesomelaena tetragona</i>		G	10-30%	0.25
Poaceae	<i>Neurachne alopecuroidea</i>		G	<2% N	0.1
Iridaceae	<i>Patersonia juncea</i>		M	<2% T	0.5
Proteaceae	<i>Petrophile striata</i>		M	<2% T	0.5
Rutaceae	<i>Philotheca spicata</i>		G	<2% N	0.25
Phyllanthaceae	<i>Poranthera microphylla</i>		G	<2% N	0.1
Iridaceae	<i>Romulea rosea</i>	*	G	<2% T	0.1
Cyperaceae	<i>Schoenus ?sublateralis</i>		G	<2% N	0.25
Stylidiaceae	<i>Stylidium emarginatum</i>		G	<2% N	0.1
Stylidiaceae	<i>Stylidium purpureum</i>		G	<2% T	0.1
Stylidiaceae	<i>Stylidium repens</i>		G	<2% N	0.25
Stylidiaceae	<i>Stylidium sp.</i>		G	<2% N	0.1
Proteaceae	<i>Synaphea petiolaris</i> subsp. <i>petiolaris</i>		M	<2% T	0.5
Cyperaceae	<i>Tetraria octandra</i>		G	2-10%	0.25
Hemerocallidaceae	<i>Tricoryne elatior</i>		G	<2% N	0.25
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	2-10%	1.5
Apiaceae	<i>Xanthosia huegelii</i>		G	<2% T	0.1

Site ID:	BRE13	VT:	VT01
Type:	Quadrat	Size: 10 x 10 m	
Date:	24/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Negligible		
Condition:	Excellent		
Aspect:	Flat		
Soil colour & type:	Light grey		
Vegetation condition:	Excellent		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Minimal		
Leaf litter:	2-10%		
Bare ground	<2%		
Comments	Light grey sandy clay with some laterite gravel		



Family	Taxon	Status	Stratum	Cover (%)	Height
Fabaceae	<i>Acacia lateriticola</i>		M	<2% T	0.25
Casuarinaceae	<i>Allocasuarina humilis</i>		M	<2% N	1.25
Anarthriaceae	<i>Anarthria humilis</i>		G	<2% N	0.25
Iridaceae	<i>Babiana angustifolia</i>	*	G	<2% N	0.25
Myrtaceae	<i>Babingtonia camphorosmae</i>		M	<2% T	0.25
Proteaceae	<i>Banksia armata</i> var. <i>armata</i>		M	<2% N	0.5

Family	Taxon	Status	Stratum	Cover (%)	Height
Proteaceae	<i>Banksia dallanneyi</i>		M	2-10%	0.5
Boryaceae	<i>Borya sphaerocephala</i>		G	<2% N	0.1
Poaceae	<i>Briza maxima</i>	*	G	<2% T	0.1
Colchicaceae	<i>Burchardia congesta</i>		G	<2% T	0.1
Hemerocallidaceae	<i>Caesia micrantha</i>		G	<2% N	0.25
Dasyogonaceae	<i>Calectasia grandiflora</i>		M	<2% T	0.25
Loranthaceae	<i>Cassytha pomiformis</i>		G	<2% T	0.5
Xanthorrhoeaceae	<i>Chamaescilla corymbosa</i>		G	<2% T	0.1
Haemodoraceae	<i>Conostylis caricina</i> subsp. <i>caricina</i>		G	<2% N	0.25
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>		G	<2% N	0.25
Myrtaceae	<i>Corymbia calophylla</i>		U	2-10%	3
Crassulaceae	<i>Crassula closiana</i>		G	<2% N	0.1
Fabaceae	<i>Cristonia biloba</i> subsp. <i>biloba</i>		M	<2% N	0.25
Restionaceae	<i>Cyathochaeta avenacea</i>		G	2-10%	0.5
Goodeniaceae	<i>Dampiera linearis</i>		G	<2% N	0.1
Dasyogonaceae	<i>Dasyogon bromeliifolius</i>		G	<2% N	0.25
Fabaceae	<i>Daviesia decurrens</i> subsp. <i>decurrens</i>		M	<2% T	0.25
Restionaceae	<i>Desmocladius fasciculatus</i>		G	<2% T	0.1
Droseraceae	<i>Drosera glanduligera</i>		G	<2% N	0.1
Droseraceae	<i>Drosera menziesii</i>		G	<2% N	0.1
Myrtaceae	<i>Eucalyptus lane-poolei</i>		U	<2% T	9
Iridaceae	<i>Freesia alba</i> x <i>leichtlinii</i>	*	G	<2% T	0.25
Cyperaceae	<i>Gahnia ?aristata</i>		G	<2% N	0.25
Fabaceae	<i>Gompholobium marginatum</i>		G	<2% T	0.25
Proteaceae	<i>Grevillea wilsonii</i>		M	<2% T	0.5
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% N	0.75
Proteaceae	<i>Hakea incrassata</i>		M	<2% N	0.25
Proteaceae	<i>Hakea neospathulata</i>		M	<2% N	0.5
Proteaceae	<i>Hakea trifurcata</i>		M	30-17%	3
Dilleniaceae	<i>Hibbertia hypericoides</i>		M	2-10%	0.25
Araliaceae	<i>Hydrocotyle callicarpa</i>		G	<2% N	0.1
Restionaceae	<i>Hypolaena exsulca</i>		G	<2% N	0.5
Dasyogonaceae	<i>Kingia australis</i>		M	<2% T	3.25
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25
Cyperaceae	<i>Lepidosperma leptostachyum</i>		G	<2% N	0.25
Asparagaceae	<i>Lomandra spartea</i>		G	<2% N	0.25
Cyperaceae	<i>Mesomelaena stygia</i> subsp. <i>stygia</i>		G	<2% N	0.25
Cyperaceae	<i>Mesomelaena tetragona</i>		G	10-30%	0.25
Poaceae	<i>Neurachne alopecuroidea</i>		G	<2% N	0.1

Family	Taxon	Status	Stratum	Cover (%)	Height
Loranthaceae	<i>Nuytsia floribunda</i>		U	2-10%	3
Iridaceae	<i>Patersonia juncea</i>		M	<2% T	0.5
Proteaceae	<i>Petrophile striata</i>		M	<2% T	0.5
Rutaceae	<i>Philotheca spicata</i>		G	<2% N	0.25
Phyllanthaceae	<i>Poranthera microphylla</i>		G	<2% N	0.1
Iridaceae	<i>Romulea rosea</i>	*	G	<2% T	0.1
Cyperaceae	<i>Schoenus ?sublateralis</i>		G	<2% N	0.25
Fabaceae	<i>Sphaerolobium medium</i>		M	<2% T	0.5
Stylidiaceae	<i>Stylidium emarginatum</i>		G	<2% N	0.1
Stylidiaceae	<i>Stylidium purpureum</i>		G	<2% T	0.1
Stylidiaceae	<i>Stylidium repens</i>		G	<2% N	0.25
Proteaceae	<i>Synaphea acutiloba</i>		M	<2% T	0.5
Proteaceae	<i>Synaphea petiolaris</i> subsp. <i>petiolaris</i>		M	<2% T	0.5
Cyperaceae	<i>Tetraria octandra</i>		G	2-10%	0.25
Hemerocallidaceae	<i>Tricoryne elatior</i>		G	<2% N	0.25
Asteraceae	<i>Ursinia anthemoides</i>	*	G	<2% N	0.1
Iridaceae	<i>Watsonia meriana</i>	*	G	<2% T	0.5
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	2-10%	1.5
Apiaceae	<i>Xanthosia huegelii</i>		G	<2% T	0.1

Site ID:	BRE14	VT:	VT04
Type:	Quadrat	Size: 10 x 10 m	
Date:	25/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Drainage line, Negligible		
Condition:	Degraded		
Aspect:	Flat		
Soil colour & type:	Light brown clay		
Vegetation condition:	Degraded		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	High weed cover, low diversity		
Leaf litter:	<2%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Fabaceae	<i>Acacia alata</i>		M	<2% T	0.5
Myrtaceae	<i>Astartea leptophylla</i>		M	2-10%	1.5
Poaceae	<i>Avena barbata</i>	*	G	<2% T	0.25
Poaceae	<i>Cenchrus clandestinus</i>	*	G	30-17%	0.25
Asteraceae	<i>Conyza bonariensis</i>	*	G	<2% T	0.25
Myrtaceae	<i>Corymbia calophylla</i>		U	10-30%	14
Myrtaceae	<i>Eucalyptus rudis</i>		U	<2% N	12
Apocynaceae	<i>Gomphocarpus fruticosus</i>	*	G	<2% N	0.25
Oleaceae	<i>Olea europaea</i>	*	M	<2% N	1.5



Family	Taxon	Status	Stratum	Cover (%)	Height
Oxalidaceae	<i>Oxalis pes-caprae</i>	*	G	10-30%	0.25
Euphorbiaceae	<i>Ricinus communis</i>	*	G	<2% T	1
Rosaceae	<i>Rubus ulmifolius</i>	*, DP	G	10-30%	0.5
Asteraceae	<i>Taraxacum khatoonae</i>	*	G	<2% T	0.25
Myrtaceae	<i>Taxandria linearifolia</i>		M	2-10%	1.25

Site ID:	BRE15	VT:	VT04
Type:	Relevé	Size: 10 m around a central point	
Date:	25/09/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Drainage line, negligible		
Condition:	Completely Degraded		
Aspect:	Flat		
Soil colour & type:	Light brown clay		
Vegetation condition:	Completely degraded		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	High weed cover, low diversity		
Leaf litter:	<2%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Poaceae	<i>Avena barbata</i>	*	G	<2% T	0.25
Poaceae	<i>Cenchrus clandestinus</i>	*	G	17-30%	0.25
Asteraceae	<i>Conyza bonariensis</i>	*	G	<2% T	0.25
Myrtaceae	<i>Corymbia calophylla</i>		U	10-30%	14
Myrtaceae	<i>Eucalyptus rudis</i>		U	<2% N	12
Apocynaceae	<i>Gomphocarpus fruticosus</i>	*	G	<2% N	0.25
Oleaceae	<i>Olea europaea</i>	*	M	<2% N	1.5
Oxalidaceae	<i>Oxalis pes-caprae</i>	*	G	10-30%	0.25
Rosaceae	<i>Rubus ulmifolius</i>	*, DP	G	10-30%	0.5

Family	Taxon	Status	Stratum	Cover (%)	Height
Asteraceae	<i>Taraxacum khatoonae</i>	*	G	<2% T	0.25

Site ID:	BRE16	VT:	VT01
Type:	Quadrat	Size: 10 x 10 m	
Date:	11/20/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Other, negligible		
Condition:	Good		
Aspect:	Flat		
Soil colour & type:	Brown, sandy clay with laterite gravel		
Vegetation condition:	Good		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Minor weeds, track		
Leaf litter:	<2%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Myrtaceae	<i>Corymbia calophylla</i>		U	<2% T	5
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	<10%	1.5
Casuarinaceae	<i>Allocasuarina humilis</i>		M	10-30%	1.25
Dasygogonaceae	<i>Kingia australis</i>		M	<10%	2.25
Proteaceae	<i>Banksia armata</i>		M	<2% T	1.25
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25
Boryaceae	<i>Borya sphaerocephala</i>		G	10-30%	0.1
Poaceae	<i>Ehrharta calycina</i>		G	<2% N	1.25
Poaceae	<i>Eragrostis curvula</i>		G	<2% T	1.25

Family	Taxon	Status	Stratum	Cover (%)	Height
Poaceae	<i>Briza maxima</i>		G	<2% N	0.25
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% T	1
Proteaceae	<i>Grevillea pilulifera</i>		M	<10%	0.25
Hemerocallidaceae	<i>Tricoryne elatior</i>		G	<2% T	0.25
Poaceae	<i>Neurachne alopecuroidea</i>		G	<10%	0.25
Iridaceae	<i>Romulea rosea</i>		G	<2% N	0.1
Iridaceae	<i>Gladiolus caryophyllaceus</i>		G	<2% T	0.25
Cyperaceae	<i>Mesomelaena tetragona</i>		G	<2% T	0.5
Fabaceae	<i>Acacia lateritica</i>		M	<2% T	0.25
Asteraceae	<i>Ursinia anthemoides</i>		G	<2% N	0.25
Fabaceae	<i>Gompholobium marginatum</i>		G	<2% T	0.25
Asteraceae	<i>Hypochaeris glabra</i>		G	<2% T	0.25
Rubiaceae	<i>Opercularia vaginata</i>		G	<2% T	0.25
Colchicaceae	<i>Burchardia congesta</i>		G	<2% T	0.25
Cyperaceae	<i>Schoenus clandestinus</i>		G	<2% T	0.1
Poaceae	<i>Hyparrhenia hirta</i>		G	<2% T	0.5
Asparagaceae	<i>Thysanotus multiflorus</i>		G	<2% T	0.5
Proteaceae	<i>Grevillea wilsonii</i>		M	<2% T	0.5
Fabaceae	<i>Acacia saligna</i>		M	<2% T	0.5
Restionaceae	<i>Desmocladius fasciculatus</i>		G	<2% T	0.25
Ericaceae	<i>Astroloma pallidum</i>		M	<2% T	0.1

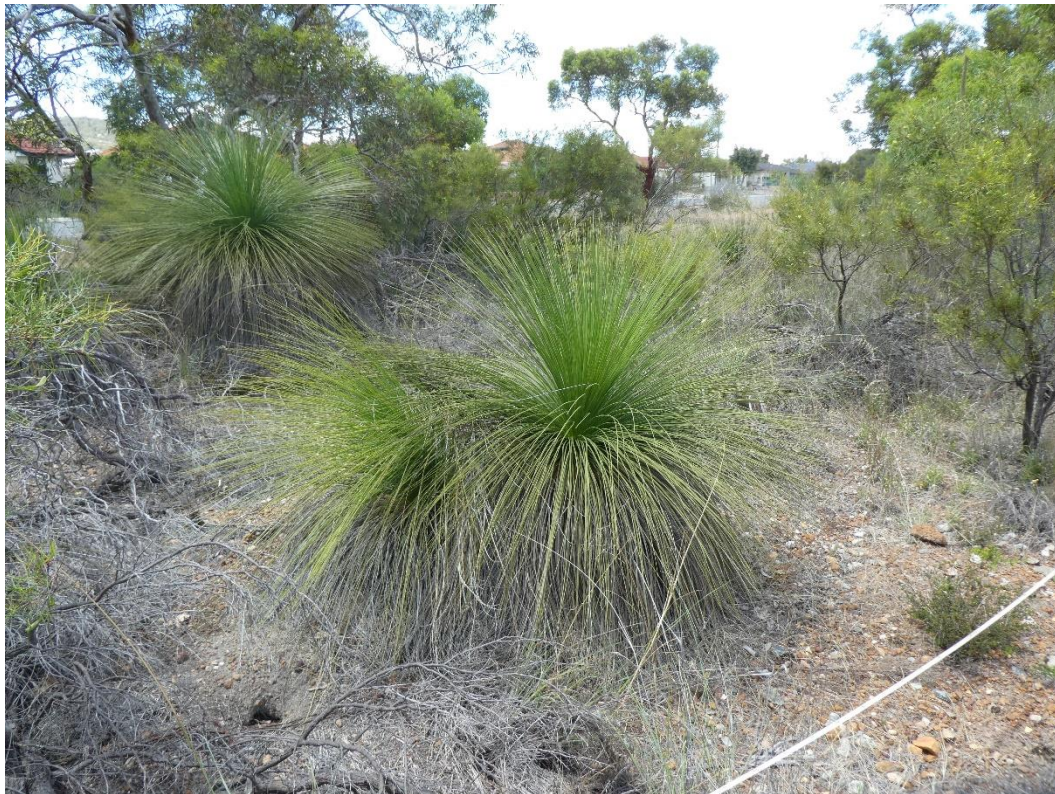
Site ID:	BRE17	VT:	VT06
Type:	Quadrat	Size: 10 x 10 m	
Date:	11/20/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Other, negligible		
Condition:	Good		
Aspect:	Flat		
Soil colour & type:	Brown, sandy loam with extensive laterite gravel		
Vegetation condition:	Good		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Weeds, track, previous soil disturbance		
Leaf litter:	2-10%		
Bare ground	<2%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Dasyopogonaceae	<i>Kingia australis</i>		M	<2% T	2.25
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	<10%	1.5
Proteaceae	<i>Hakea trifurcata</i>		M	10-30%	1.75
Proteaceae	<i>Banksia armata</i>		M	<2% T	1.25
Cyperaceae	<i>Mesomelaena tetragona</i>		G	<2% T	0.5
Boryaceae	<i>Borya sphaerocephala</i>		G	30-70%	0.1
Poaceae	<i>Ehrharta calycina</i>		G	<2% N	1.25
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% T	1
Asteraceae	<i>Ursinia anthemoides</i>		G	<2% N	0.25

Family	Taxon	Status	Stratum	Cover (%)	Height
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>		G	<2% N	0.25
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% T	1
Cyperaceae	<i>Schoenus clandestinus</i>		G	<2% T	0.1
Poaceae	<i>Hyparrhenia hirta</i>		G	<2% T	0.5
Poaceae	<i>Neurachne alopecuroidea</i>		G	<2% N	0.25
Iridaceae	<i>Romulea rosea</i>		G	<2% N	0.1
Poaceae	<i>Briza maxima</i>		G	<2% N	0.25
Fabaceae	<i>Acacia lateriticola</i>		M	<2% T	0.25
Fabaceae	<i>Trifolium angustifolium</i>		G	<2% T	0.1
Orchidaceae	<i>Microtis media</i>		G	<2% T	0.1
Asteraceae	<i>Sonchus oleraceus</i>		G	<2% T	0.1
Fabaceae	<i>Trifolium campestre</i>		G	<2% T	0.1
Asteraceae	<i>Hypochaeris glabra</i>		G	<2% T	0.25

Site ID:	BRE18	VT:	VT06
Type:	Quadrat	Size: 10 x 10 m	
Date:	11/20/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Other, negligible		
Condition:	Degraded		
Aspect:	Flat		
Soil colour & type:	Brown, sandy loam with extensive laterite gravel		
Vegetation condition:	Degraded		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Weeds, track, previous soil disturbance		
Leaf litter:	2-10%		
Bare ground	2-10%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	10-30%	1.5
Myrtaceae	<i>Eucalyptus lane-poolei</i>		U	<10%	9
Proteaceae	<i>Hakea trifurcata</i>		M	10-30%	1.75
Fabaceae	<i>Acacia lateriticola</i>		M	<2% T	0.25
Poaceae	<i>Briza maxima</i>		G	<2% N	0.25
Poaceae	<i>Ehrharta calycina</i>		G	<2% N	1.25
Poaceae	<i>Melinis repens</i>		G	<2% N	0.25
Poaceae	<i>Eragrostis curvula</i>		G	<10%	1.25
Fabaceae	<i>Trifolium angustifolium</i>		G	<2% T	0.1



Family	Taxon	Status	Stratum	Cover (%)	Height
Iridaceae	<i>Romulea rosea</i>		G	<2% N	0.1
Poaceae	<i>Avena barbata</i>		G	<2% T	0.5
Asteraceae	<i>Hypochaeris glabra</i>		G	<2% T	0.25
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% T	1
Iridaceae	<i>Watsonia meriana</i>		G	<10%	0.5
Asteraceae	<i>Sonchus oleraceus</i>		G	<2% T	0.1
Hemerocallidaceae	<i>Caesia micrantha</i>		G	<2% T	0.25
Primulaceae	<i>Lysimachia arvensis</i>		G	<2% T	0.1
Poaceae	<i>Ehrharta longiflora</i>		G	<2% N	0.25
Oxalidaceae	<i>Oxalis glabra</i>		G	<2% T	0.1
Orchidaceae	<i>Microtis media</i>		G	<2% T	0.1
Dasypogonaceae	<i>Kingia australis</i>		M	<2% T	2.25
Hemerocallidaceae	<i>Tricoryne elatior</i>		G	<2% T	0.1
Asparagaceae	<i>Thysanotus manglesianus</i>		G	<2% T	0.1

Site ID:	BRE19	VT:	VT01
Type:	Quadrat	Size: 10 x 10 m	
Date:	11/20/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Other, negligible		
Condition:	Good		
Aspect:	Flat		
Soil colour & type:	Brown, sandy loam with extensive laterite gravel and grey clay at depth		
Vegetation condition:	Degraded		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Weeds, track, previous soil disturbance		
Leaf litter:	11-30%		
Bare ground	2-10%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	<10%	1.5
Dasypogonaceae	<i>Kingia australis</i>		M	<10%	2.25
Myrtaceae	<i>Corymbia calophylla</i>		U	<10%	5
Boryaceae	<i>Borya sphaerocephala</i>		G	<2% N	0.1
Poaceae	<i>Eragrostis curvula</i>		G	<2% N	1.25
Poaceae	<i>Ehrharta calycina</i>		G	<2% N	1.25
Poaceae	<i>Briza maxima</i>		G	<10%	0.25
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% T	1

Family	Taxon	Status	Stratum	Cover (%)	Height
Asteraceae	<i>Ursinia anthemoides</i>		G	<2% N	0.25
Poaceae	<i>Neurachne alopecuroidea</i>		G	<2% N	0.25
Iridaceae	<i>Moraea flaccida</i>		G	<2% T	0.25
Hemerocallidaceae	<i>Caesia micrantha</i>		G	<2% T	0.25
Iridaceae	<i>Watsonia meriana</i>		G	<10%	0.5
Fabaceae	<i>Acacia lateriticola</i>		M	<2% T	0.25
Asteraceae	<i>Hypochaeris glabra</i>		G	<2% T	0.25
Orchidaceae	<i>Disa bracteata</i>		G	<2% T	0.1
Proteaceae	<i>Banksia dallanneyi</i>		M	<2% T	0.25
Cyperaceae	<i>Mesomelaena tetragona</i>		G	<2% T	0.5
Hemerocallidaceae	<i>Tricoryne elatior</i>		G	<2% T	0.1
Asteraceae	<i>Sonchus oleraceus</i>		G	<2% T	0.1
Fabaceae	<i>Trifolium angustifolium</i>		G	<2% T	0.1
Iridaceae	<i>Romulea rosea</i>		G	<2% N	0.1
Poaceae	<i>Avena barbata</i>		G	<2% T	0.5

Site ID:	BRE20	VT:	VT04
Type:	Quadrat	Size: 10 x 10 m	
Date:	11/20/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Drainage line, negligible		
Condition:	Completely Degraded		
Aspect:	Flat		
Soil colour & type:	Brown		
Vegetation condition:	Degraded		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Weeds, track, previous clearing on edge		
Leaf litter:	11-30%		
Bare ground	2-10%		



Family	Taxon	Status	Stratum	Cover (%)	Height
Myrtaceae	<i>Corymbia calophylla</i>		U	10-30%	14
Myrtaceae	<i>Eucalyptus rudis</i>		U	10-30%	12
Oleaceae	<i>Olea europaea</i>		M	<10%	1.5
Poaceae	<i>Cynodon dactylon</i>		G	30-70%	0.25
Phytolaccaceae	<i>Phytolacca octandra</i>		M	10-30%	1.25
Oxalidaceae	<i>Oxalis pes-caprae</i>		G	<2% N	0.25
Myrtaceae	<i>Taxandria linearifolia</i>		M	<2% N	1.25
Myrtaceae	<i>Astartea leptophylla</i>		M	<2% N	1.5
Moraceae	<i>Ficus carica</i>		M	<2% T	4

Site ID:	BRE21	VT:	VT06
Type:	Quadrat	Size: 10 x 10 m	
Date:	11/20/2020	Described by: GHD	
Co-ordinates:			
Landform and slope:	Other, negligible		
Condition:	Completely Degraded		
Aspect:	Flat		
Soil colour & type:	Brown, sandy loam over clay		
Vegetation condition:	Degraded		
Fire age & intensity:	Old (6+ yr)		
Disturbances:	Weeds, track, previous clearing on edge		
Leaf litter:	<2%		
Bare ground	<2%		

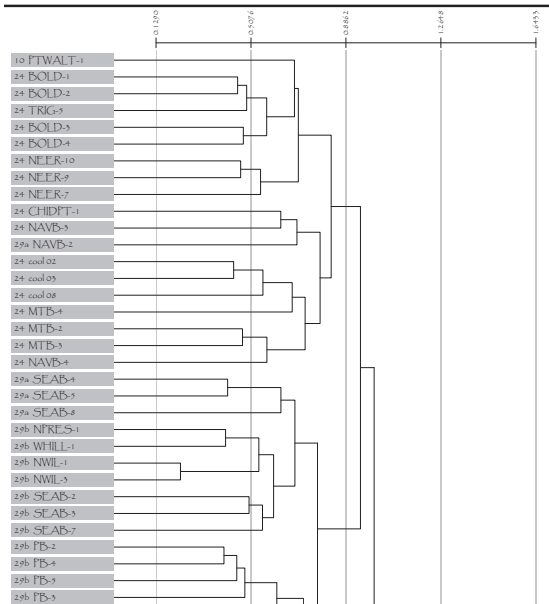


Family	Taxon	Status	Stratum	Cover (%)	Height
Myrtaceae	<i>Corymbia calophylla</i>		U	10-30%	14
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		M	<10%	1.5
Poaceae	<i>Ehrharta calycina</i>		G	<2% N	1.25
Haemodoraceae	<i>Haemodorum laxum</i>		G	<2% T	1
Poaceae	<i>Neurachne alopecuroidea</i>		G	10-30%	0.25
Boryaceae	<i>Borya sphaerocephala</i>		G	30-70%	0.1
Poaceae	<i>Eragrostis curvula</i>		G	<2% N	1.25
Goodeniaceae	<i>Lechenaultia biloba</i>		G	<2% N	0.25

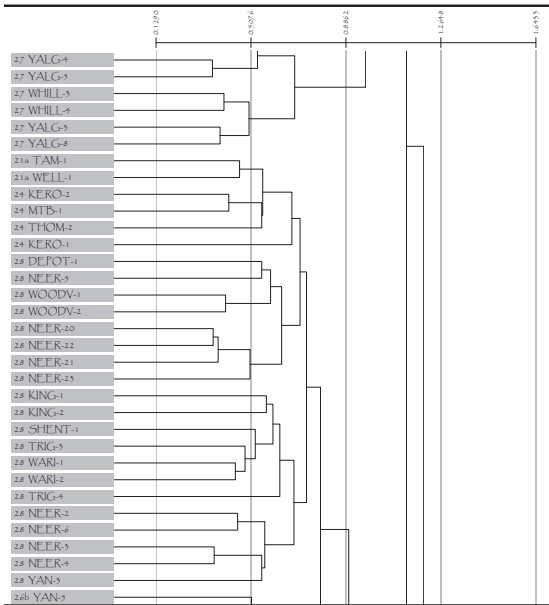
Family	Taxon	Status	Stratum	Cover (%)	Height
Hemerocallidaceae	<i>Caesia micrantha</i>		G	<2% T	0.25
Haemodoraceae	<i>Conostylis aculeata</i> subsp. <i>preissii</i>		G	<10%	0.25
Poaceae	<i>Hyparrhenia hirta</i>		G	<2% T	0.5
Iridaceae	<i>Watsonia meriana</i>		G	<10%	0.5

# **Appendix E** – Flora analyses outputs

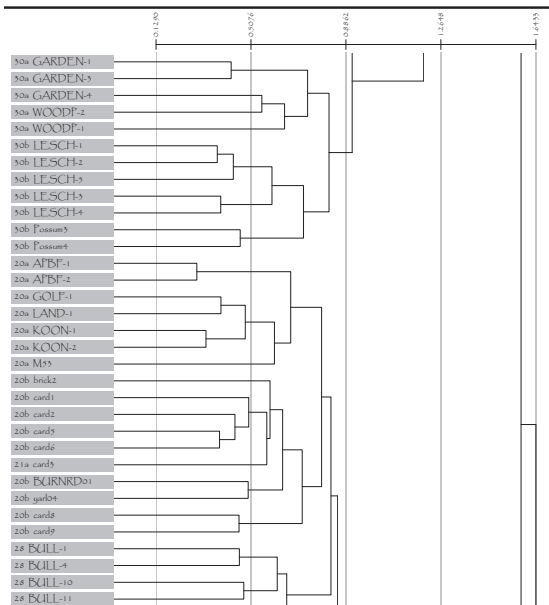
Column Fusion Dendrogram



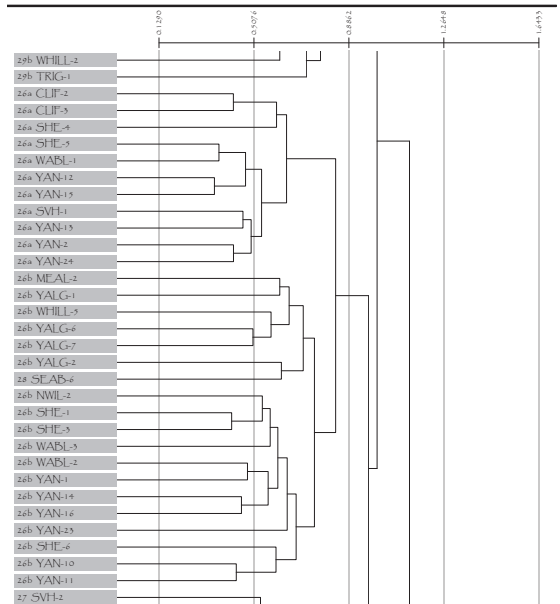
Column Fusion Dendrogram



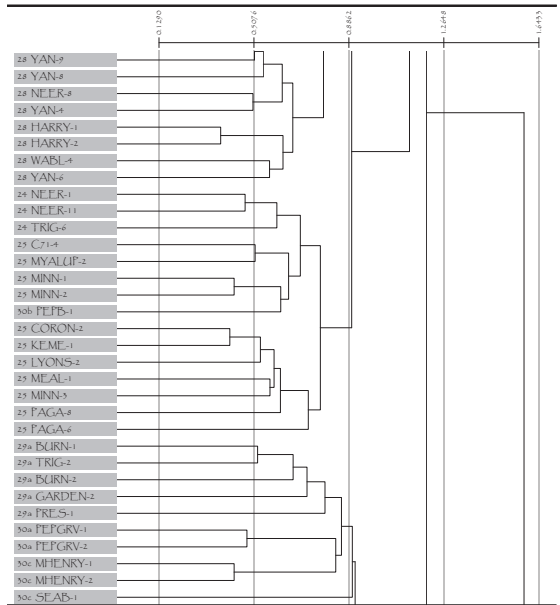
Column Fusion Dendrogram



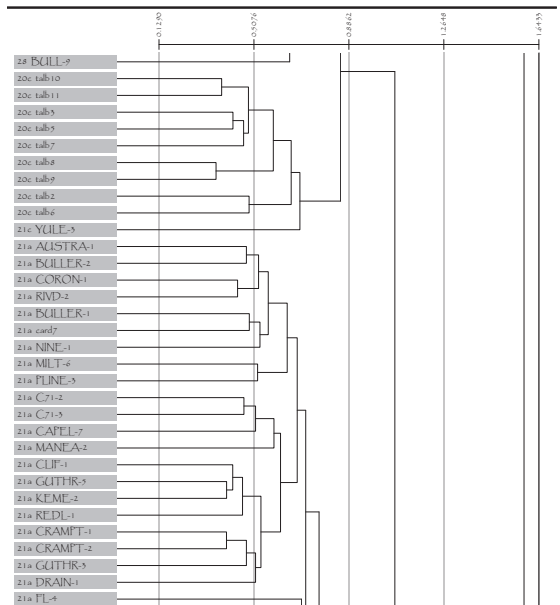
Column Fusion Dendrogram



Column Fusion Dendrogram

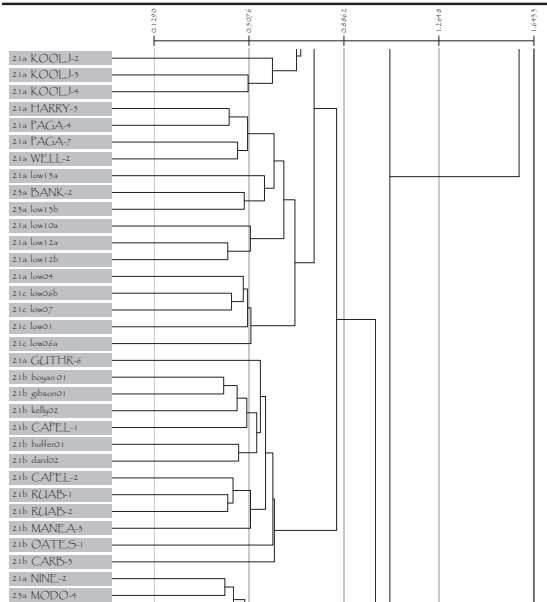


Column Fusion Dendrogram

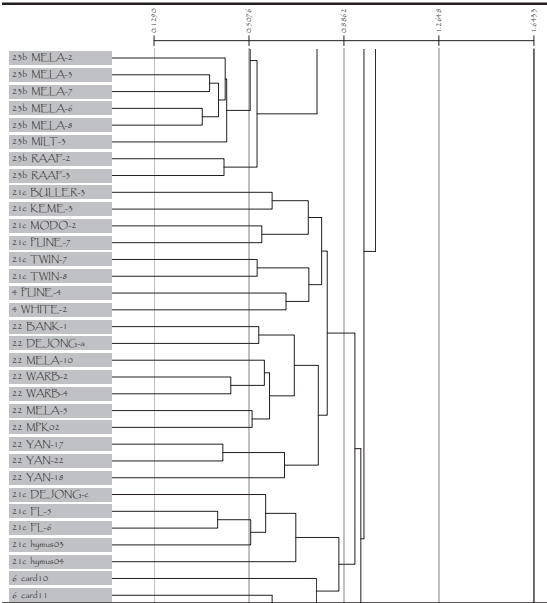




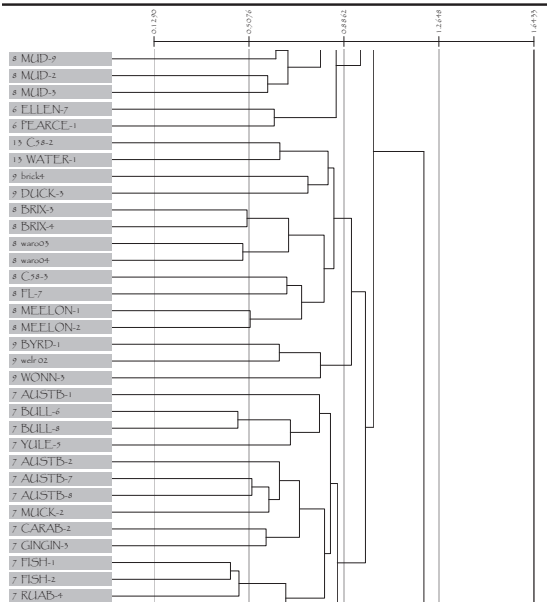
Column Fusion Dendrogram



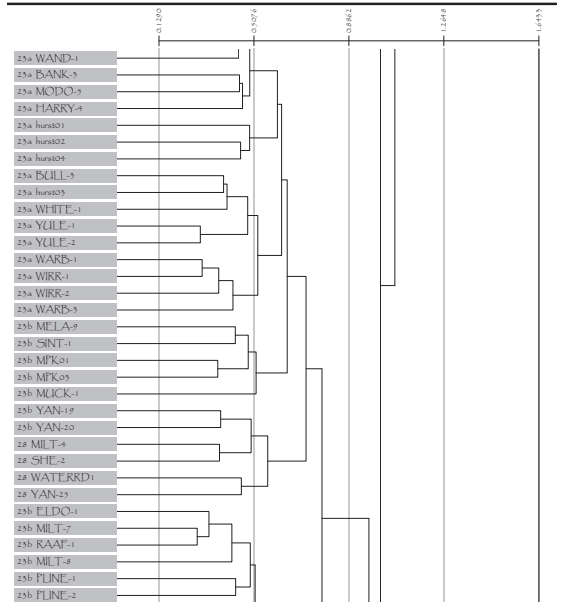
Column Fusion Dendrogram



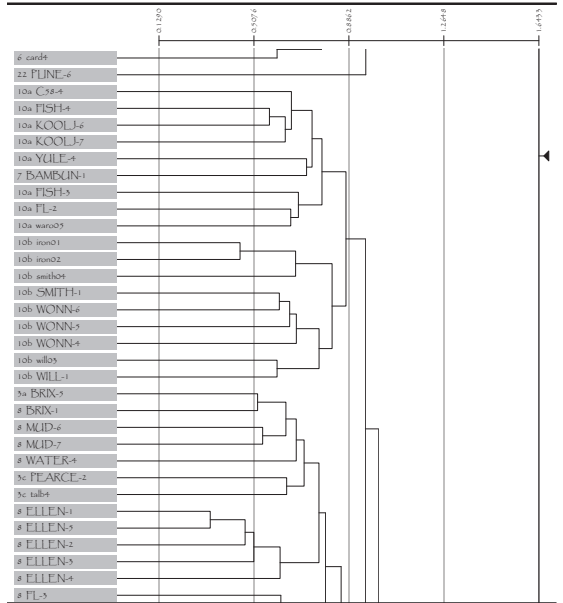
Column Fusion Dendrogram



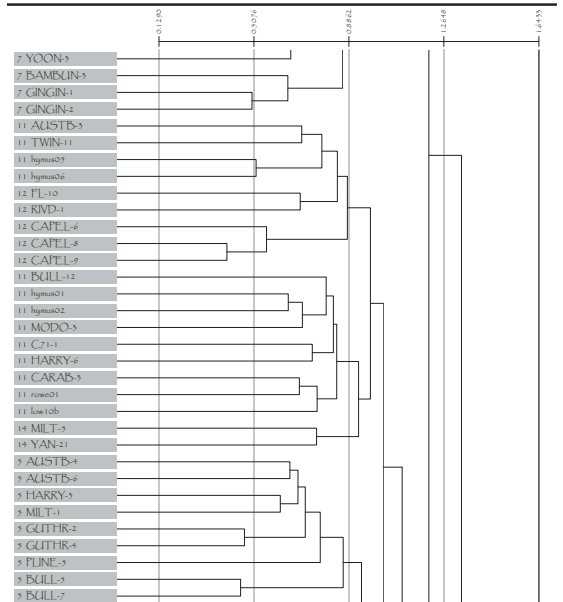
Column Fusion Dendrogram



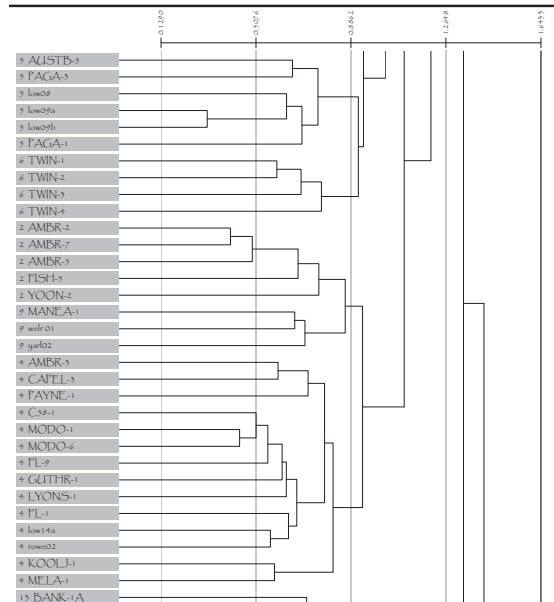
Column Fusion Dendrogram



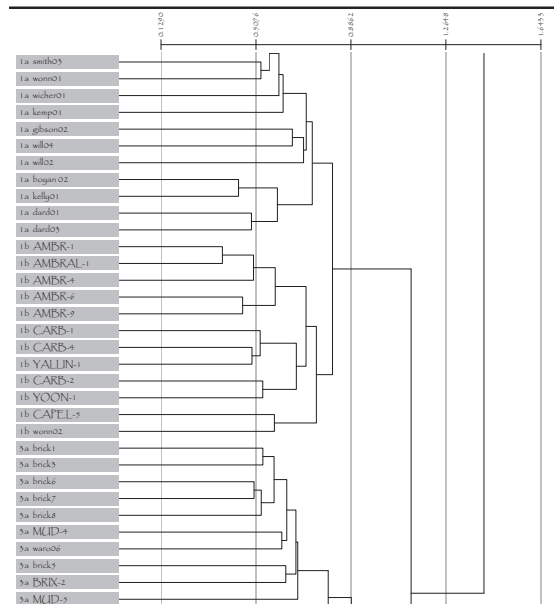
Column Fusion Dendrogram



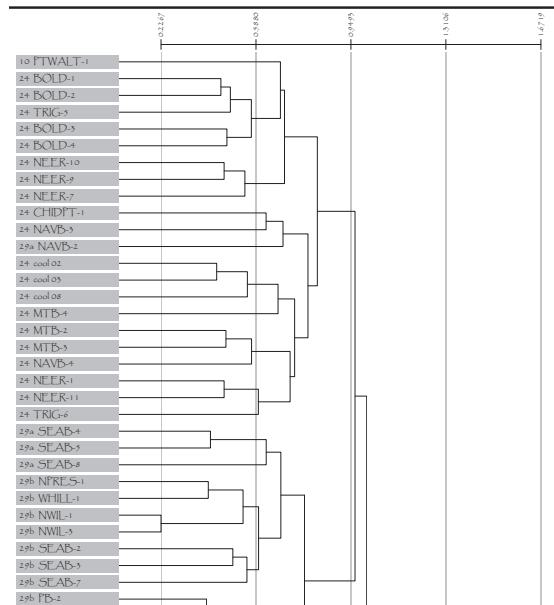
Column Fusion Dendrogram



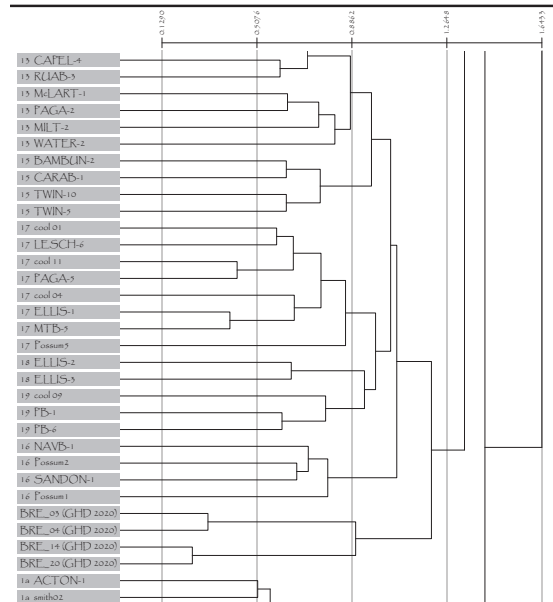
Column Fusion Dendrogram



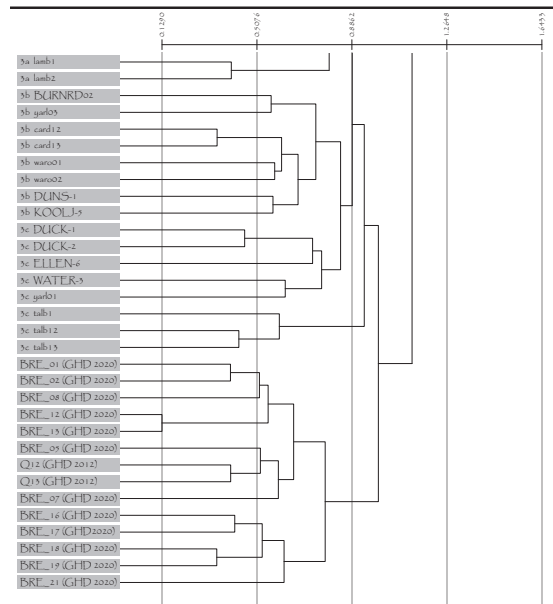
Column Fusion Dendrogram



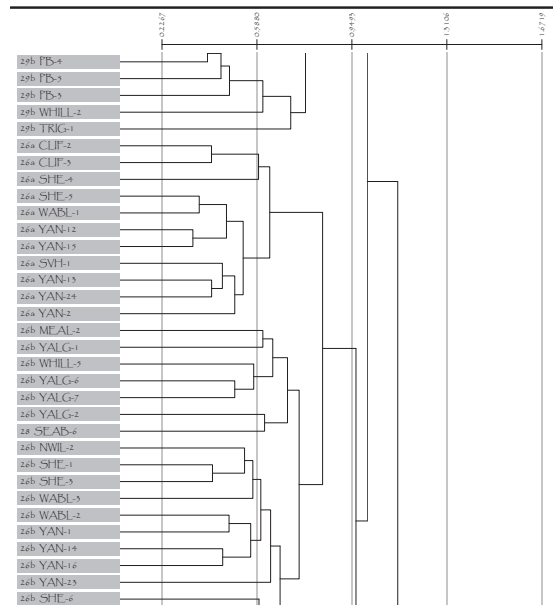
Column Fusion Dendrogram



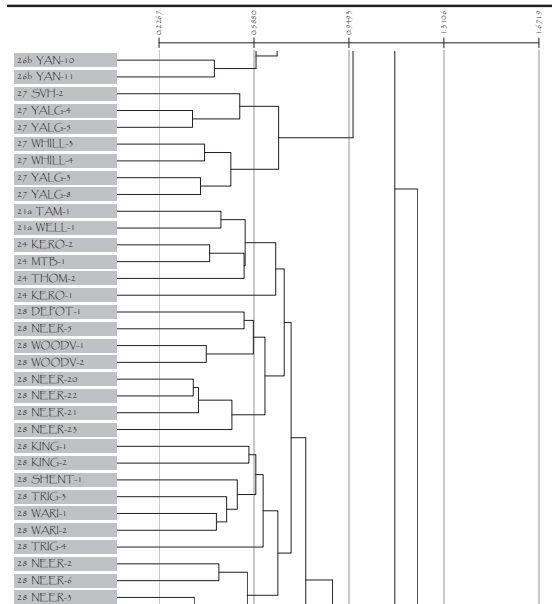
Column Fusion Dendrogram



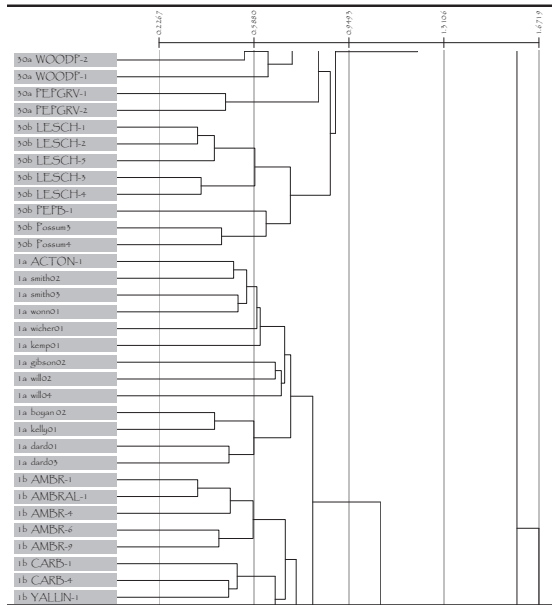
Column Fusion Dendrogram



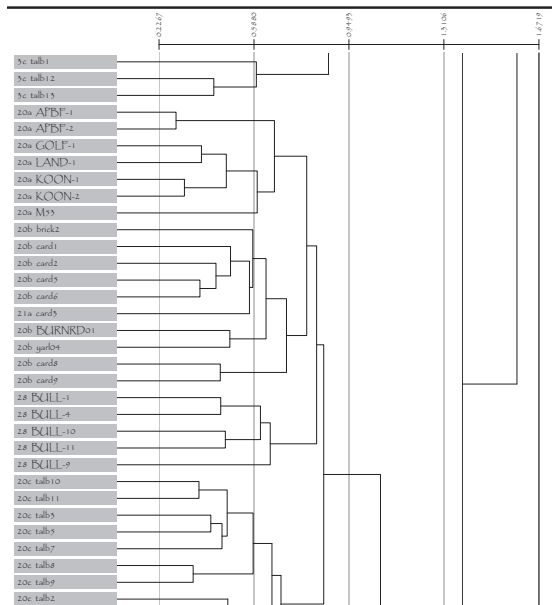
### Column Fusion Dendrogram



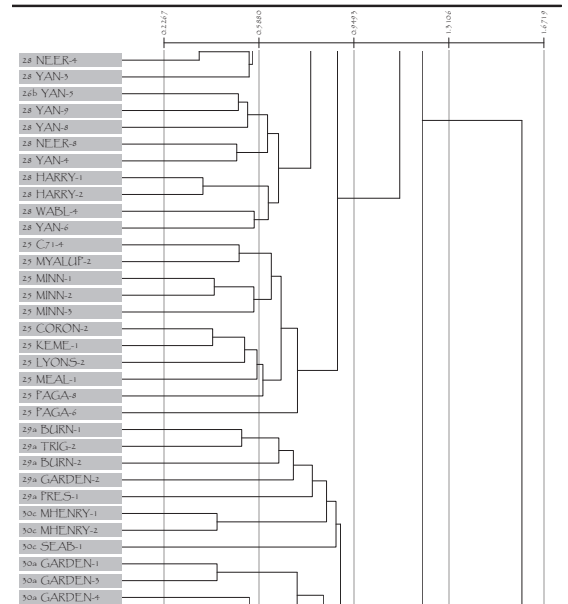
### Column Fusion Dendrogram



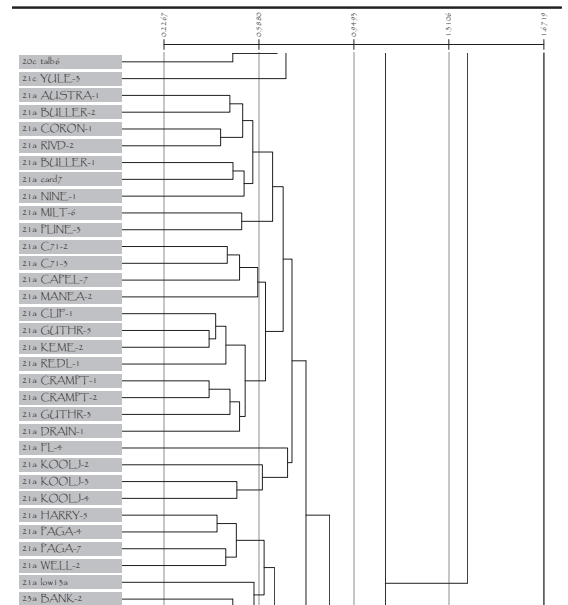
### Column Fusion Dendrogram



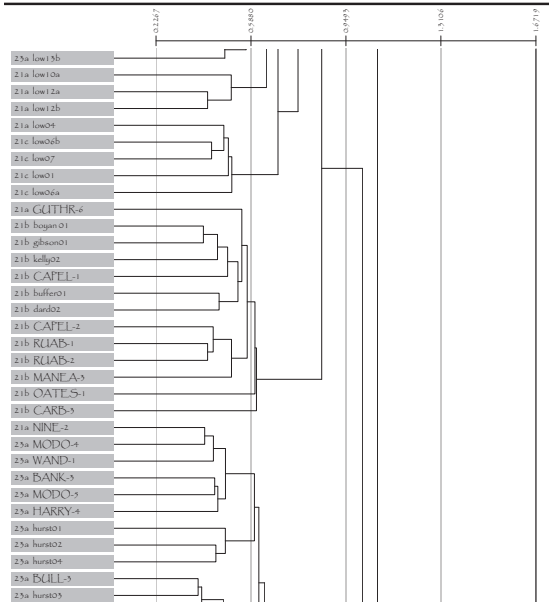
### Column Fusion Dendrogram



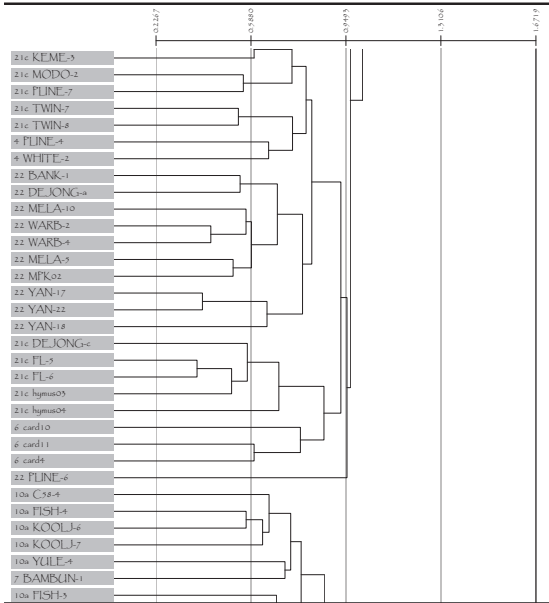
### Column Fusion Dendrogram



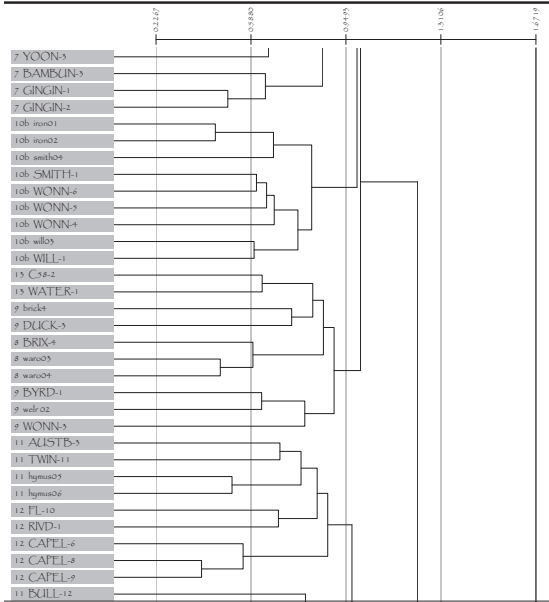
Column Fusion Dendrogram



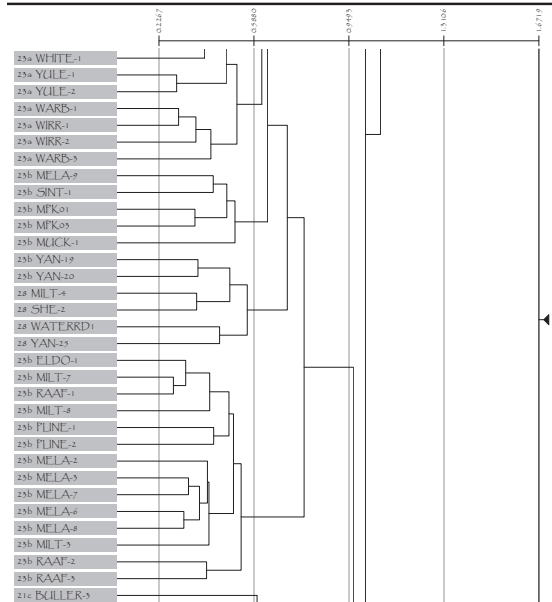
Column Fusion Dendrogram



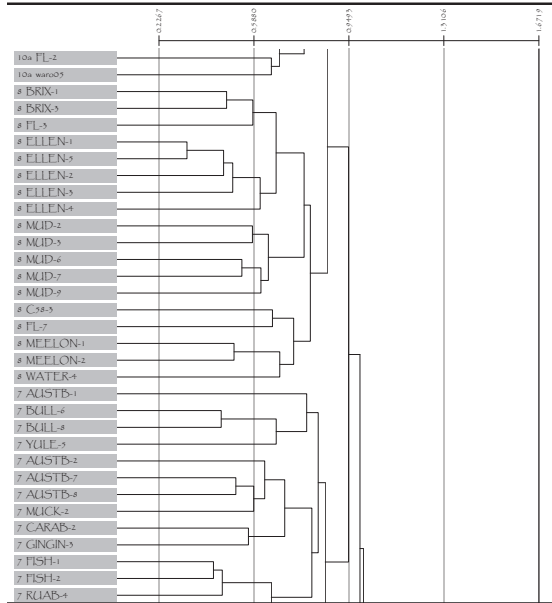
Column Fusion Dendrogram



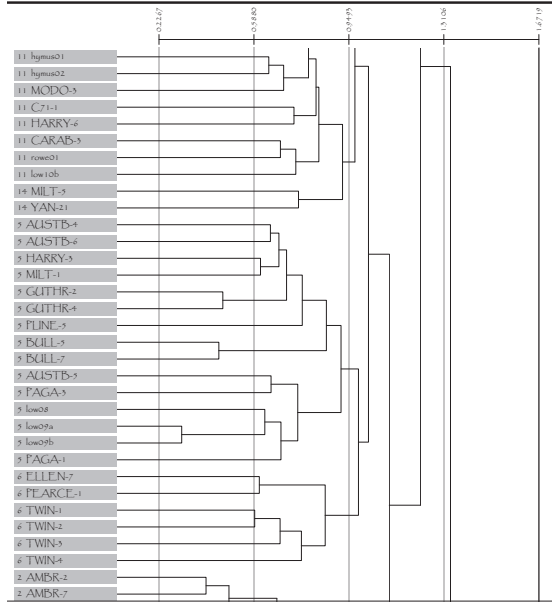
Column Fusion Dendrogram



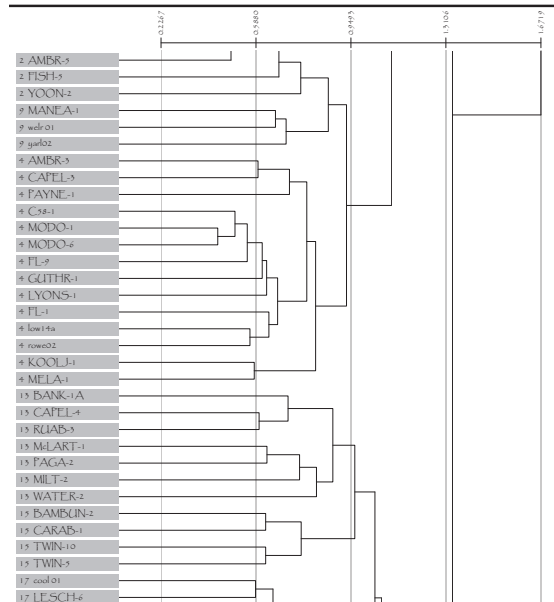
Column Fusion Dendrogram



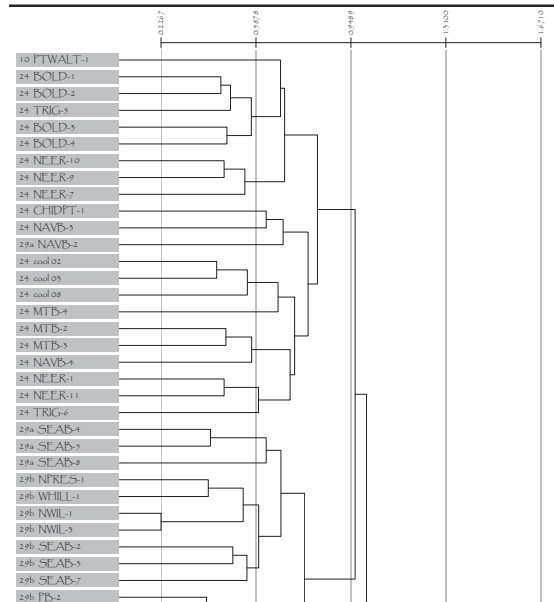
Column Fusion Dendrogram



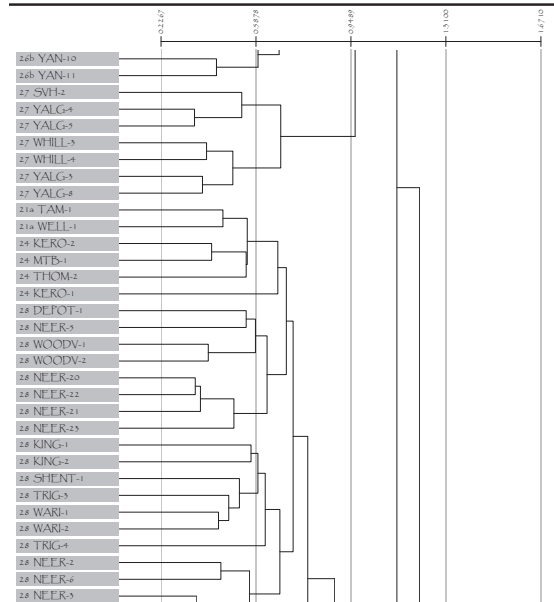
Column Fusion Dendrogram



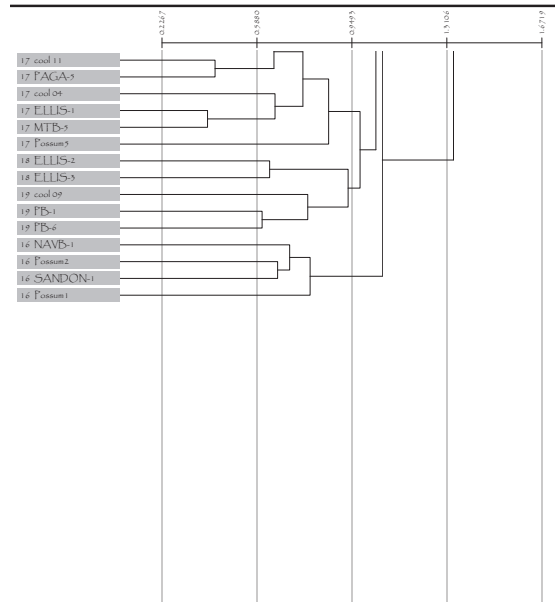
Column Fusion Dendrogram



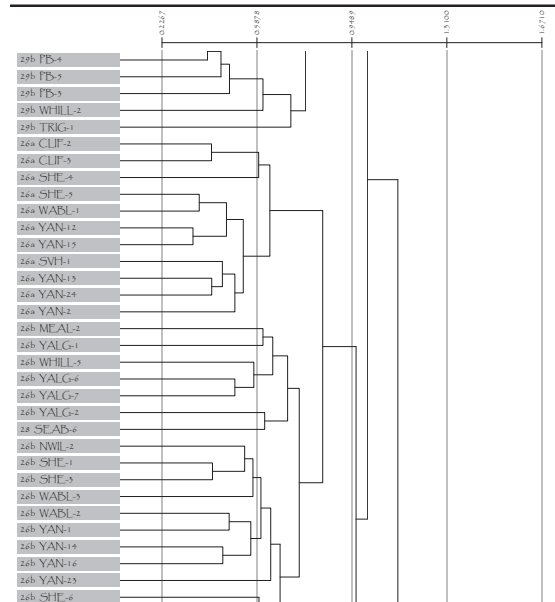
Column Fusion Dendrogram



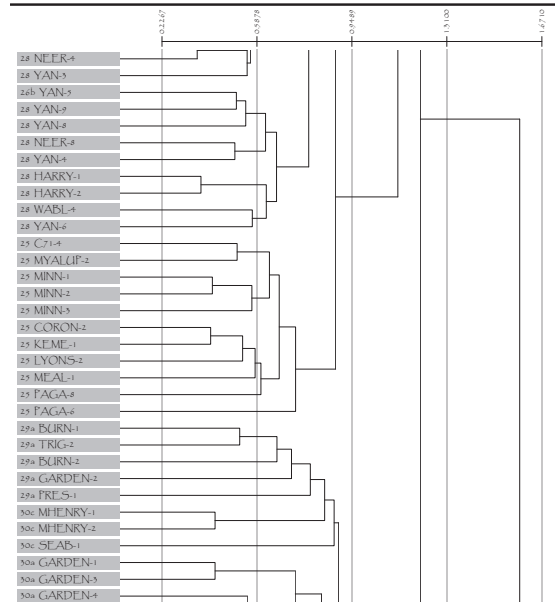
Column Fusion Dendrogram



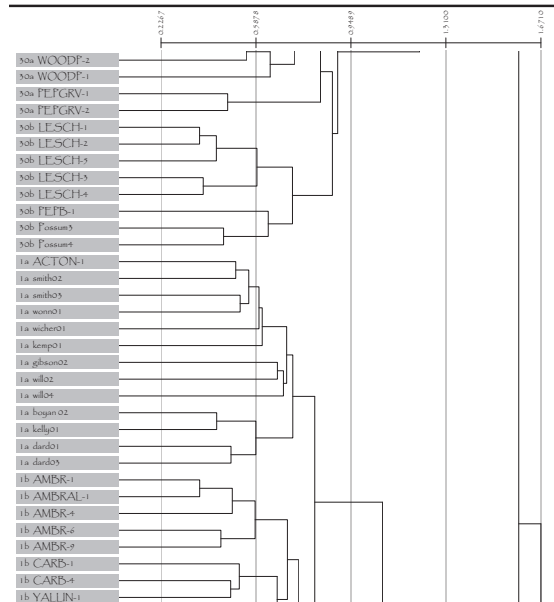
Column Fusion Dendrogram



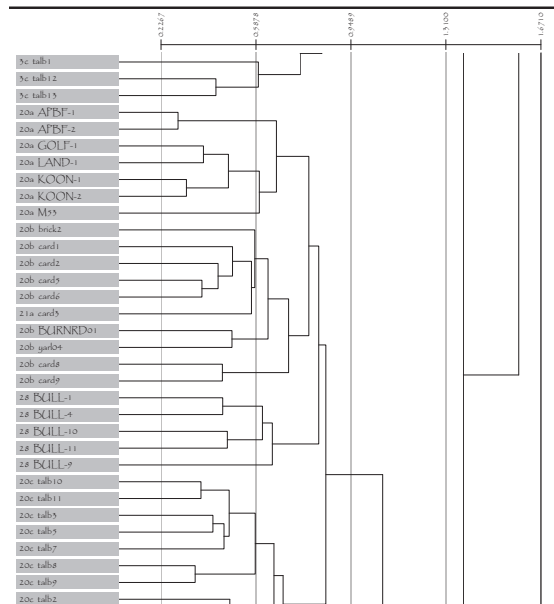
Column Fusion Dendrogram



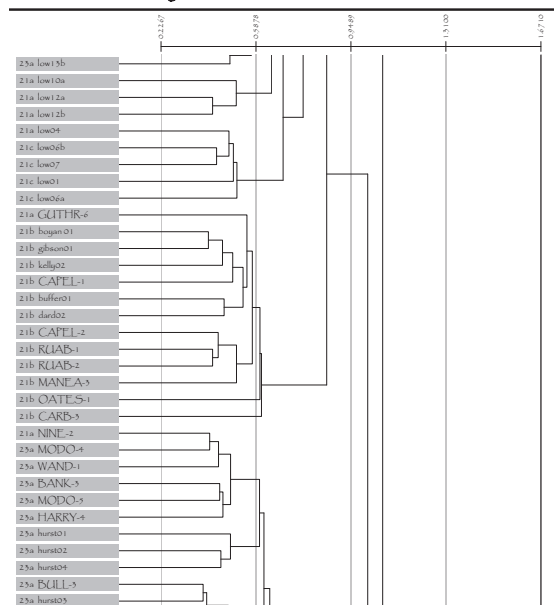
Column Fusion Dendrogram



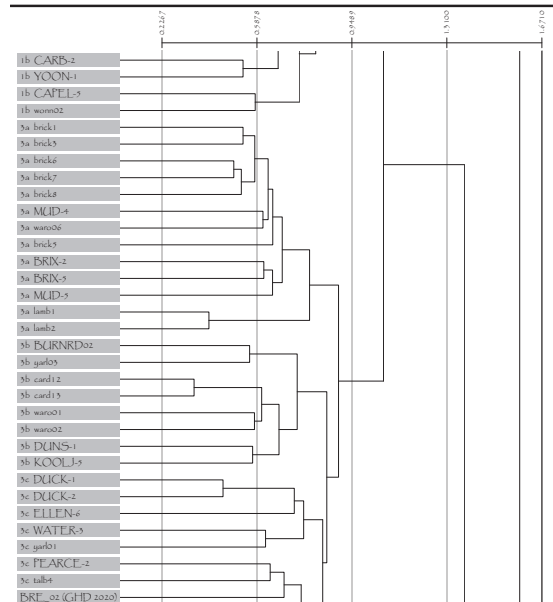
Column Fusion Dendrogram



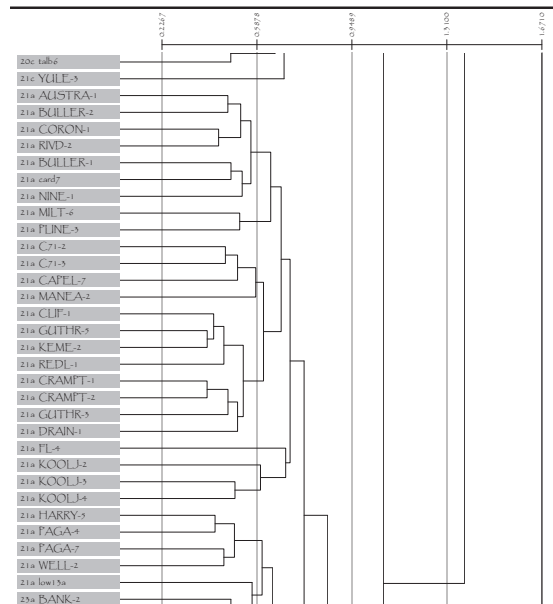
Column Fusion Dendrogram



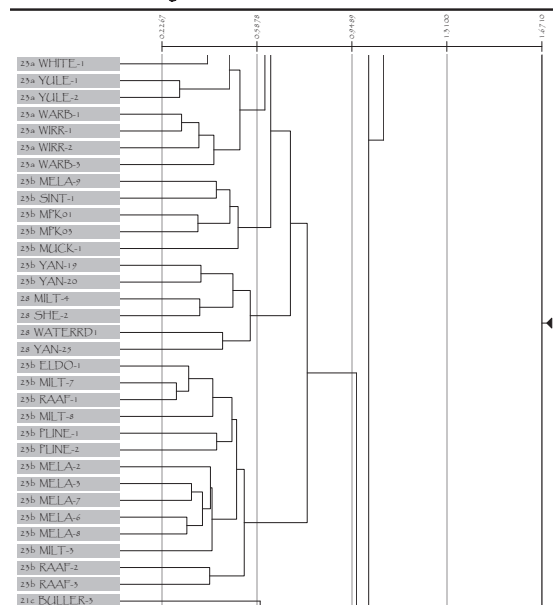
Column Fusion Dendrogram



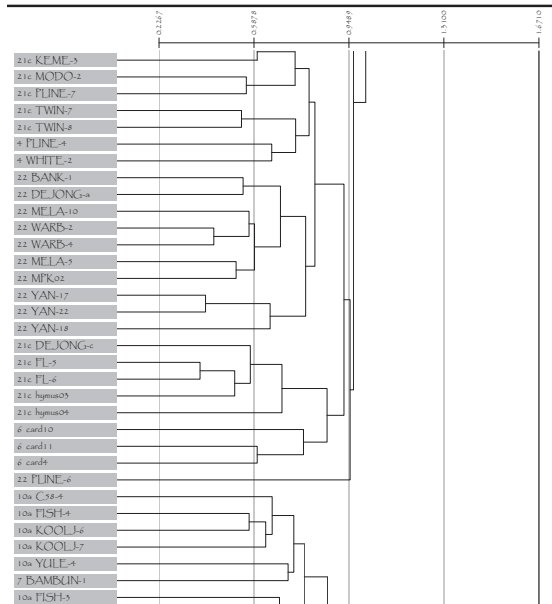
Column Fusion Dendrogram



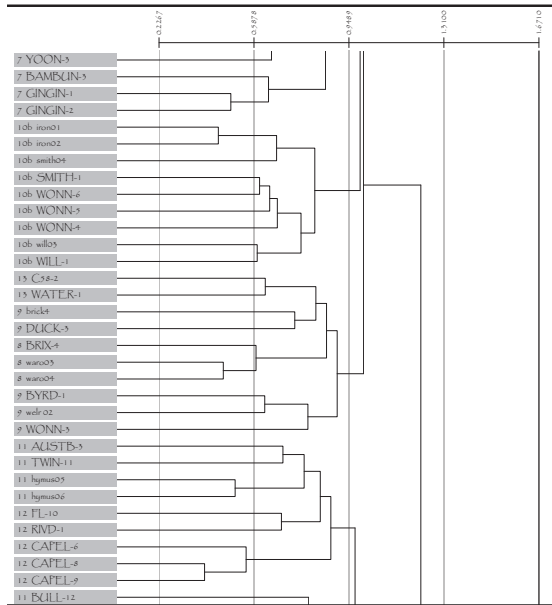
Column Fusion Dendrogram



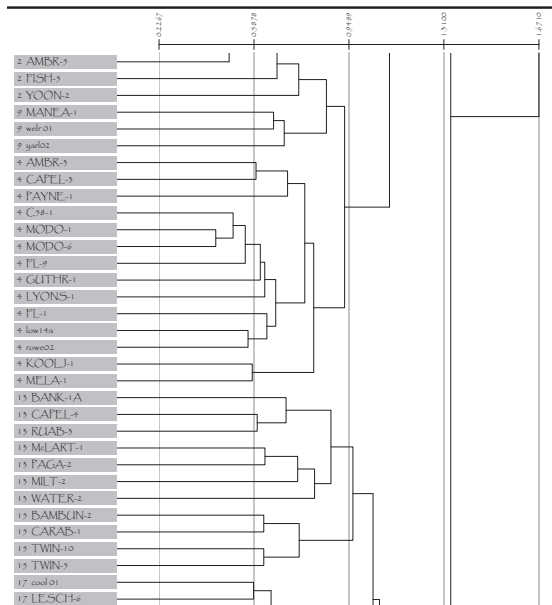
Column Fusion Dendrogram



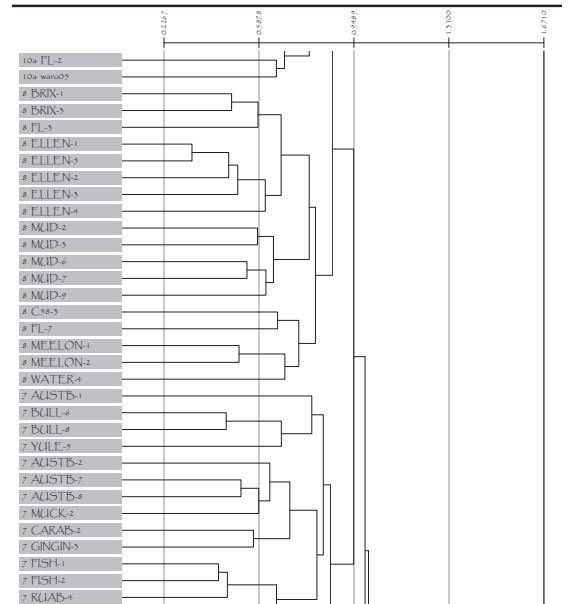
Column Fusion Dendrogram



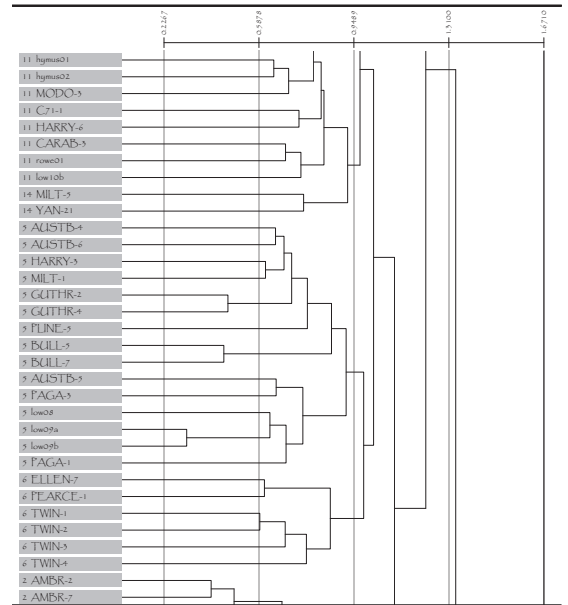
Column Fusion Dendrogram



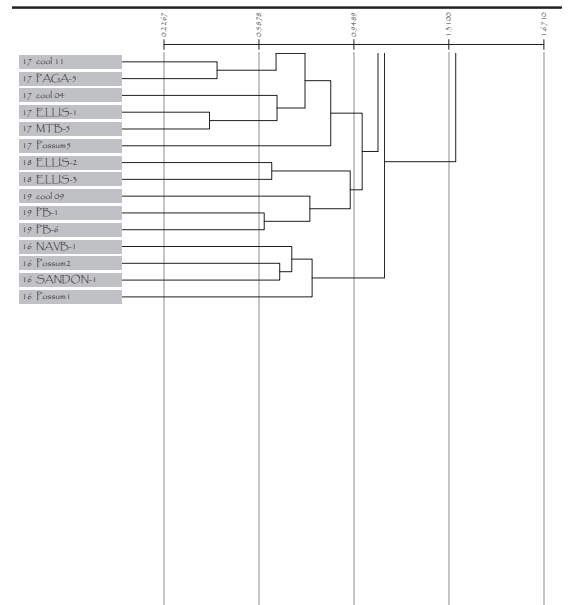
Column Fusion Dendrogram



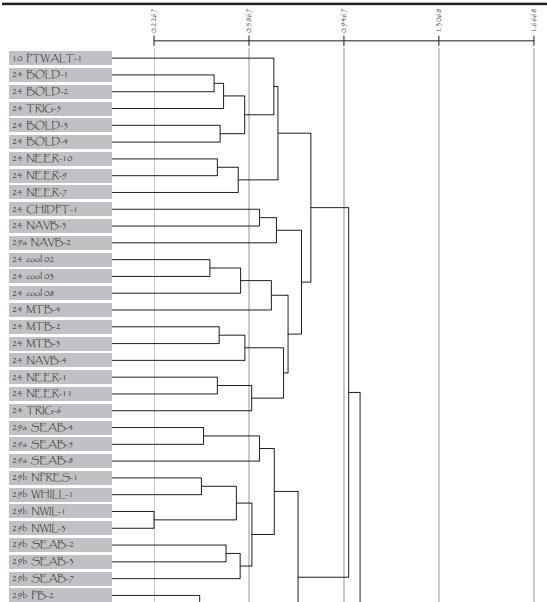
Column Fusion Dendrogram



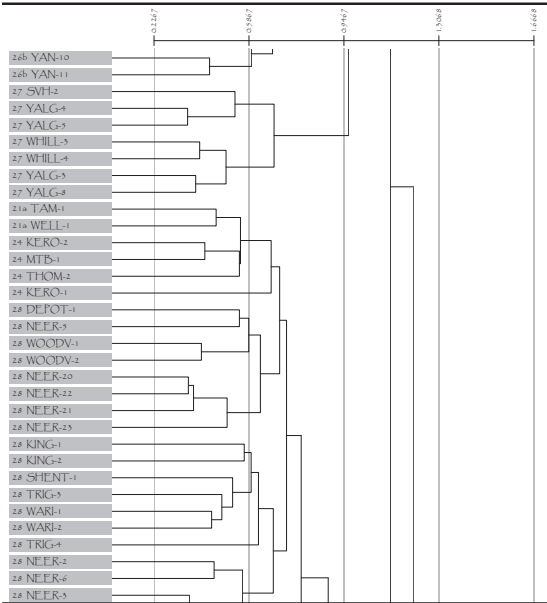
Column Fusion Dendrogram



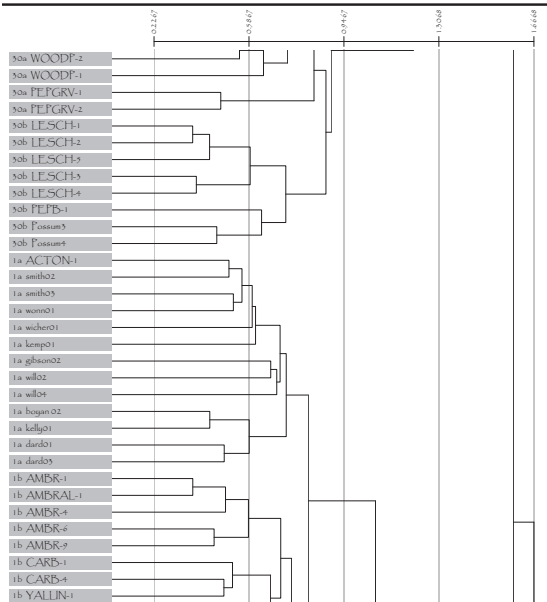
Column Fusion Dendrogram



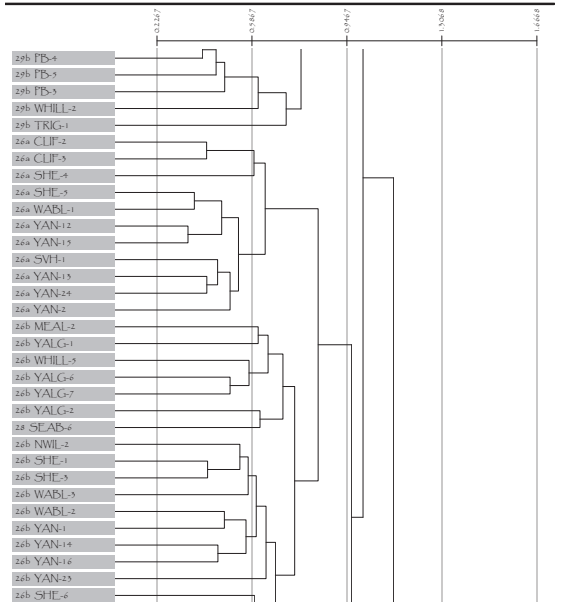
Column Fusion Dendrogram



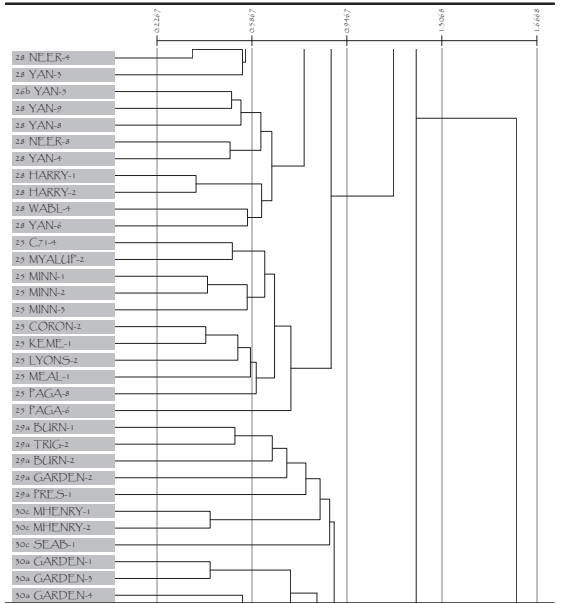
Column Fusion Dendrogram



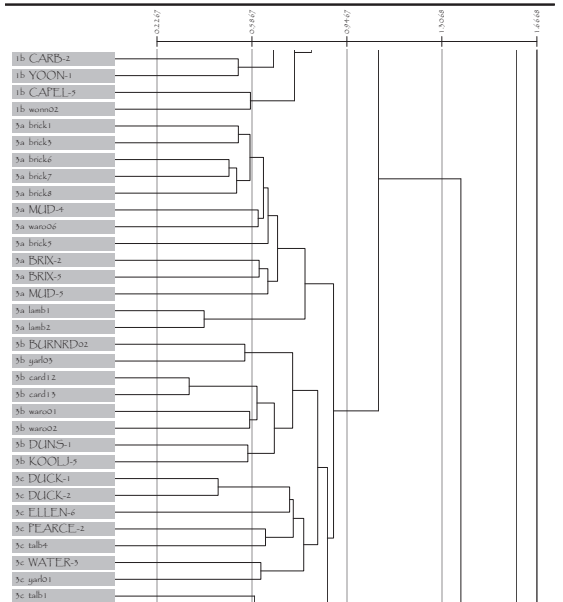
Column Fusion Dendrogram



Column Fusion Dendrogram

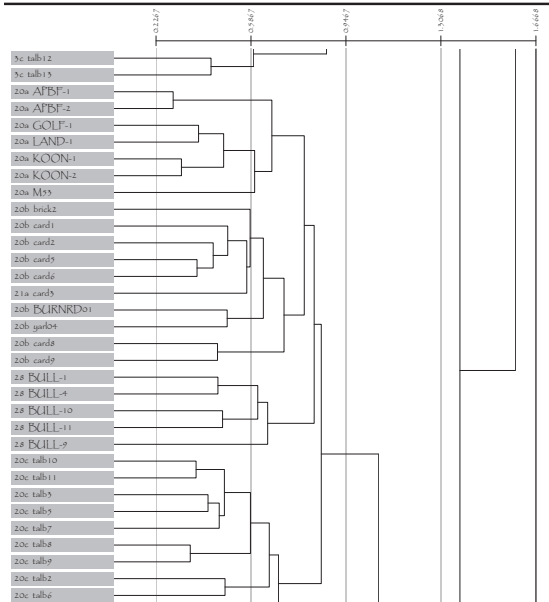


Column Fusion Dendrogram

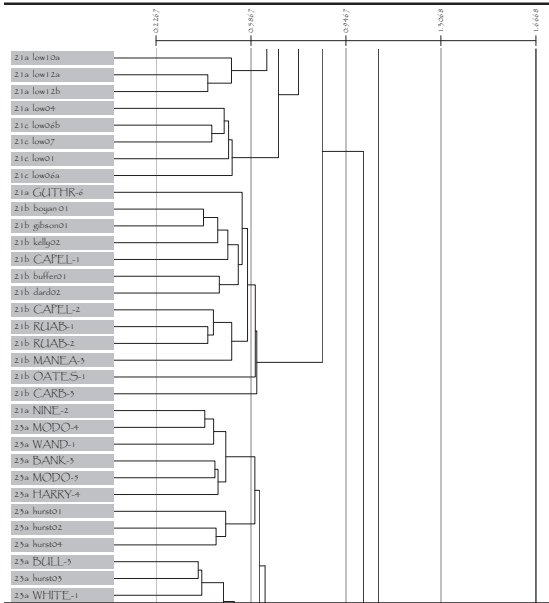




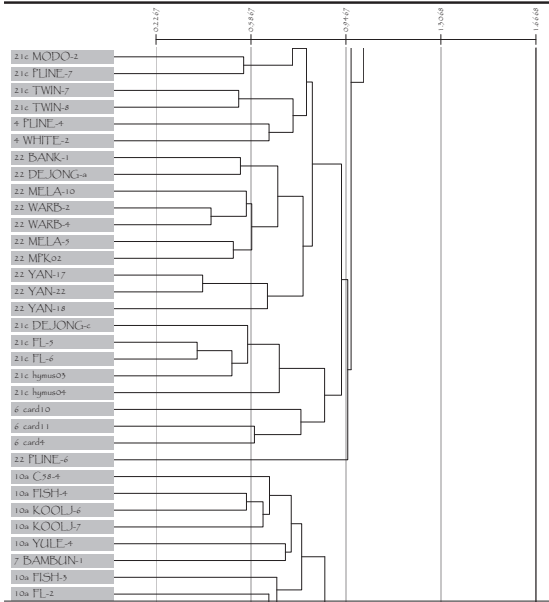
Column Fusion Dendrogram



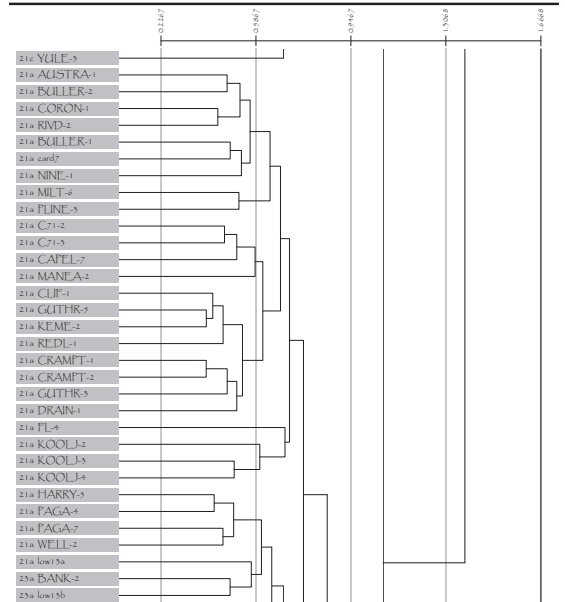
Column Fusion Dendrogram



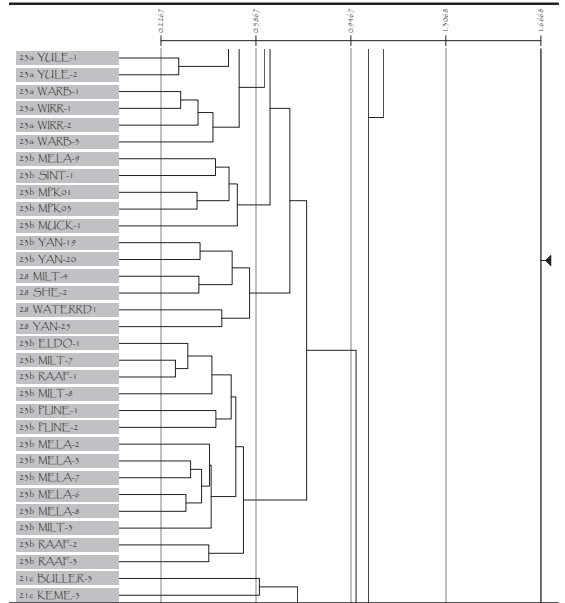
Column Fusion Dendrogram



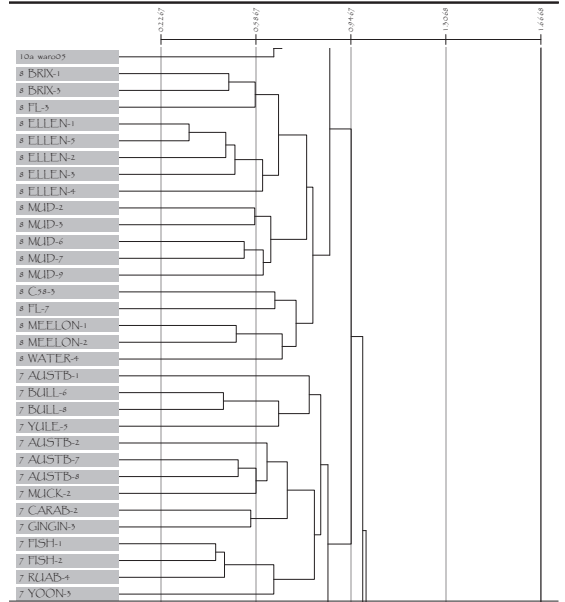
Column Fusion Dendrogram



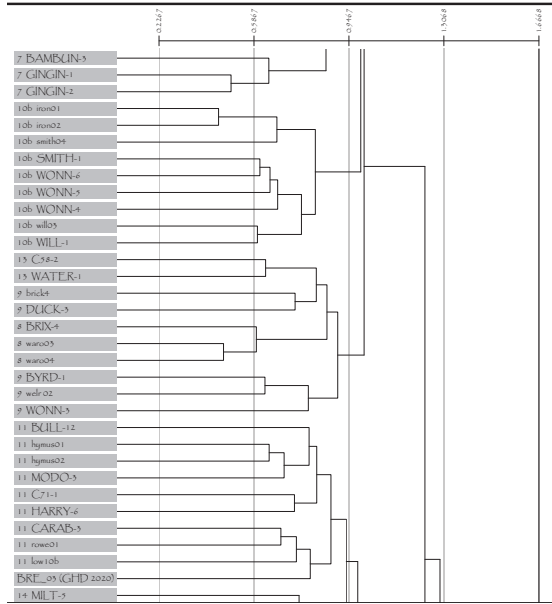
Column Fusion Dendrogram



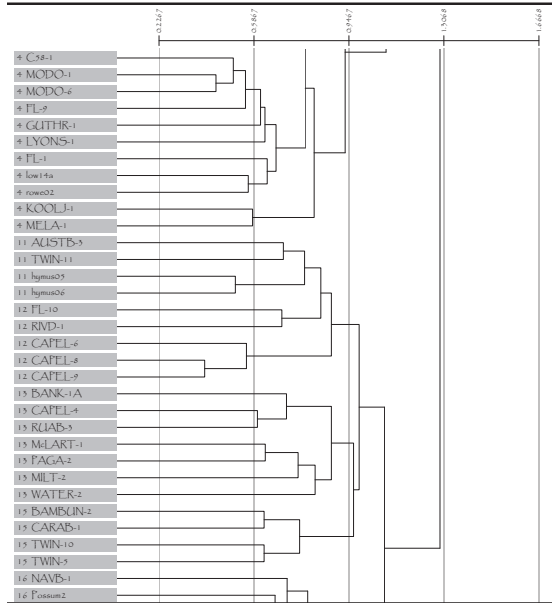
Column Fusion Dendrogram



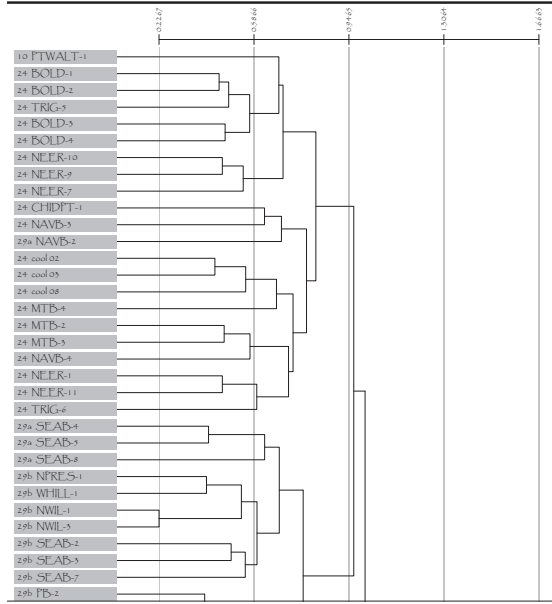
Column Fusion Dendrogram



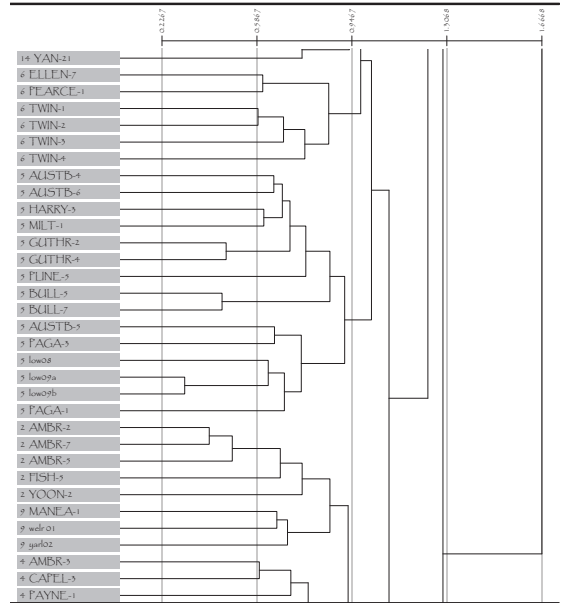
Column Fusion Dendrogram



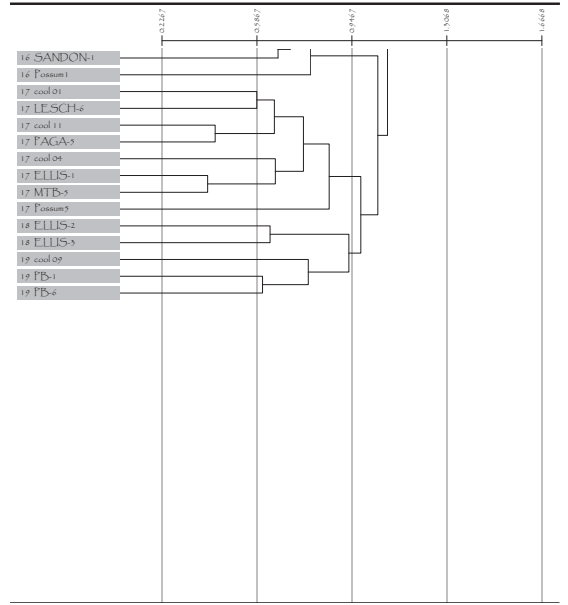
Column Fusion Dendrogram



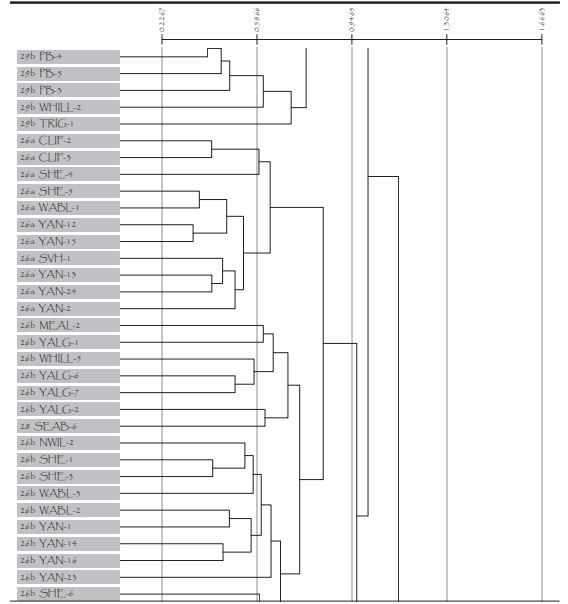
Column Fusion Dendrogram



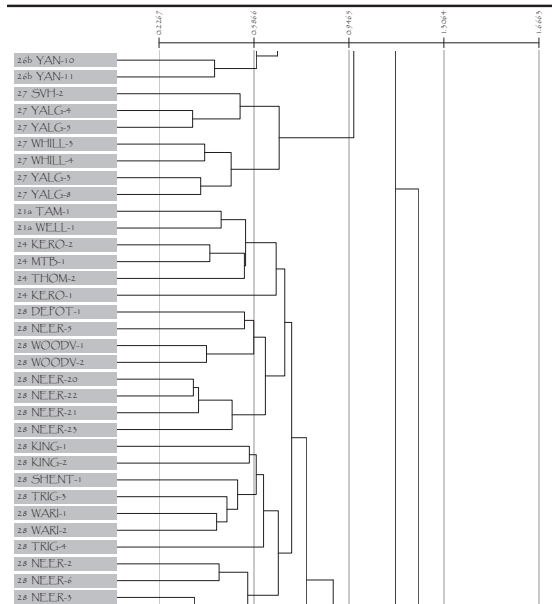
Column Fusion Dendrogram



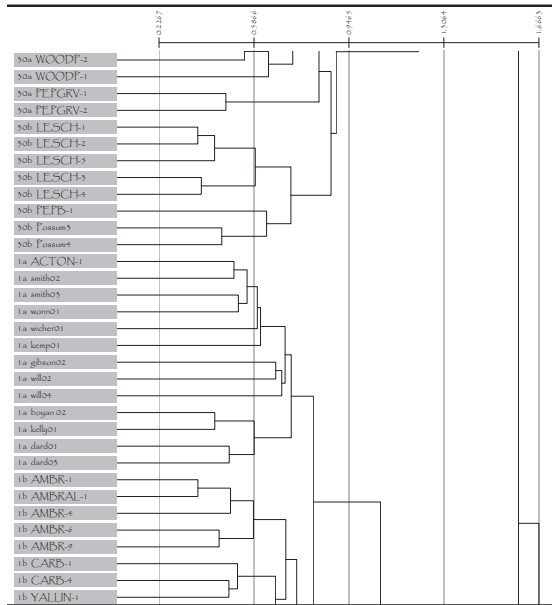
Column Fusion Dendrogram



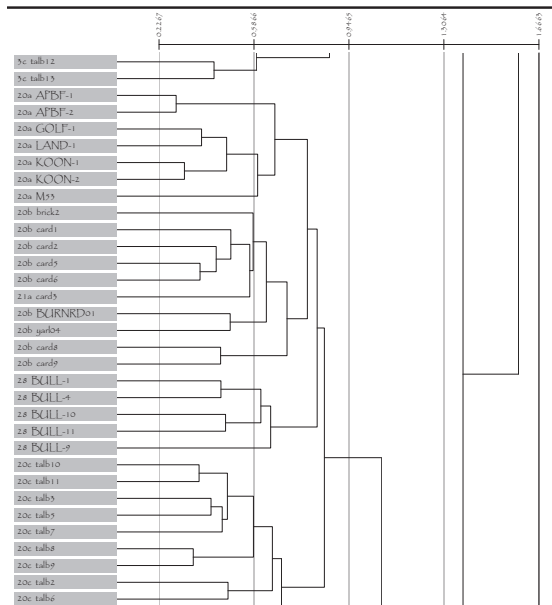
Column Fusion Dendrogram



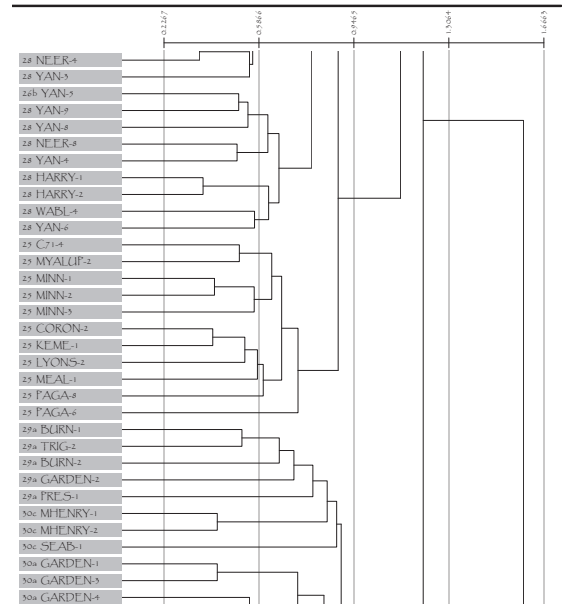
Column Fusion Dendrogram



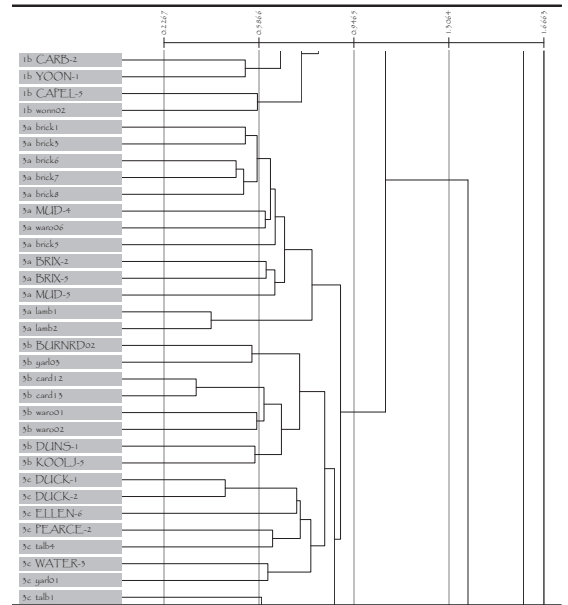
Column Fusion Dendrogram



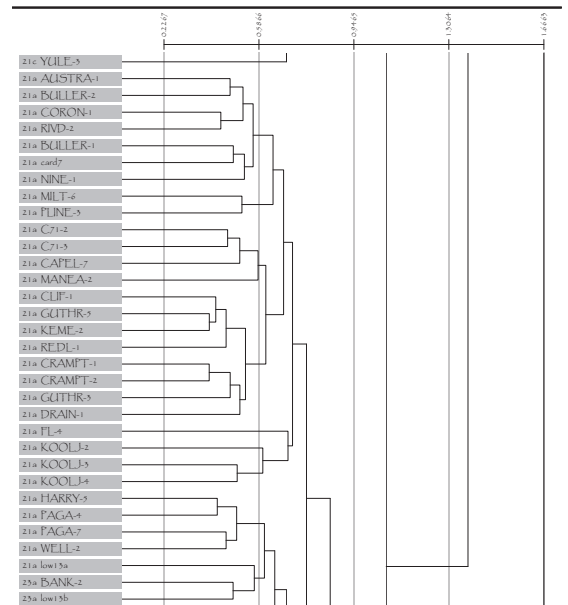
Column Fusion Dendrogram



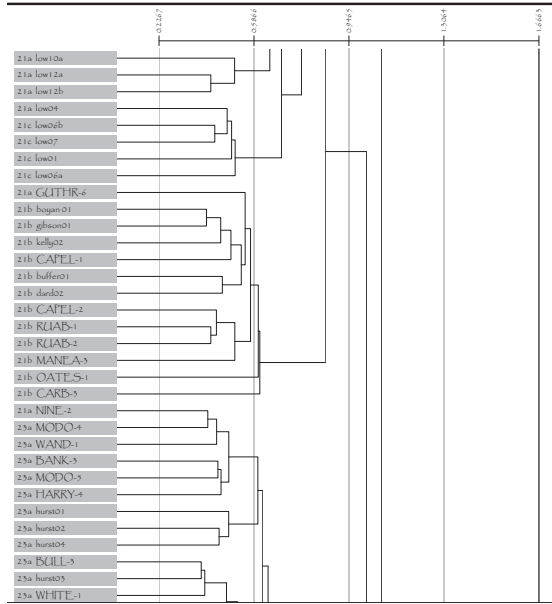
Column Fusion Dendrogram



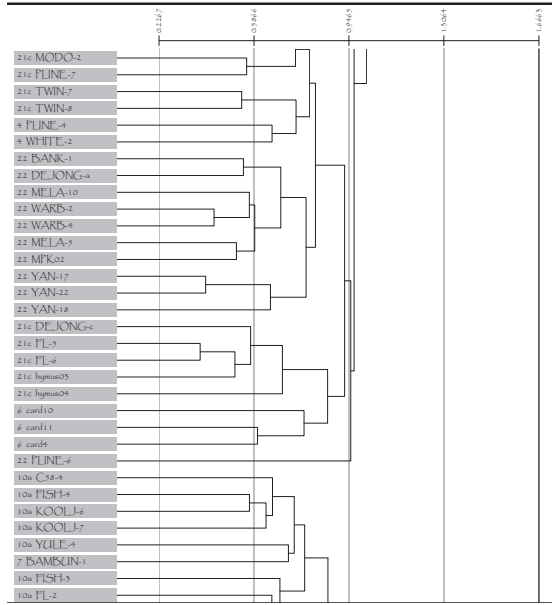
Column Fusion Dendrogram



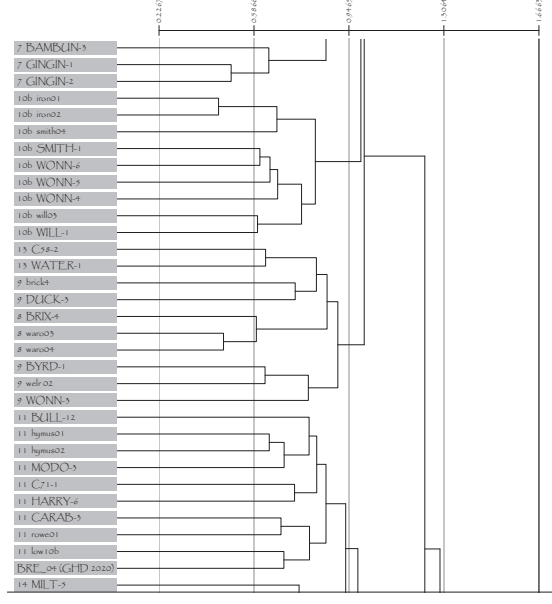
Column Fusion Dendrogram



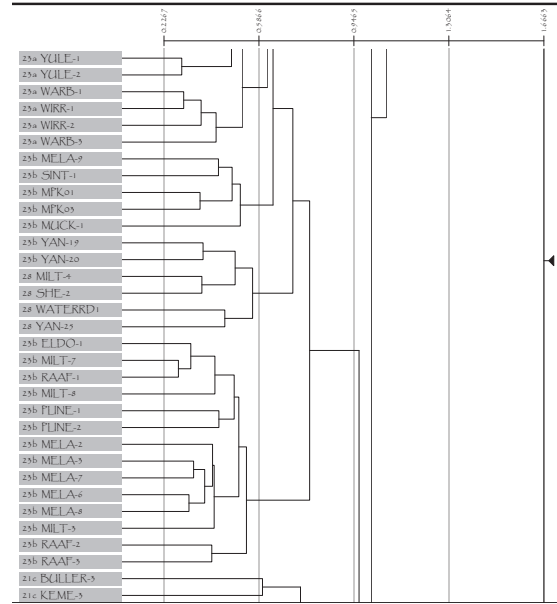
Column Fusion Dendrogram



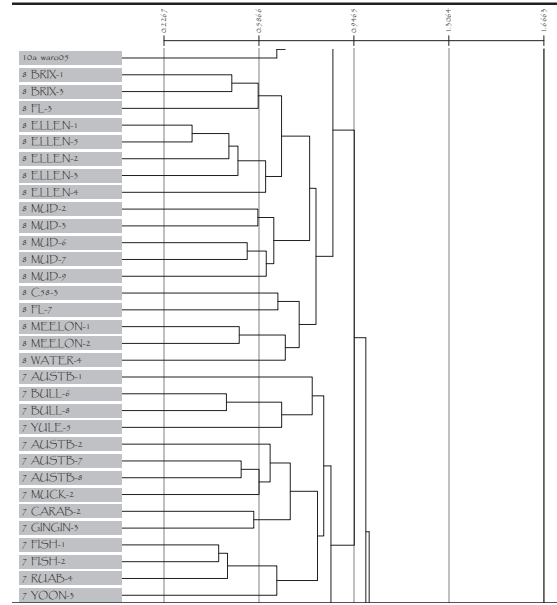
Column Fusion Dendrogram



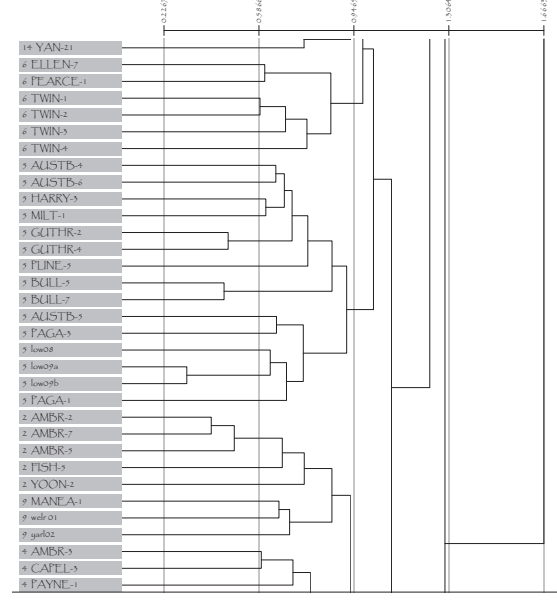
Column Fusion Dendrogram



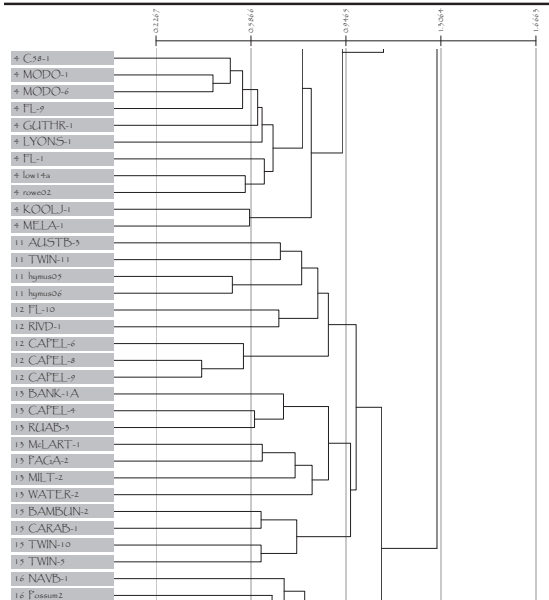
Column Fusion Dendrogram



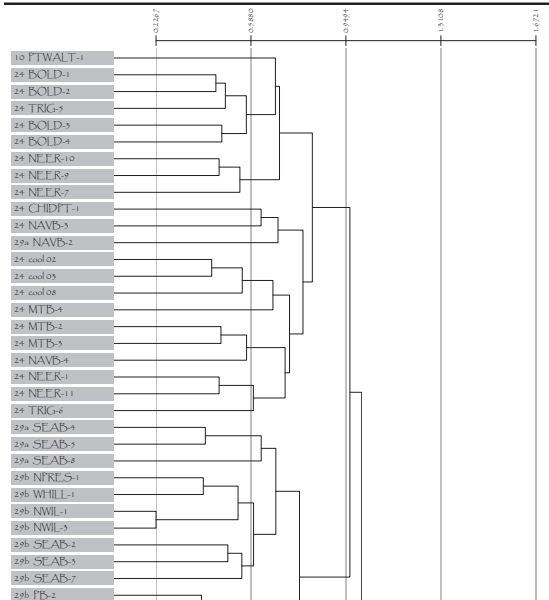
Column Fusion Dendrogram



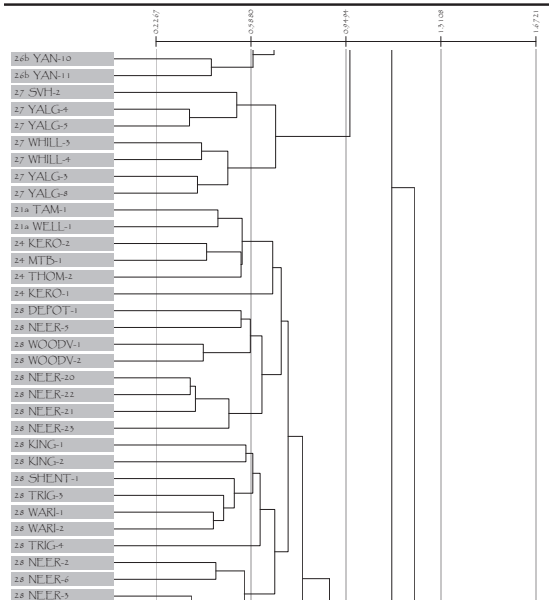
Column Fusion Dendrogram



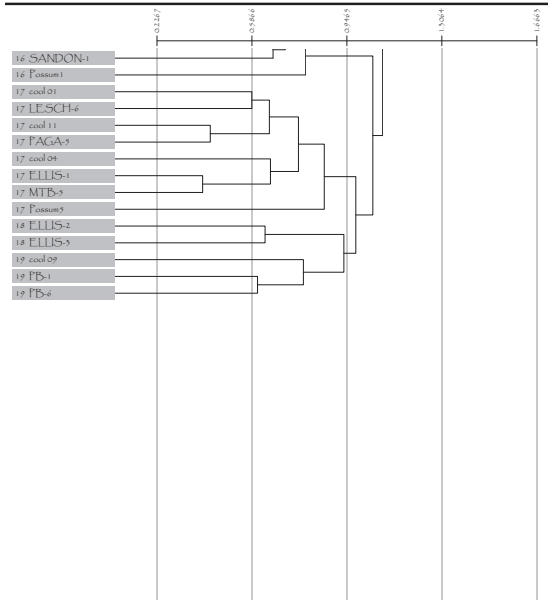
Column Fusion Dendrogram



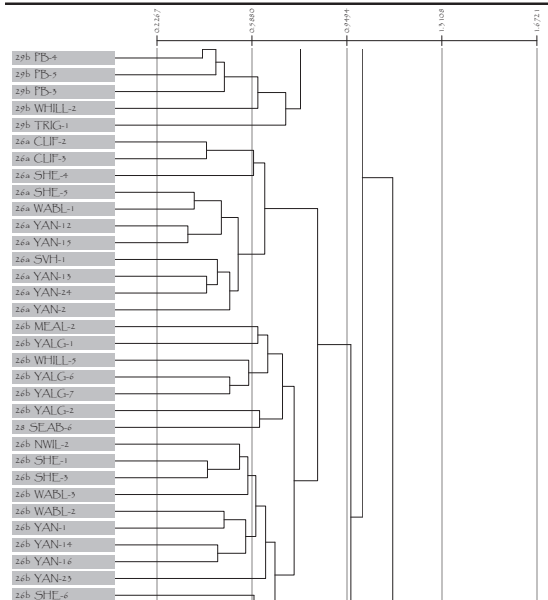
Column Fusion Dendrogram



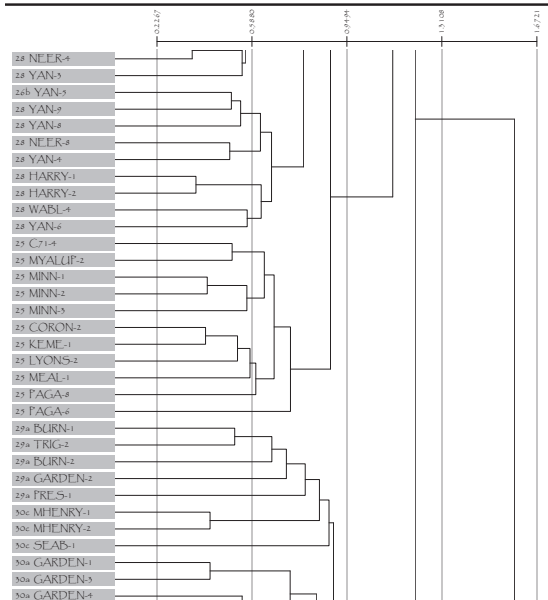
Column Fusion Dendrogram



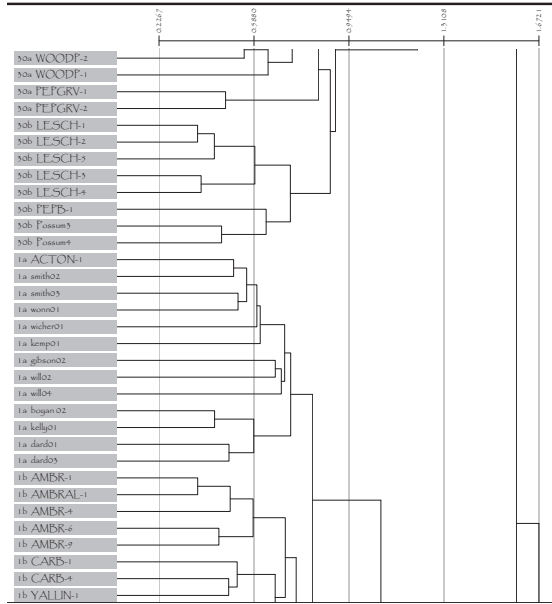
Column Fusion Dendrogram



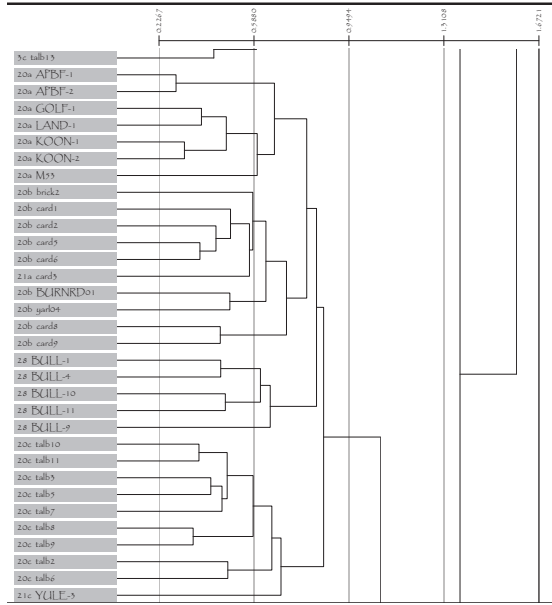
Column Fusion Dendrogram



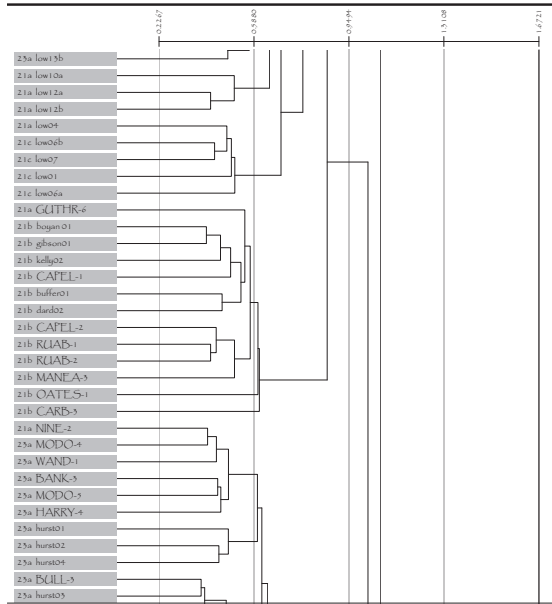
Column Fusion Dendrogram



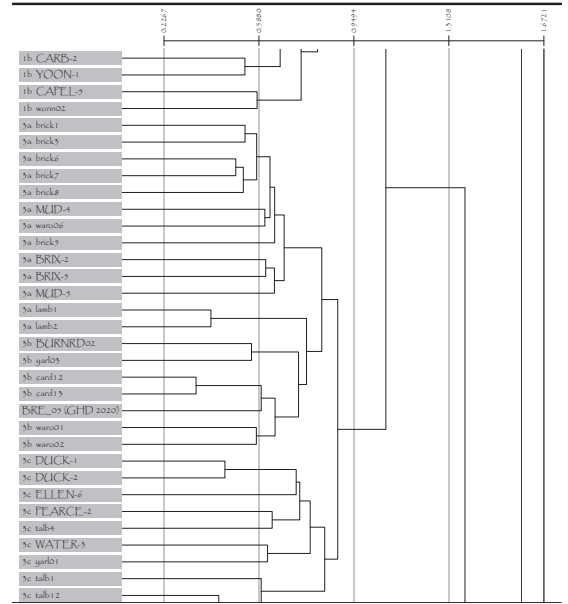
Column Fusion Dendrogram



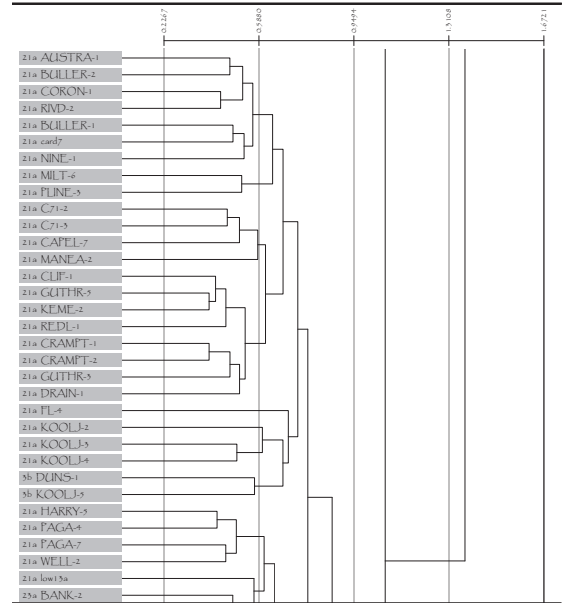
Column Fusion Dendrogram



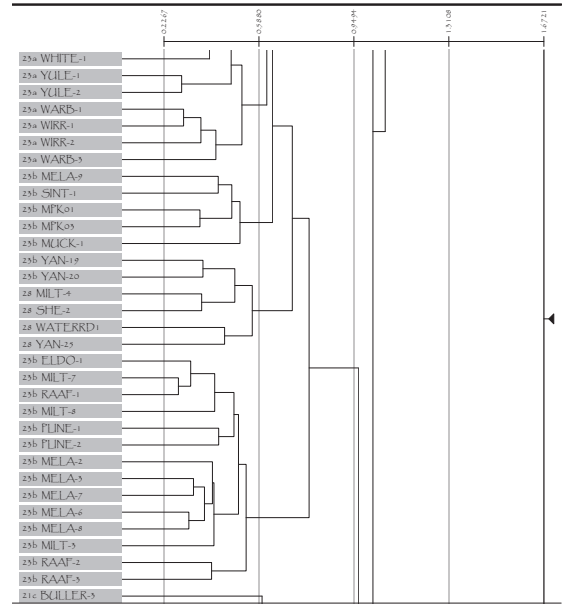
Column Fusion Dendrogram



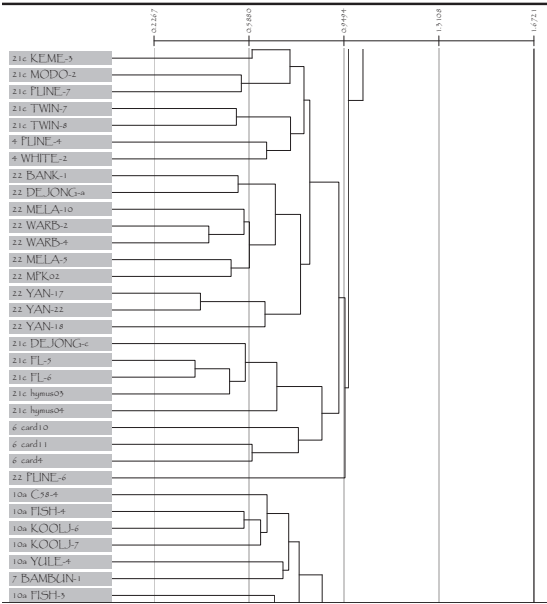
Column Fusion Dendrogram



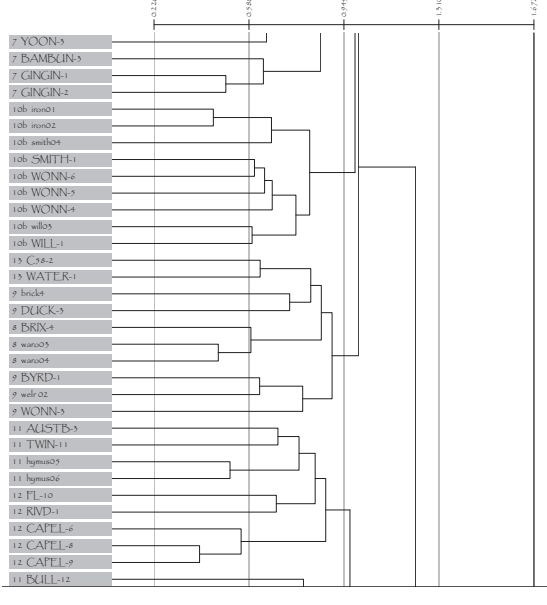
Column Fusion Dendrogram



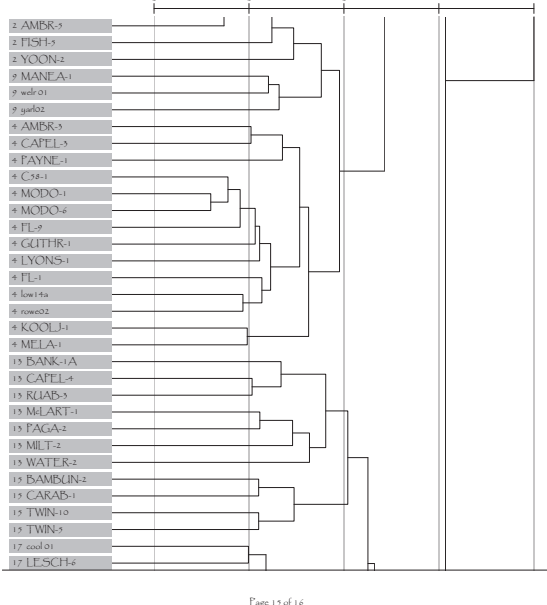
Column Fusion Dendrogram



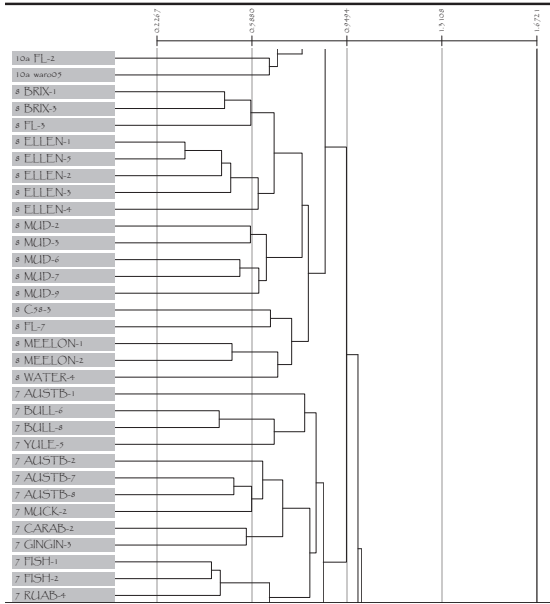
Column Fusion Dendrogram



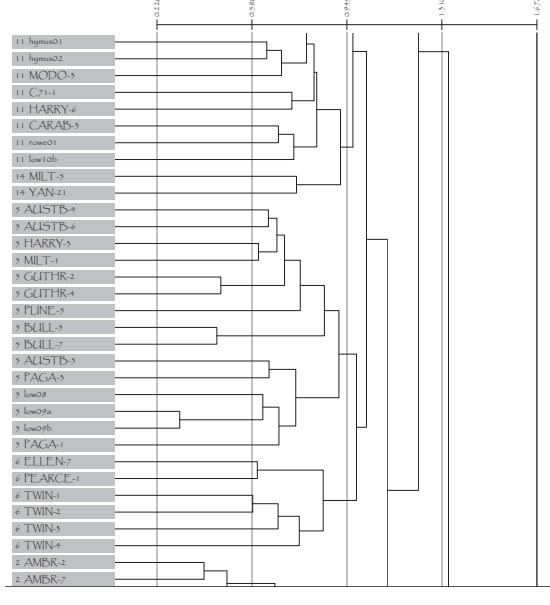
Column Fusion Dendrogram



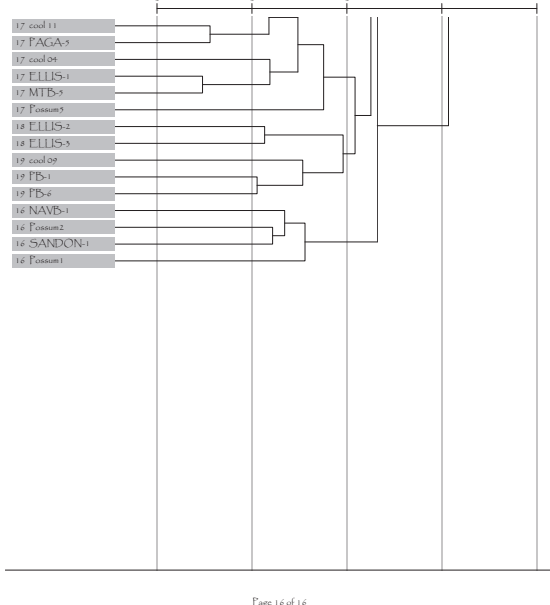
Column Fusion Dendrogram



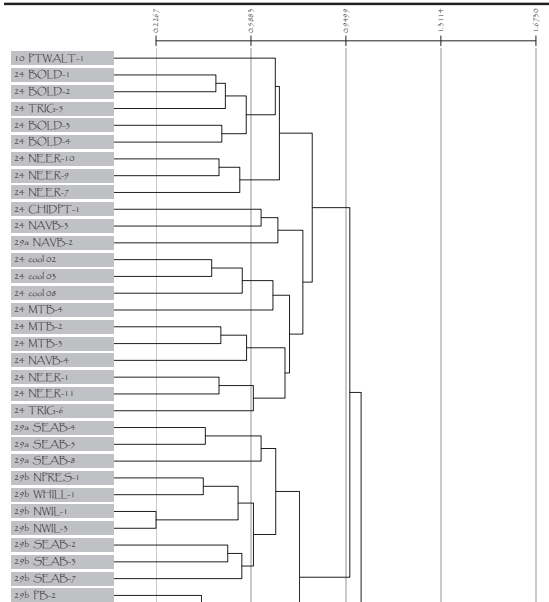
Column Fusion Dendrogram



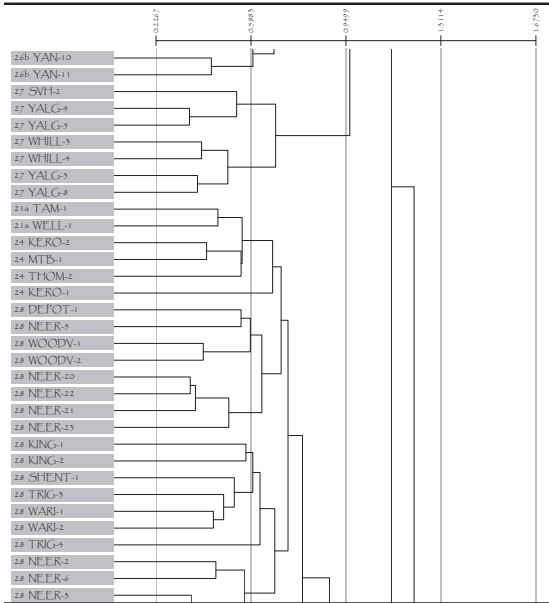
Column Fusion Dendrogram



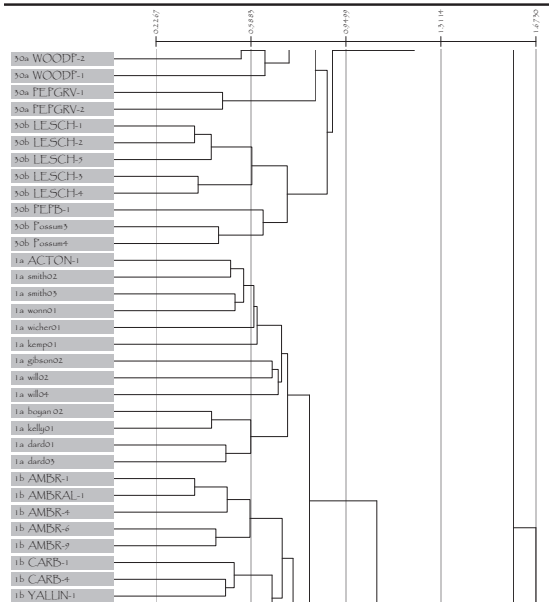
Column Fusion Dendrogram



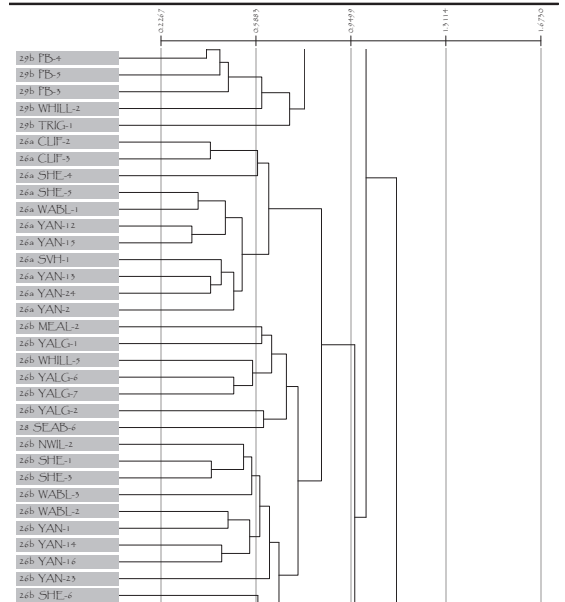
Column Fusion Dendrogram



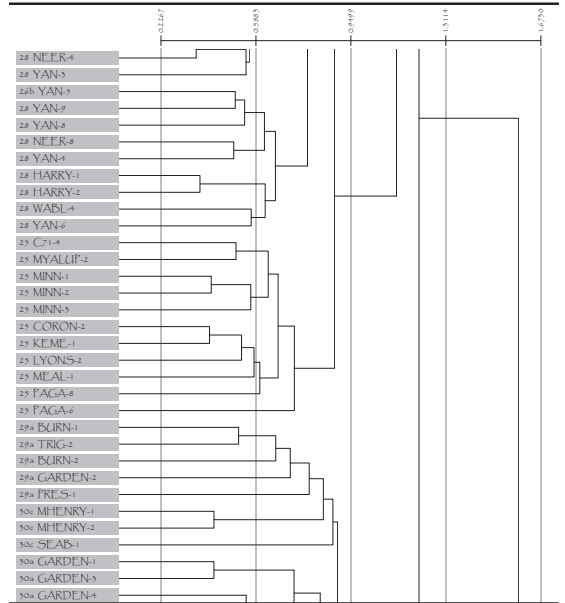
Column Fusion Dendrogram



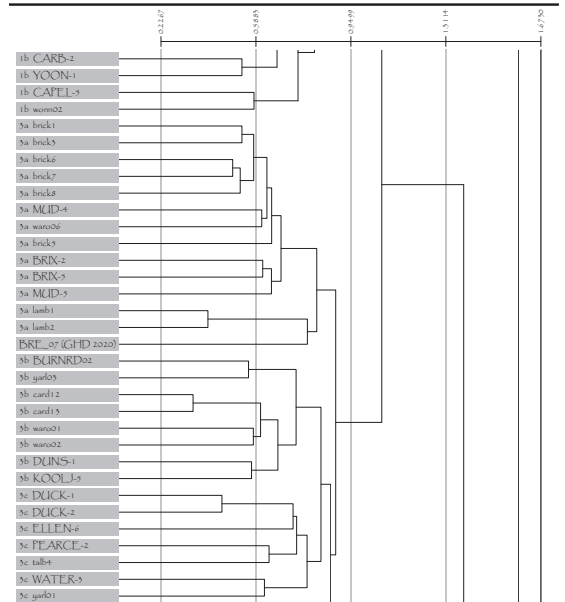
Column Fusion Dendrogram



Column Fusion Dendrogram

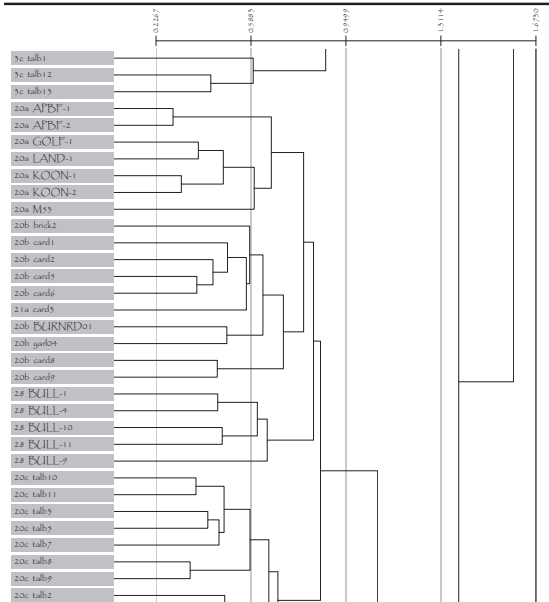


Column Fusion Dendrogram

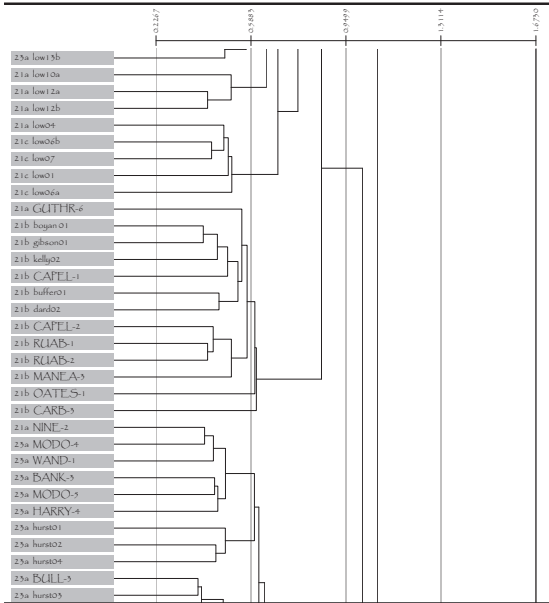




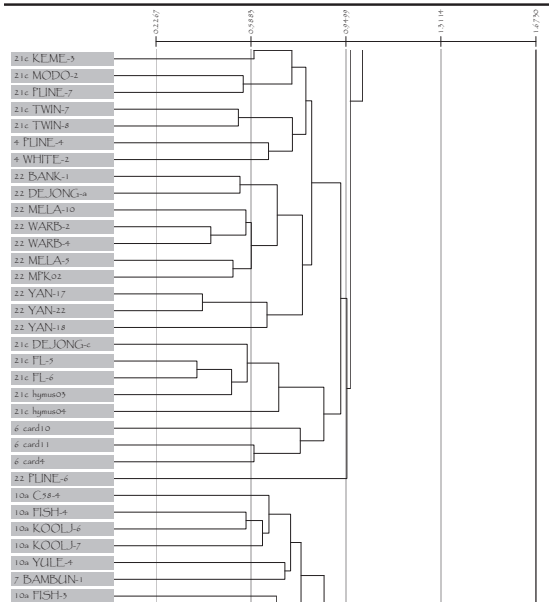
Column Fusion Dendrogram



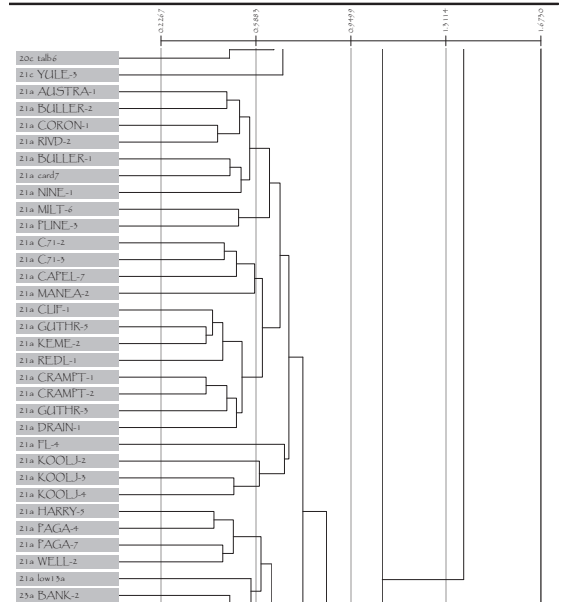
Column Fusion Dendrogram



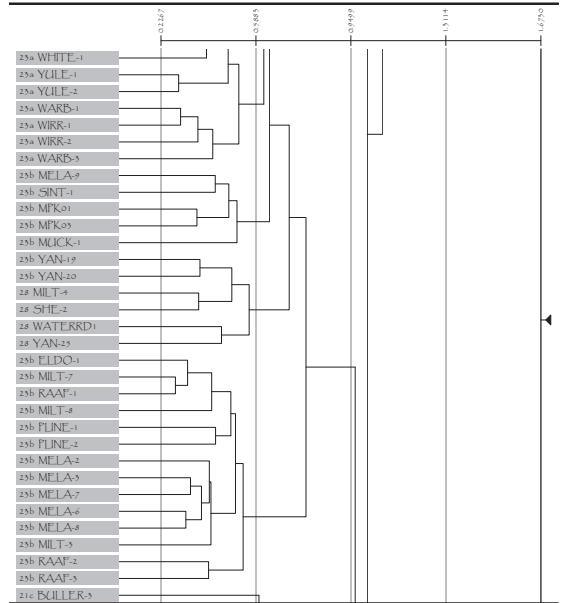
Column Fusion Dendrogram



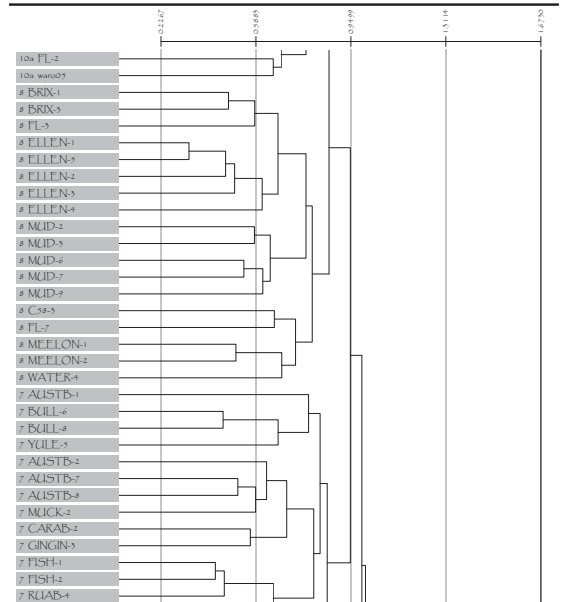
Column Fusion Dendrogram



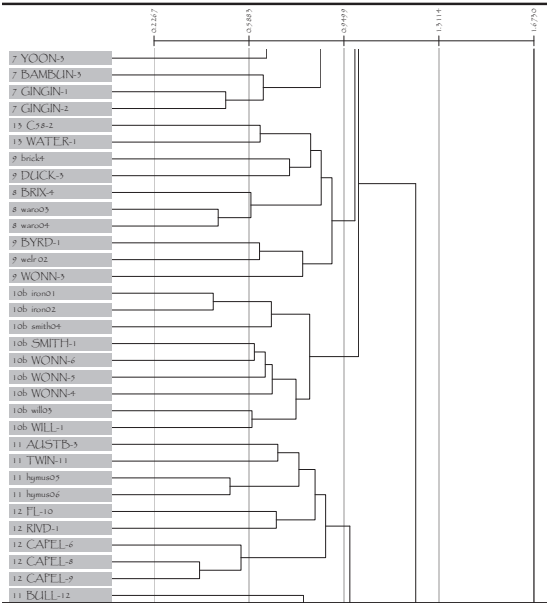
Column Fusion Dendrogram



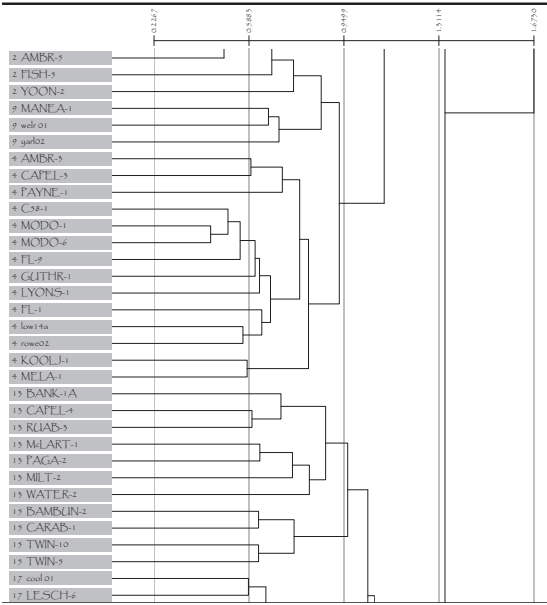
Column Fusion Dendrogram



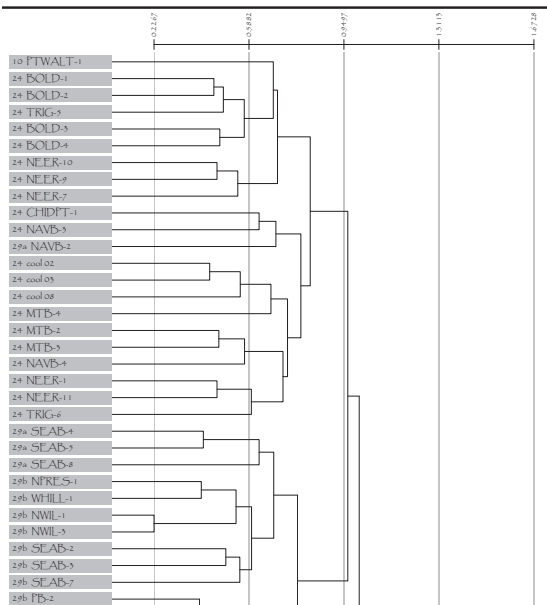
Column Fusion Dendrogram



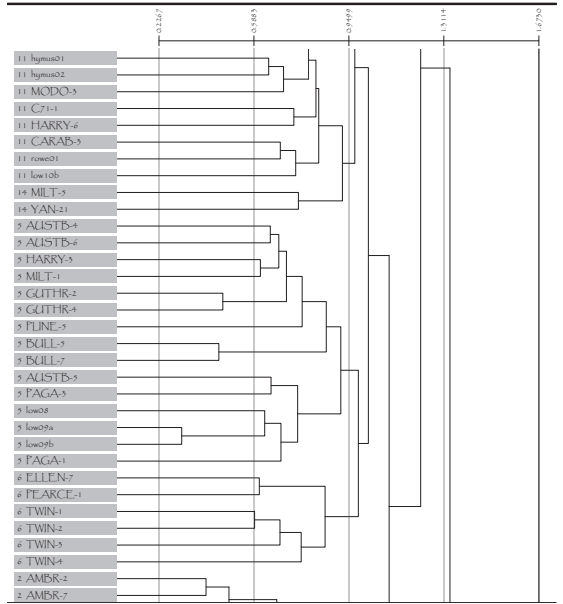
Column Fusion Dendrogram



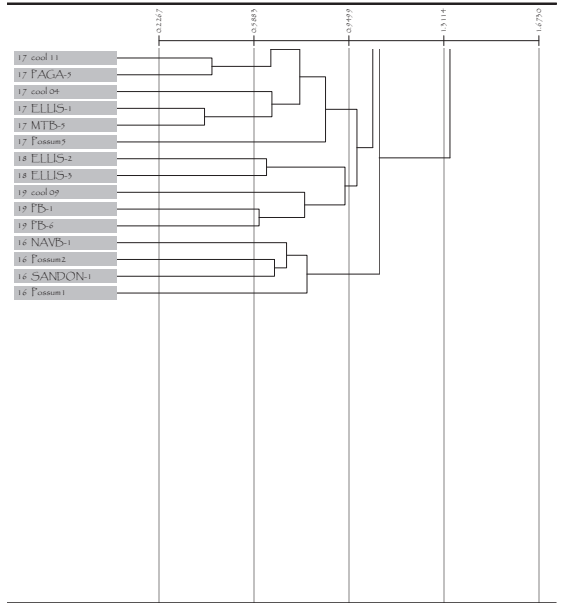
Column Fusion Dendrogram



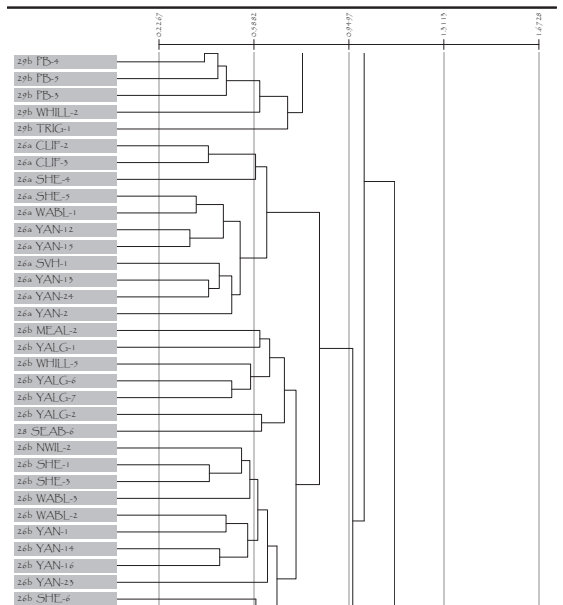
Column Fusion Dendrogram

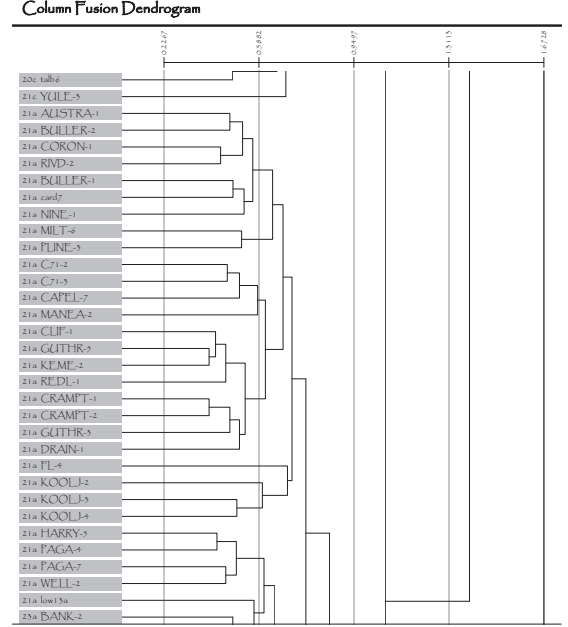
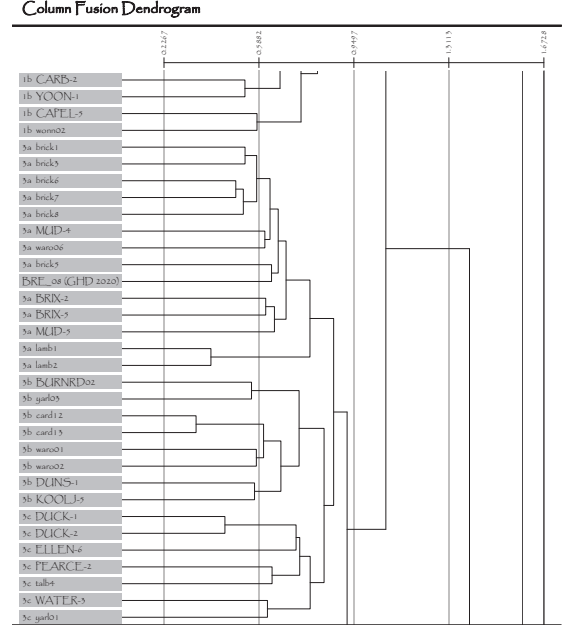
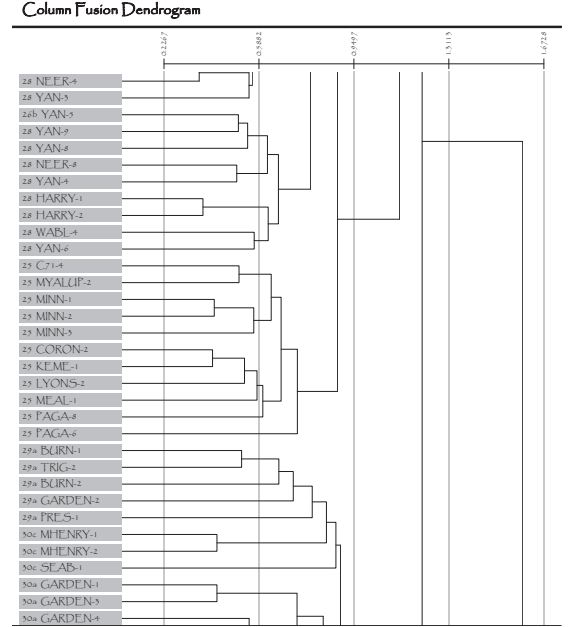
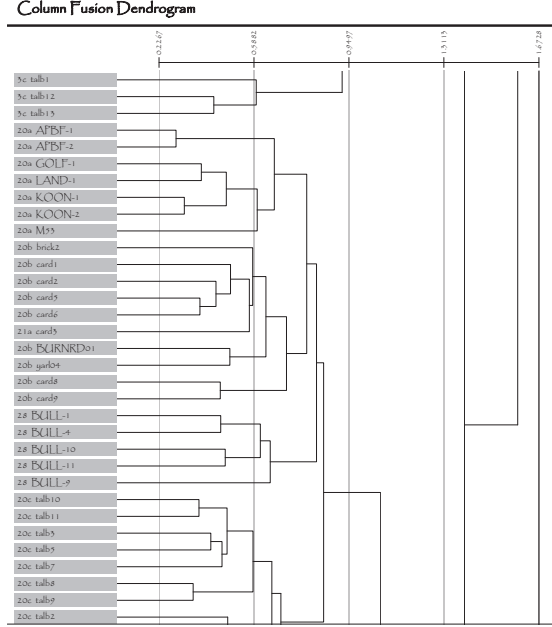
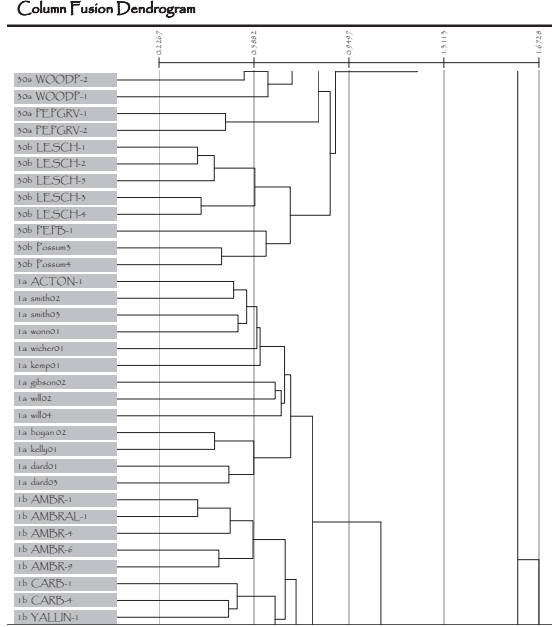
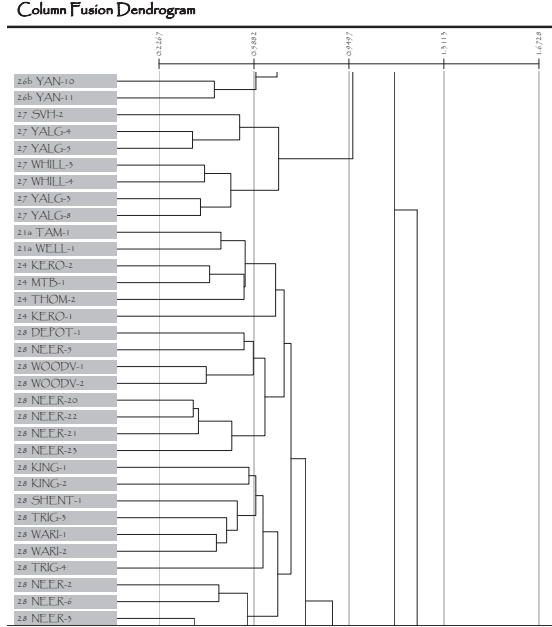


Column Fusion Dendrogram

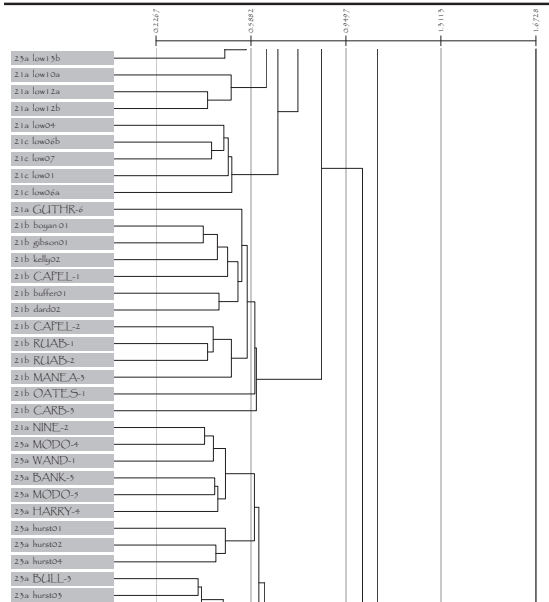


Column Fusion Dendrogram

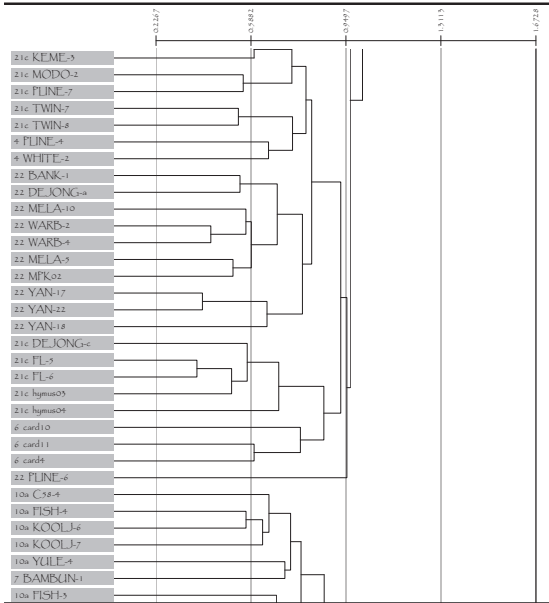




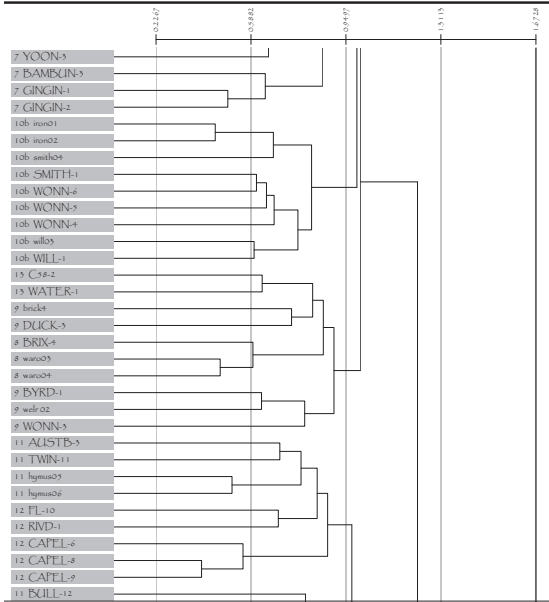
Column Fusion Dendrogram



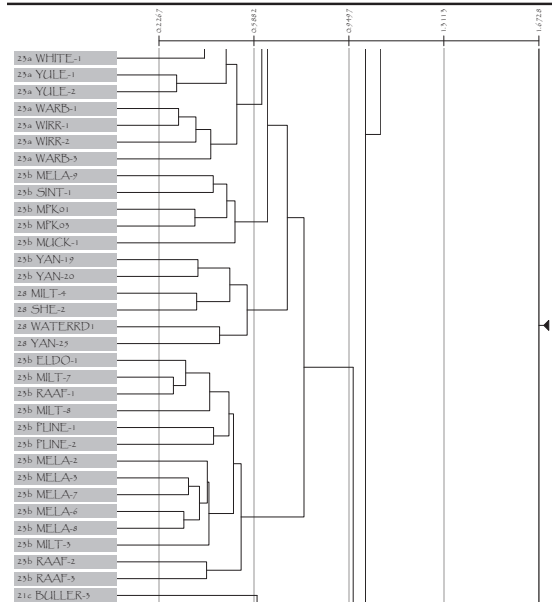
Column Fusion Dendrogram



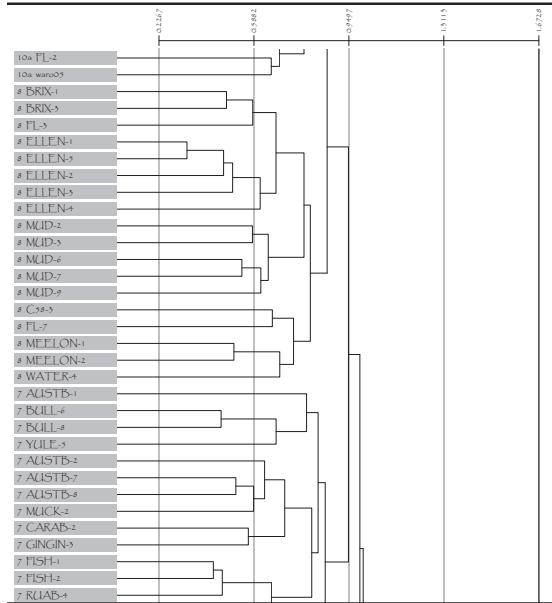
Column Fusion Dendrogram



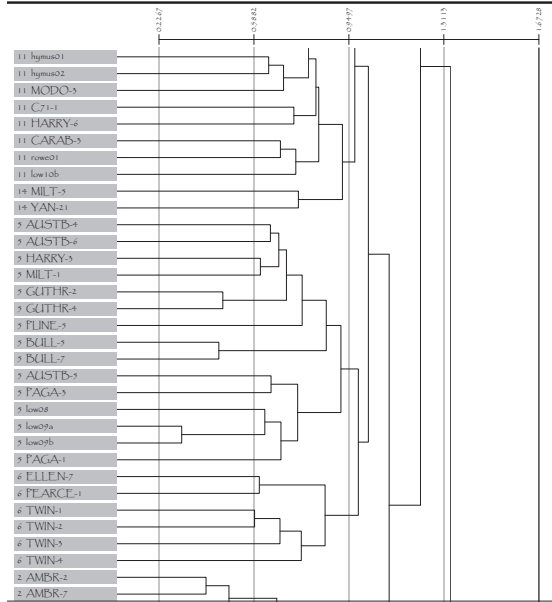
Column Fusion Dendrogram



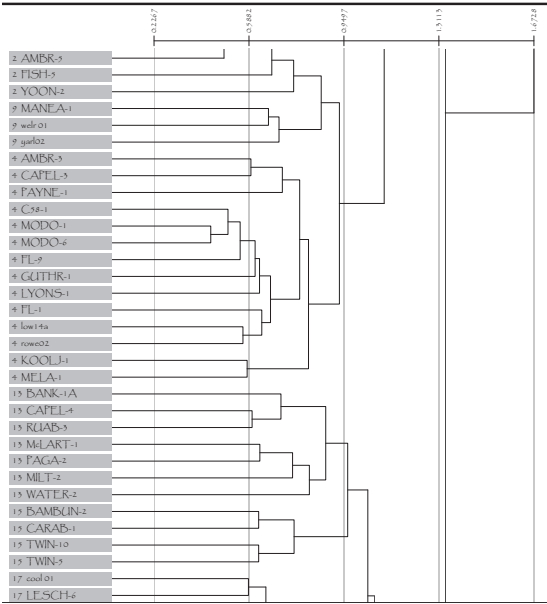
Column Fusion Dendrogram



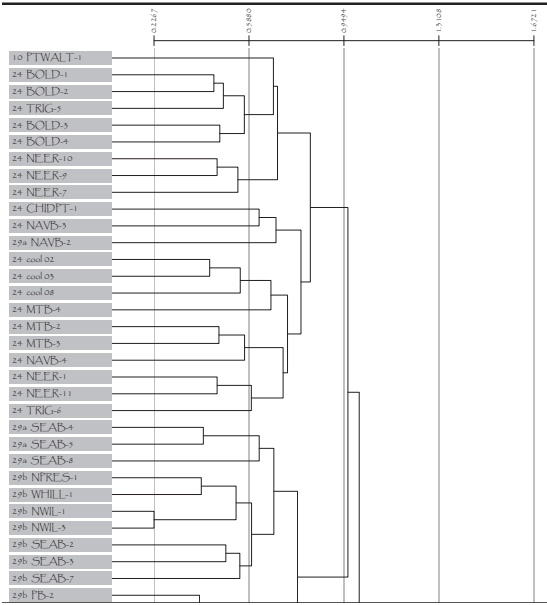
Column Fusion Dendrogram



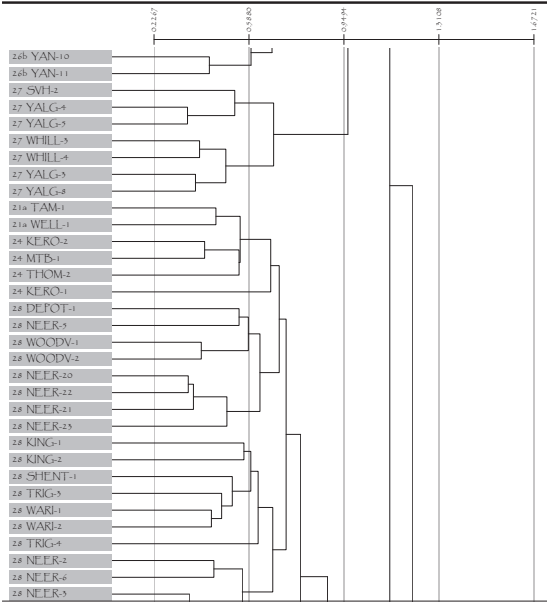
Column Fusion Dendrogram



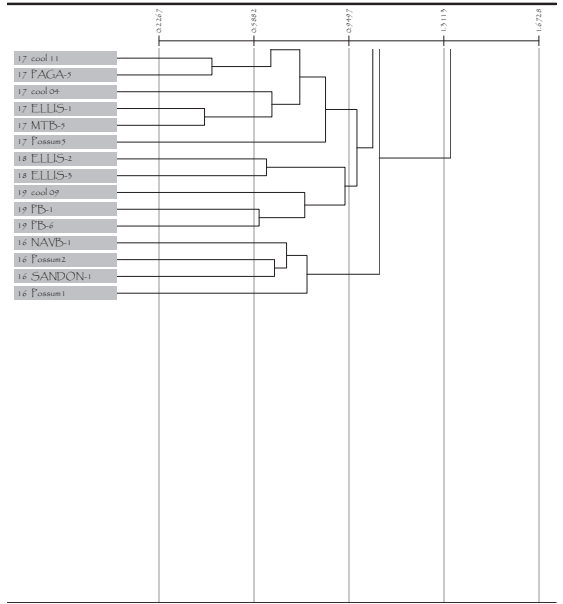
Column Fusion Dendrogram



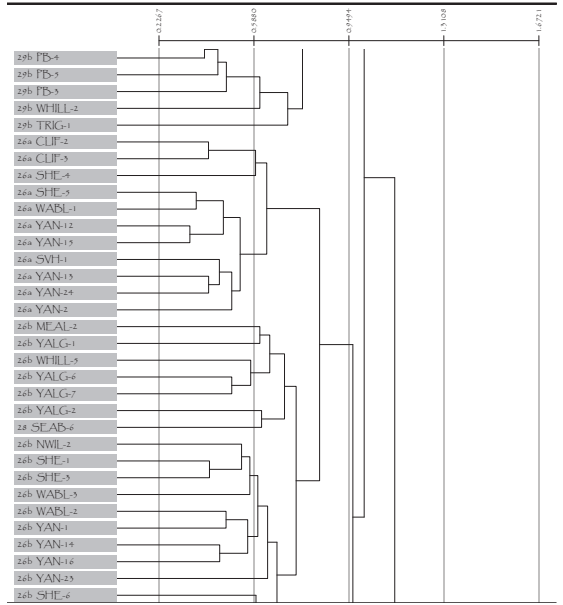
Column Fusion Dendrogram



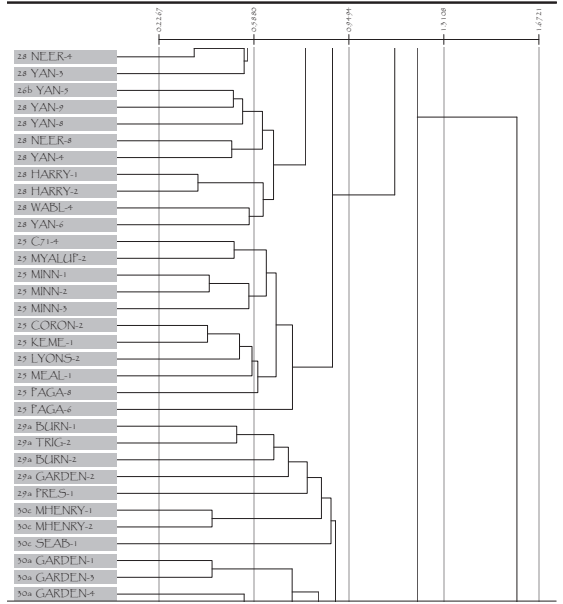
Column Fusion Dendrogram



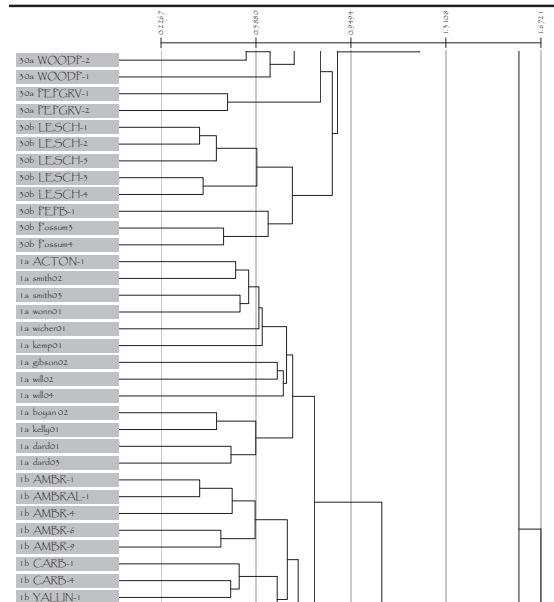
Column Fusion Dendrogram



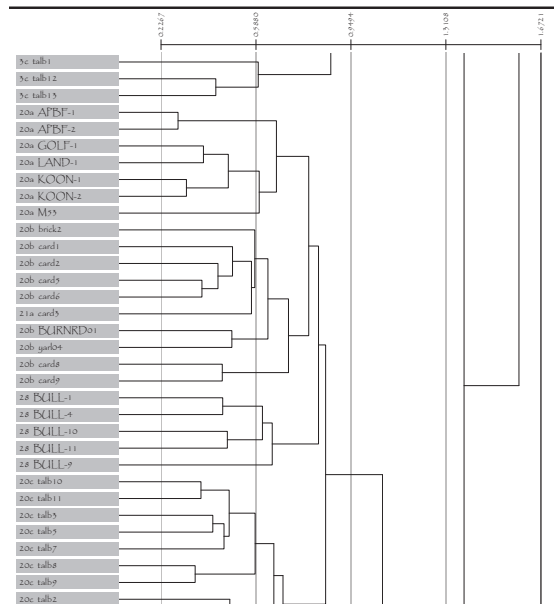
Column Fusion Dendrogram



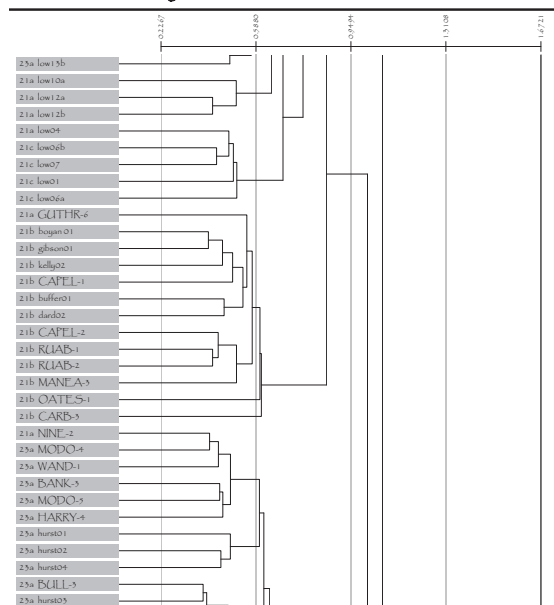
Column Fusion Dendrogram



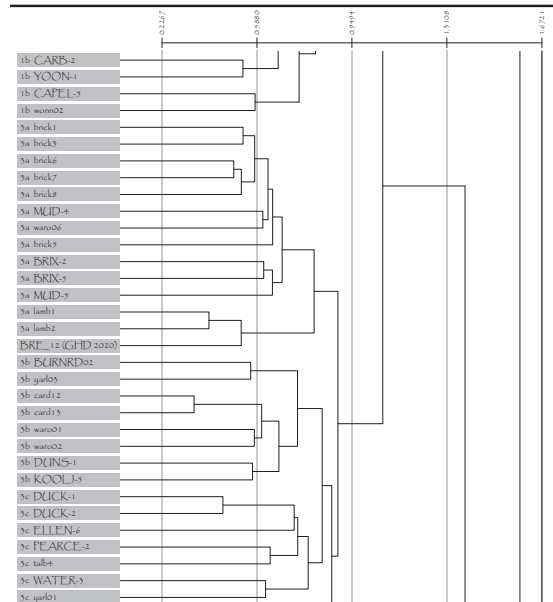
Column Fusion Dendrogram



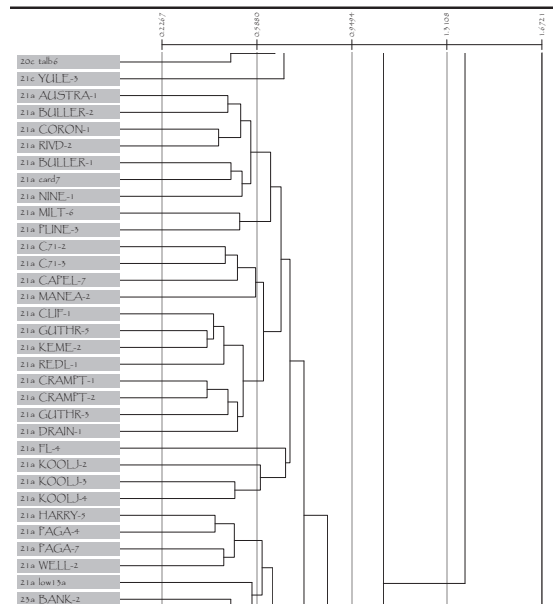
Column Fusion Dendrogram



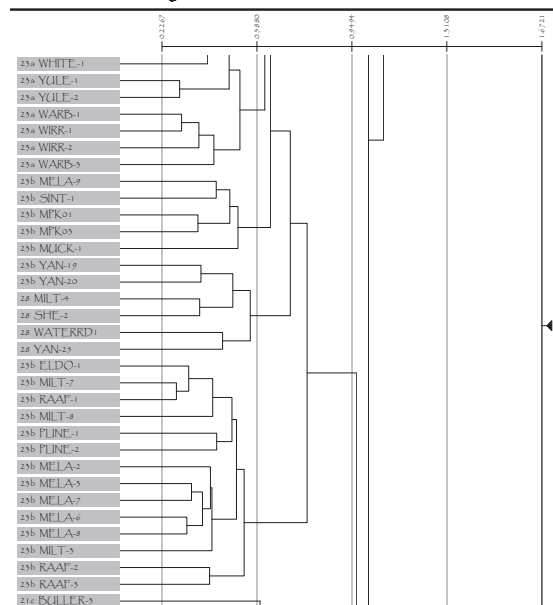
Column Fusion Dendrogram



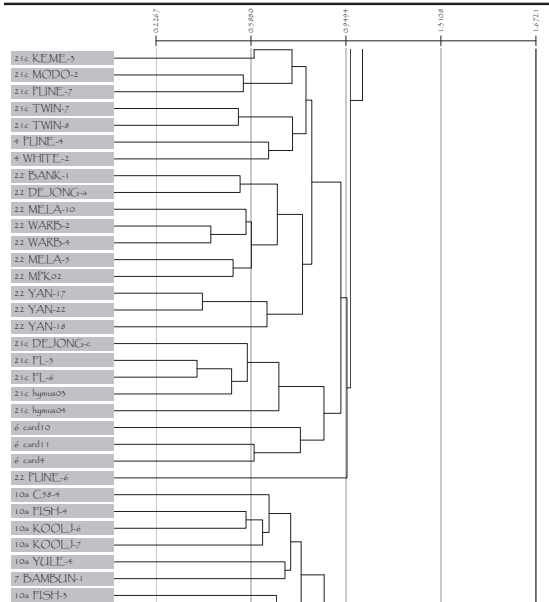
Column Fusion Dendrogram



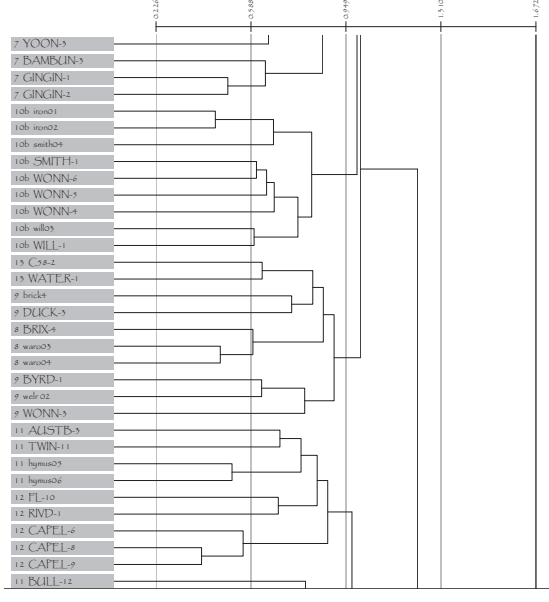
Column Fusion Dendrogram



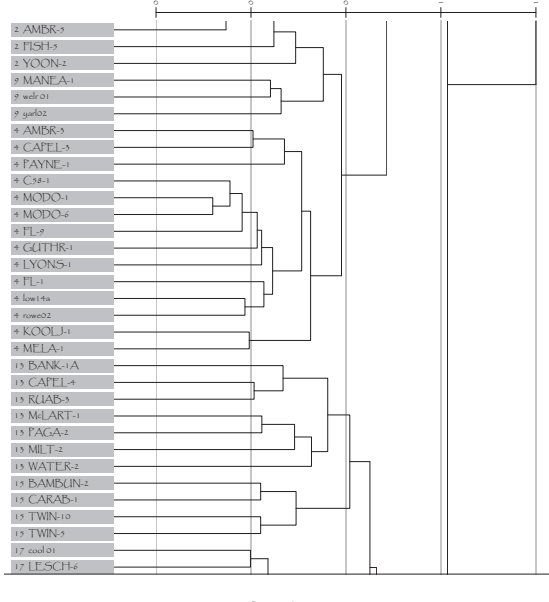
Column Fusion Dendrogram



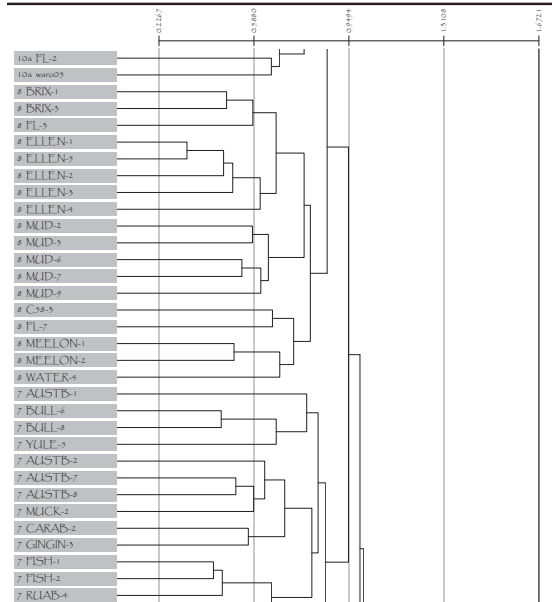
Column Fusion Dendrogram



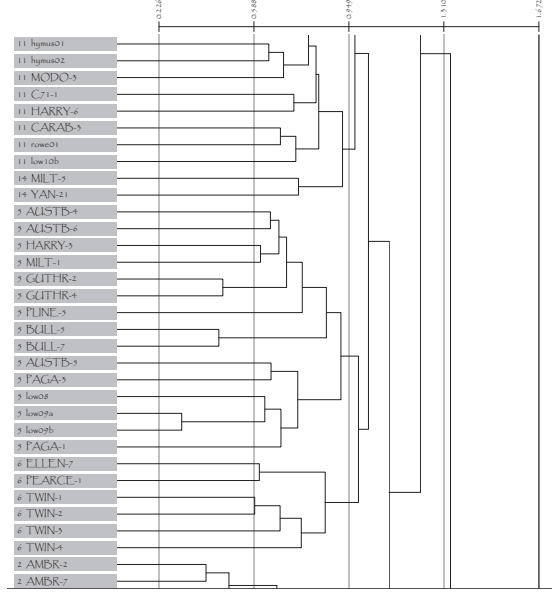
Column Fusion Dendrogram



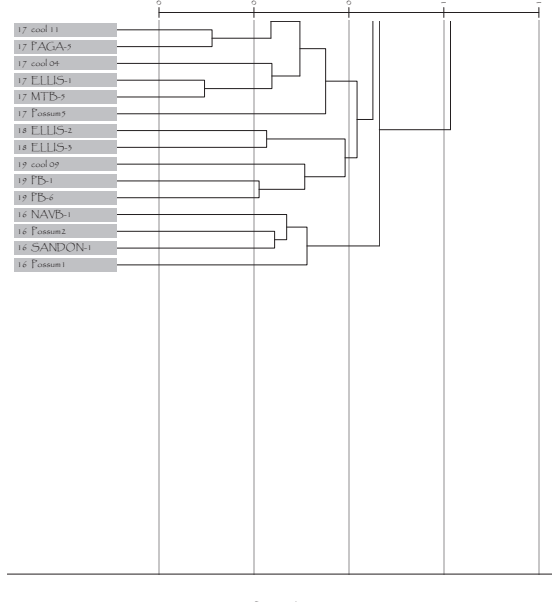
Column Fusion Dendrogram



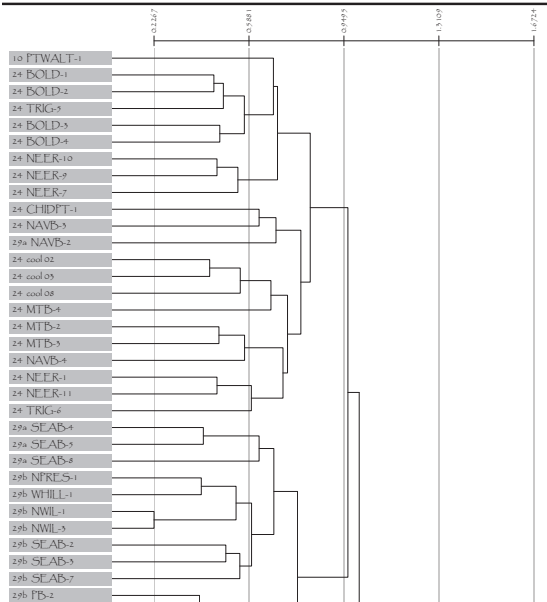
Column Fusion Dendrogram



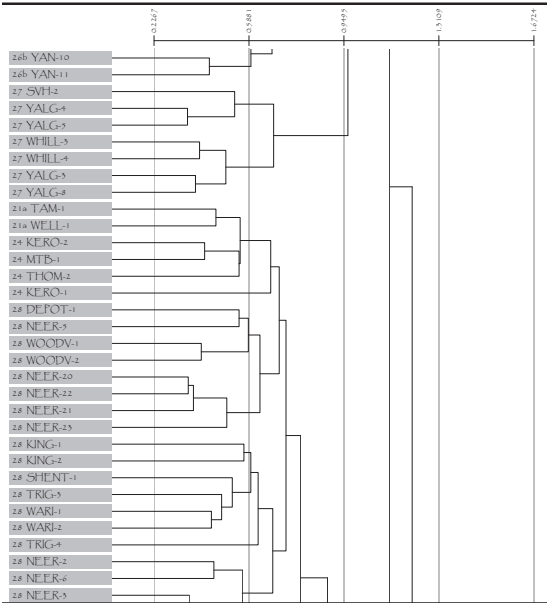
Column Fusion Dendrogram



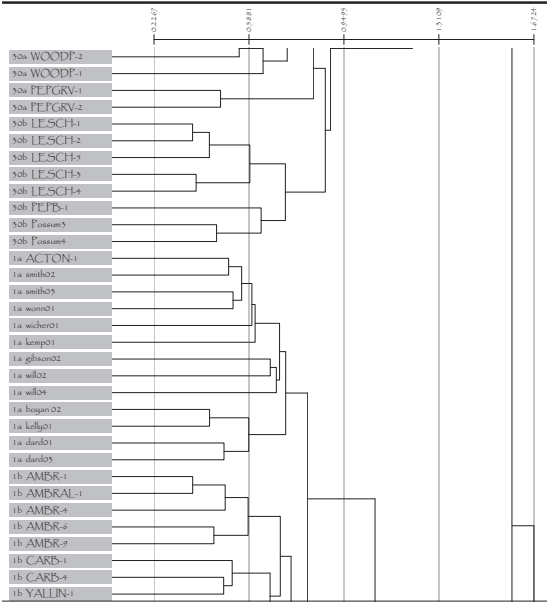
Column Fusion Dendrogram



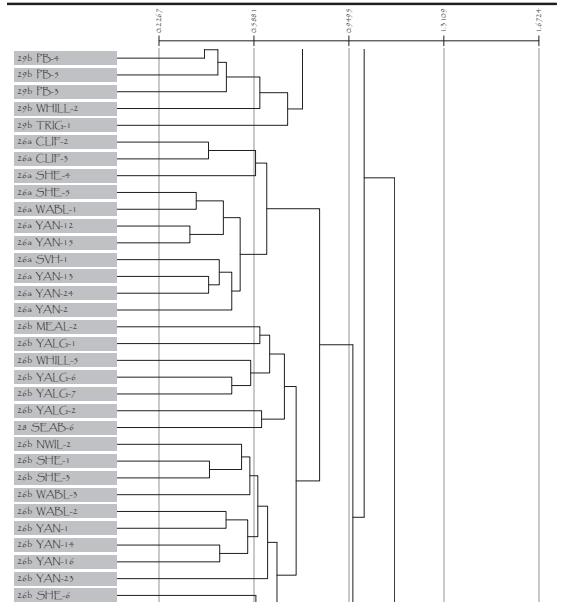
Column Fusion Dendrogram



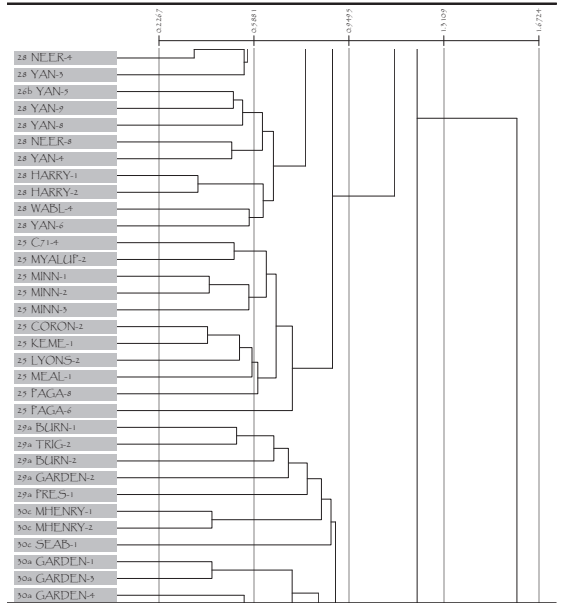
Column Fusion Dendrogram



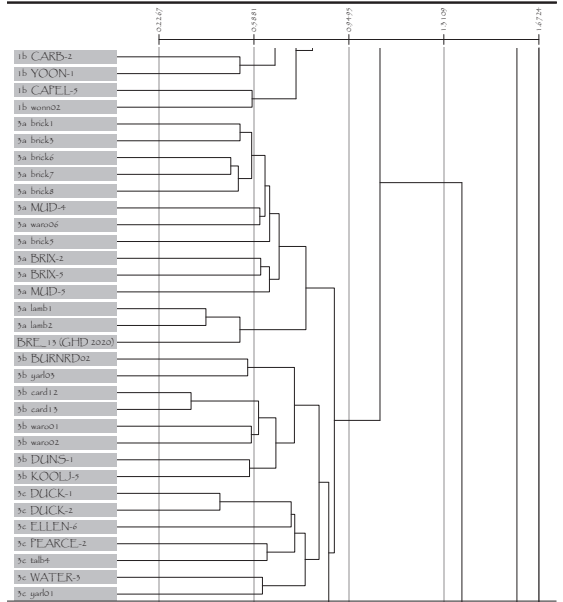
Column Fusion Dendrogram



Column Fusion Dendrogram

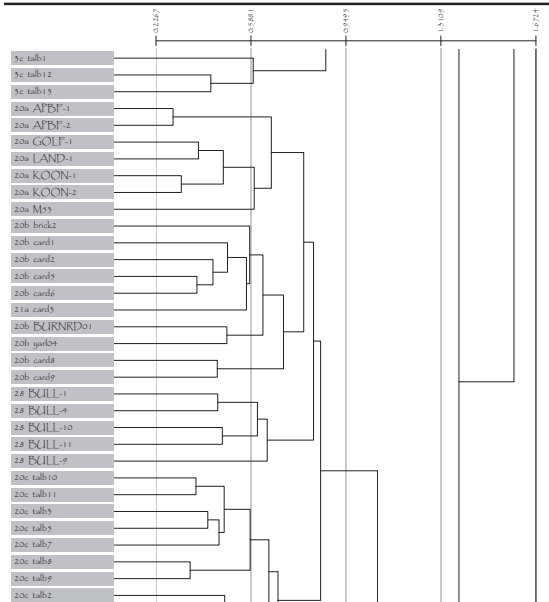


Column Fusion Dendrogram

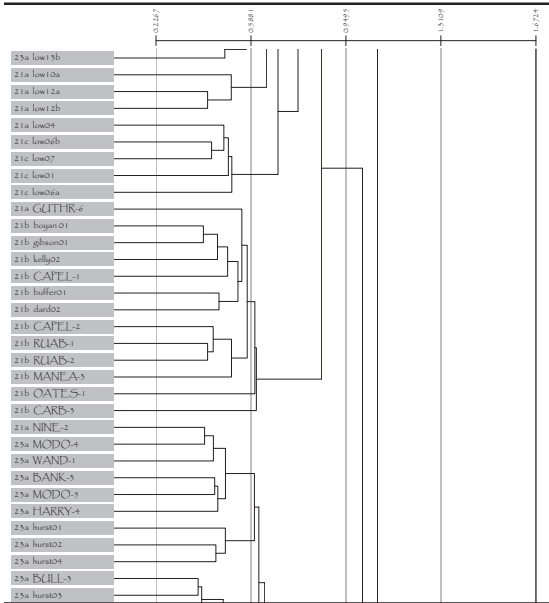




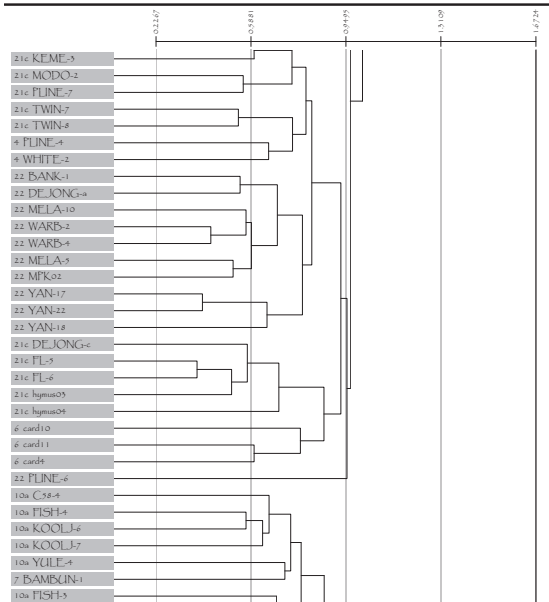
Column Fusion Dendrogram



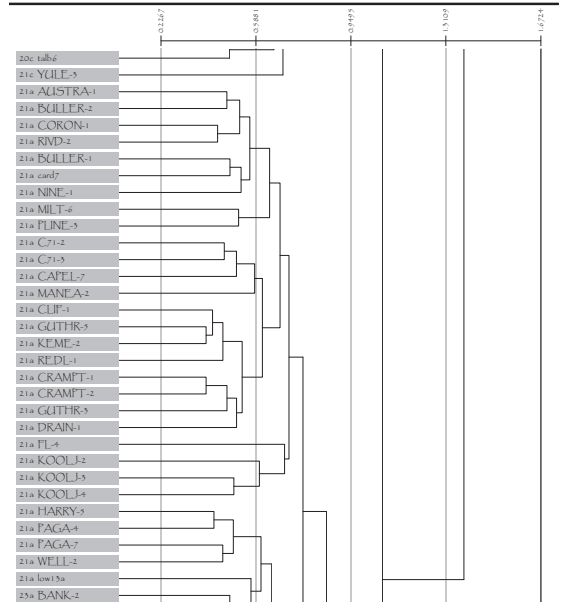
Column Fusion Dendrogram



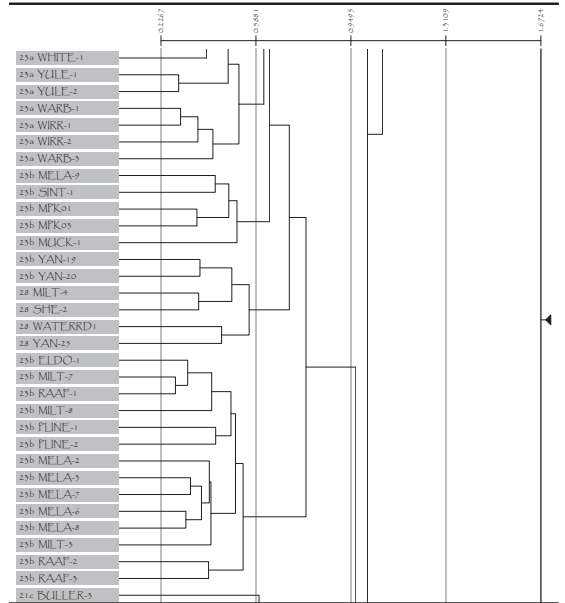
Column Fusion Dendrogram



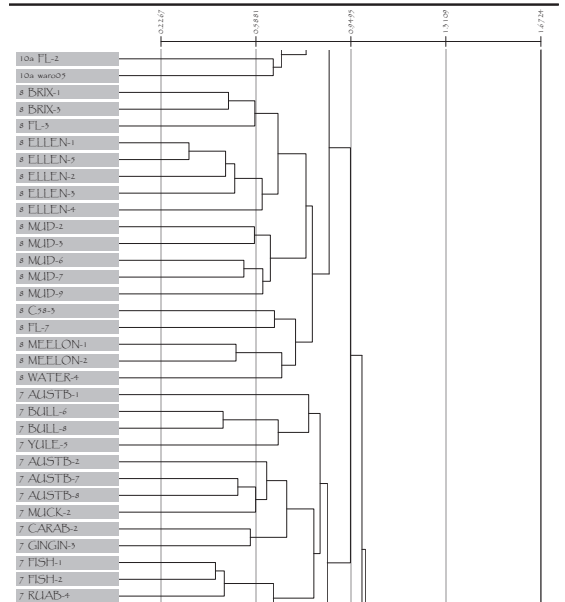
Column Fusion Dendrogram



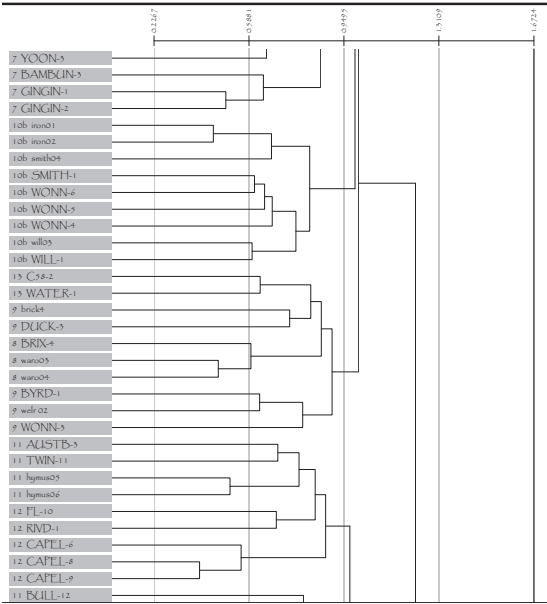
Column Fusion Dendrogram



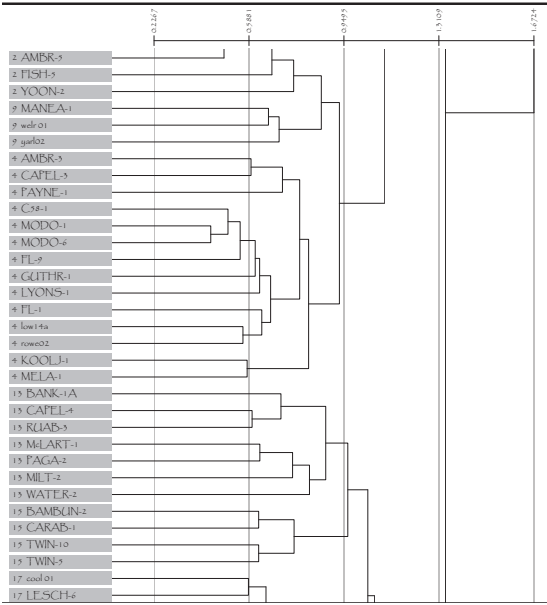
Column Fusion Dendrogram



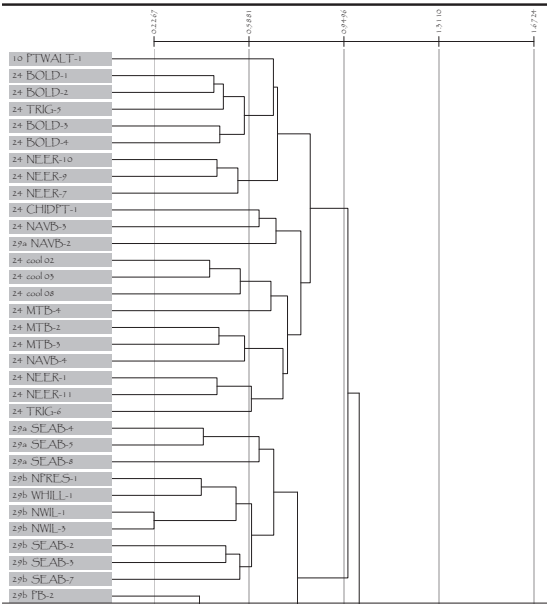
Column Fusion Dendrogram



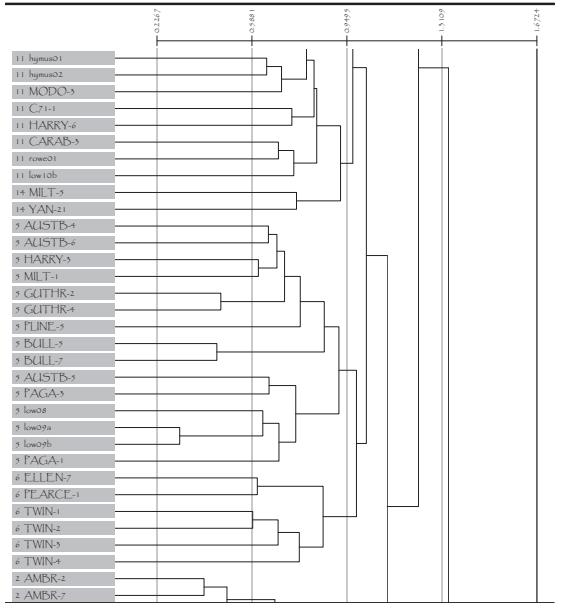
Column Fusion Dendrogram



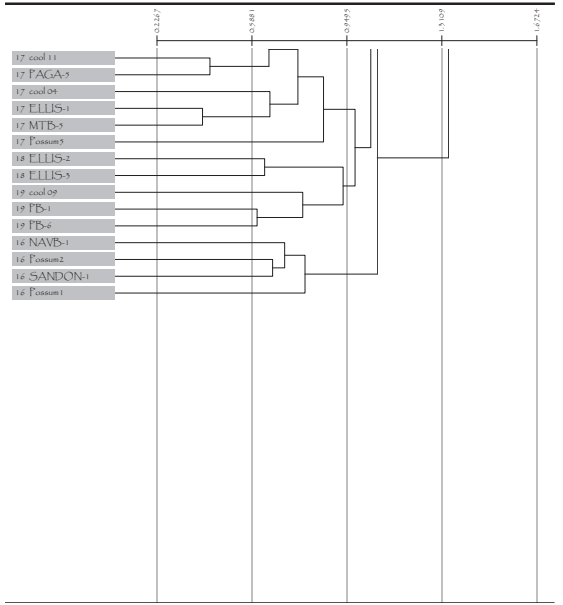
Column Fusion Dendrogram



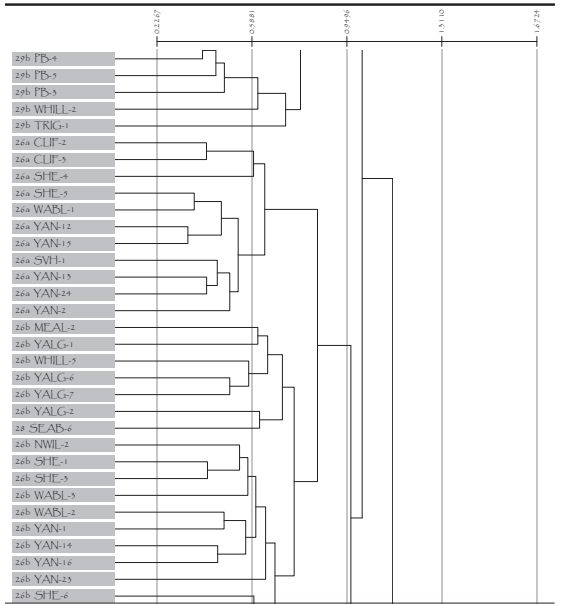
Column Fusion Dendrogram

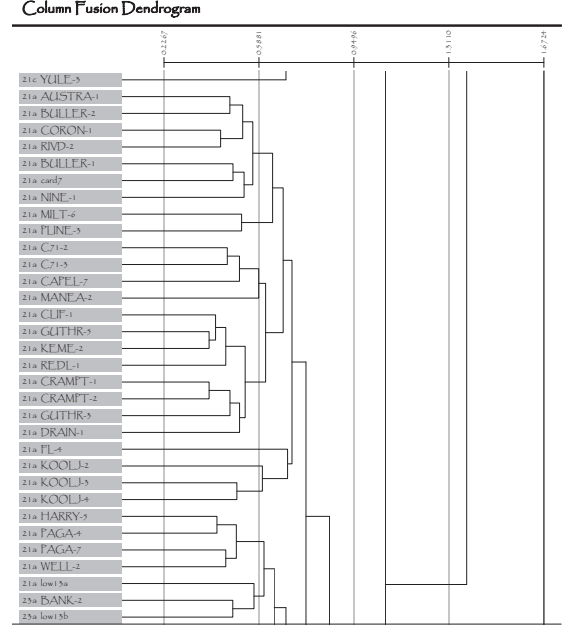
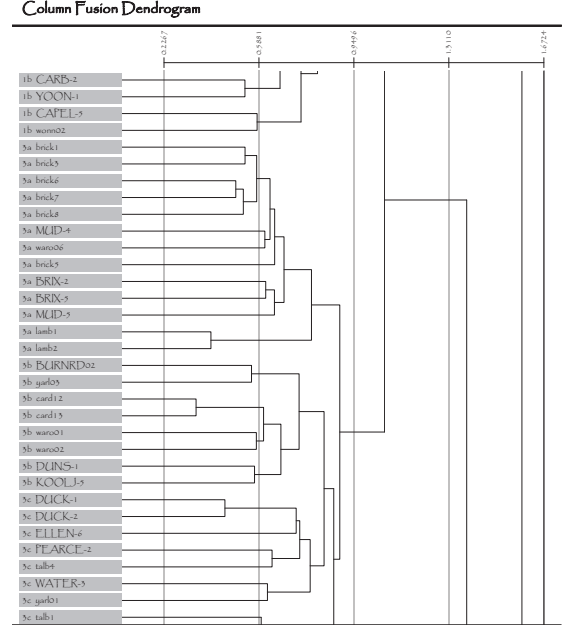
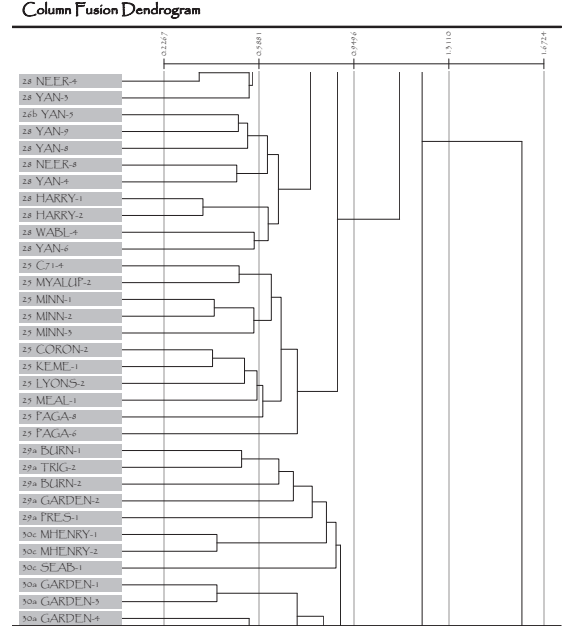
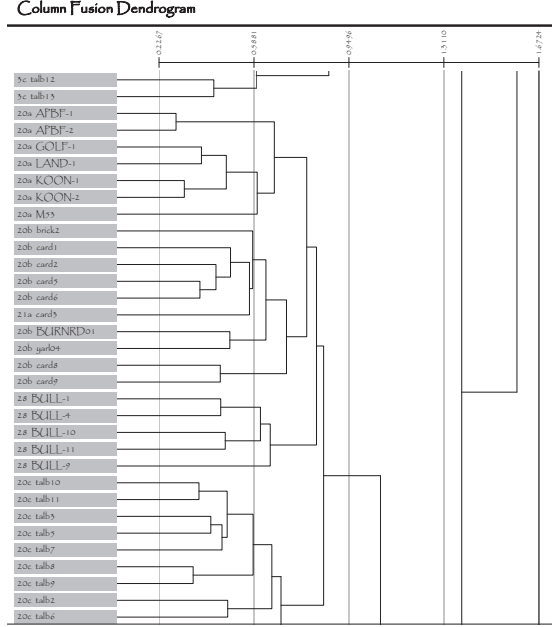
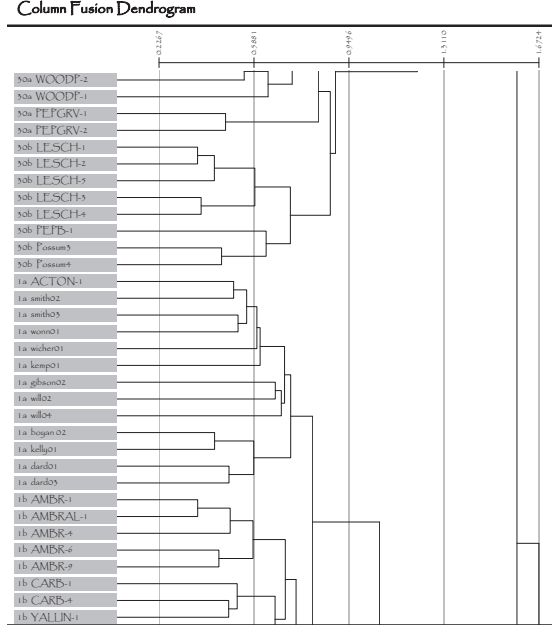
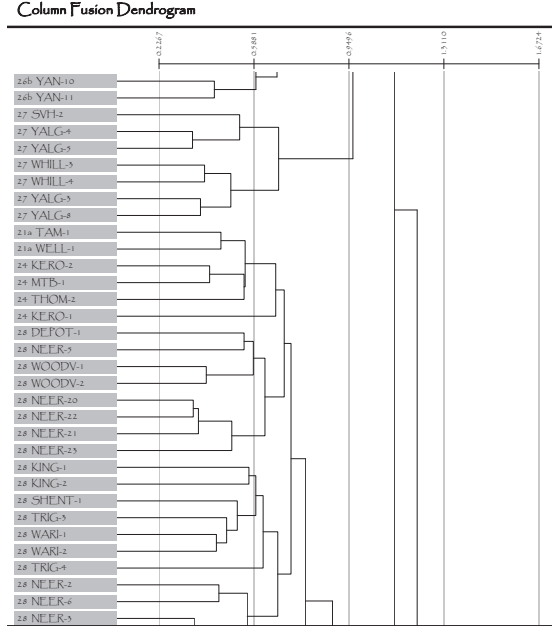


Column Fusion Dendrogram

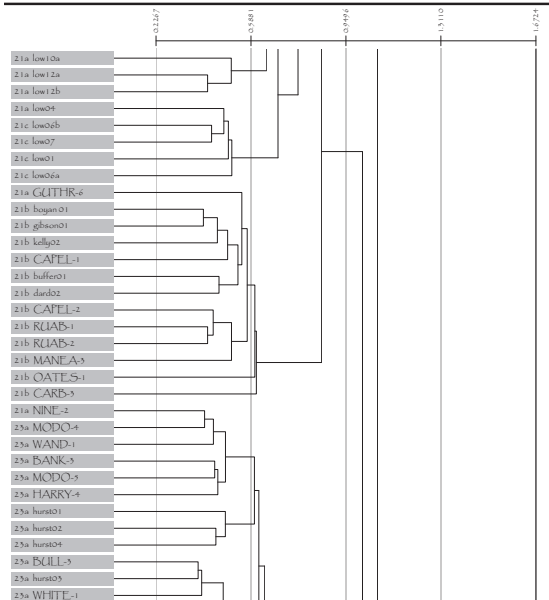


Column Fusion Dendrogram

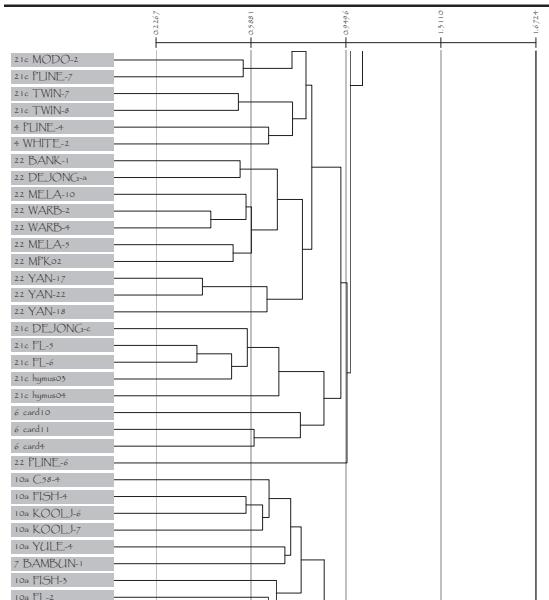




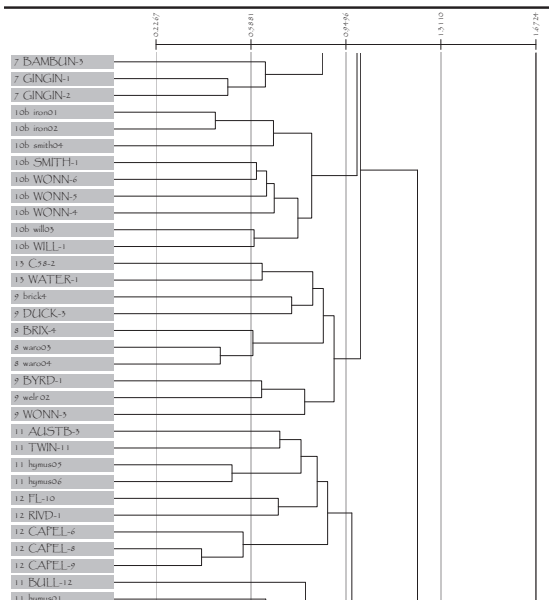
Column Fusion Dendrogram



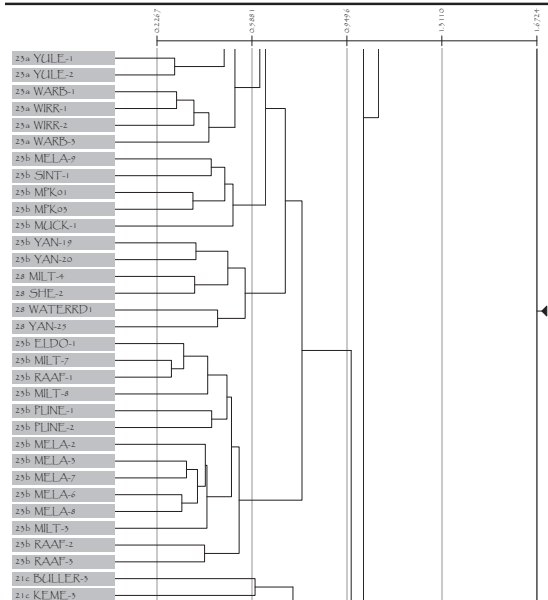
Column Fusion Dendrogram



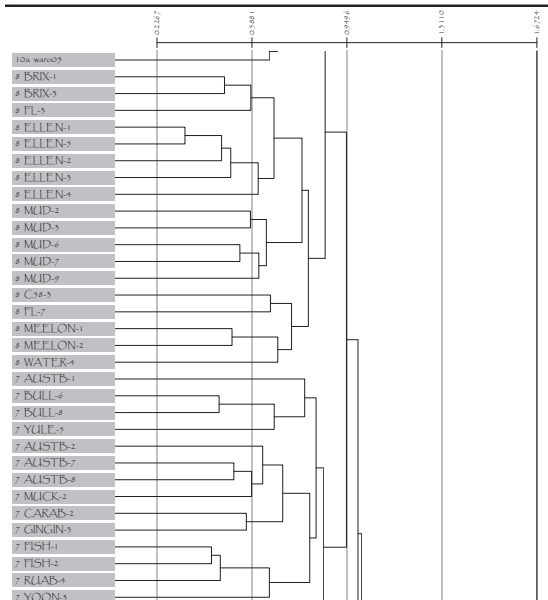
Column Fusion Dendrogram



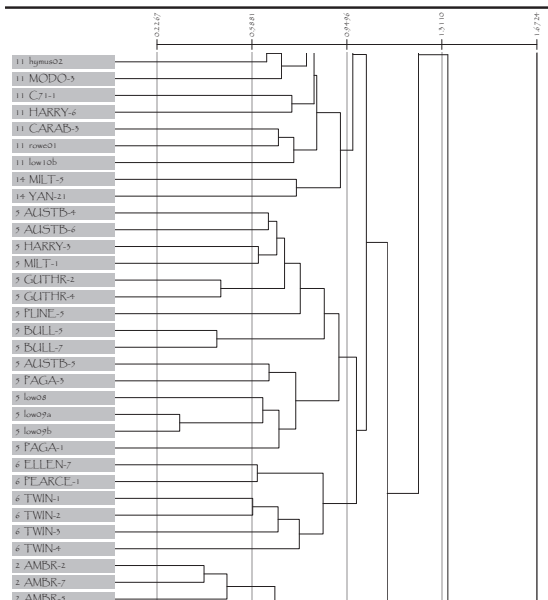
Column Fusion Dendrogram



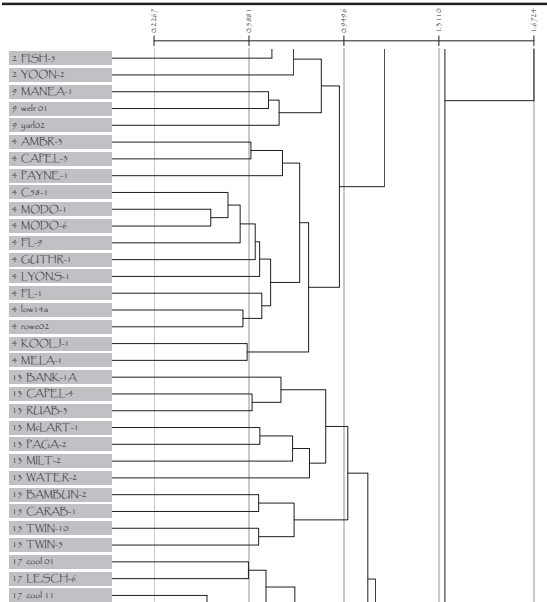
Column Fusion Dendrogram



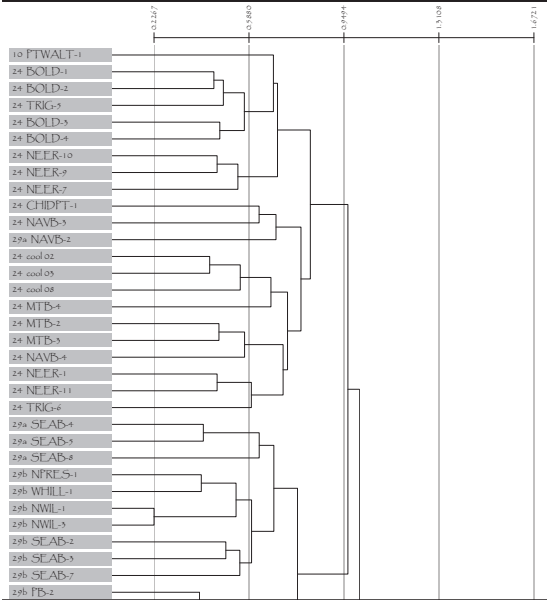
Column Fusion Dendrogram



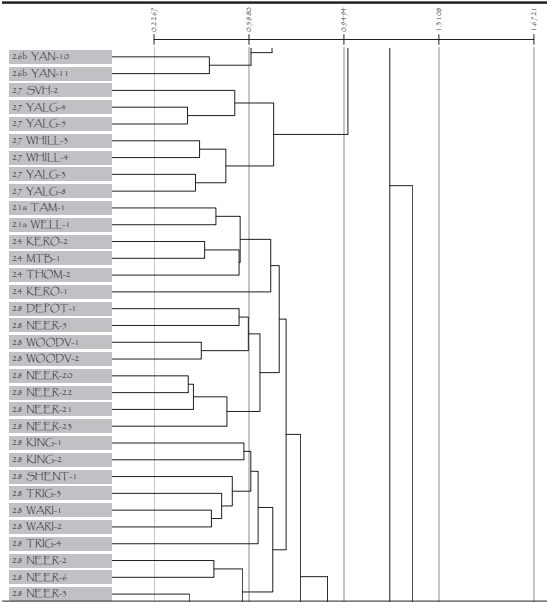
Column Fusion Dendrogram



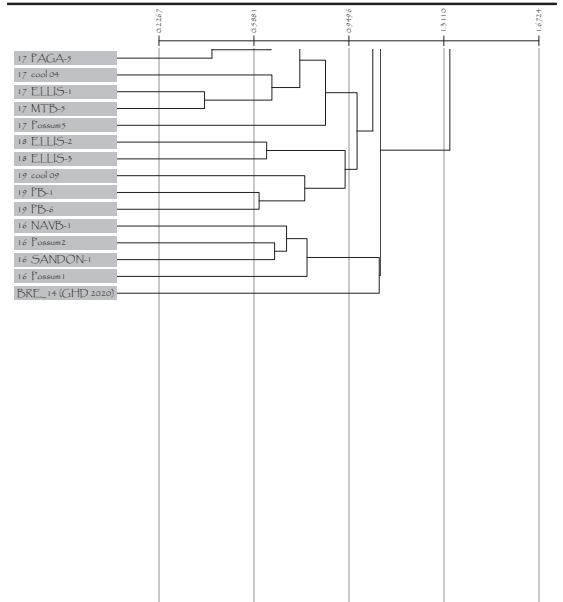
Column Fusion Dendrogram



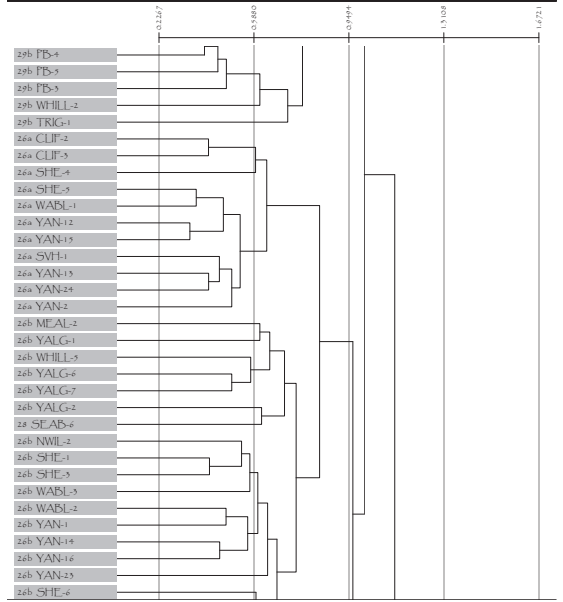
Column Fusion Dendrogram



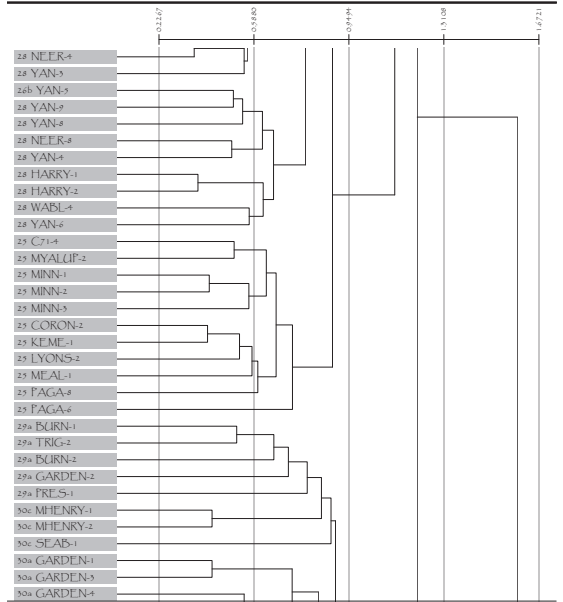
Column Fusion Dendrogram



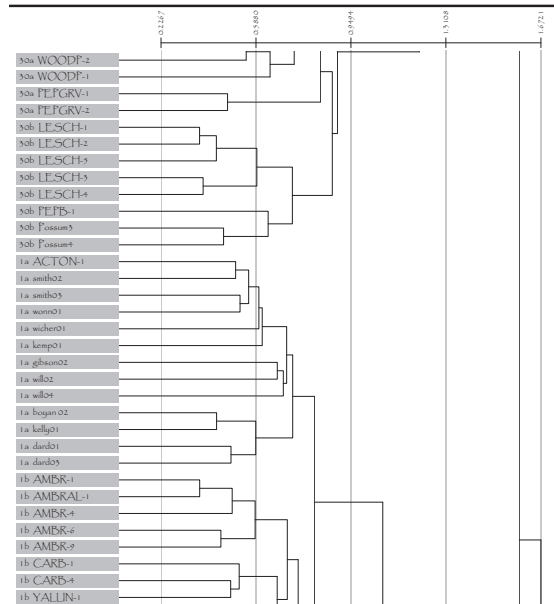
Column Fusion Dendrogram



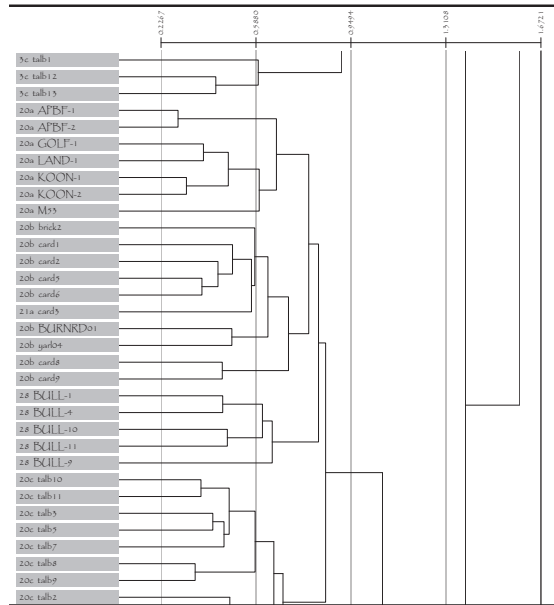
Column Fusion Dendrogram



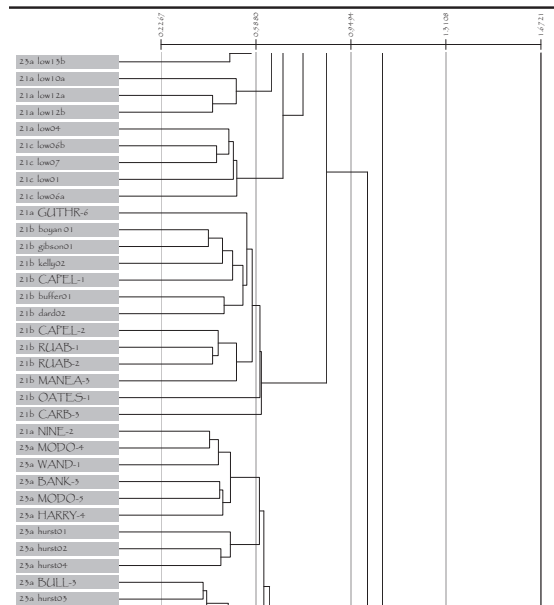
### Column Fusion Dendrogram



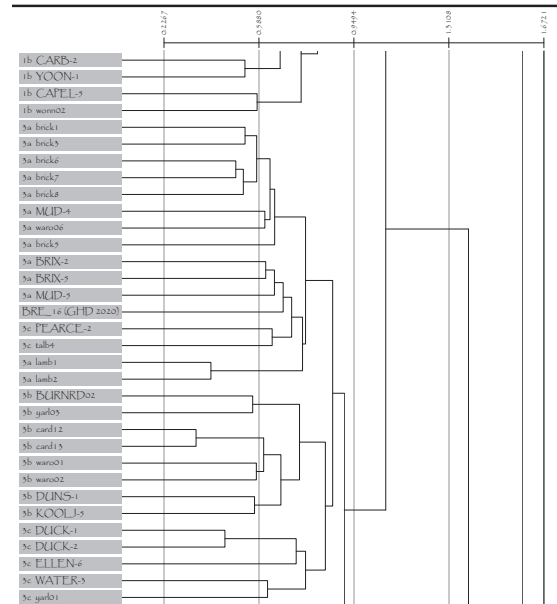
### Column Fusion Dendrogram



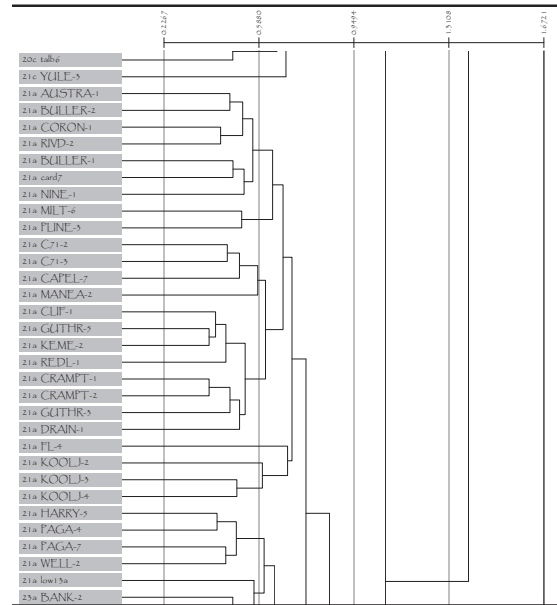
### Column Fusion Dendrogram



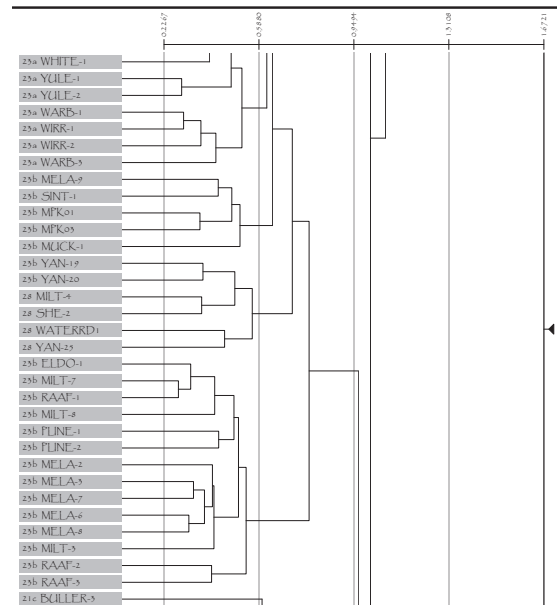
### Column Fusion Dendrogram



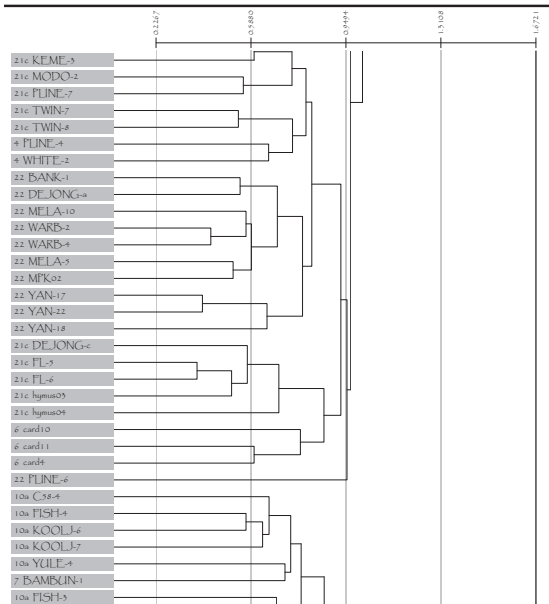
### Column Fusion Dendrogram



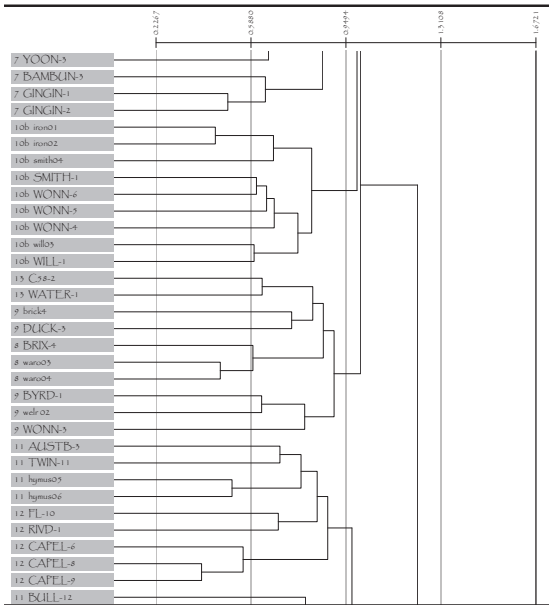
### Column Fusion Dendrogram



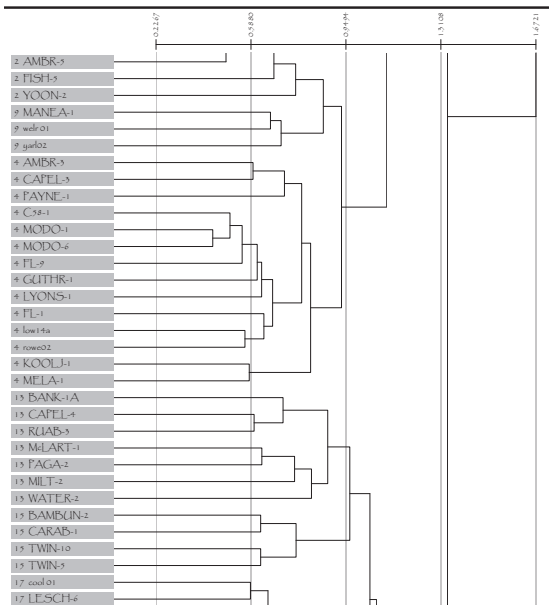
Column Fusion Dendrogram



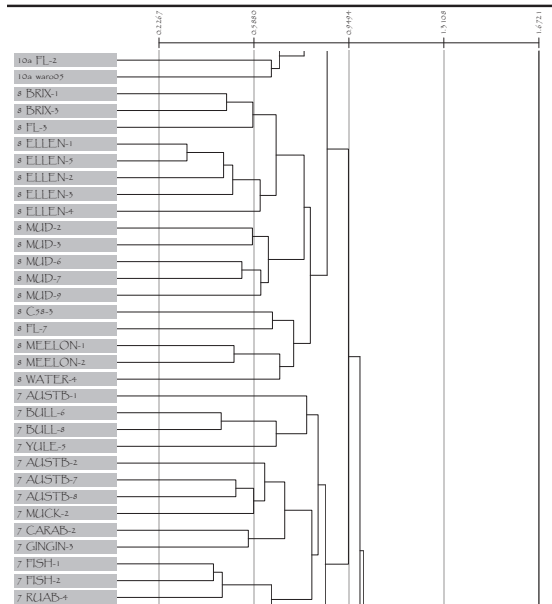
Column Fusion Dendrogram



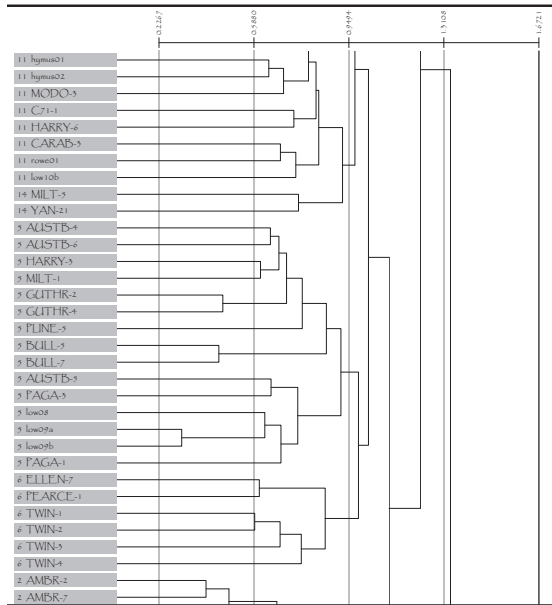
Column Fusion Dendrogram



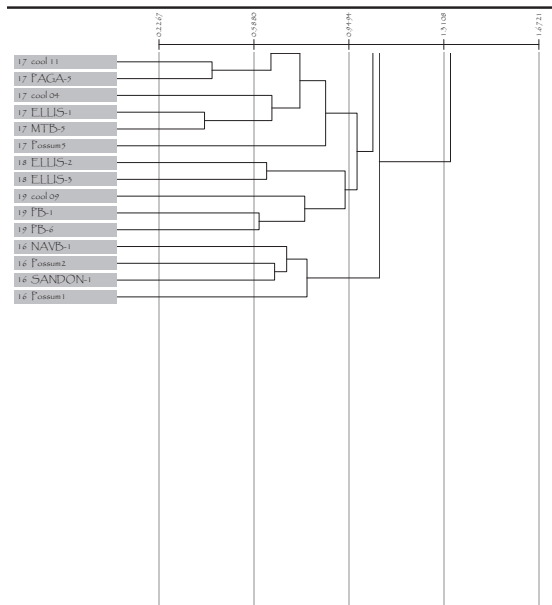
Column Fusion Dendrogram

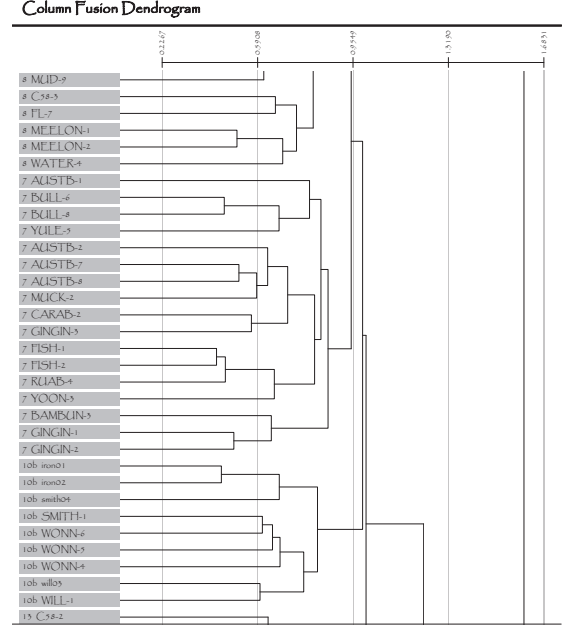
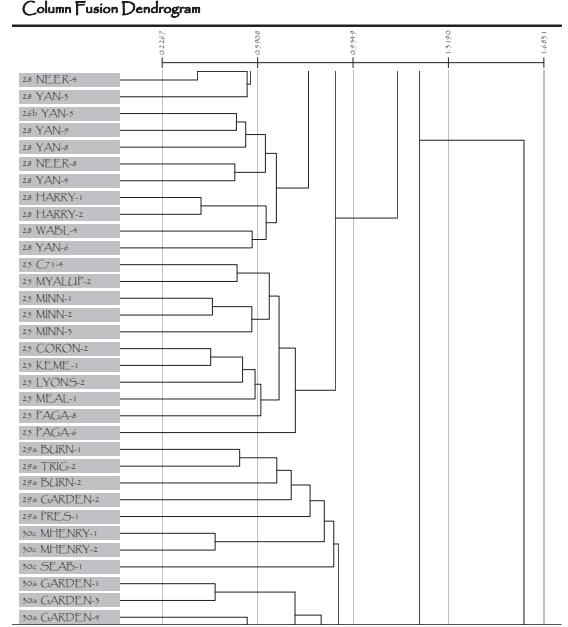
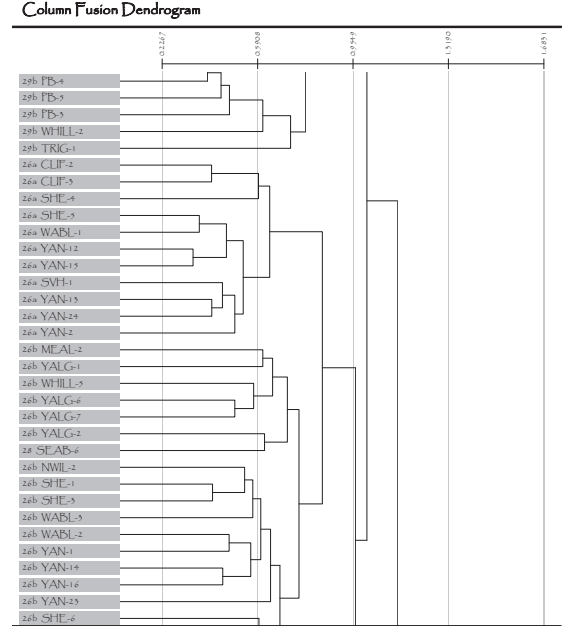
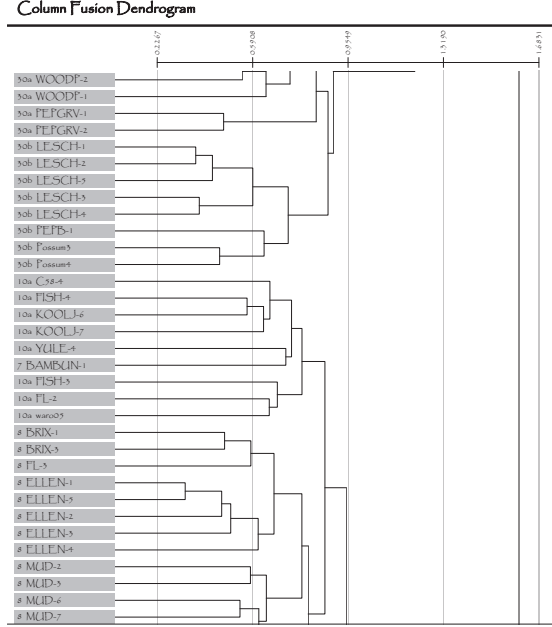
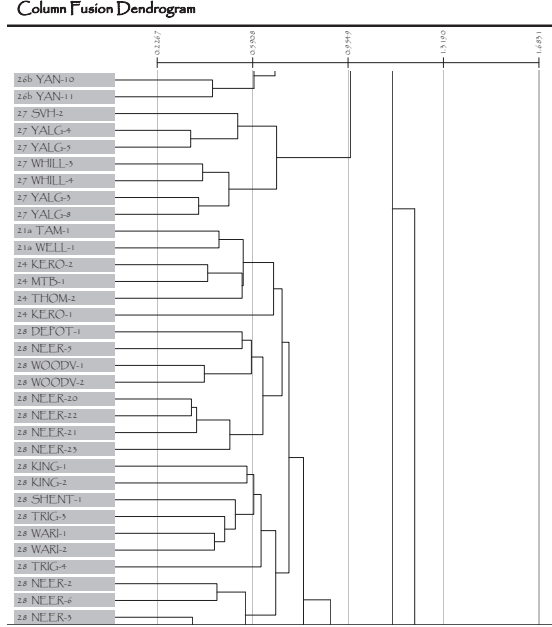
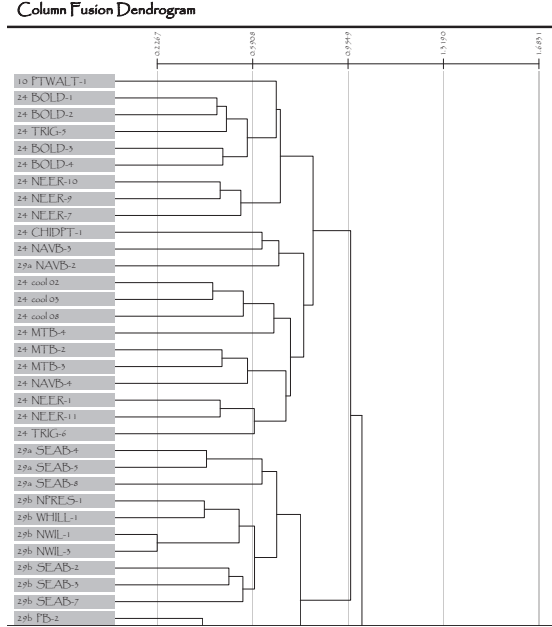


Column Fusion Dendrogram



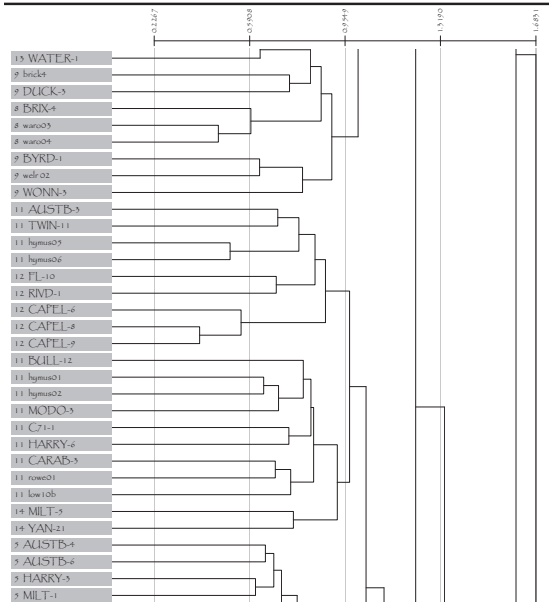
Column Fusion Dendrogram



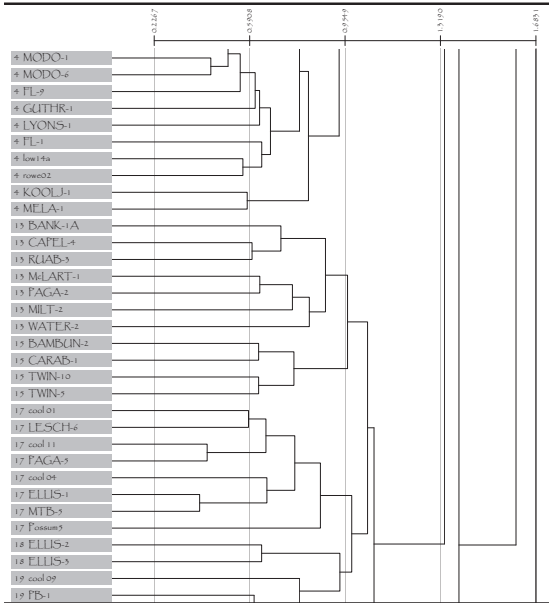




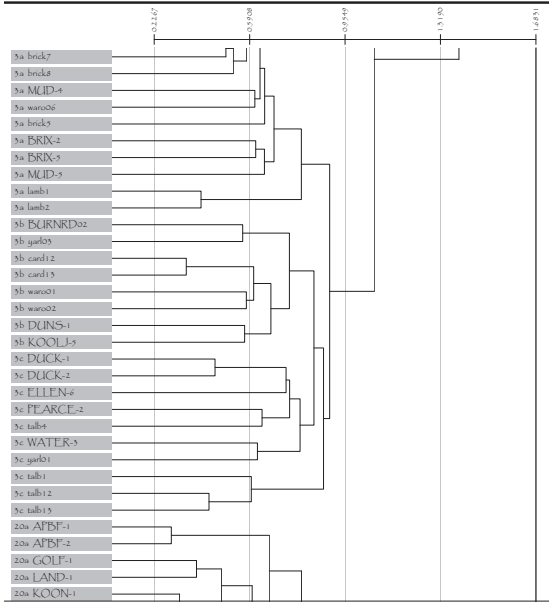
Column Fusion Dendrogram



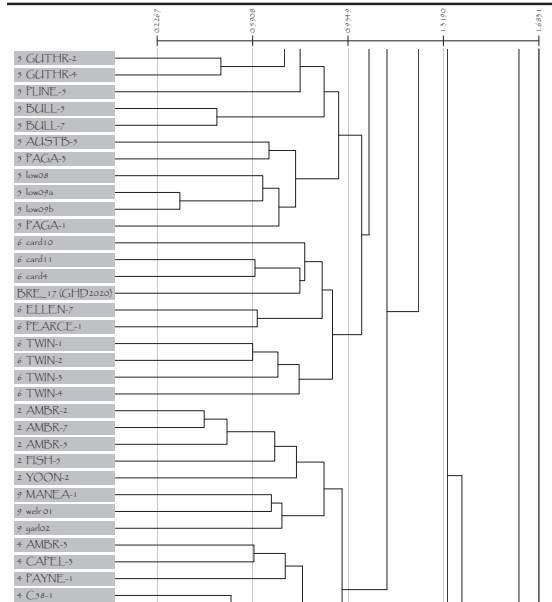
Column Fusion Dendrogram



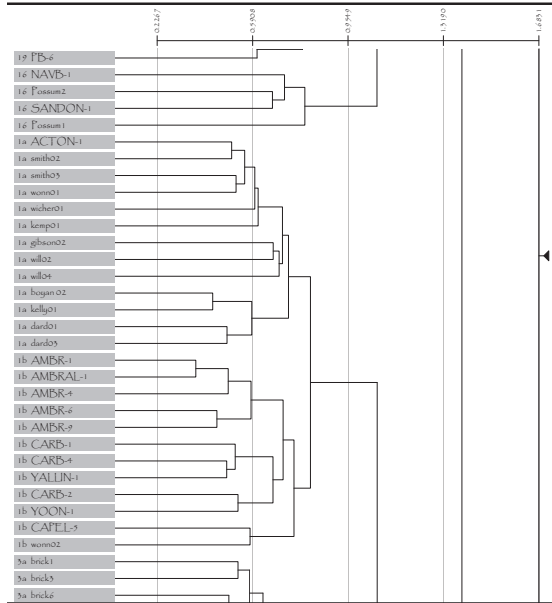
Column Fusion Dendrogram



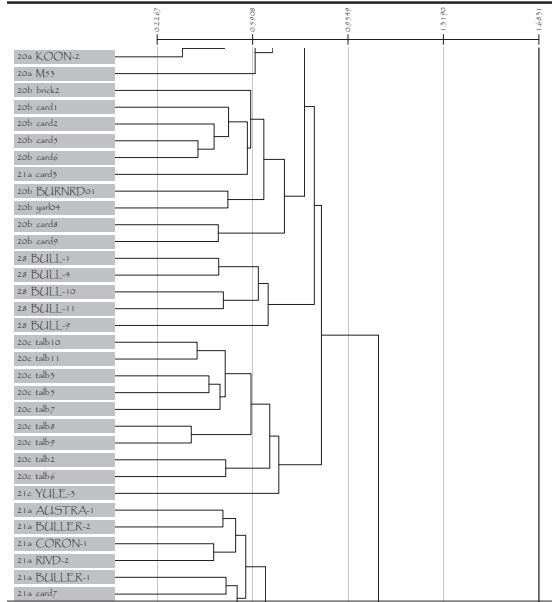
Column Fusion Dendrogram



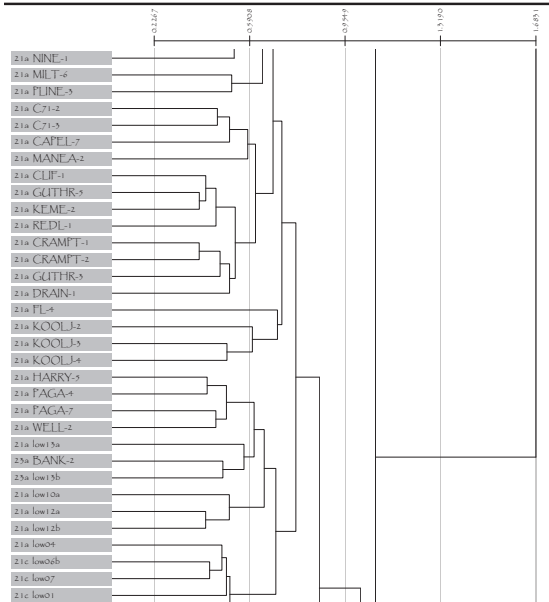
Column Fusion Dendrogram



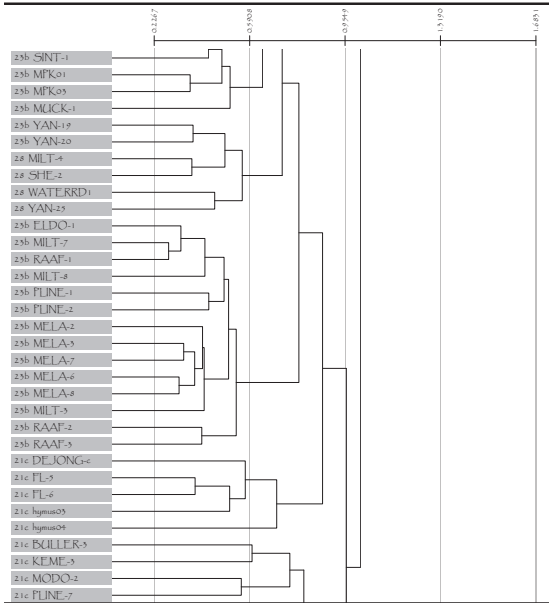
Column Fusion Dendrogram



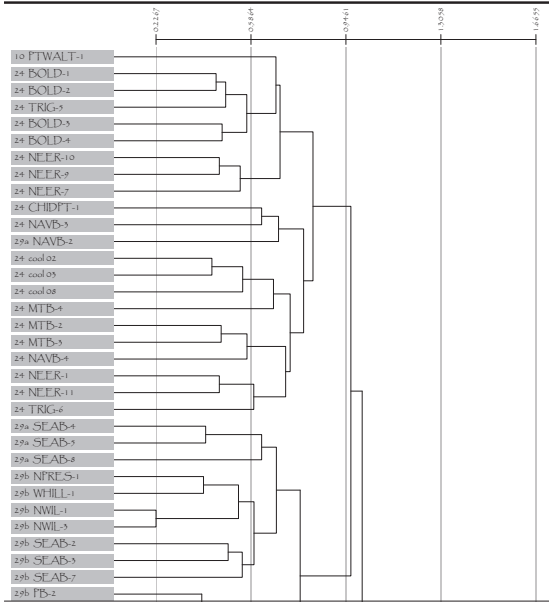
Column Fusion Dendrogram



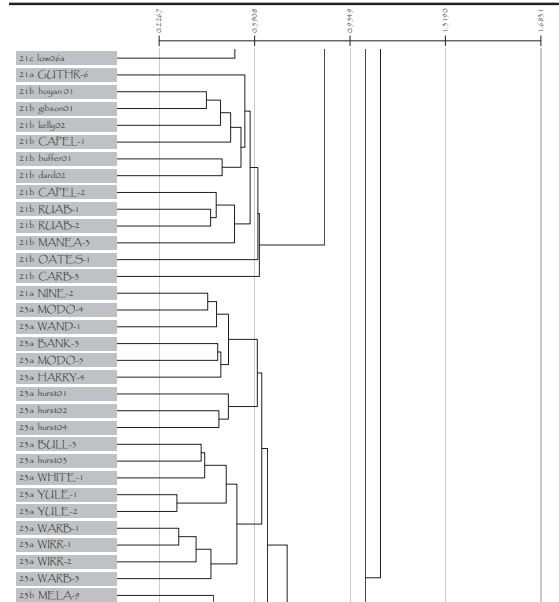
Column Fusion Dendrogram



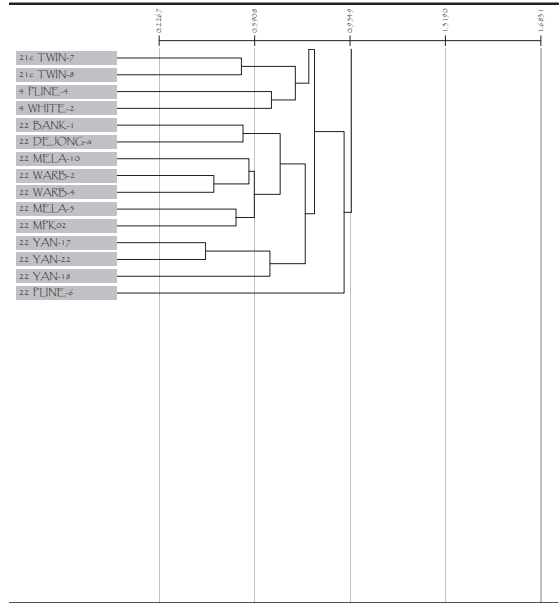
Column Fusion Dendrogram



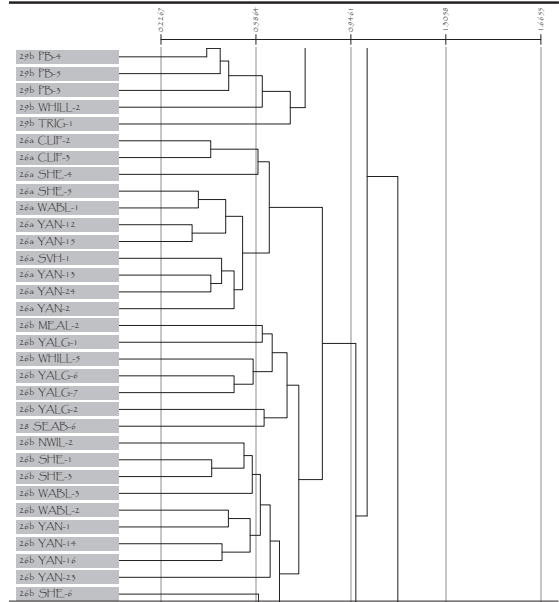
Column Fusion Dendrogram

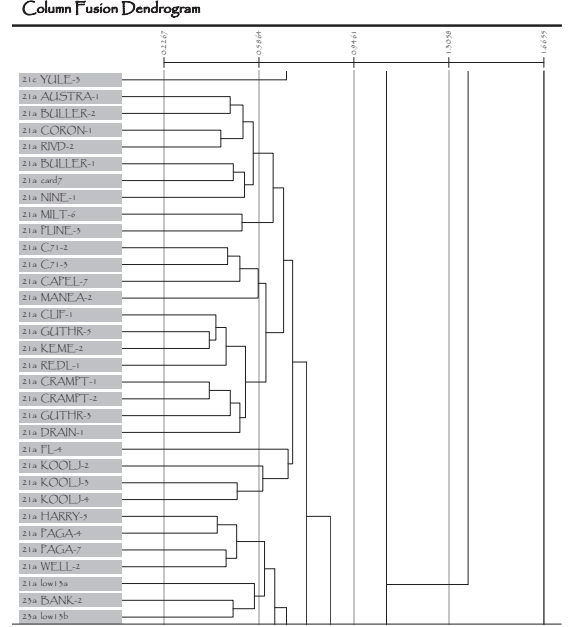
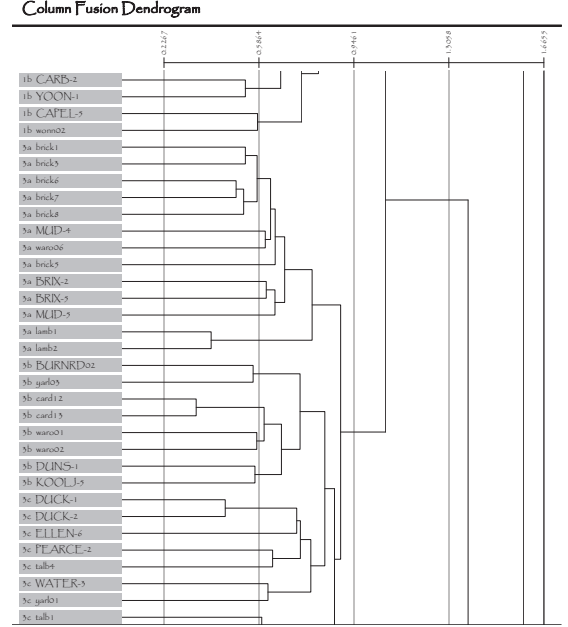
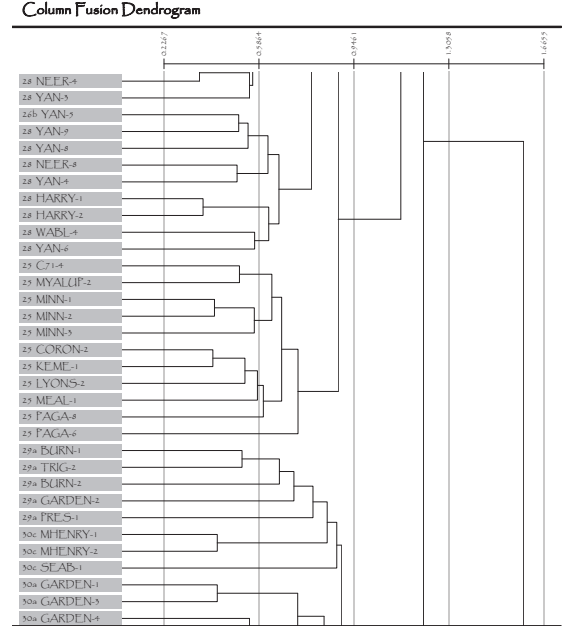
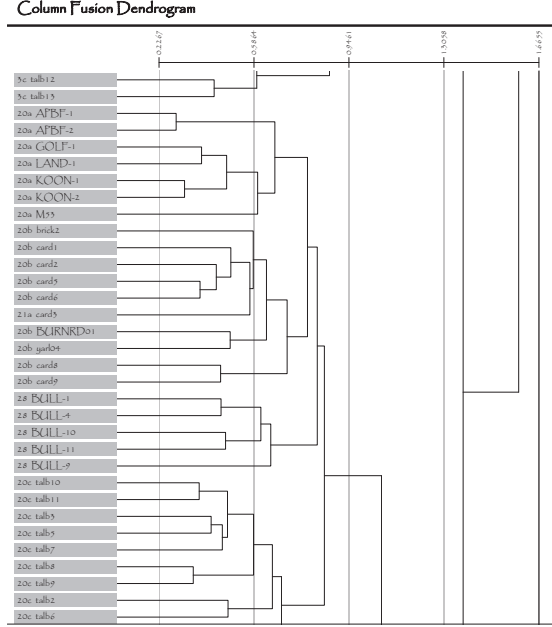
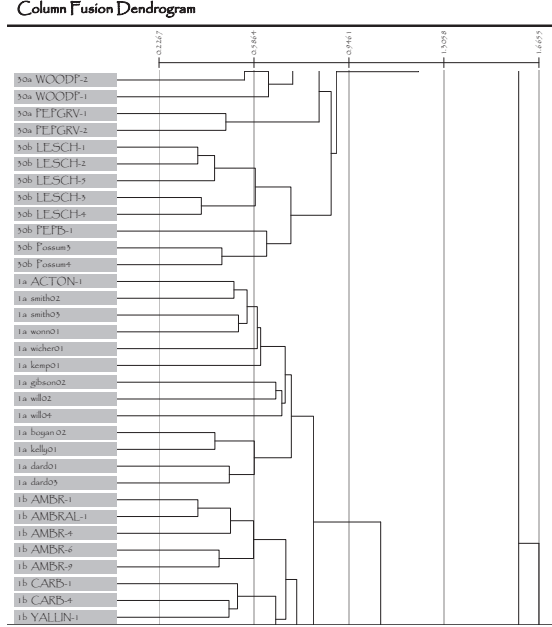
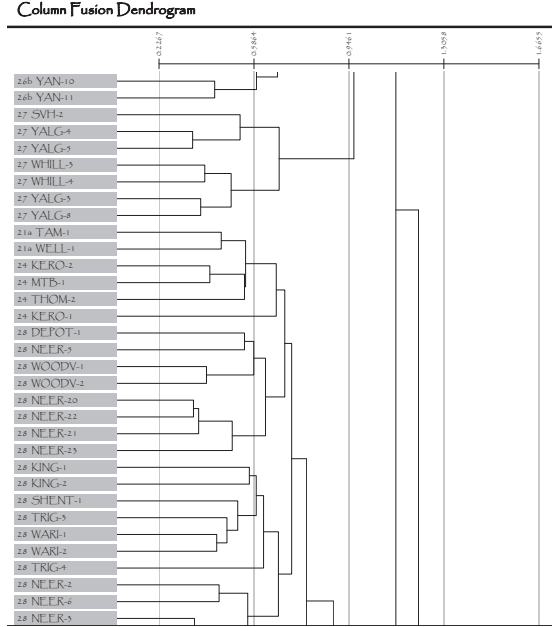


Column Fusion Dendrogram

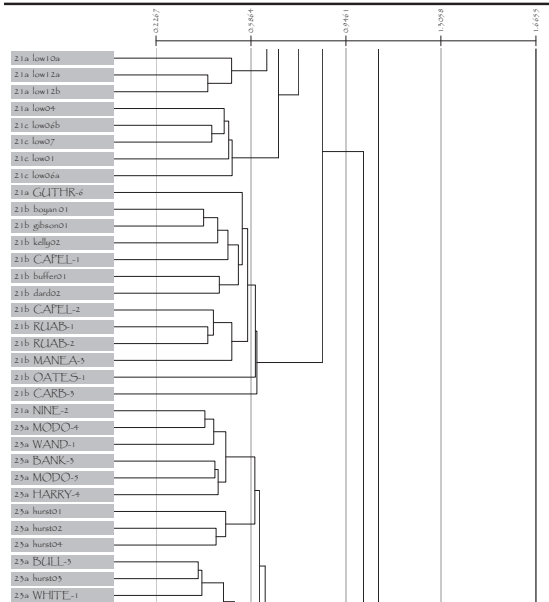


Column Fusion Dendrogram

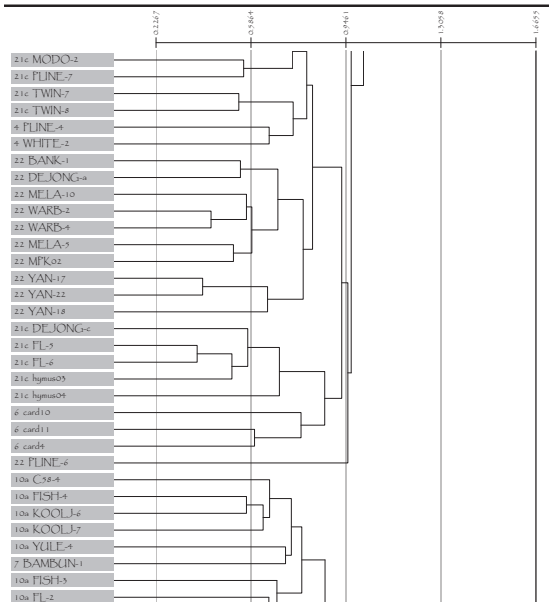




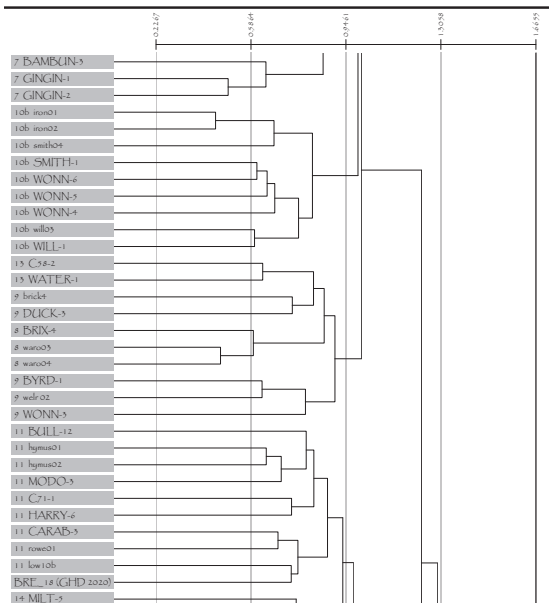
Column Fusion Dendrogram



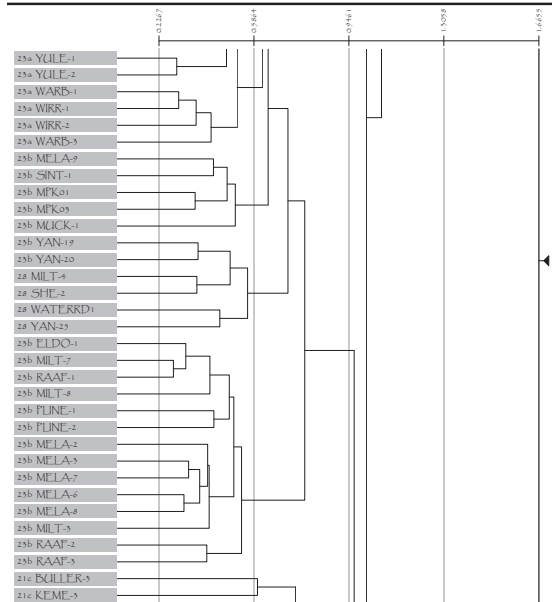
Column Fusion Dendrogram



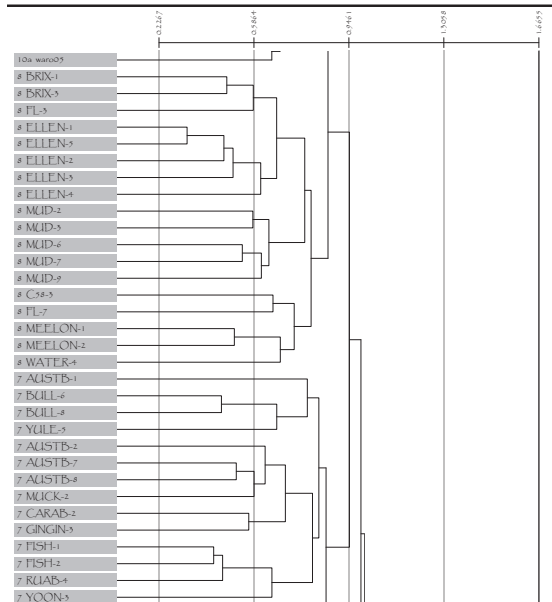
Column Fusion Dendrogram



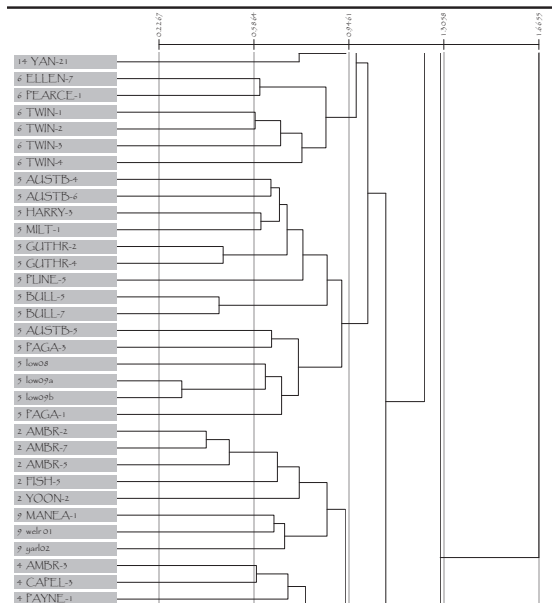
Column Fusion Dendrogram



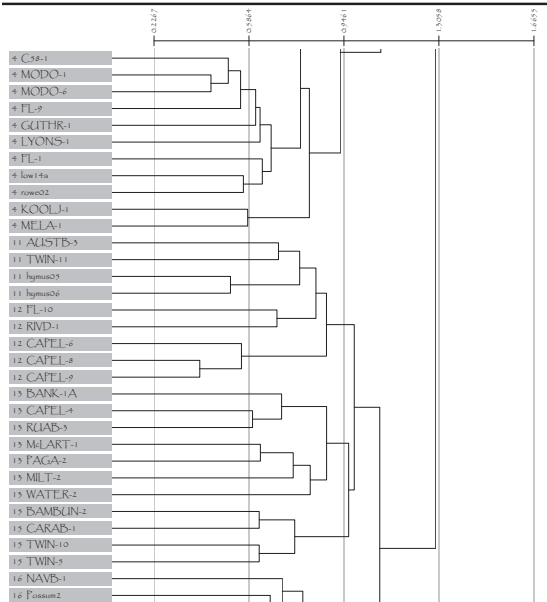
Column Fusion Dendrogram



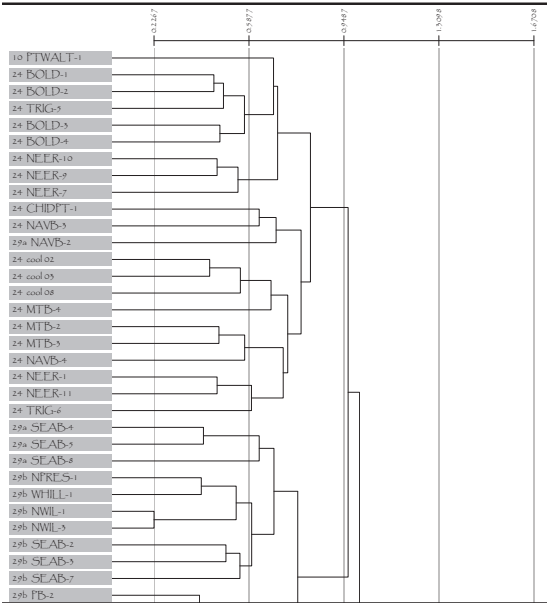
Column Fusion Dendrogram



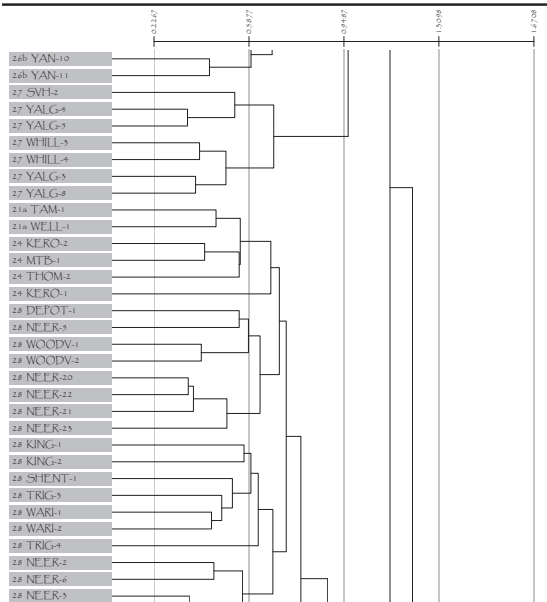
Column Fusion Dendrogram



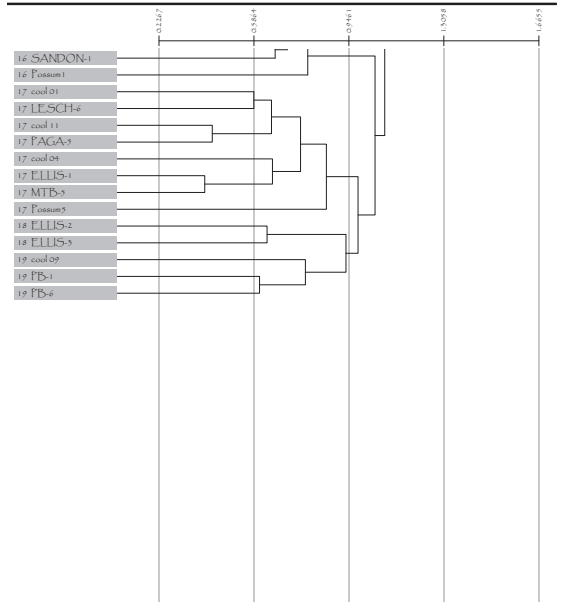
Column Fusion Dendrogram



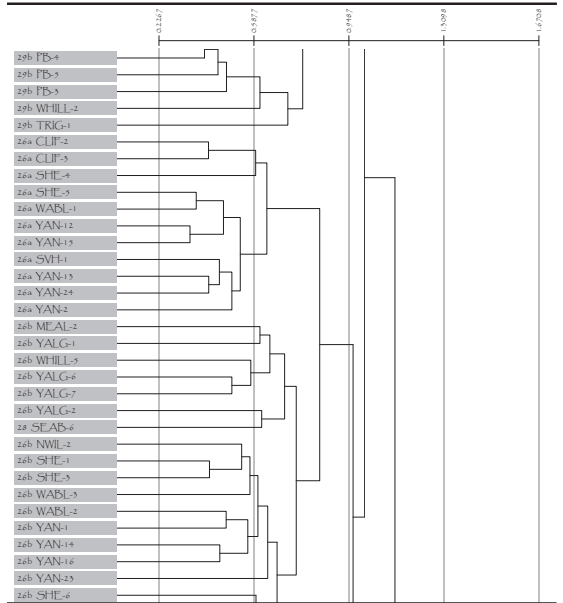
Column Fusion Dendrogram



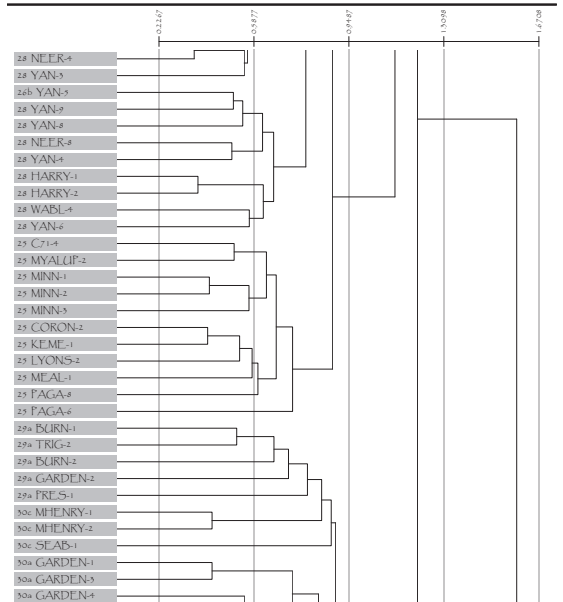
Column Fusion Dendrogram



Column Fusion Dendrogram

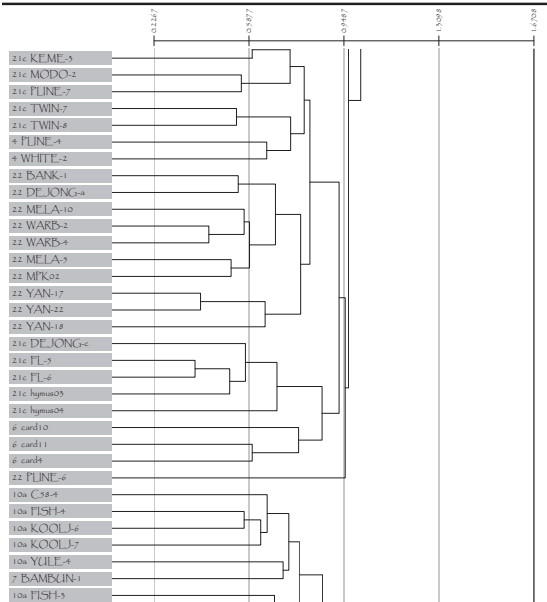


Column Fusion Dendrogram

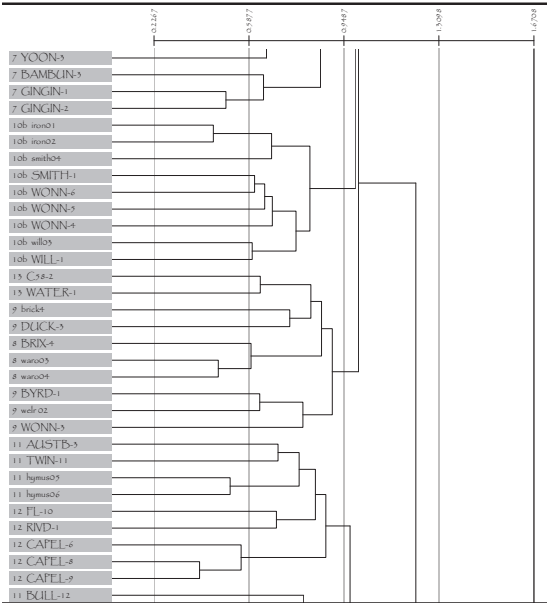




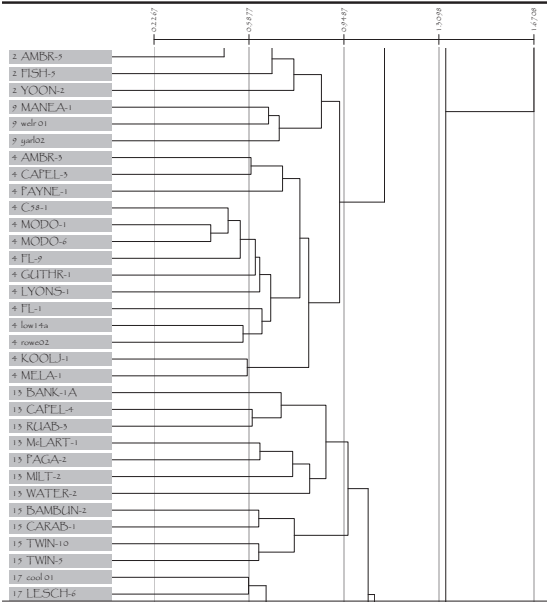
Column Fusion Dendrogram



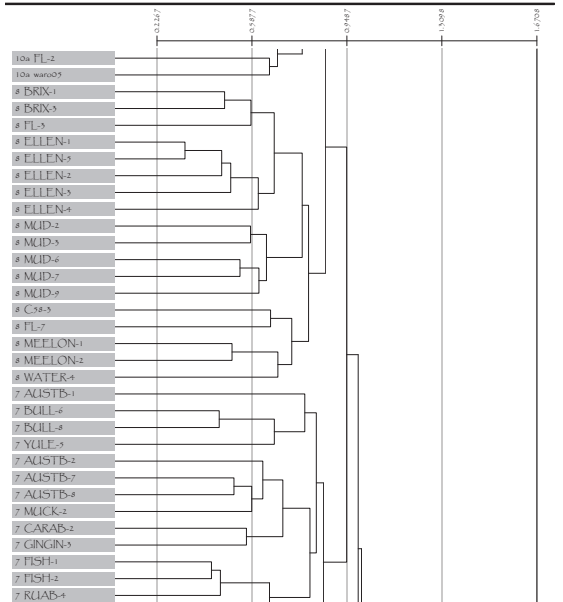
Column Fusion Dendrogram



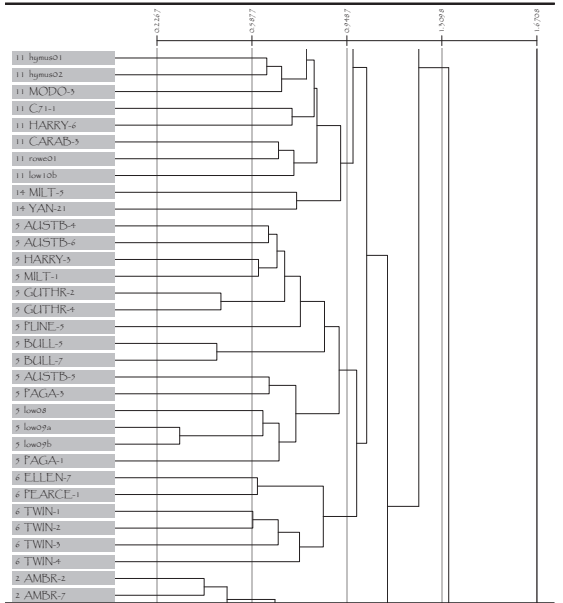
Column Fusion Dendrogram



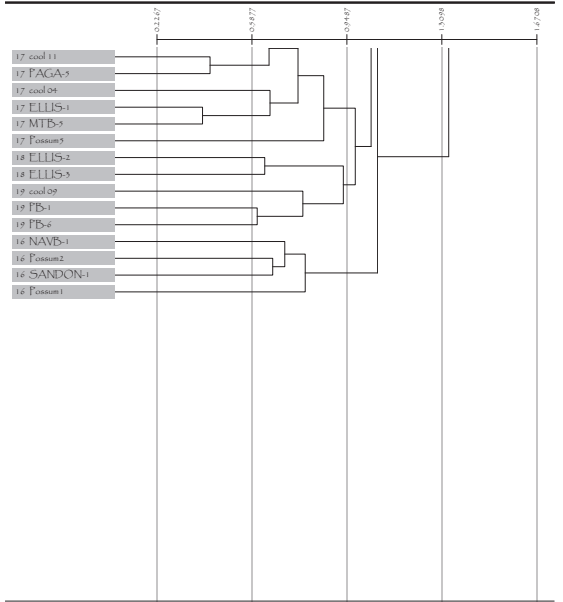
Column Fusion Dendrogram

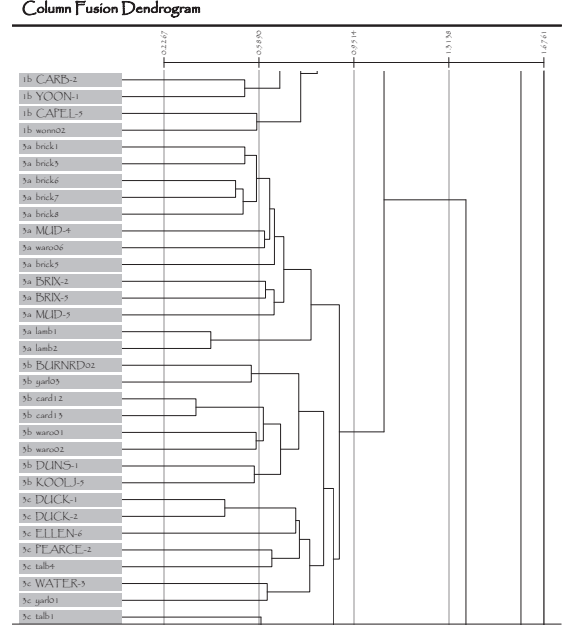
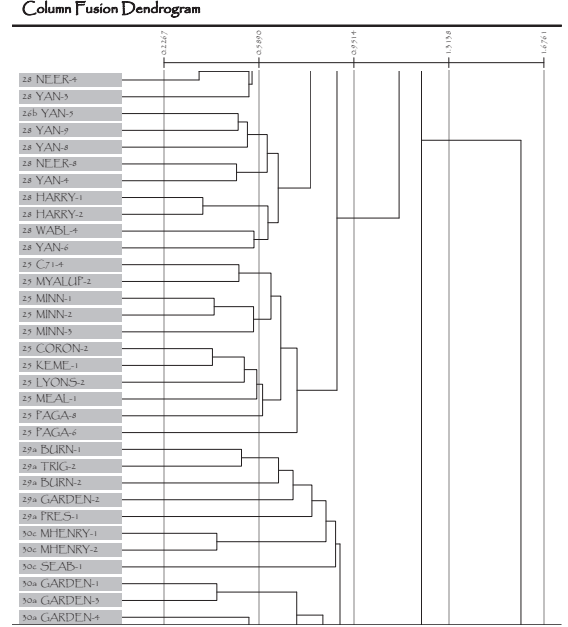
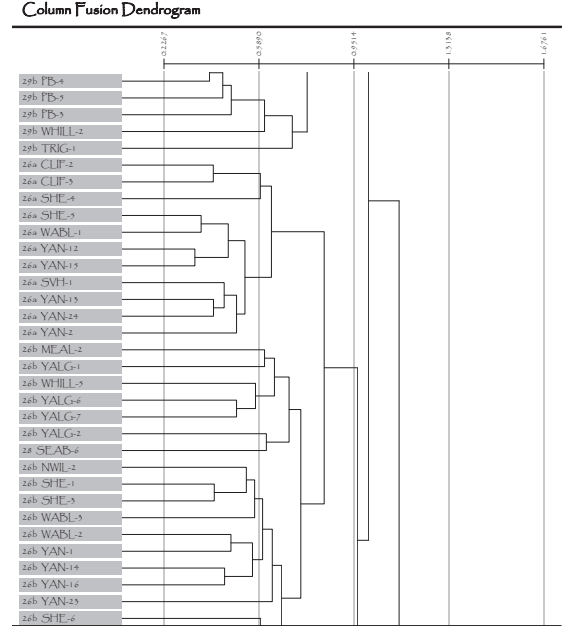
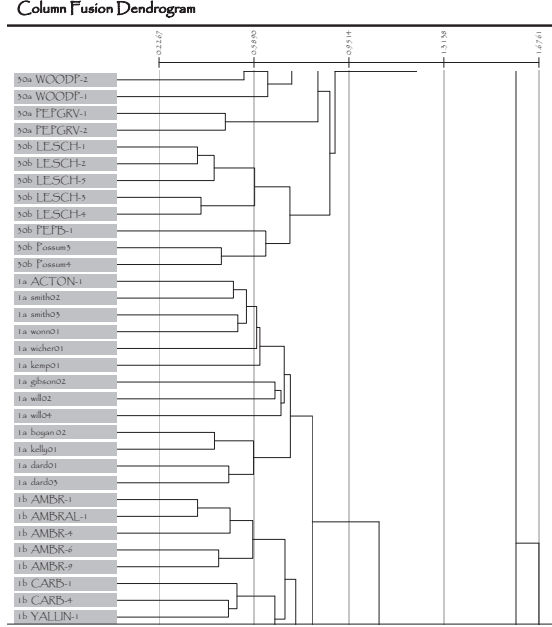
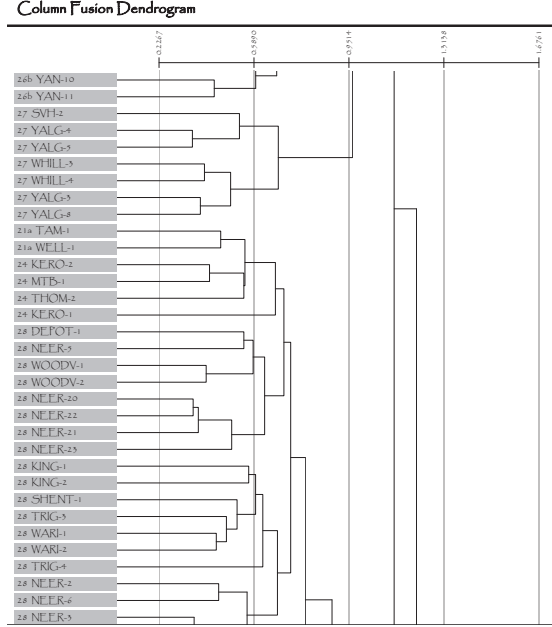
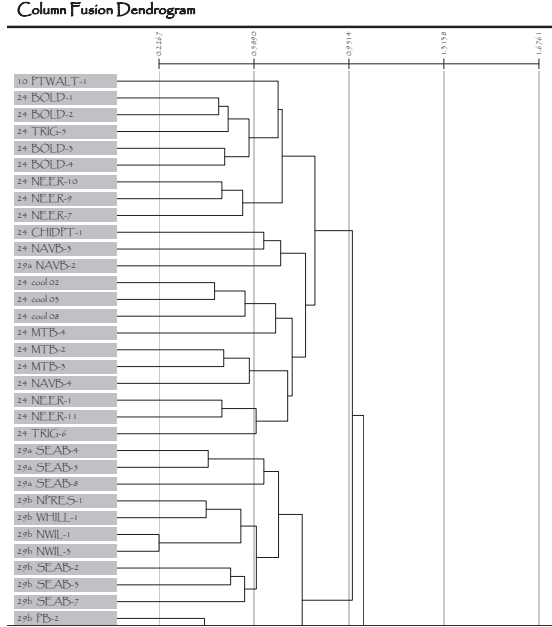


Column Fusion Dendrogram



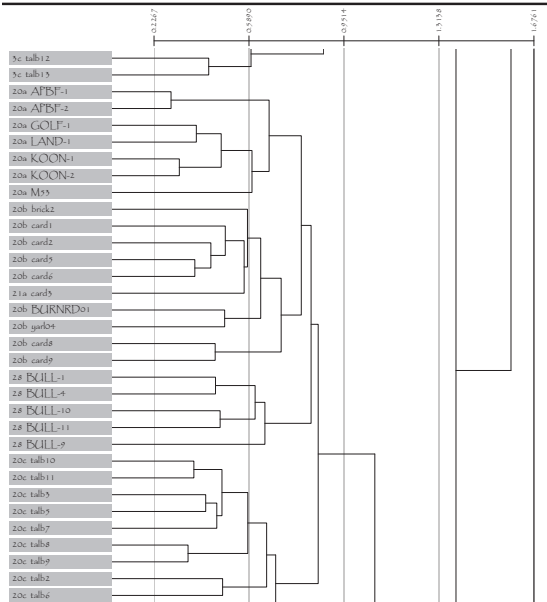
Column Fusion Dendrogram



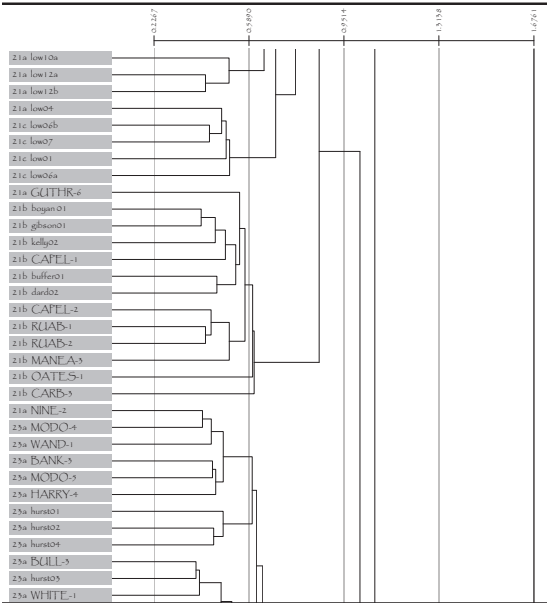




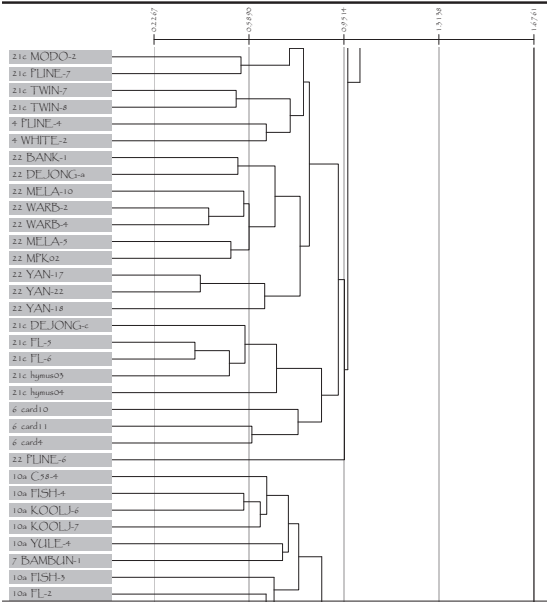
Column Fusion Dendrogram



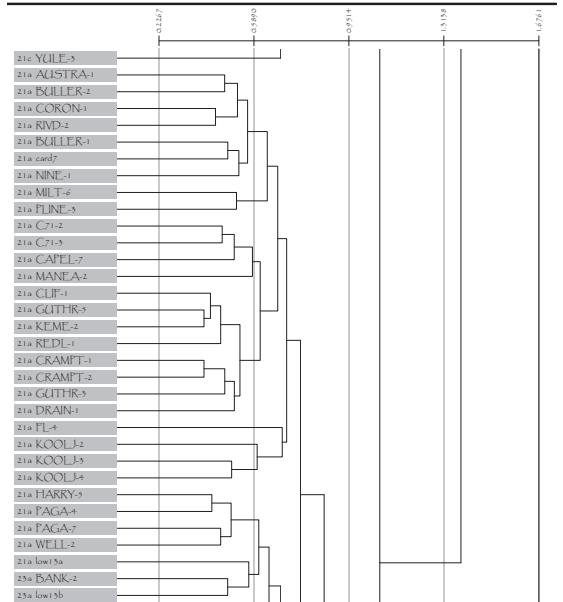
Column Fusion Dendrogram



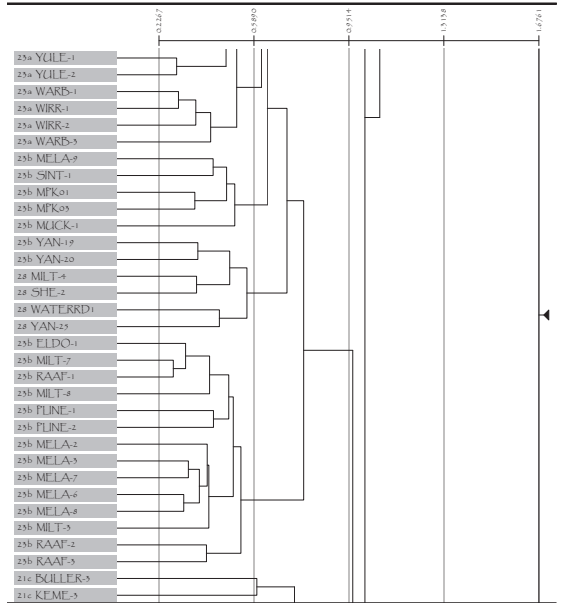
Column Fusion Dendrogram



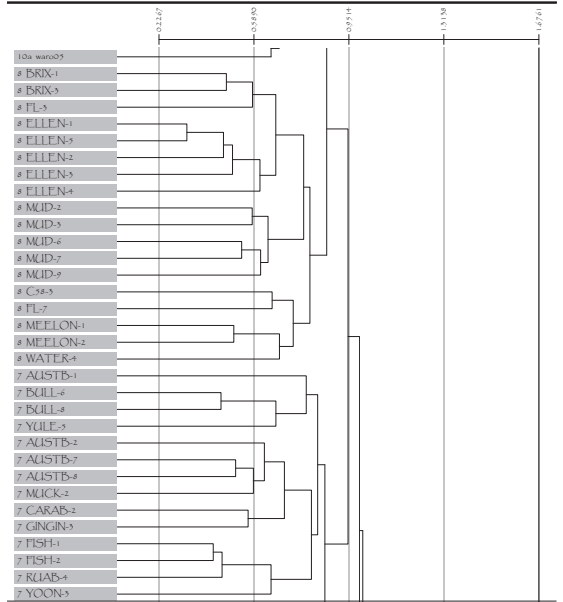
Column Fusion Dendrogram



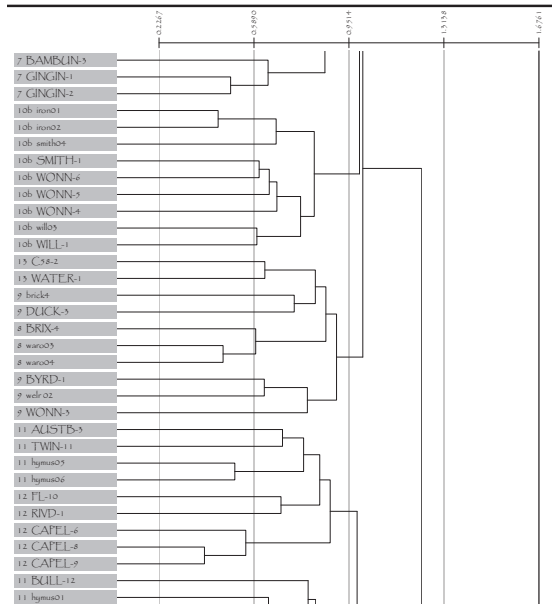
Column Fusion Dendrogram



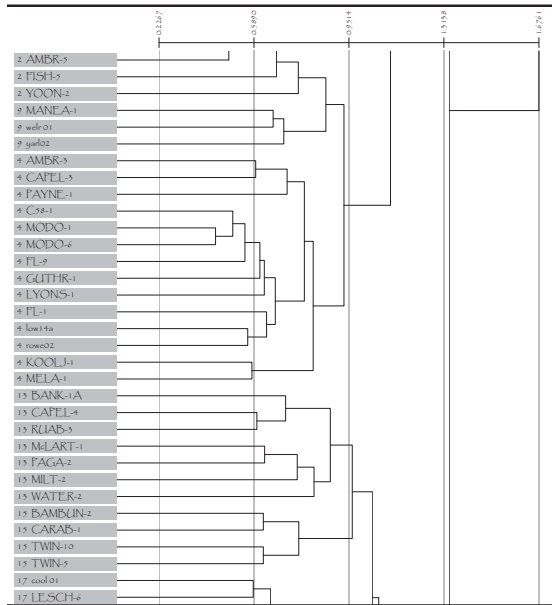
Column Fusion Dendrogram



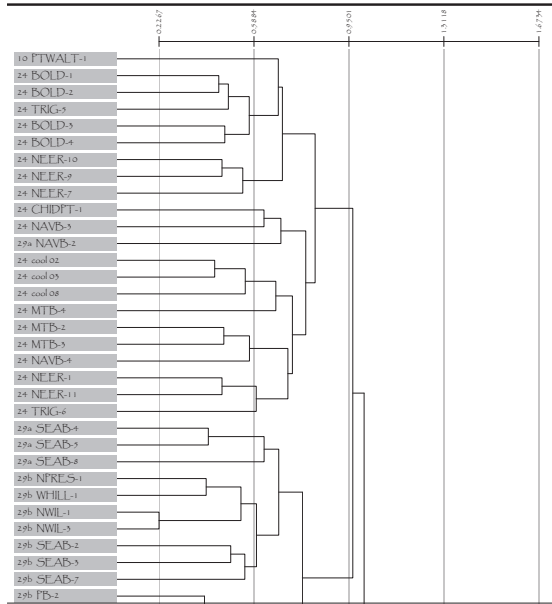
Column Fusion Dendrogram



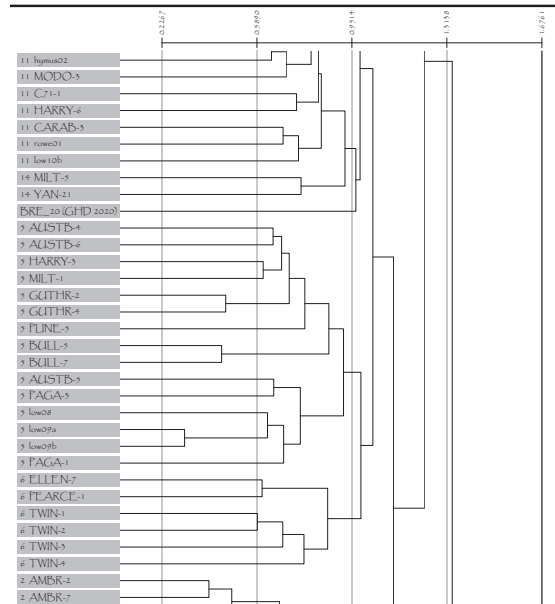
Column Fusion Dendrogram



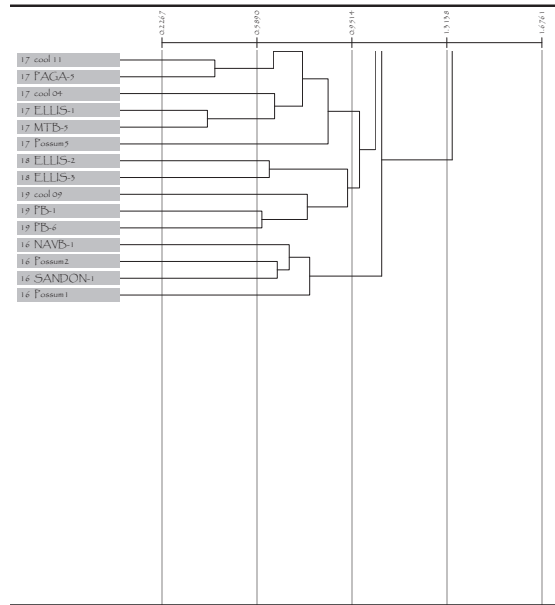
Column Fusion Dendrogram



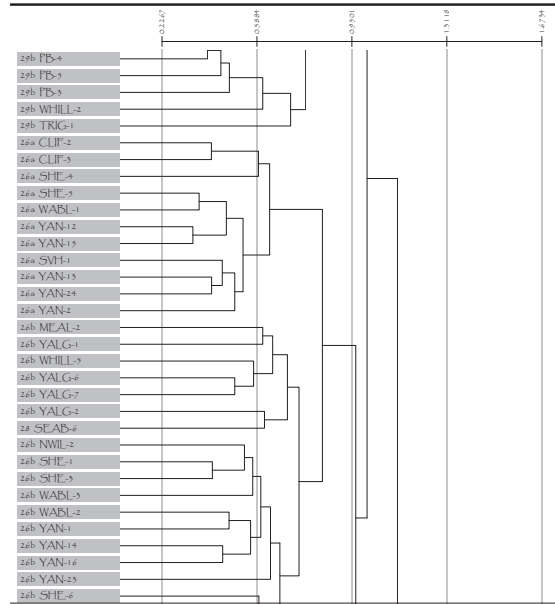
Column Fusion Dendrogram



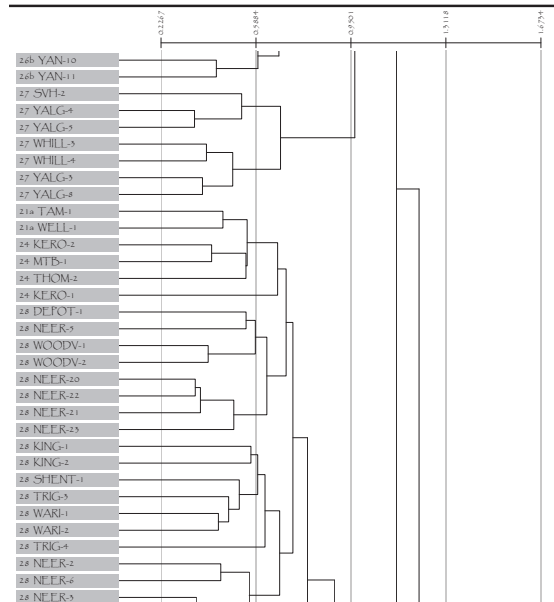
Column Fusion Dendrogram



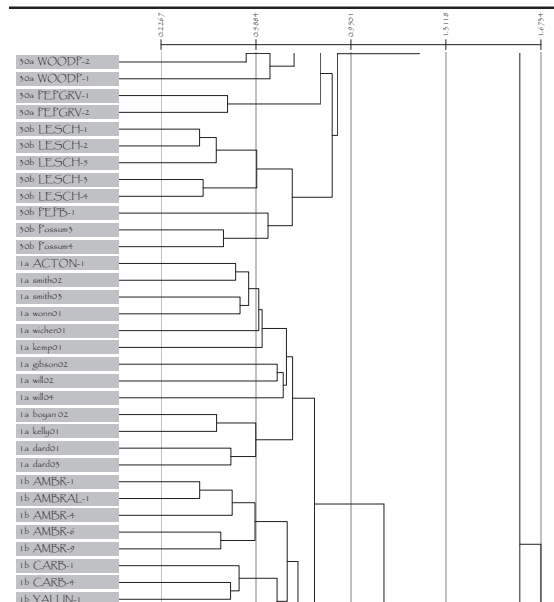
Column Fusion Dendrogram



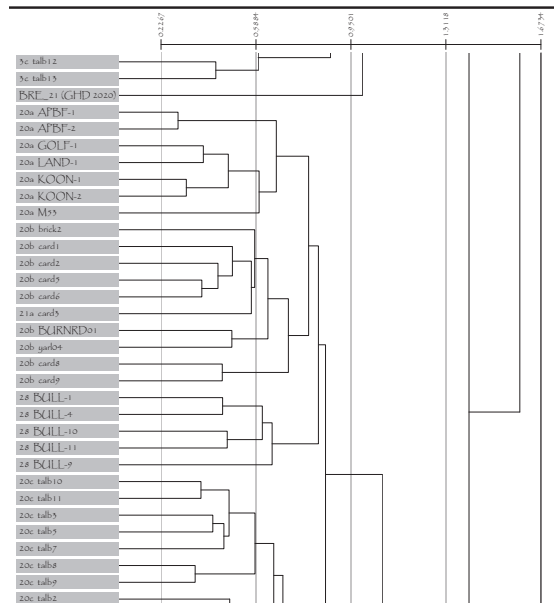
Column Fusion Dendrogram



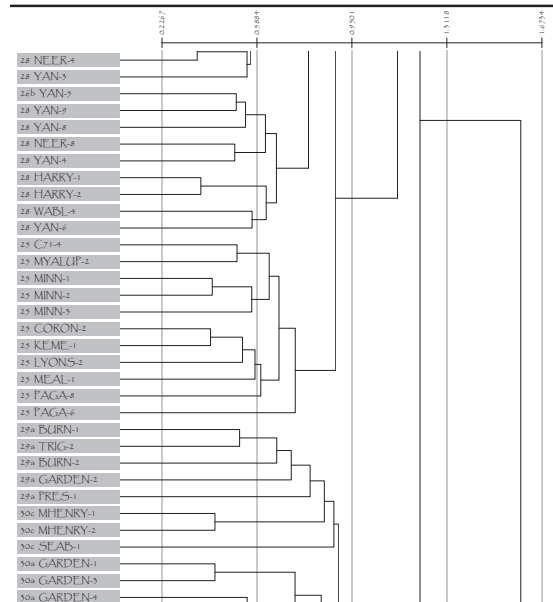
Column Fusion Dendrogram



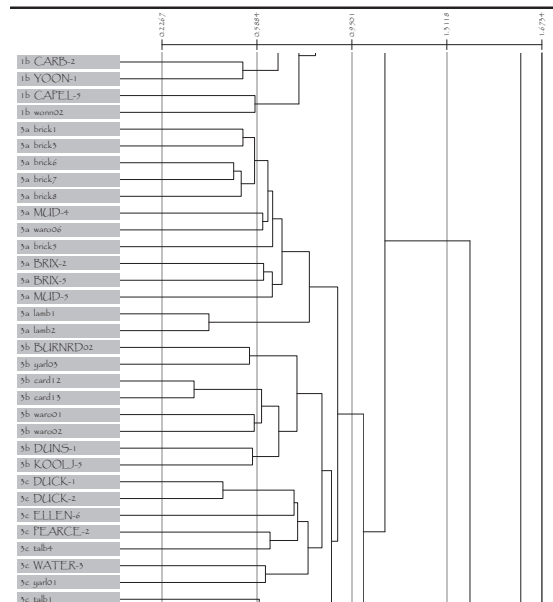
Column Fusion Dendrogram



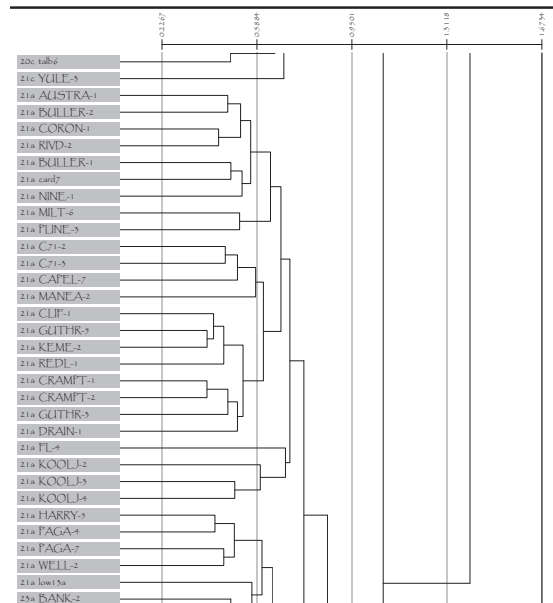
Column Fusion Dendrogram



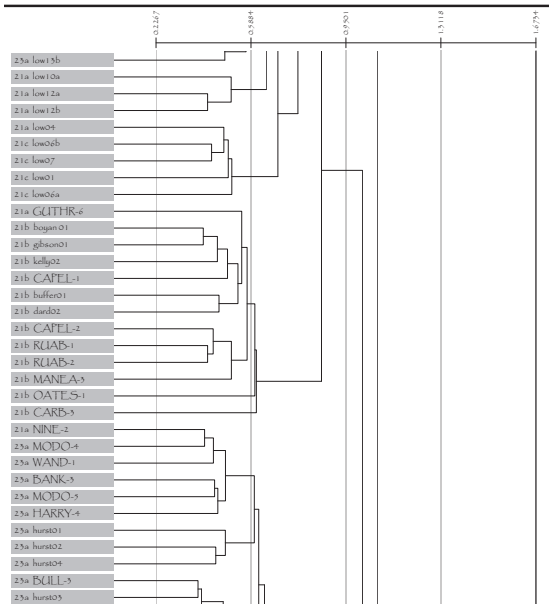
Column Fusion Dendrogram



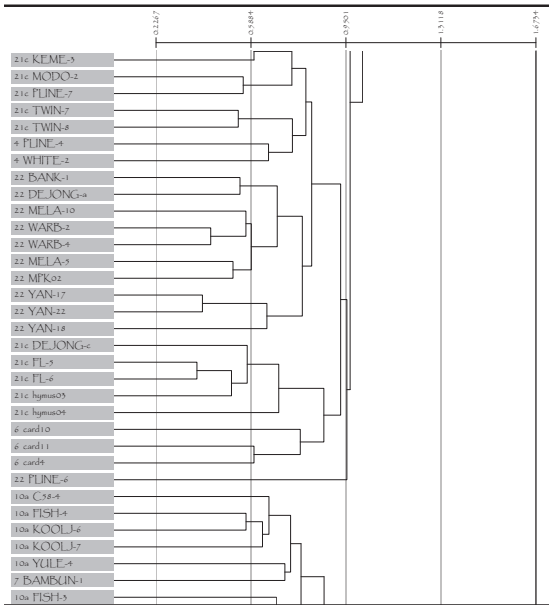
Column Fusion Dendrogram



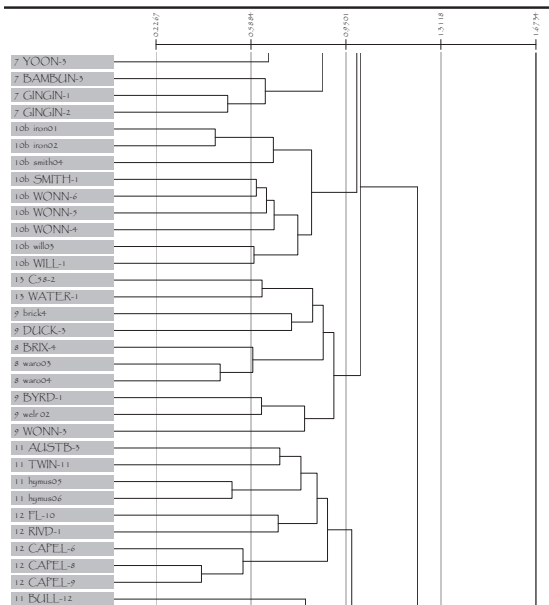
Column Fusion Dendrogram



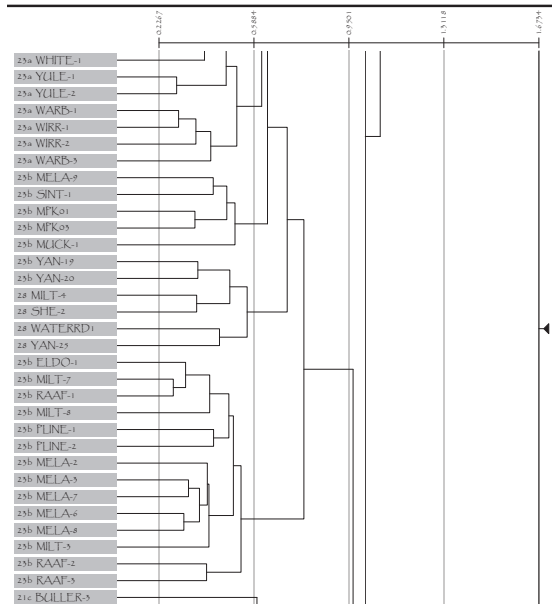
Column Fusion Dendrogram



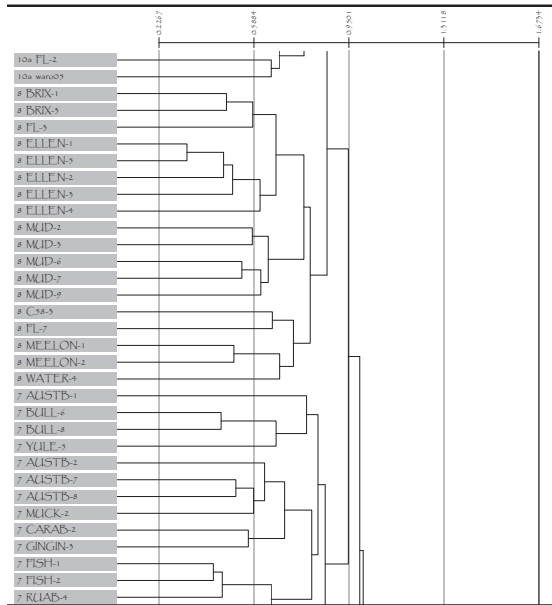
Column Fusion Dendrogram



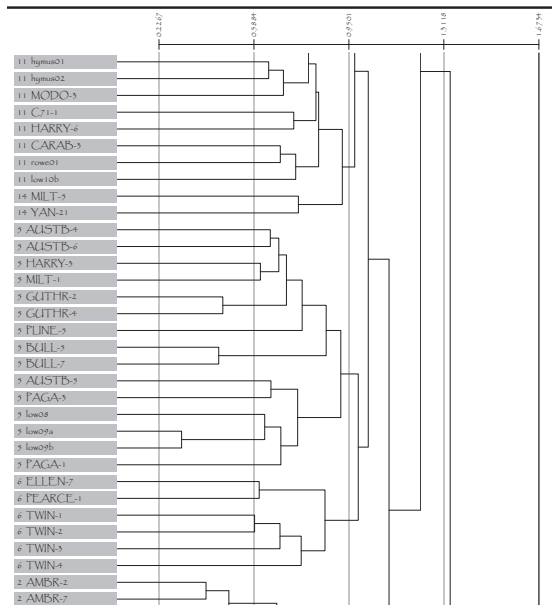
Column Fusion Dendrogram



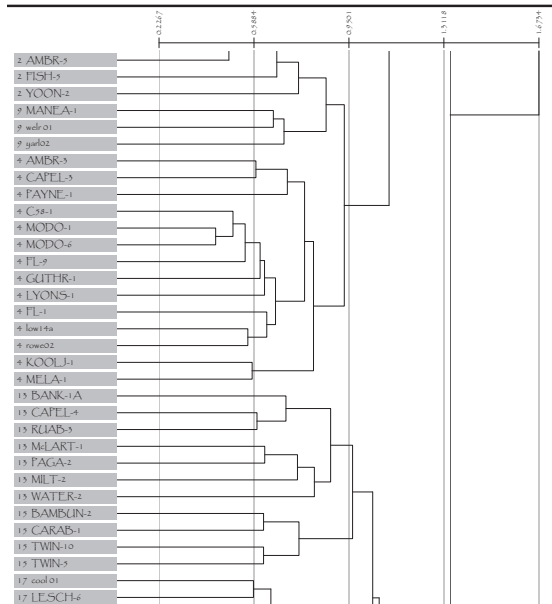
Column Fusion Dendrogram



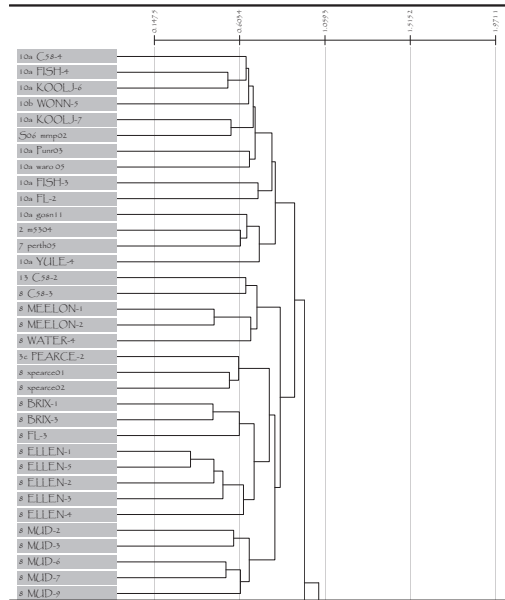
Column Fusion Dendrogram



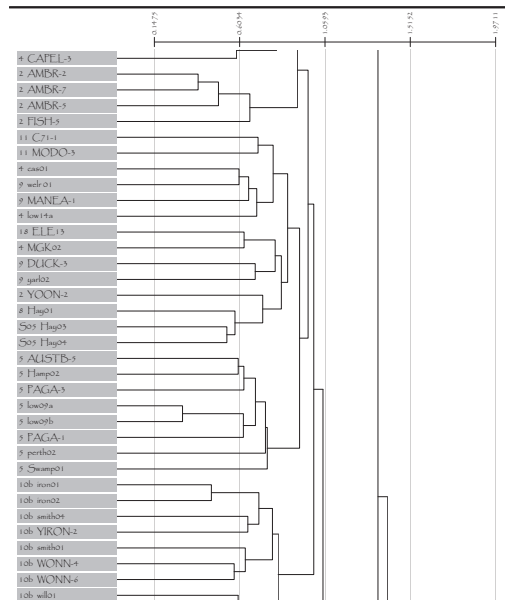
Column Fusion Dendrogram



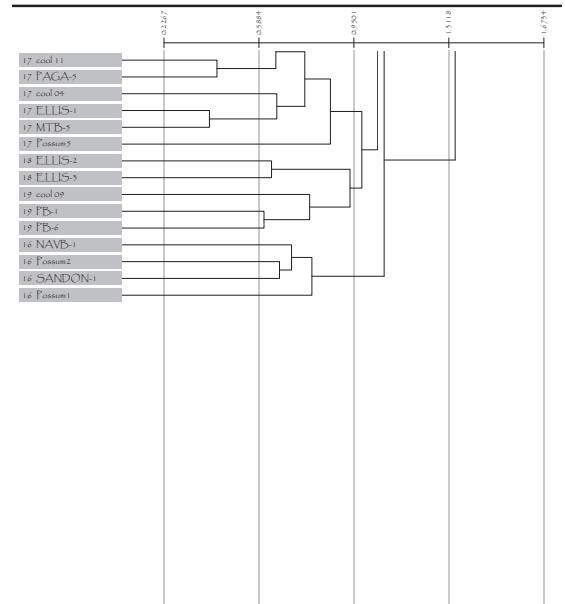
Column Fusion Dendrogram



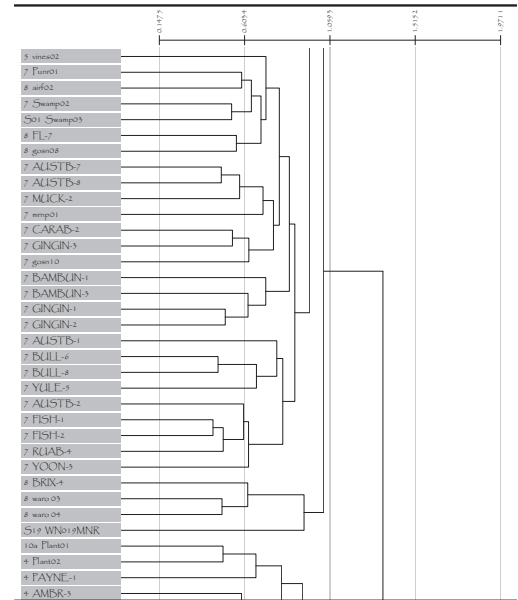
Column Fusion Dendrogram



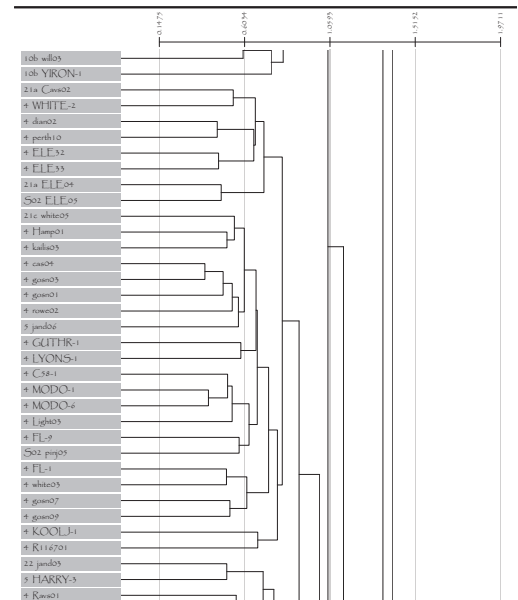
Column Fusion Dendrogram



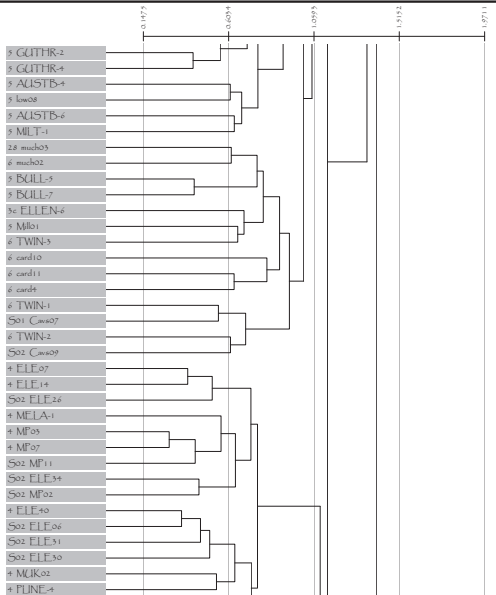
Column Fusion Dendrogram



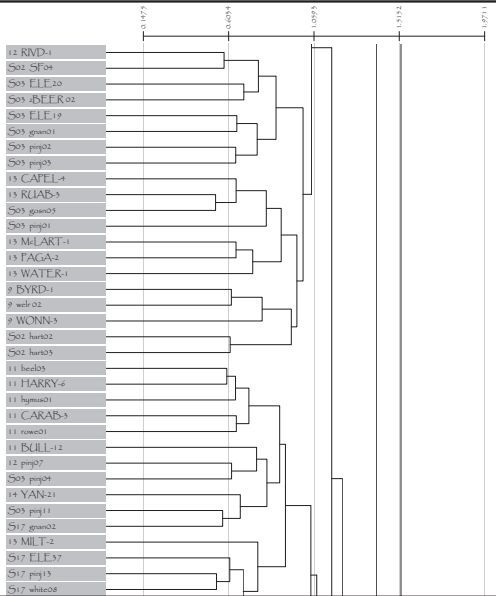
Column Fusion Dendrogram



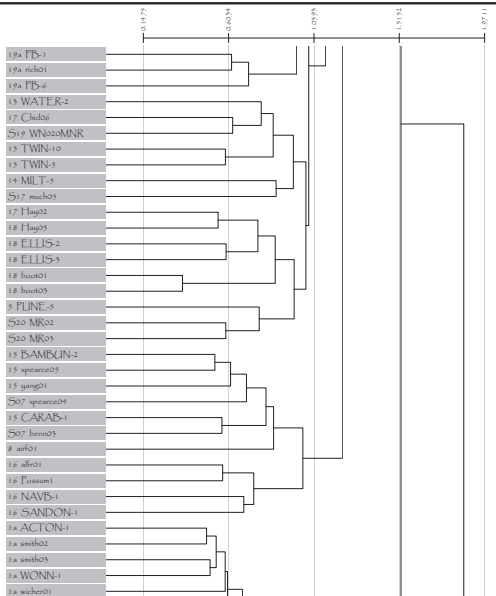
Column Fusion Dendrogram



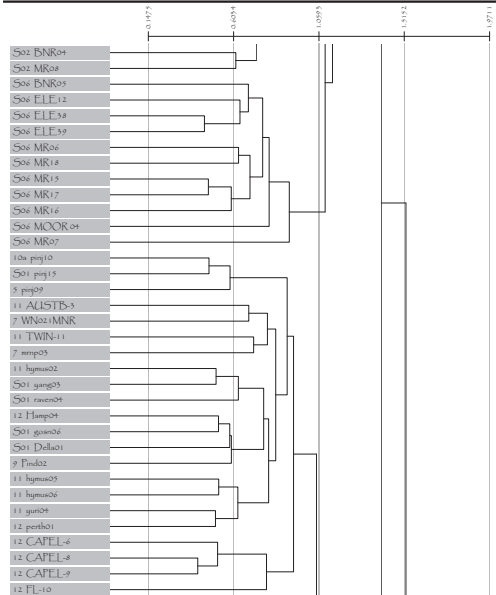
Column Fusion Dendrogram



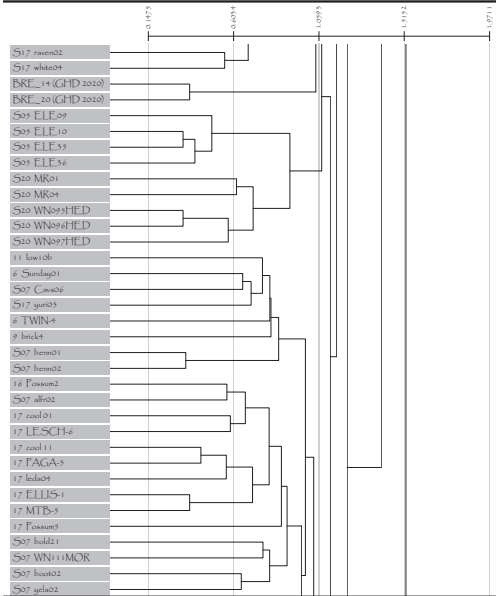
Column Fusion Dendrogram



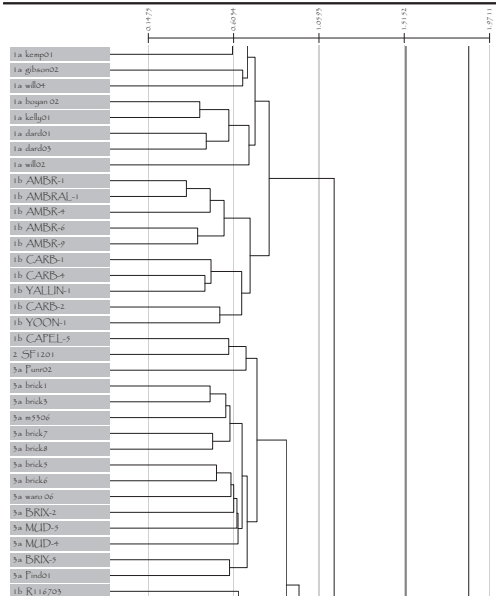
Column Fusion Dendrogram



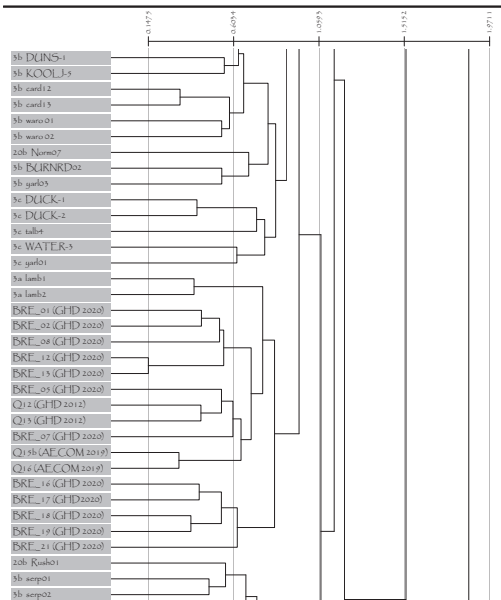
Column Fusion Dendrogram



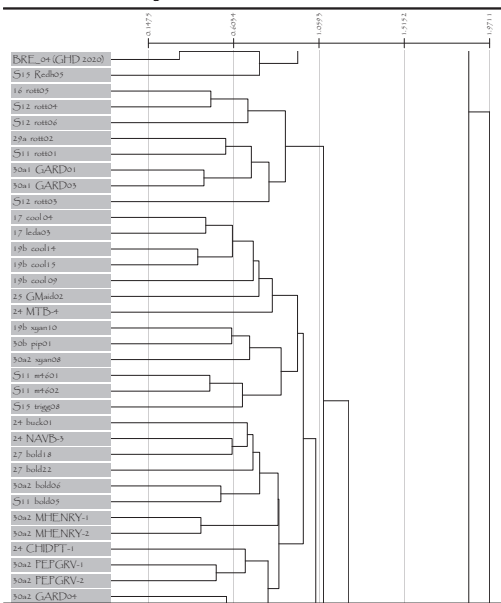
Column Fusion Dendrogram



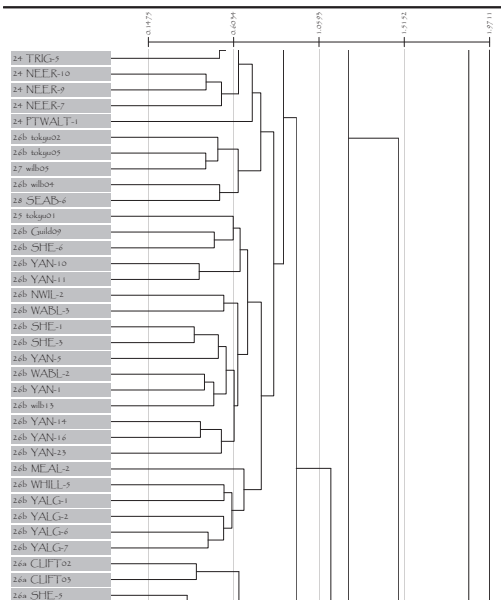
Column Fusion Dendrogram



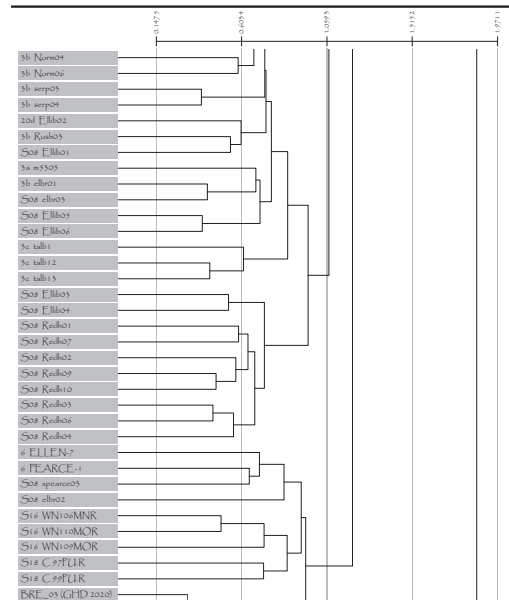
Column Fusion Dendrogram



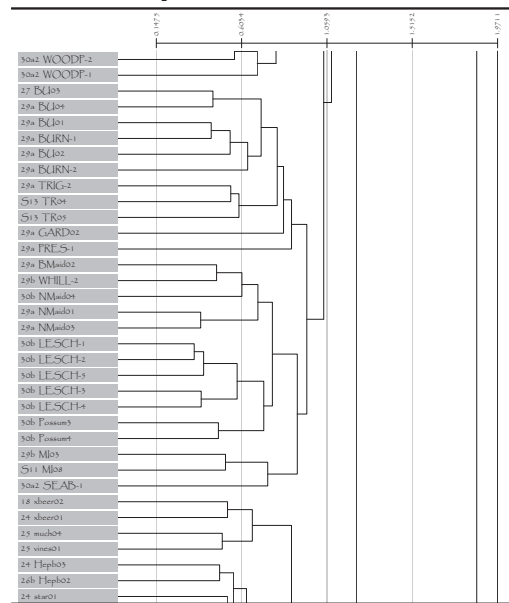
Column Fusion Dendrogram



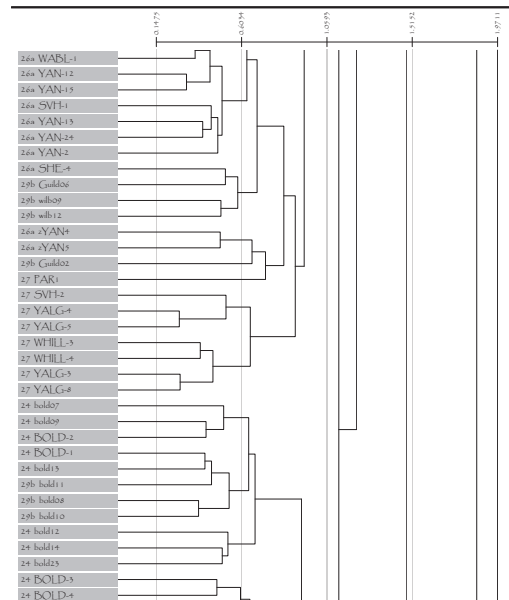
Column Fusion Dendrogram



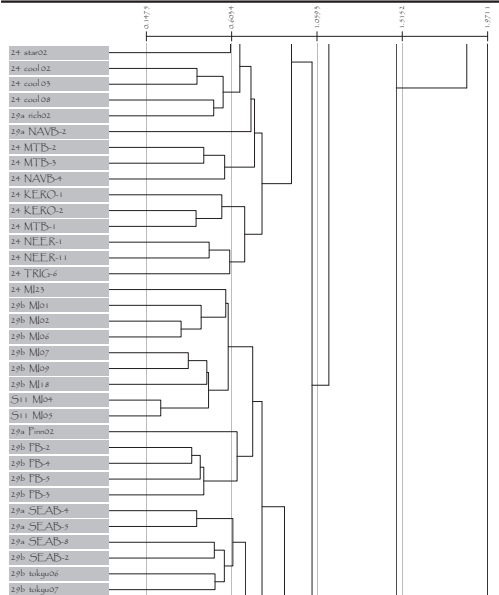
Column Fusion Dendrogram



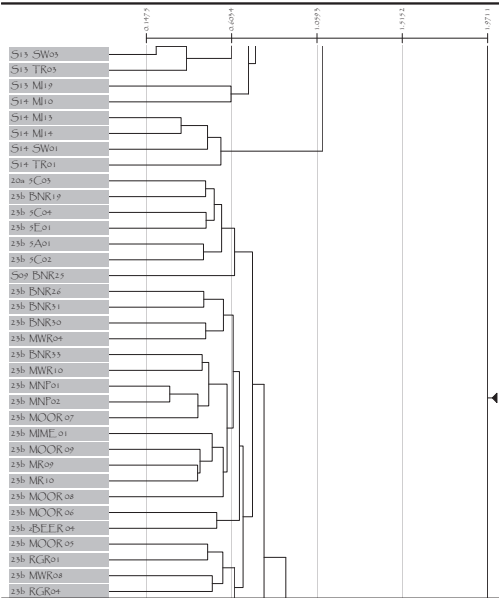
Column Fusion Dendrogram



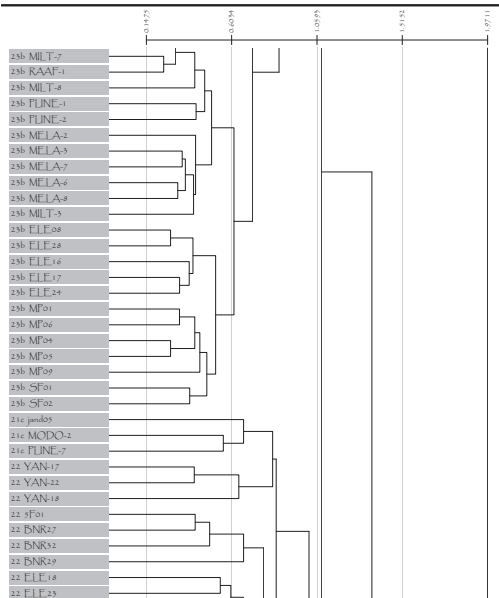
Column Fusion Dendrogram



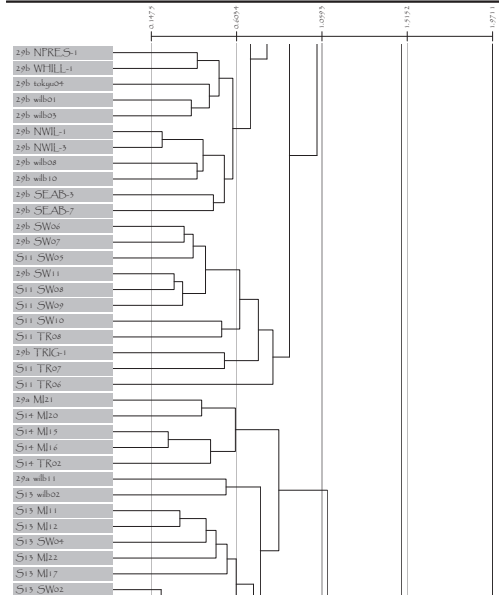
Column Fusion Dendrogram



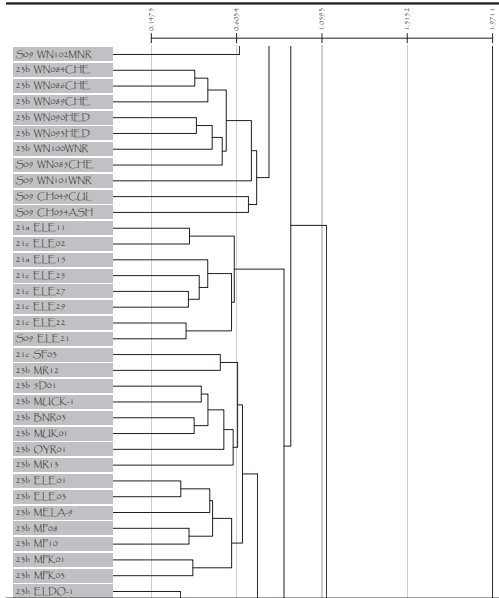
Column Fusion Dendrogram



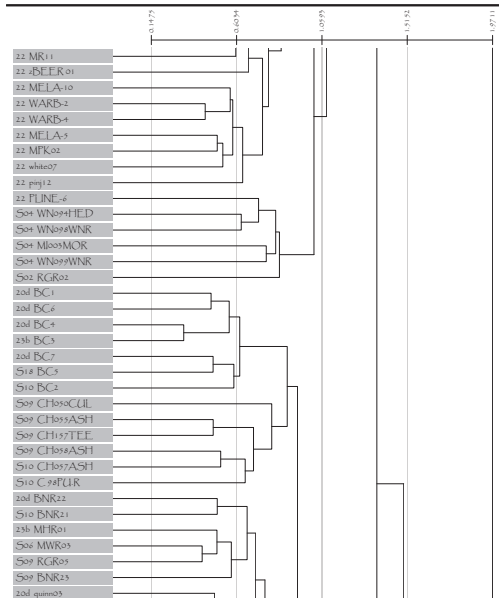
Column Fusion Dendrogram



Column Fusion Dendrogram

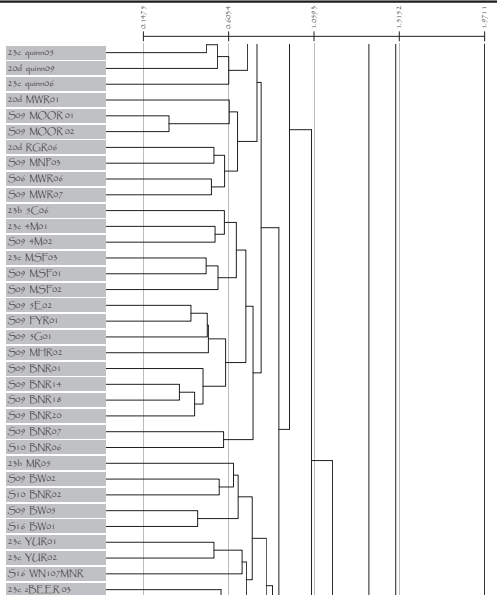


Column Fusion Dendrogram

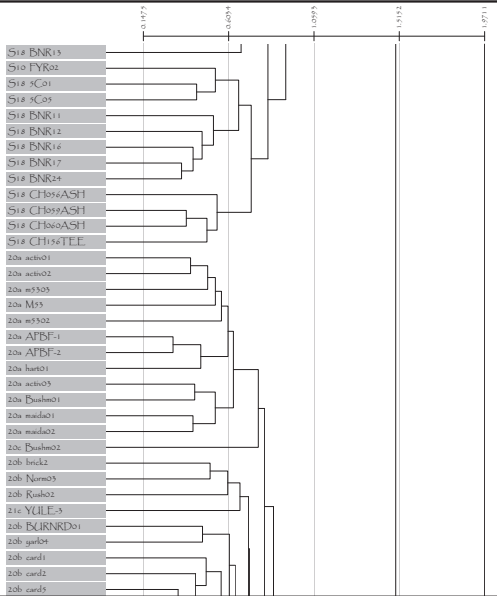




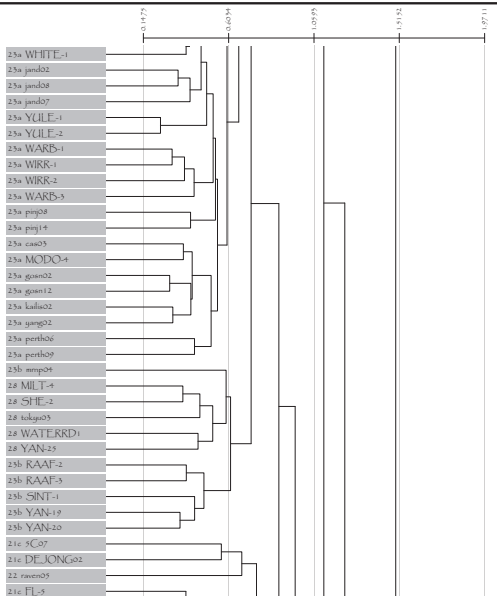
Column Fusion Dendrogram



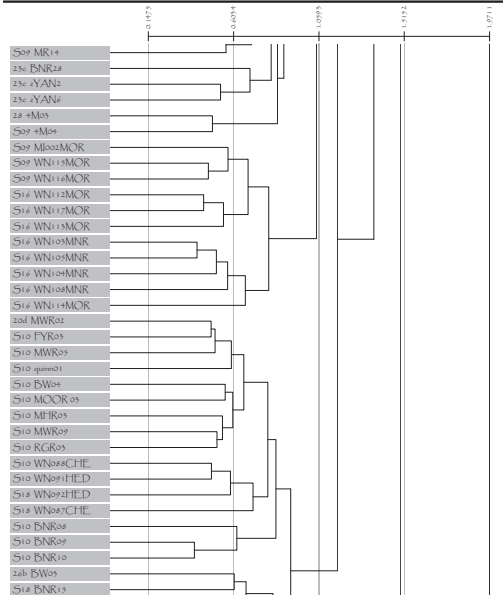
Column Fusion Dendrogram



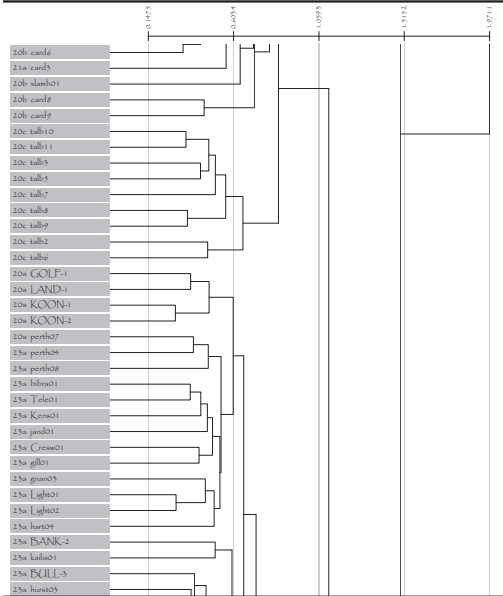
Column Fusion Dendrogram



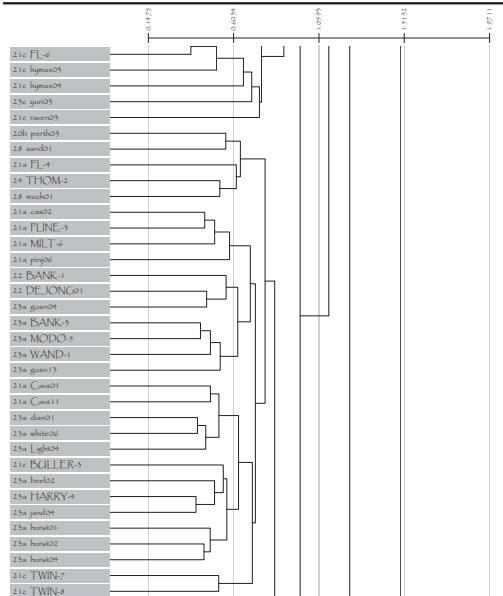
Column Fusion Dendrogram



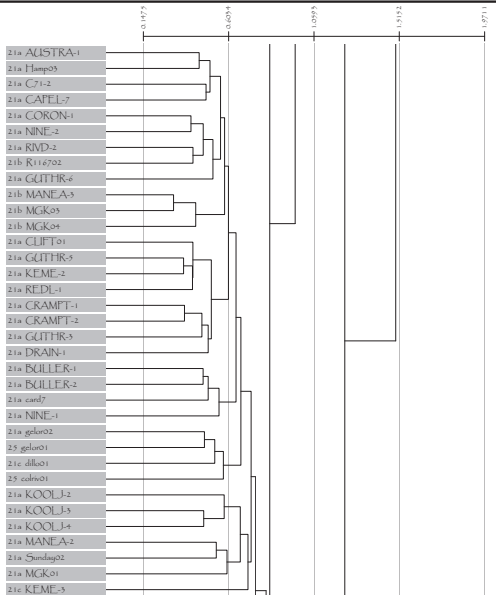
Column Fusion Dendrogram



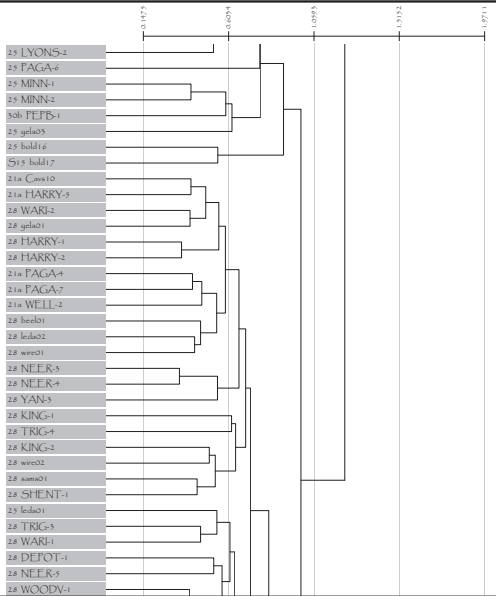
Column Fusion Dendrogram



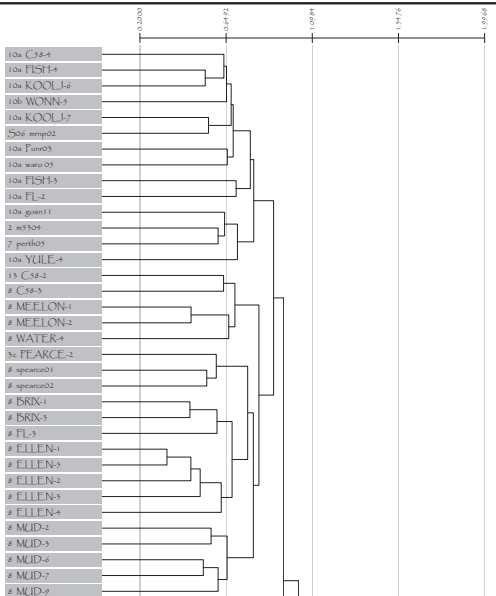
Column Fusion Dendrogram



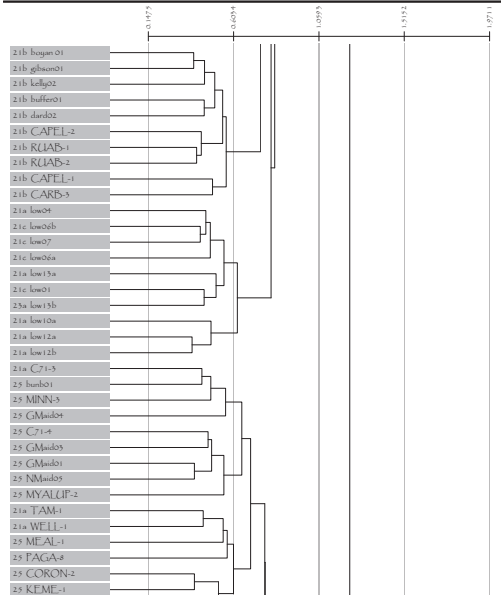
Column Fusion Dendrogram



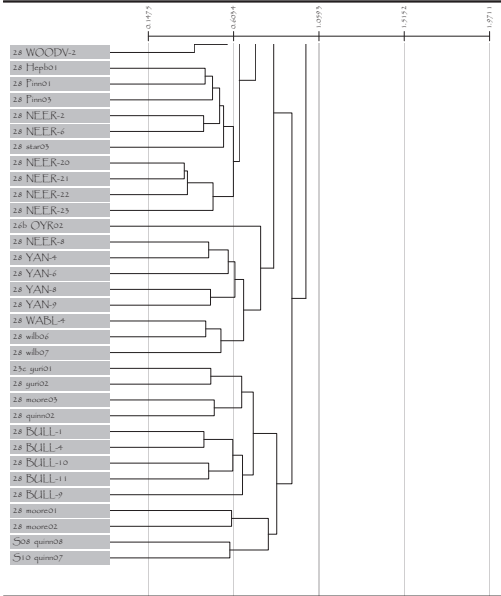
Column Fusion Dendrogram



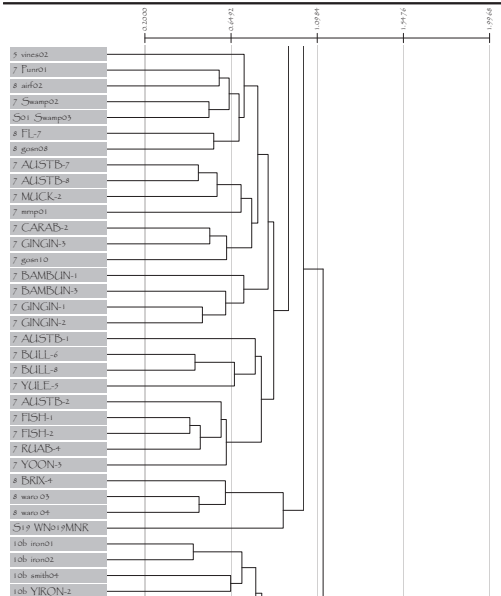
Column Fusion Dendrogram



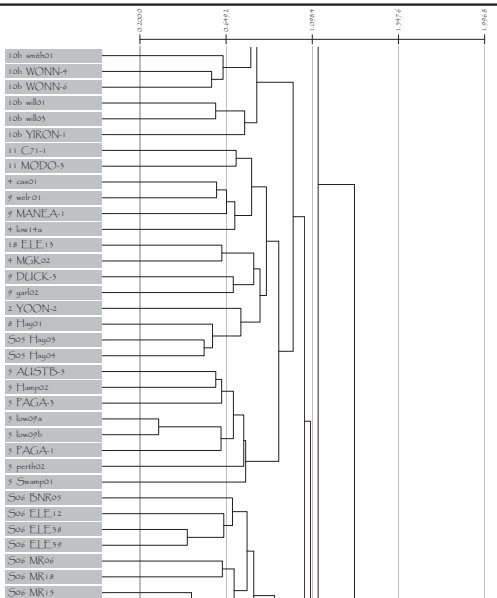
Column Fusion Dendrogram



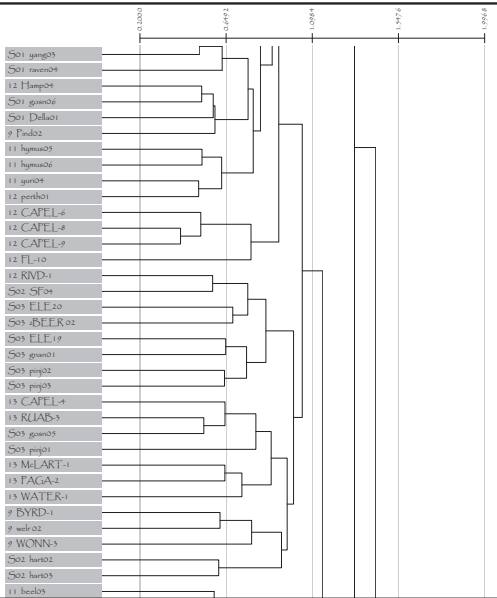
Column Fusion Dendrogram



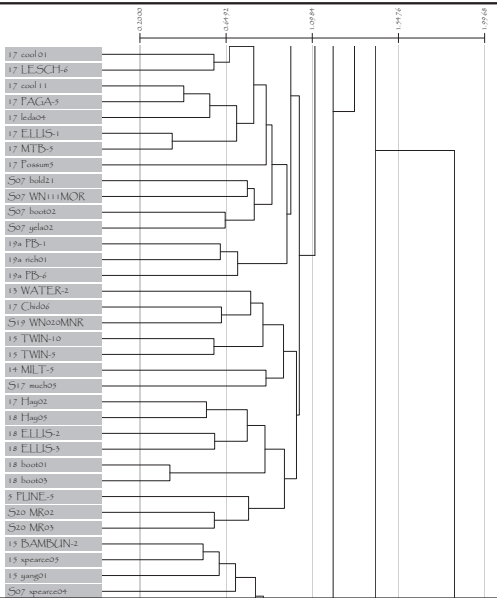
Column Fusion Dendrogram



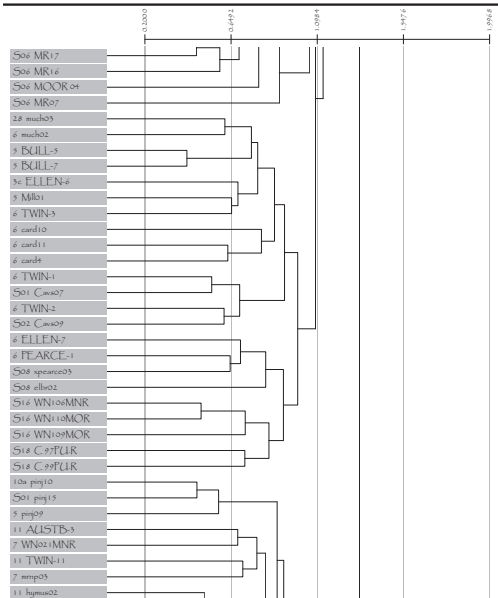
Column Fusion Dendrogram



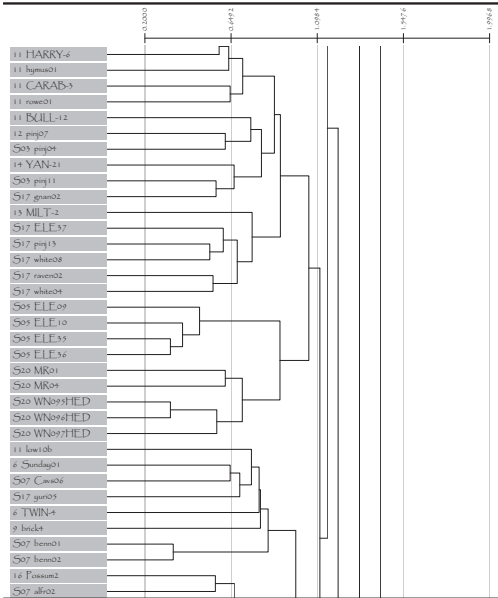
Column Fusion Dendrogram



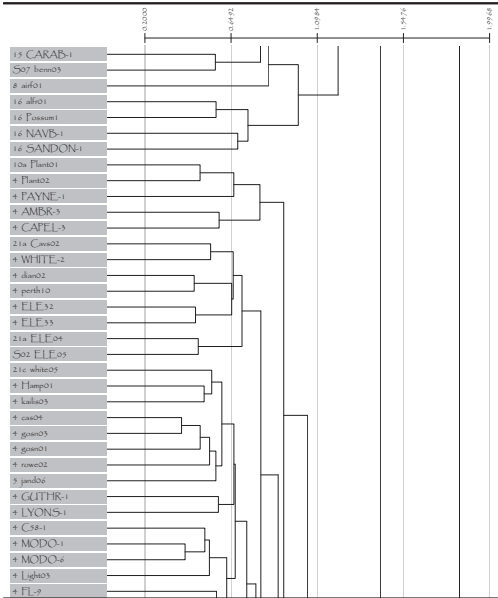
Column Fusion Dendrogram



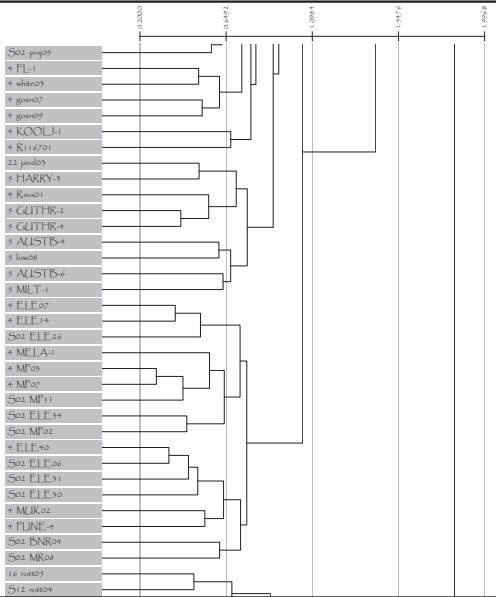
Column Fusion Dendrogram



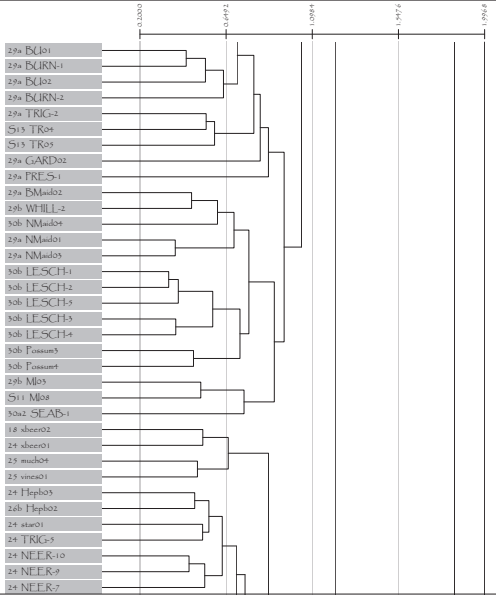
Column Fusion Dendrogram



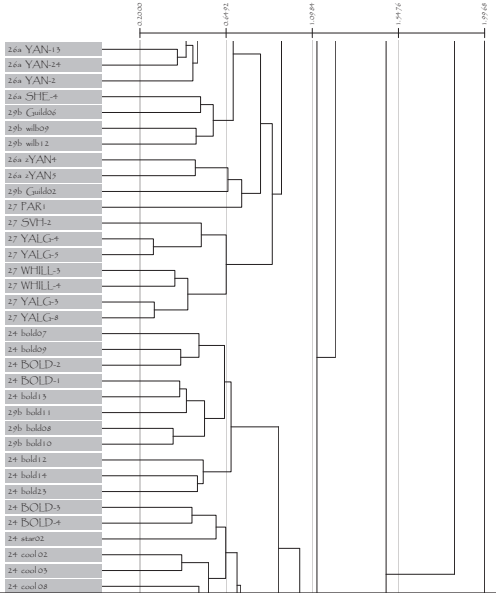
Column Fusion Dendrogram



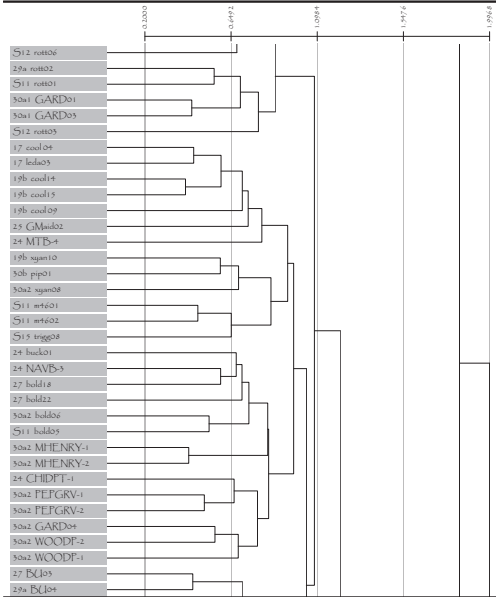
Column Fusion Dendrogram



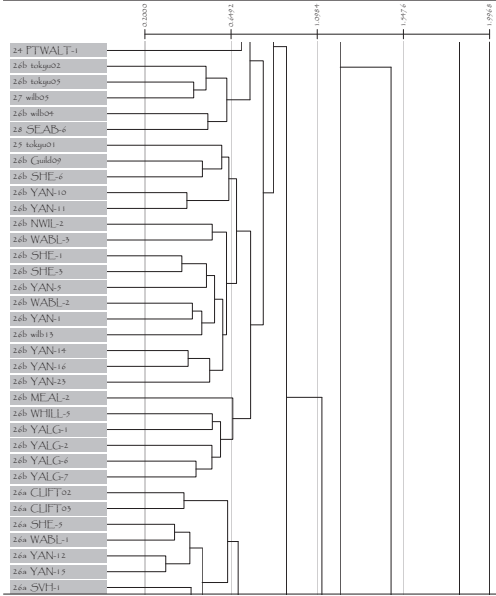
Column Fusion Dendrogram



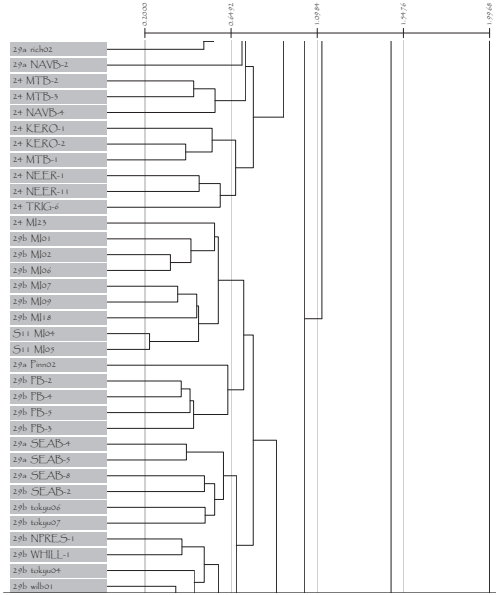
Column Fusion Dendrogram



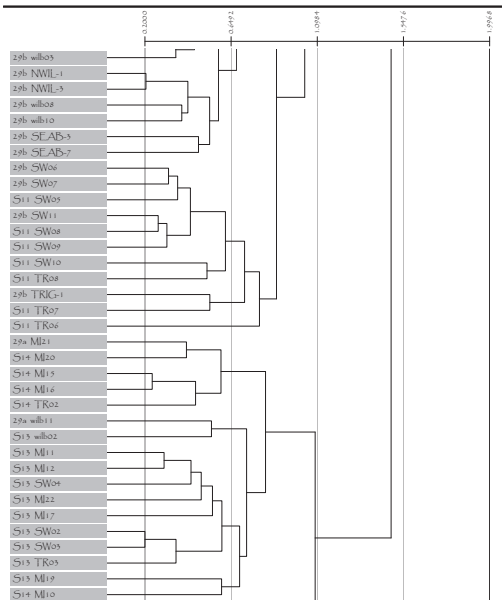
Column Fusion Dendrogram



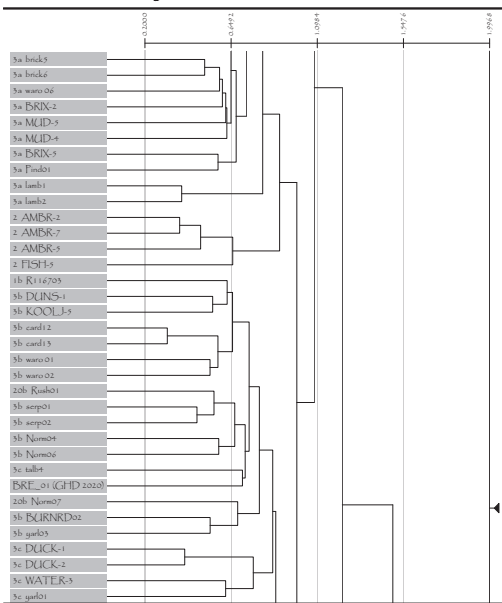
Column Fusion Dendrogram



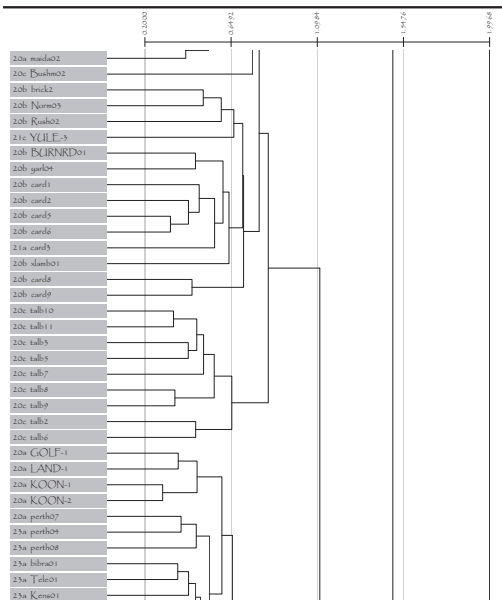
Column Fusion Dendrogram



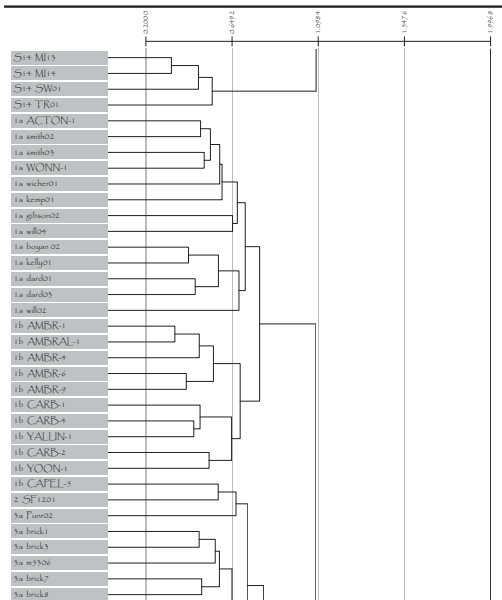
Column Fusion Dendrogram



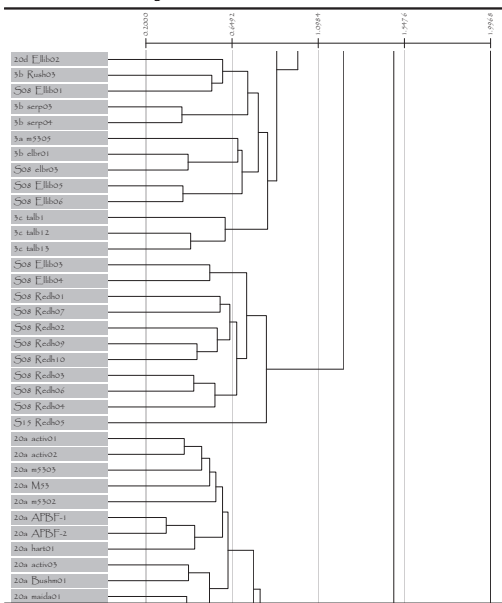
Column Fusion Dendrogram



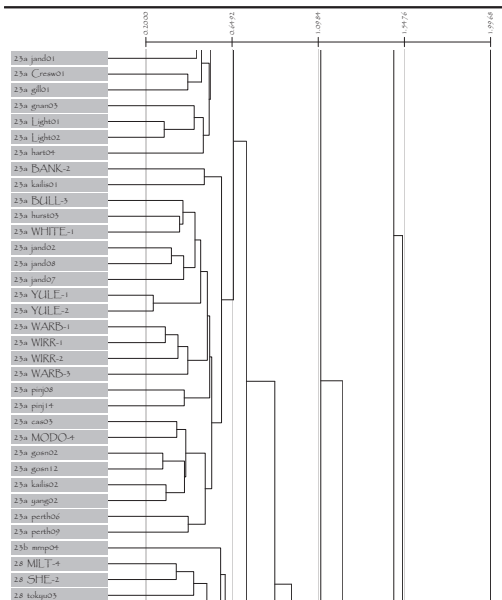
Column Fusion Dendrogram



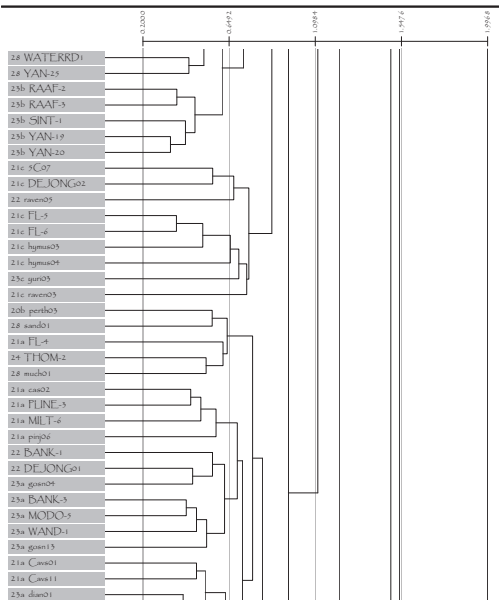
Column Fusion Dendrogram



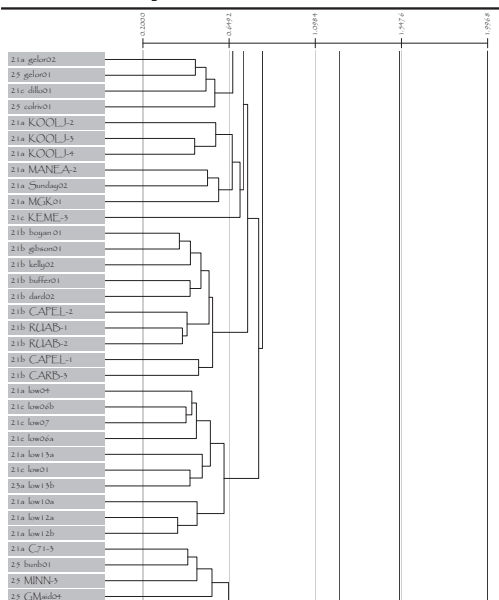
Column Fusion Dendrogram



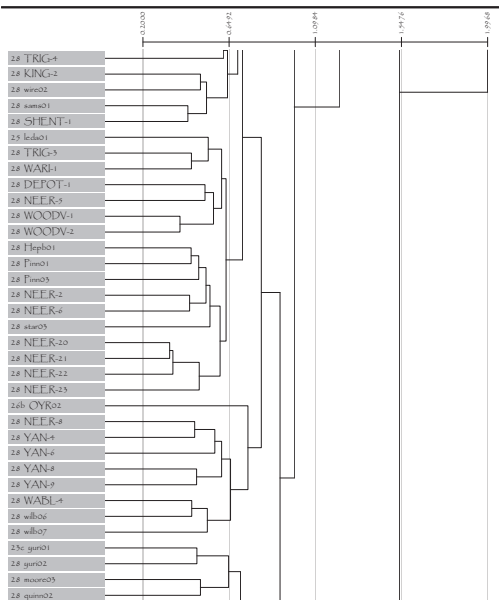
Column Fusion Dendrogram



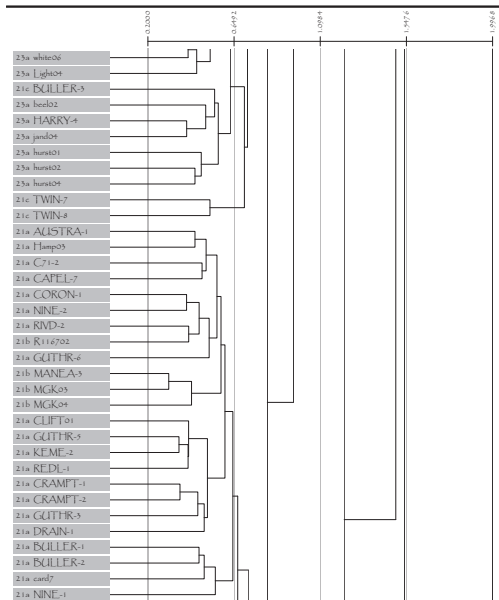
Column Fusion Dendrogram



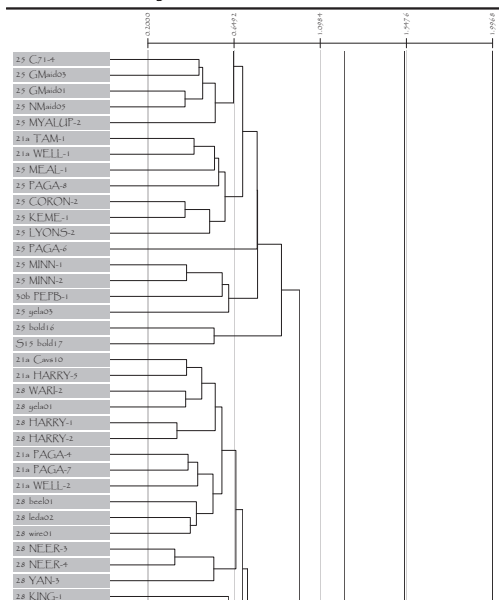
Column Fusion Dendrogram



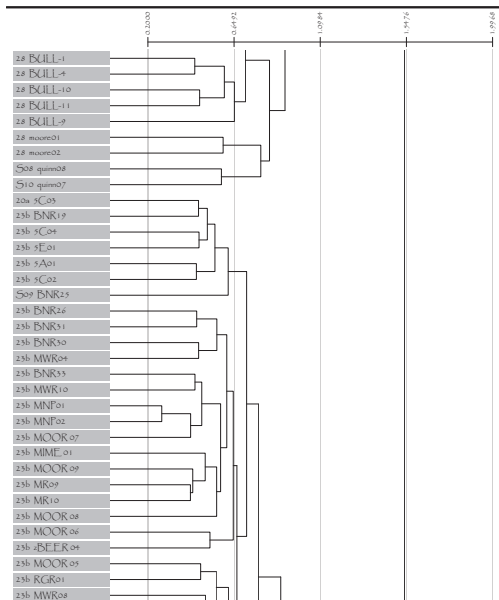
Column Fusion Dendrogram



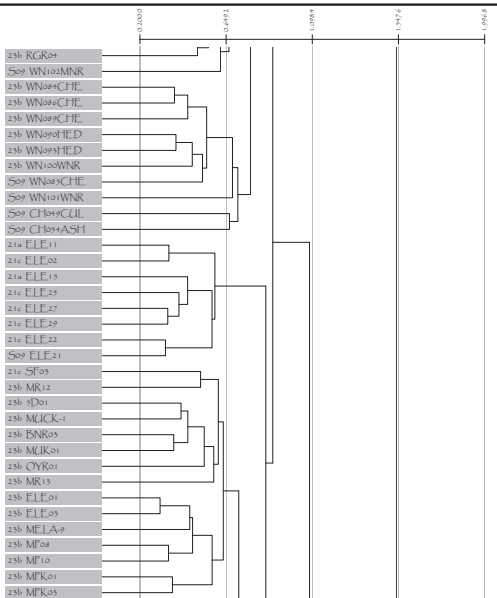
Column Fusion Dendrogram



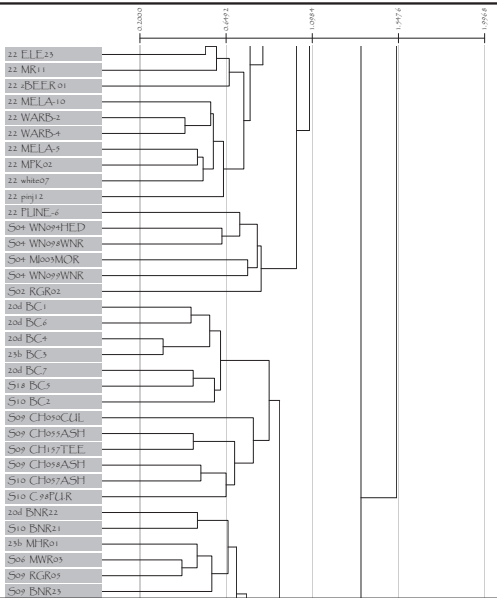
Column Fusion Dendrogram



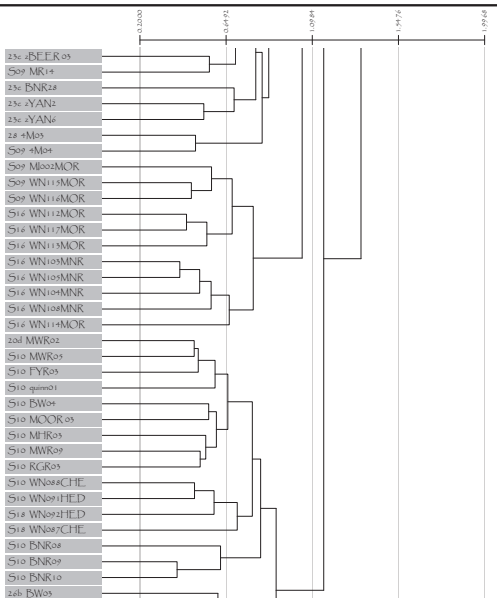
Column Fusion Dendrogram



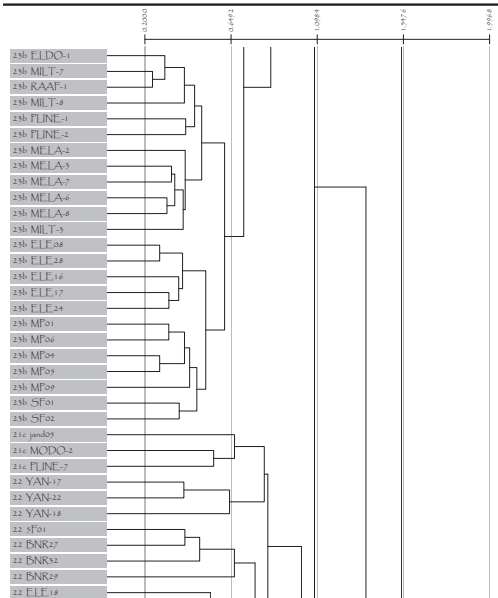
Column Fusion Dendrogram



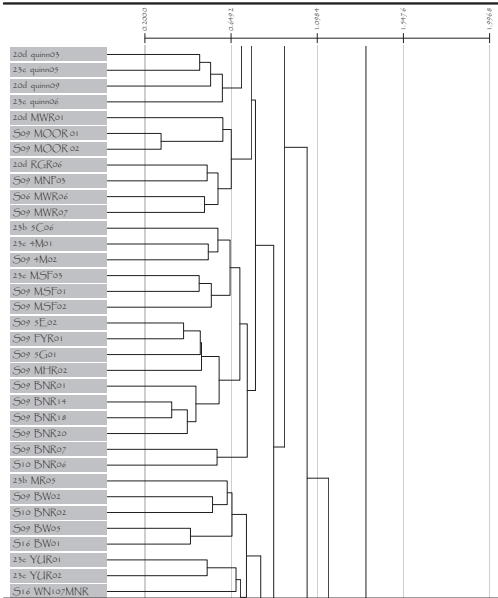
Column Fusion Dendrogram



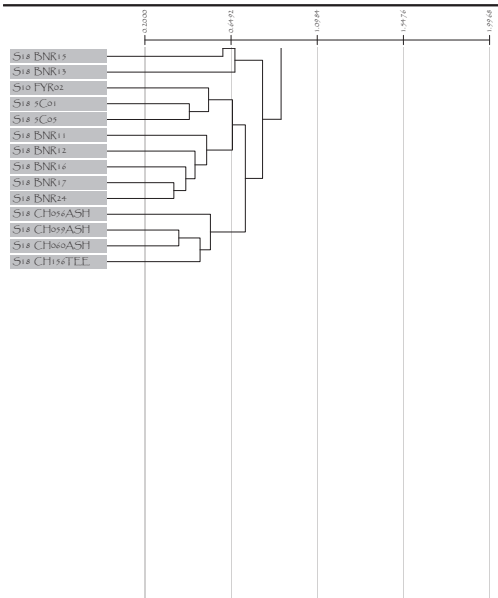
Column Fusion Dendrogram



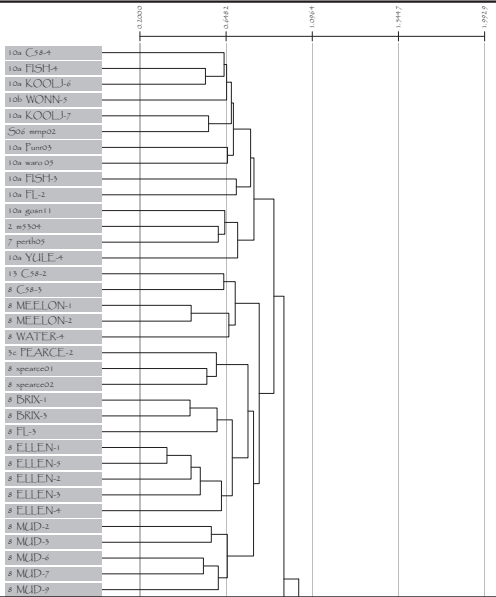
Column Fusion Dendrogram



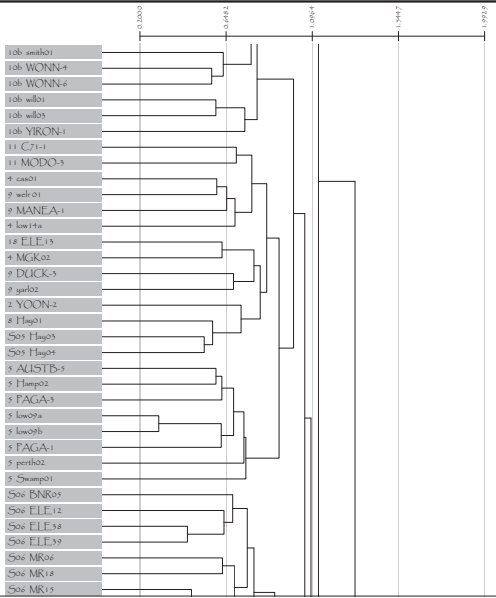
Column Fusion Dendrogram



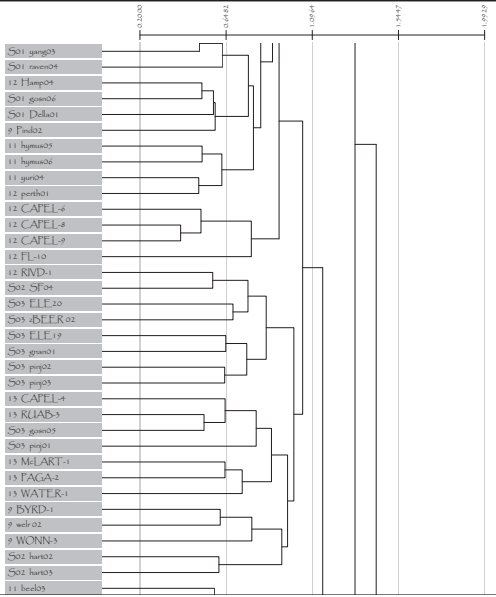
Column Fusion Dendrogram



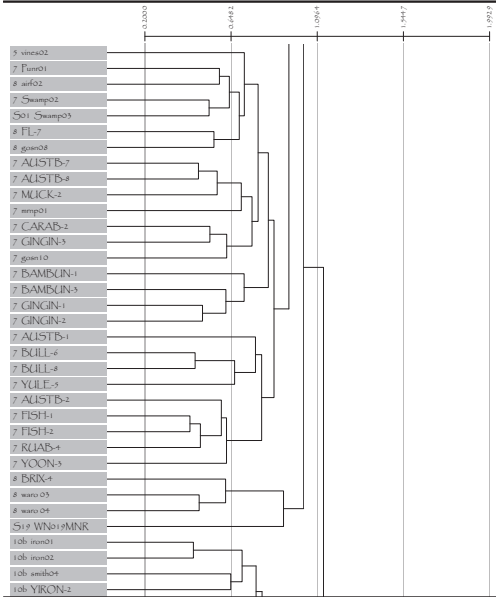
Column Fusion Dendrogram



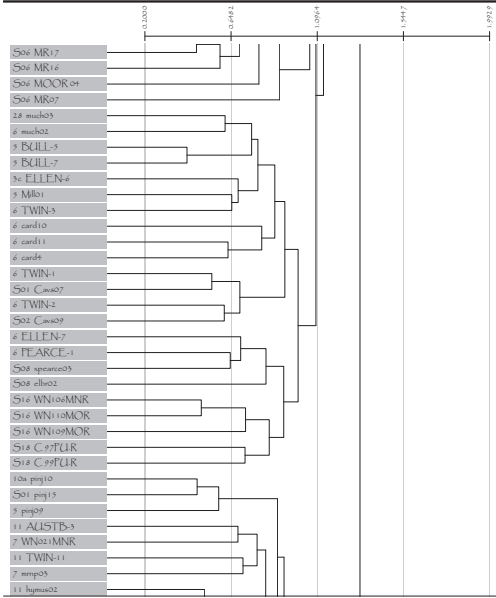
Column Fusion Dendrogram



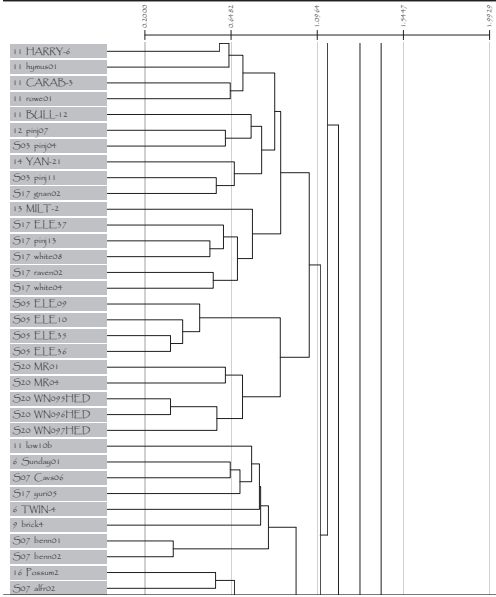
Column Fusion Dendrogram



Column Fusion Dendrogram

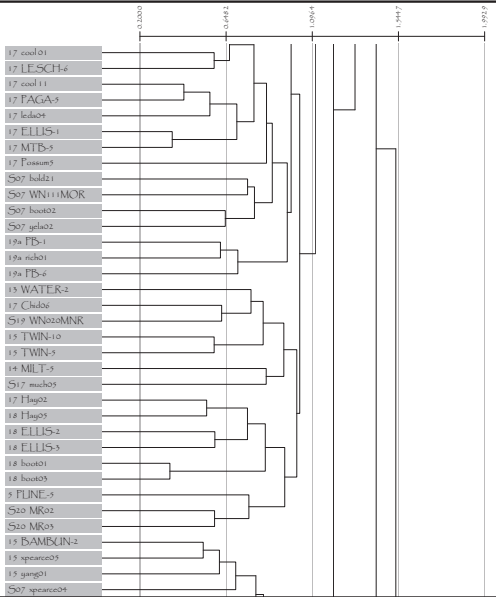


Column Fusion Dendrogram

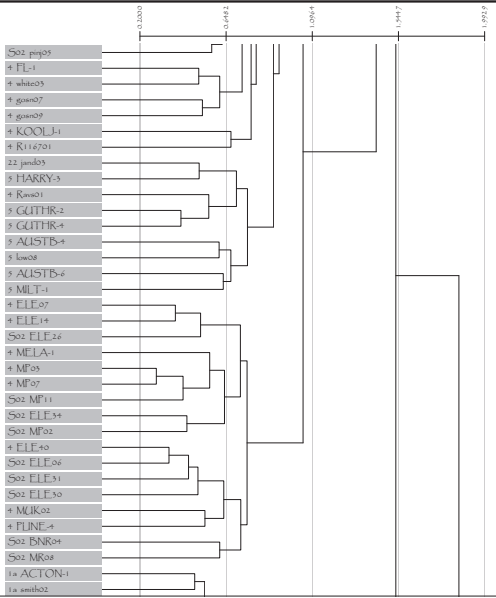




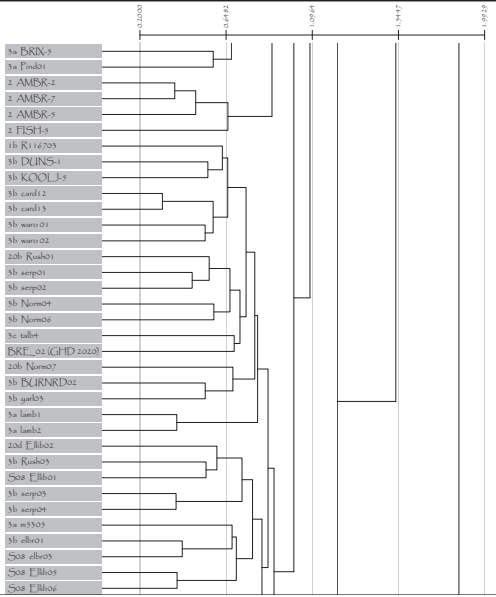
Column Fusion Dendrogram



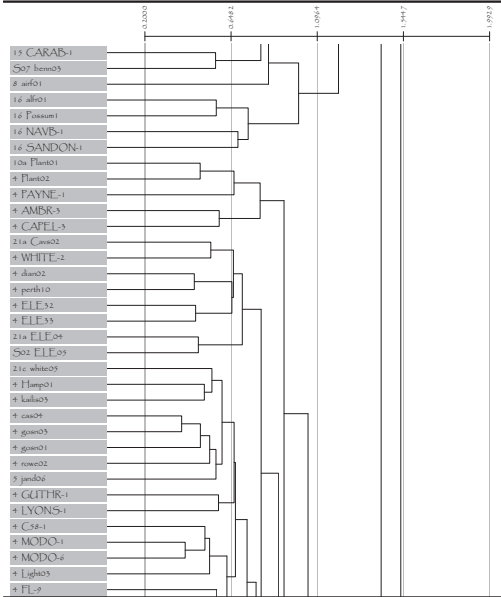
Column Fusion Dendrogram



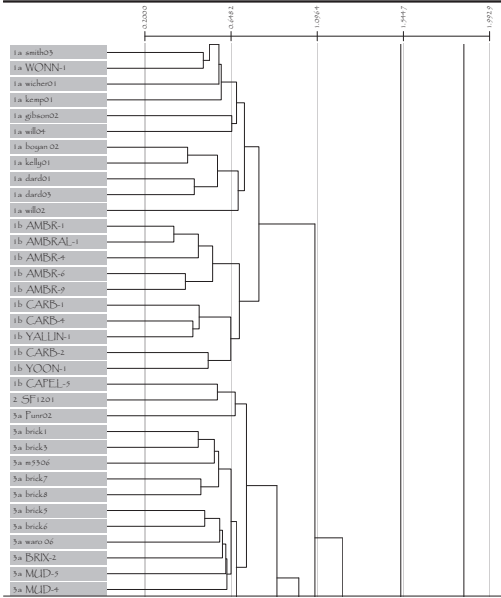
Column Fusion Dendrogram



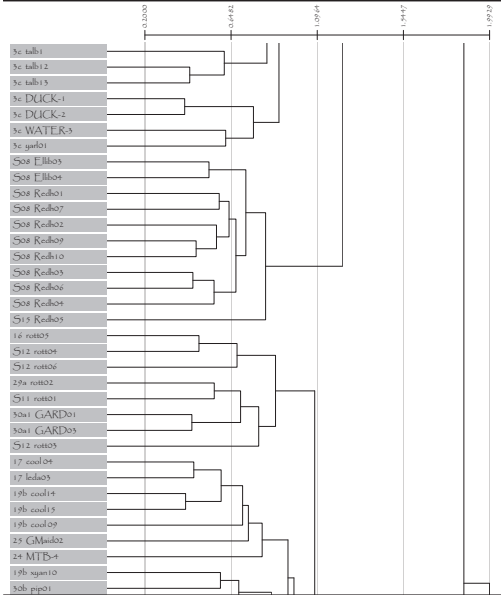
Column Fusion Dendrogram



Column Fusion Dendrogram

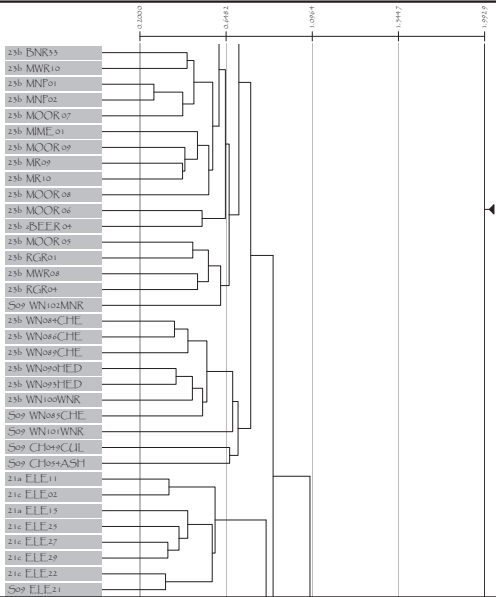


Column Fusion Dendrogram

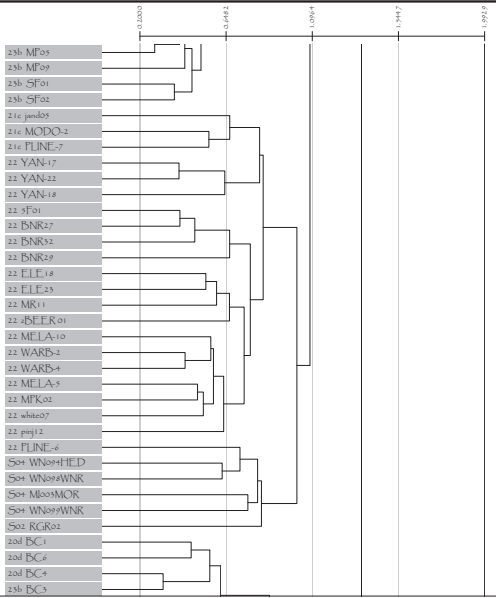




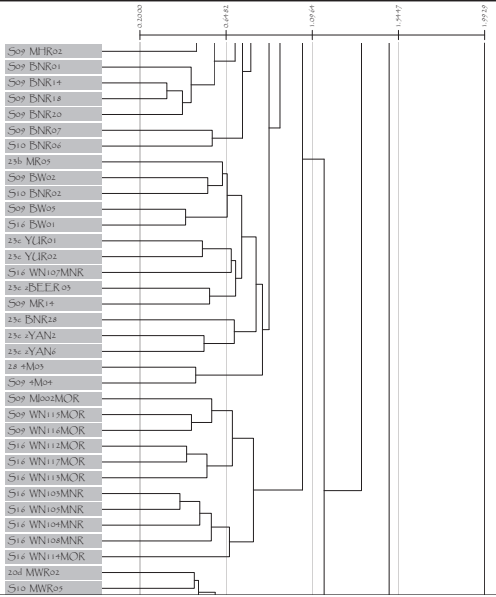
Column Fusion Dendrogram



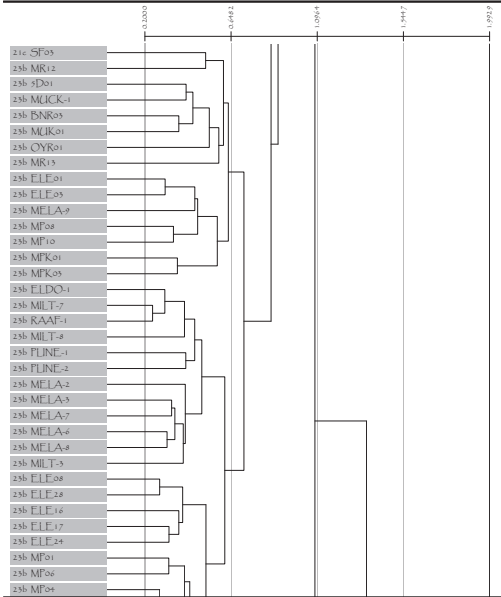
Column Fusion Dendrogram



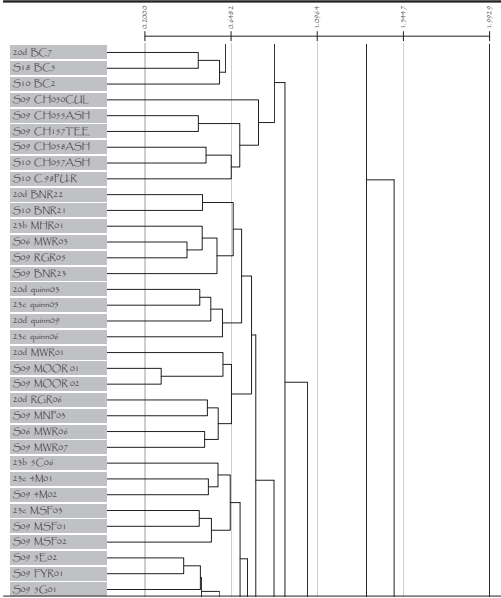
Column Fusion Dendrogram



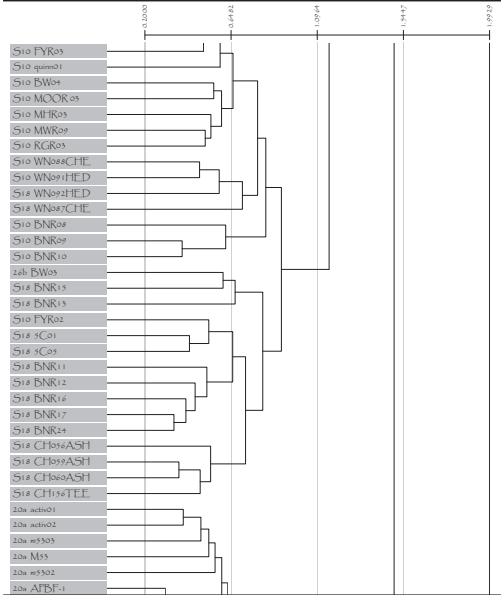
Column Fusion Dendrogram



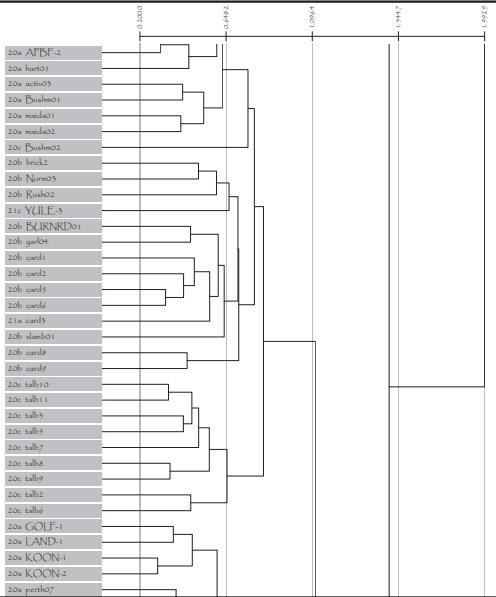
Column Fusion Dendrogram



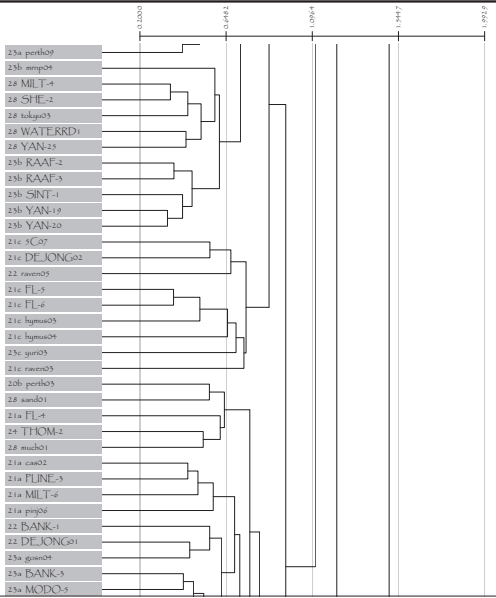
Column Fusion Dendrogram



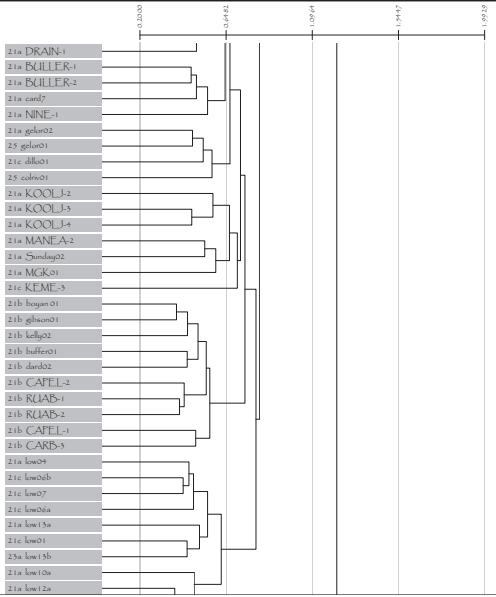
Column Fusion Dendrogram



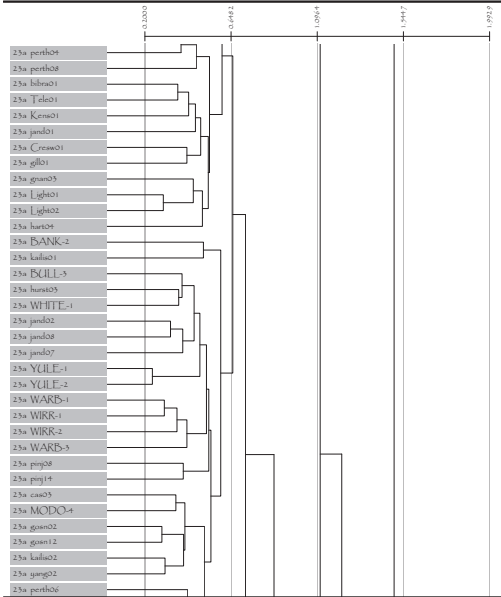
Column Fusion Dendrogram



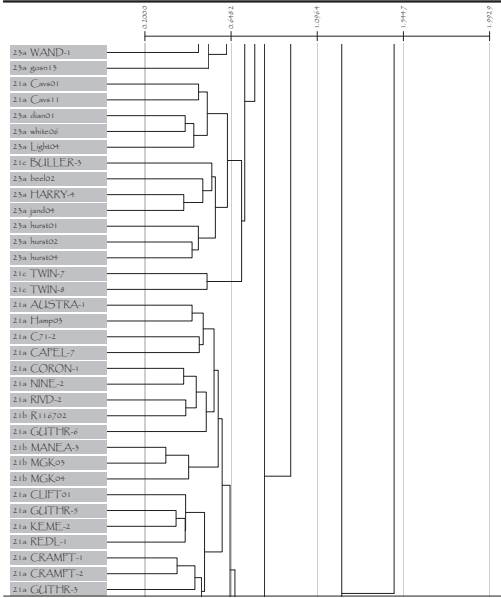
Column Fusion Dendrogram



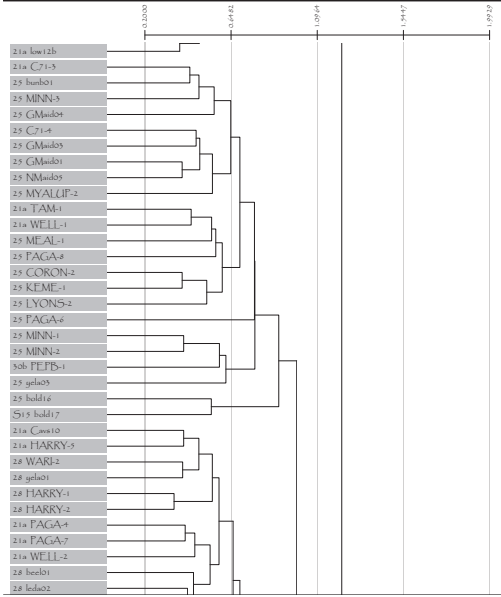
Column Fusion Dendrogram



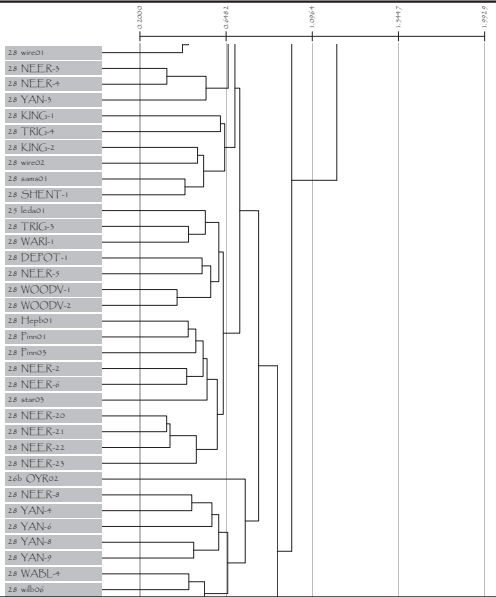
Column Fusion Dendrogram



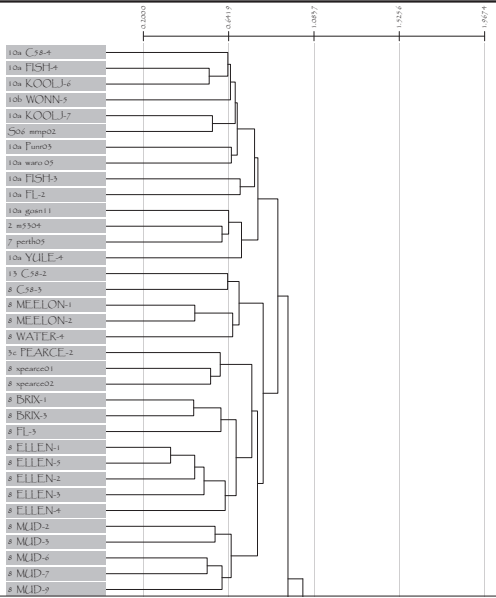
Column Fusion Dendrogram



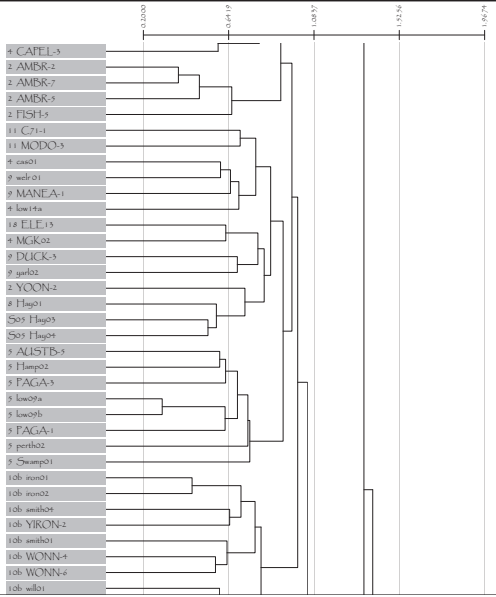
Column Fusion Dendrogram



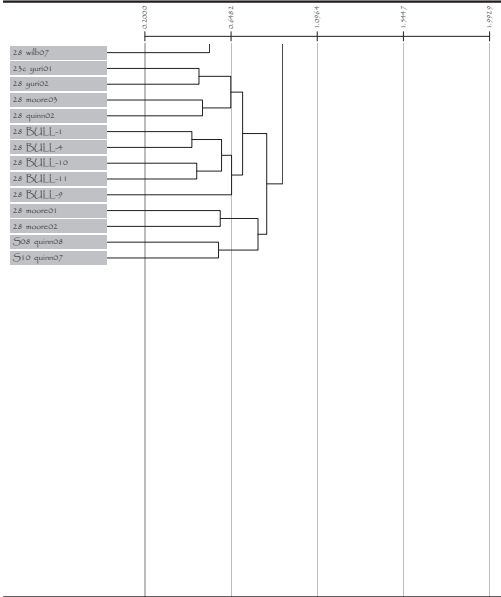
Column Fusion Dendrogram



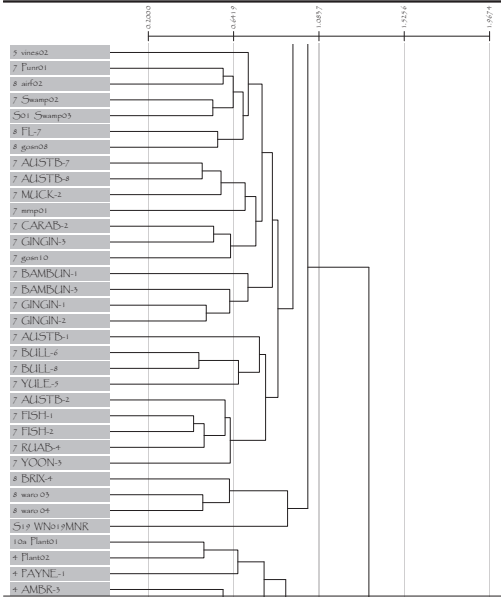
Column Fusion Dendrogram



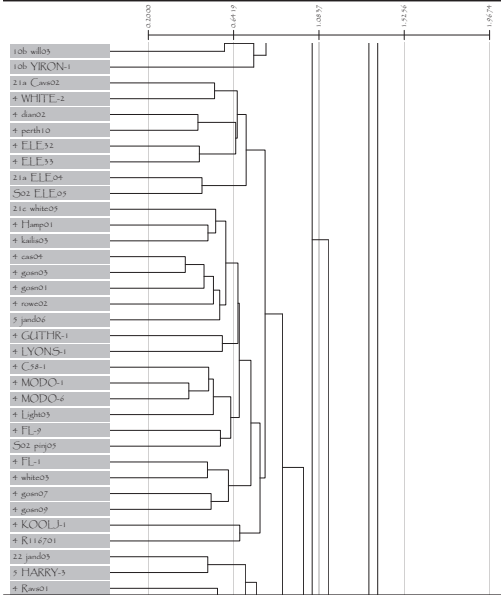
Column Fusion Dendrogram



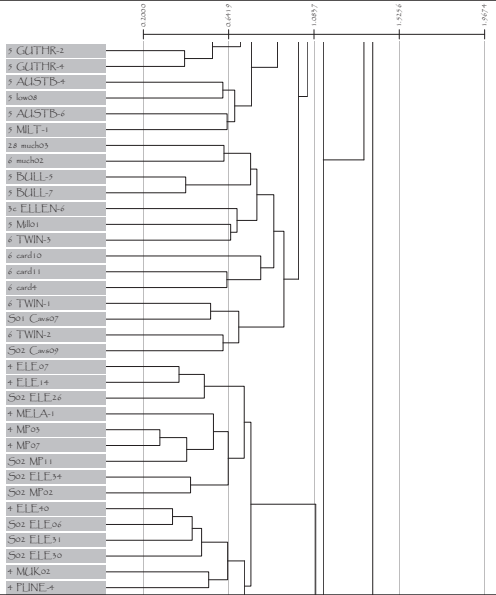
Column Fusion Dendrogram



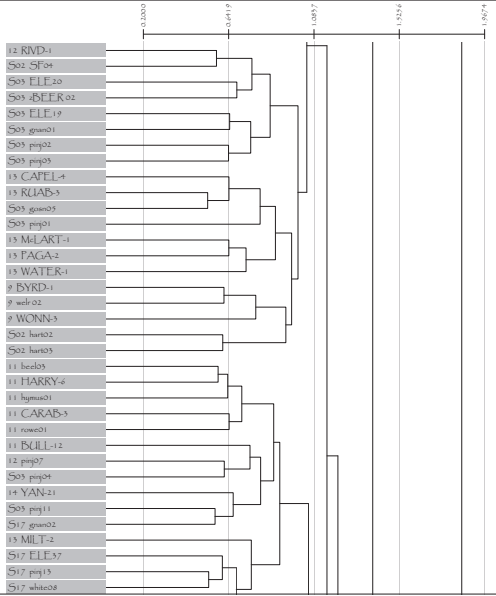
Column Fusion Dendrogram



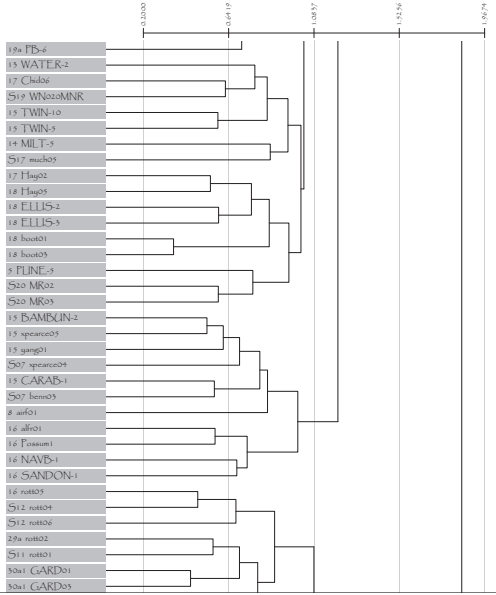
Column Fusion Dendrogram



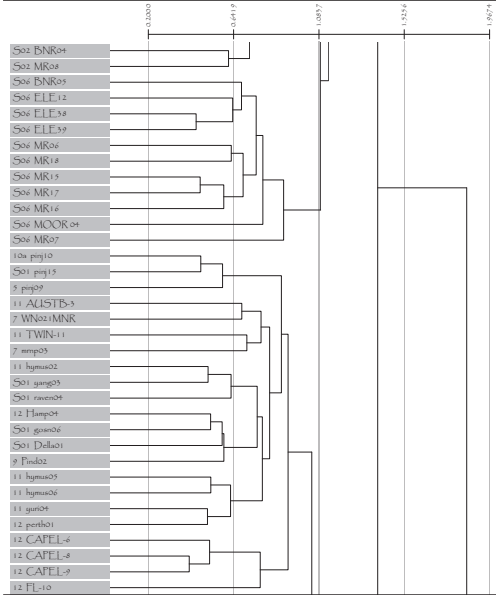
Column Fusion Dendrogram



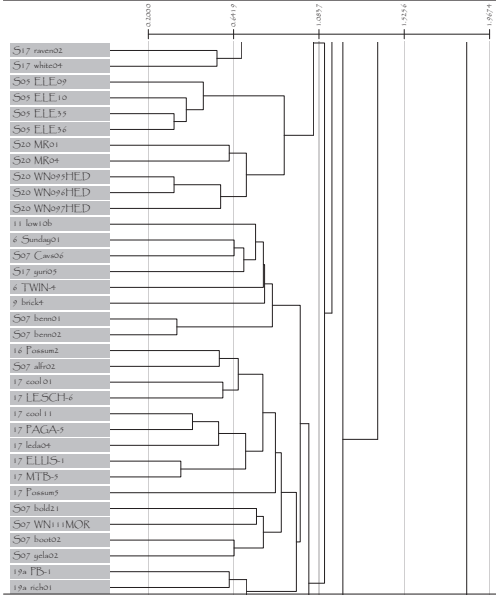
Column Fusion Dendrogram



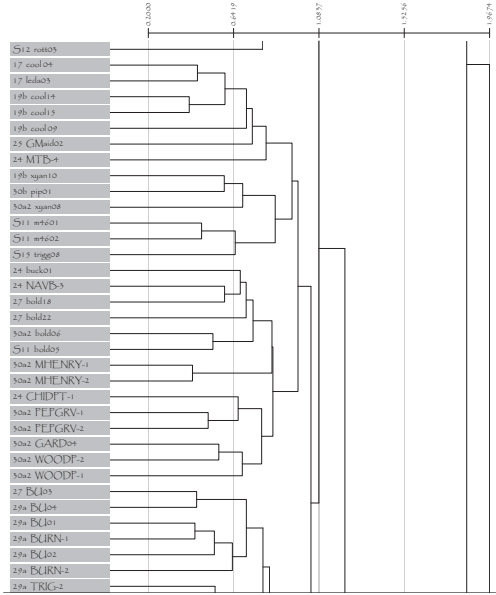
Column Fusion Dendrogram



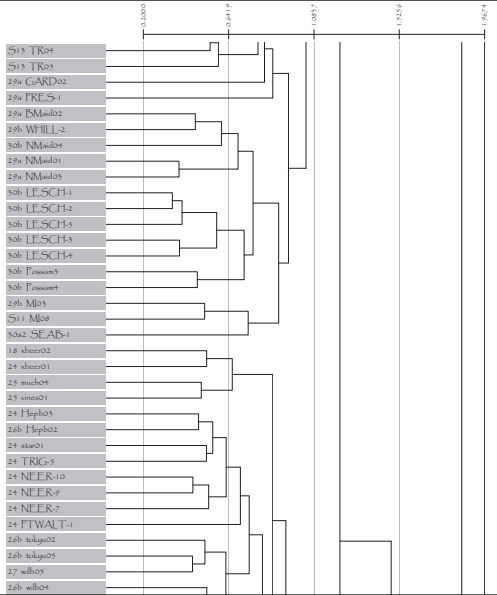
Column Fusion Dendrogram



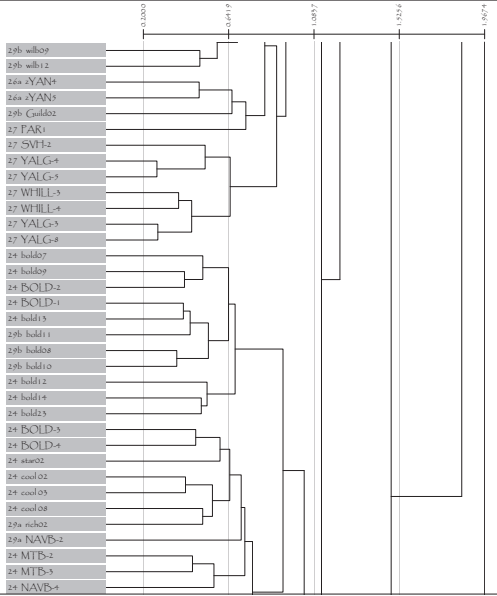
Column Fusion Dendrogram



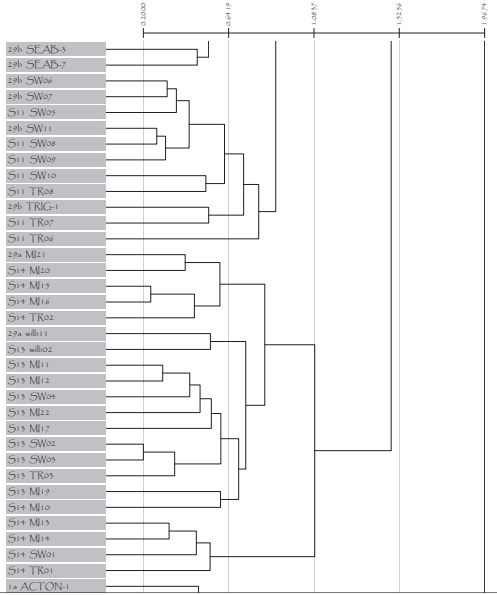
Column Fusion Dendrogram



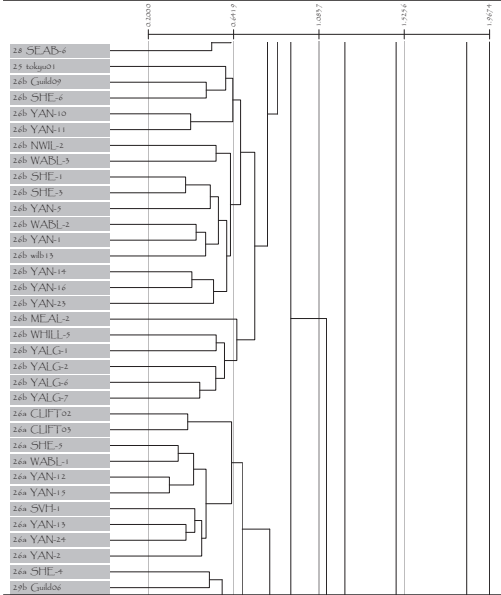
Column Fusion Dendrogram



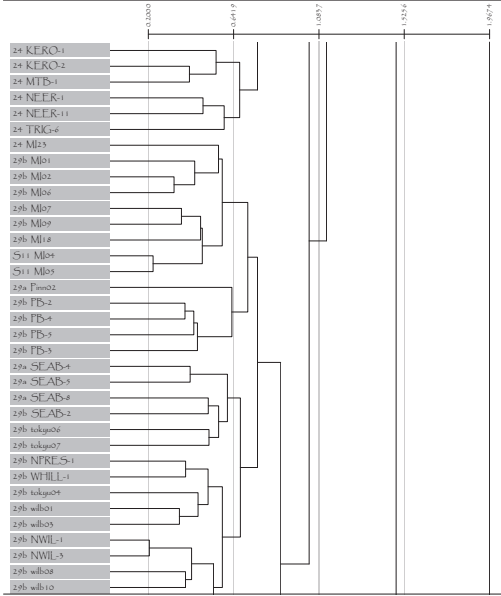
Column Fusion Dendrogram



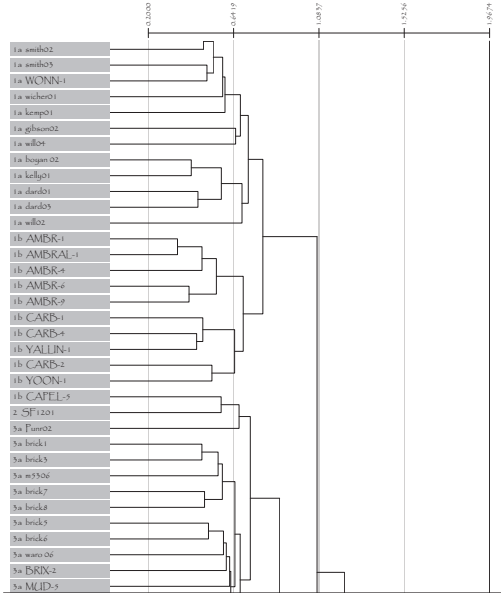
Column Fusion Dendrogram



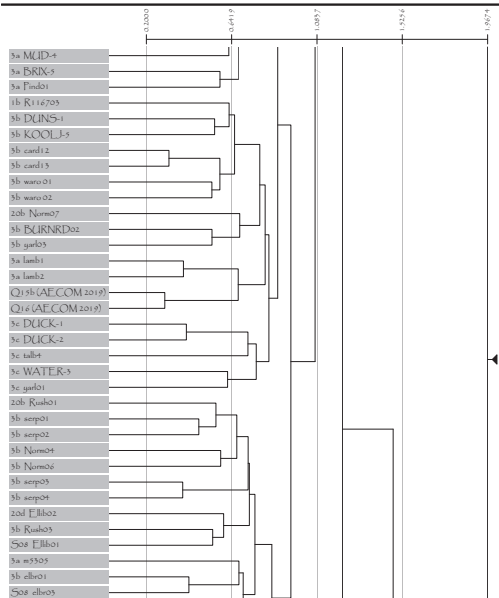
Column Fusion Dendrogram



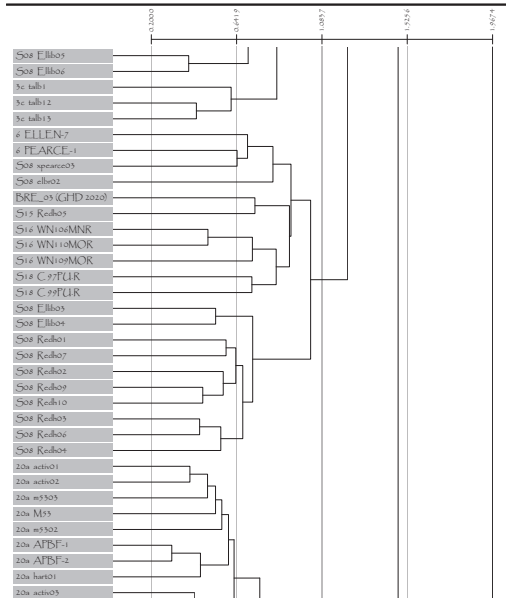
Column Fusion Dendrogram



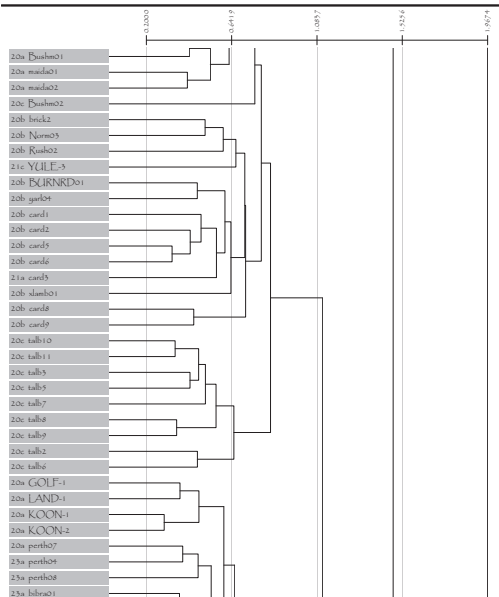
Column Fusion Dendrogram



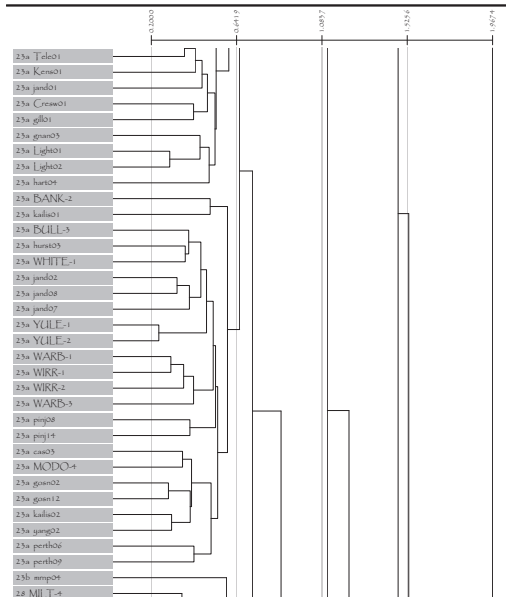
Column Fusion Dendrogram



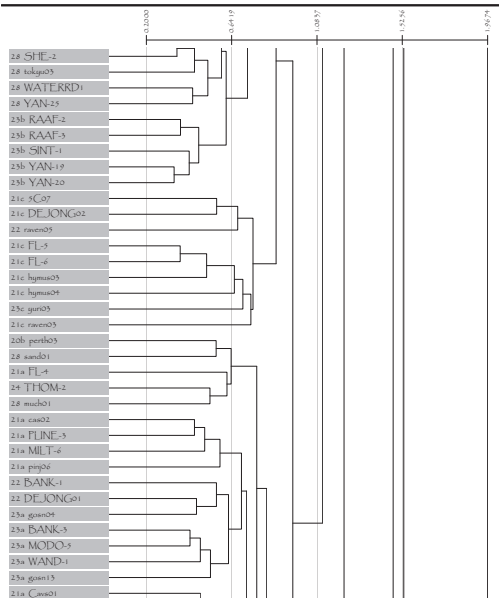
Column Fusion Dendrogram



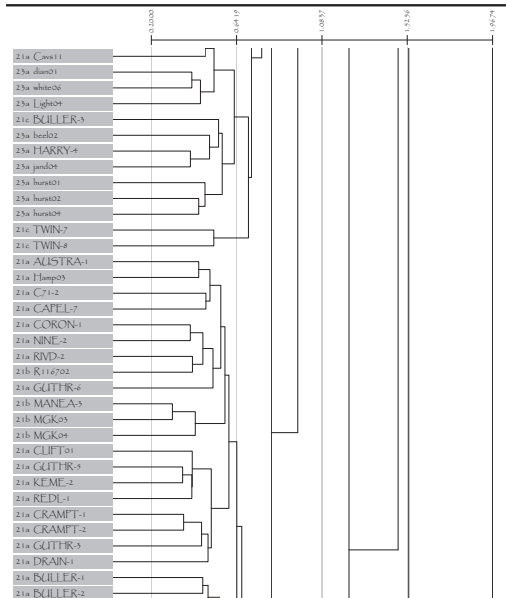
Column Fusion Dendrogram



Column Fusion Dendrogram

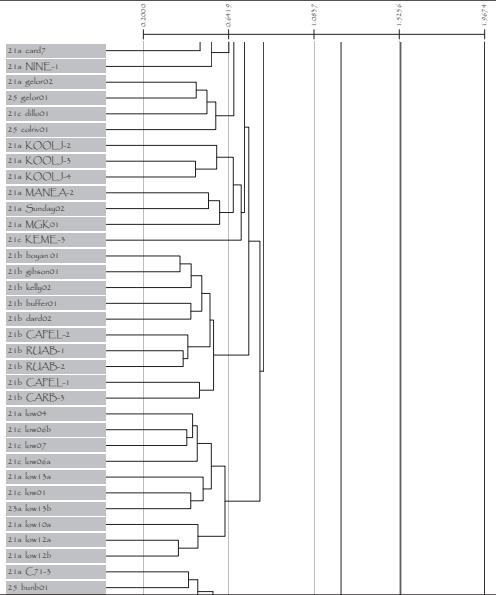


Column Fusion Dendrogram

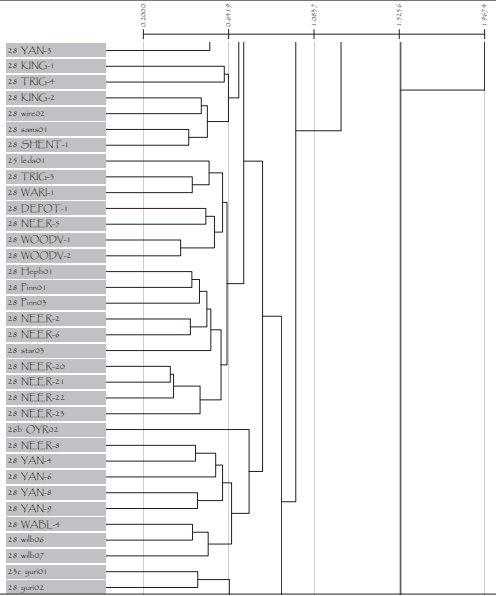




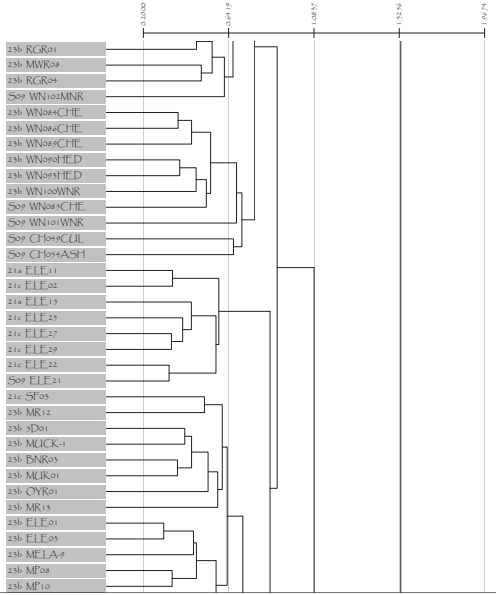
Column Fusion Dendrogram



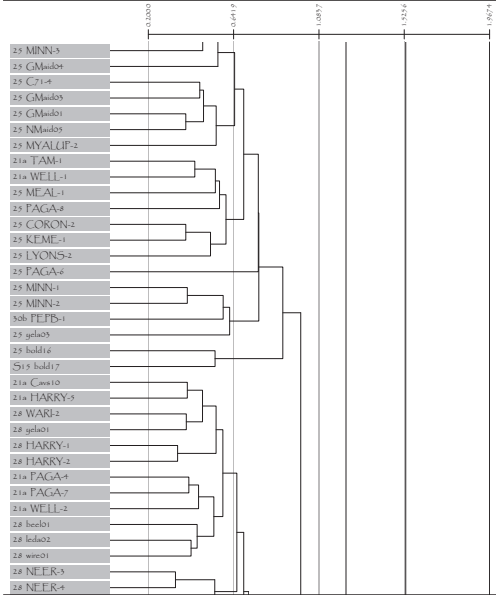
Column Fusion Dendrogram



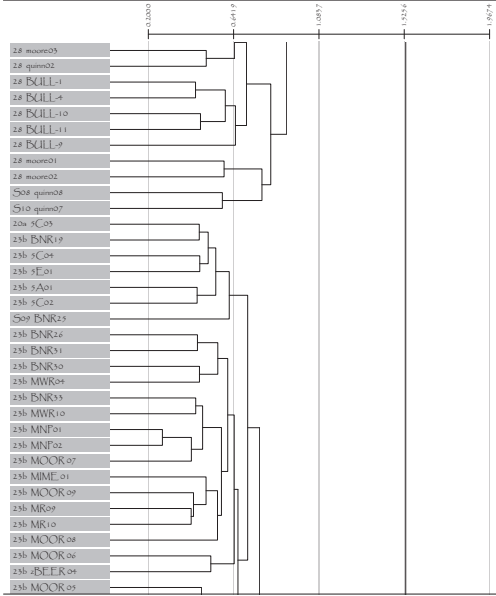
Column Fusion Dendrogram



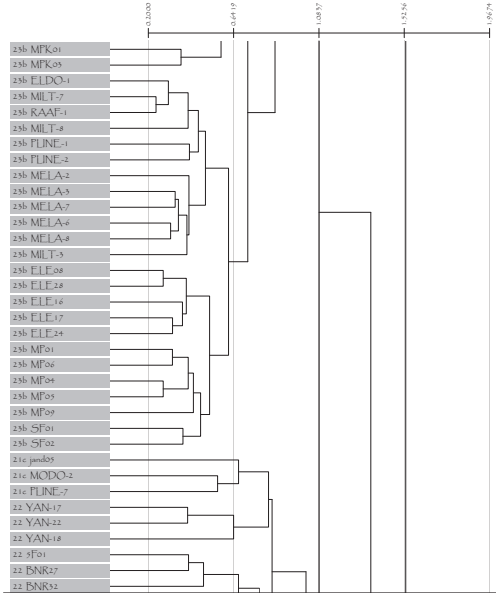
Column Fusion Dendrogram



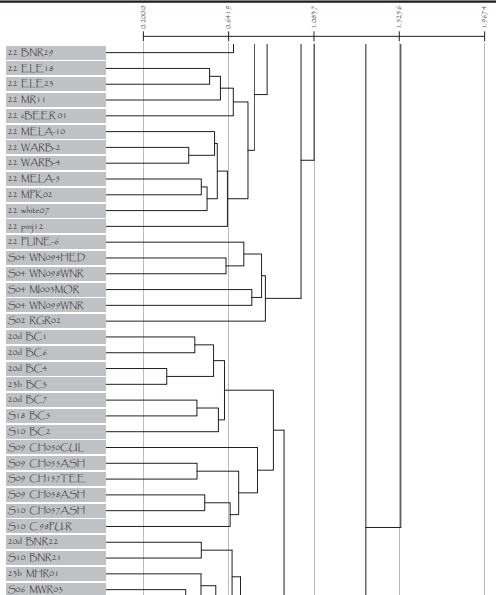
Column Fusion Dendrogram



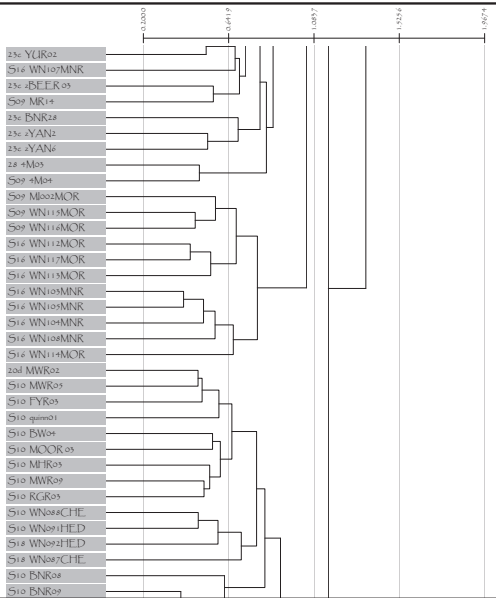
Column Fusion Dendrogram



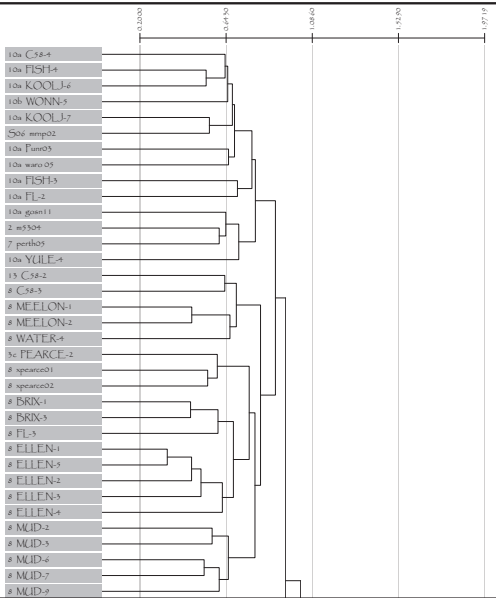
Column Fusion Dendrogram



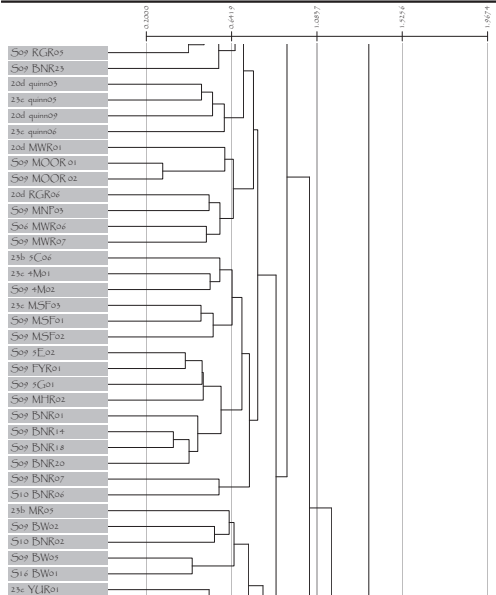
Column Fusion Dendrogram



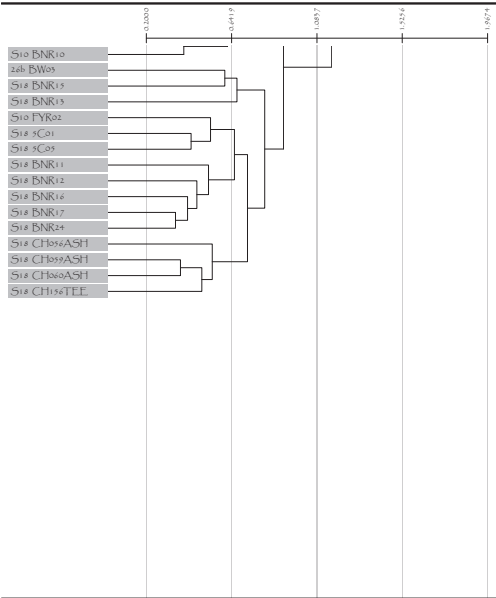
Column Fusion Dendrogram



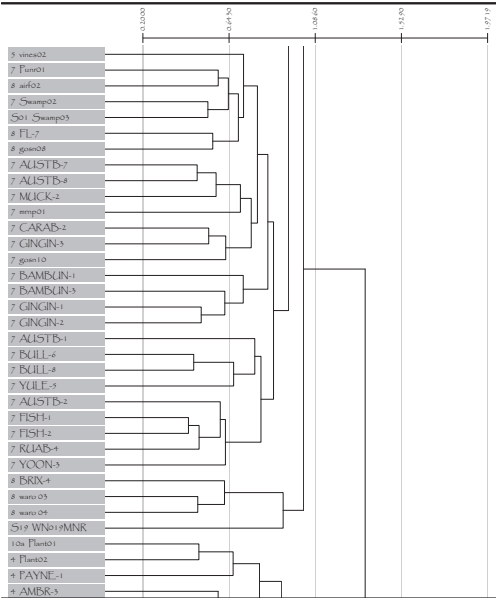
Column Fusion Dendrogram



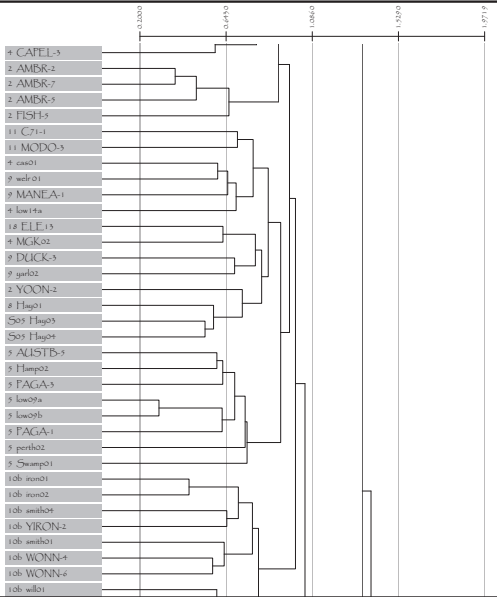
Column Fusion Dendrogram



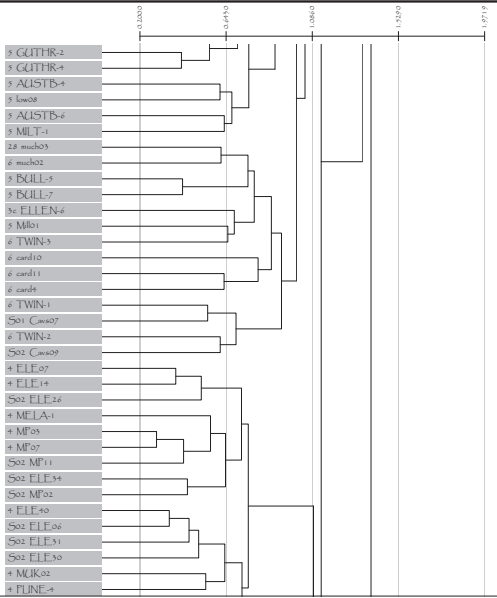
Column Fusion Dendrogram



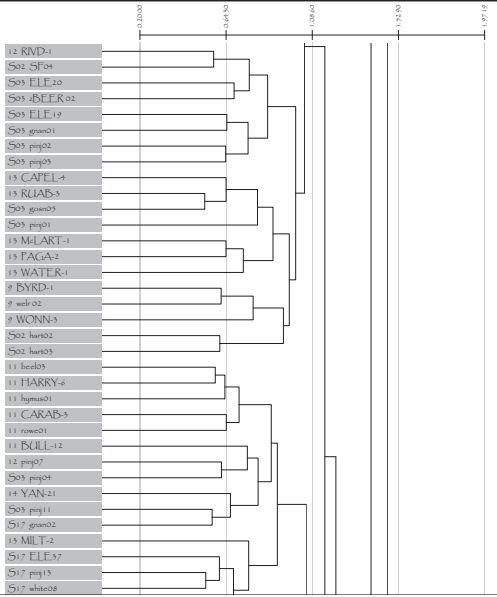
Column Fusion Dendrogram



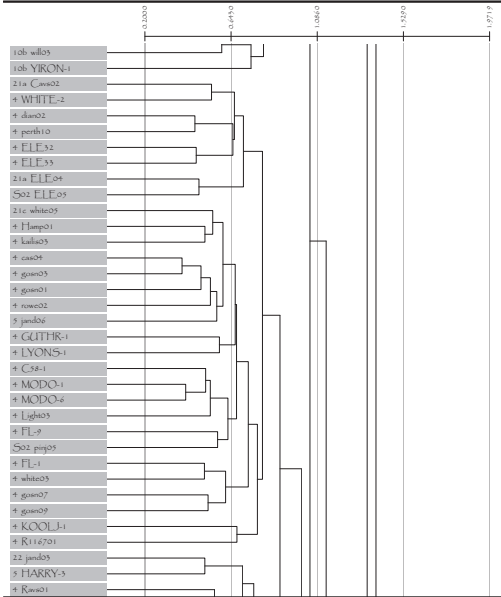
Column Fusion Dendrogram



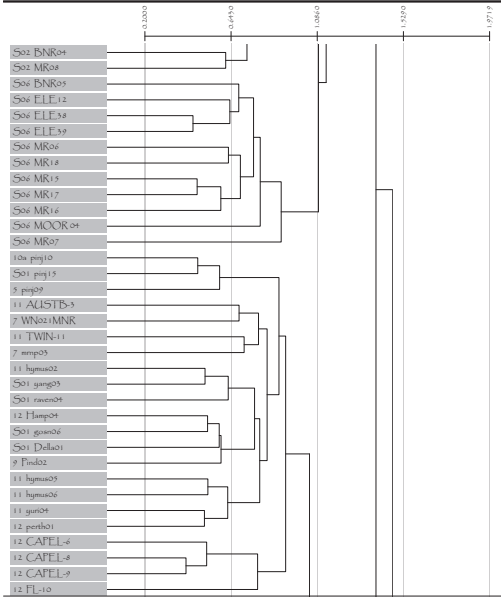
Column Fusion Dendrogram



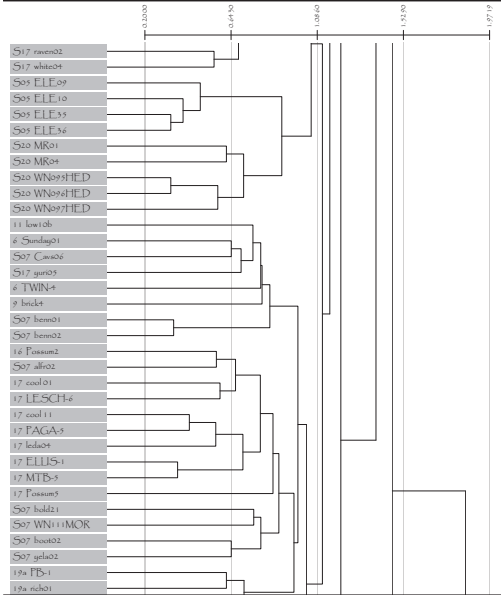
Column Fusion Dendrogram



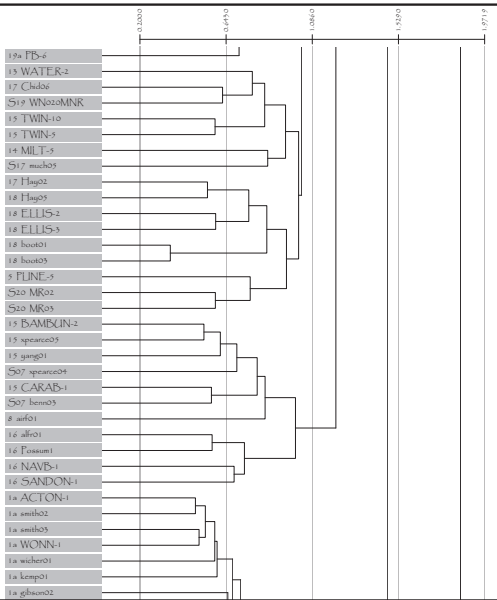
Column Fusion Dendrogram



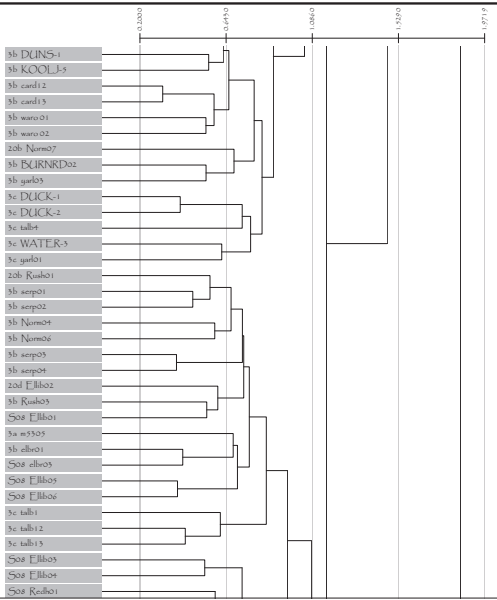
Column Fusion Dendrogram



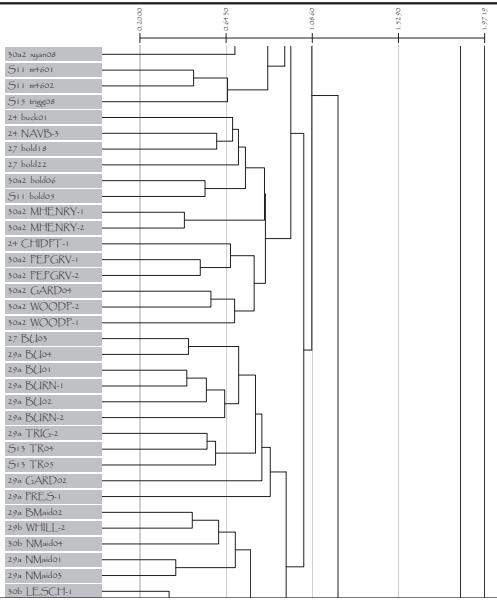
Column Fusion Dendrogram



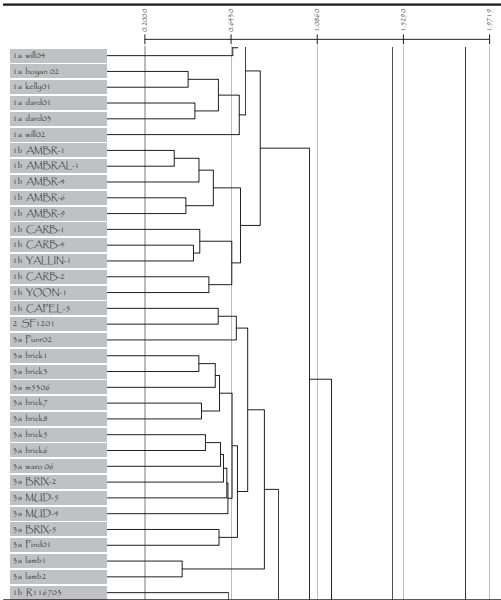
Column Fusion Dendrogram



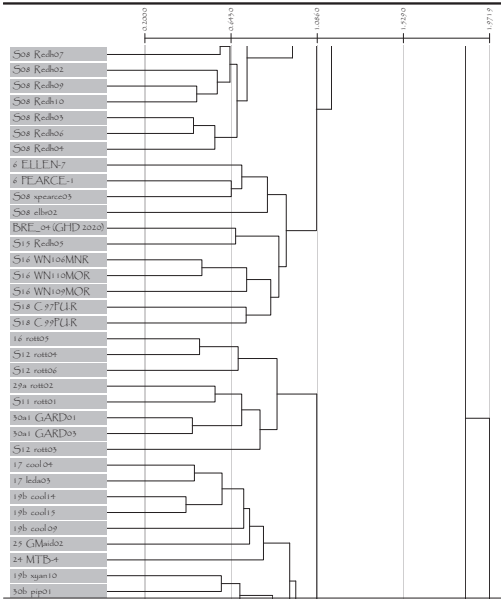
Column Fusion Dendrogram



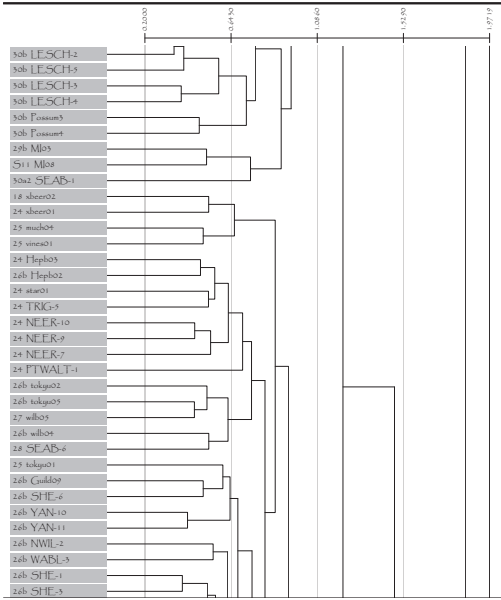
Column Fusion Dendrogram



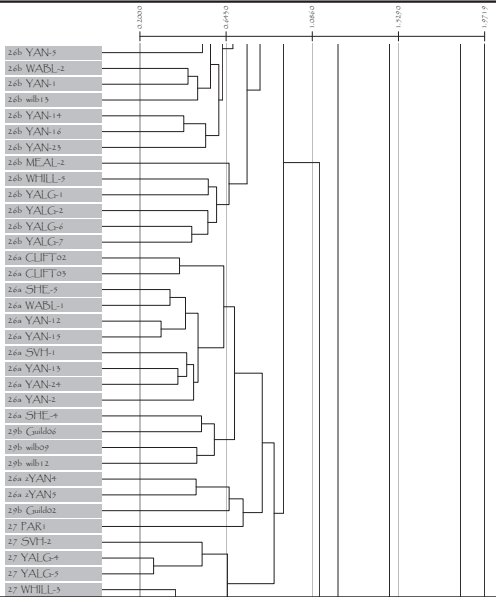
Column Fusion Dendrogram



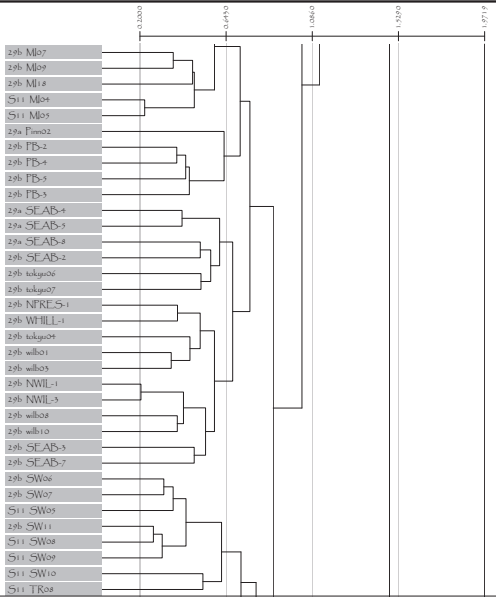
Column Fusion Dendrogram



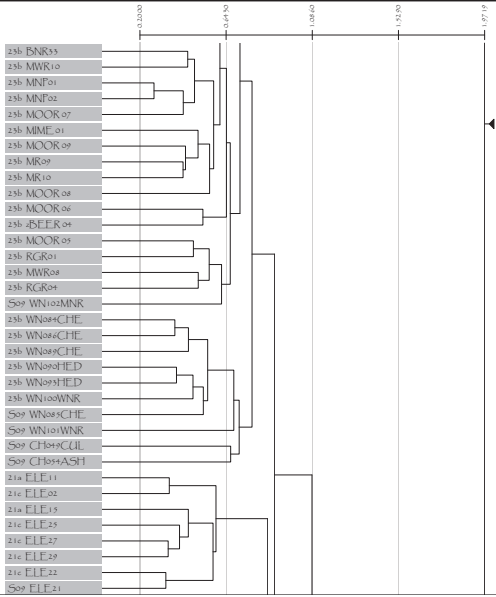
Column Fusion Dendrogram



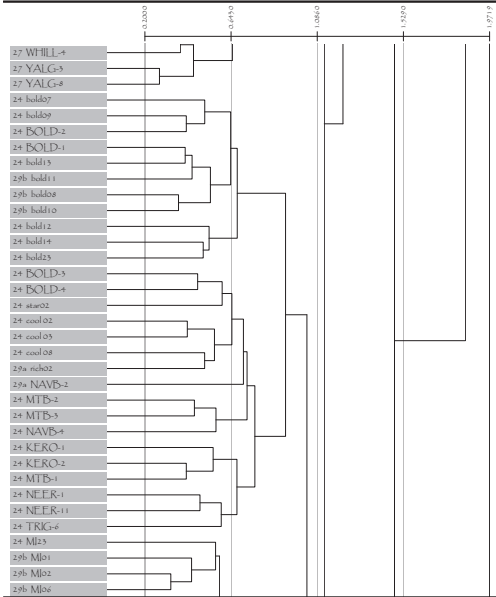
Column Fusion Dendrogram



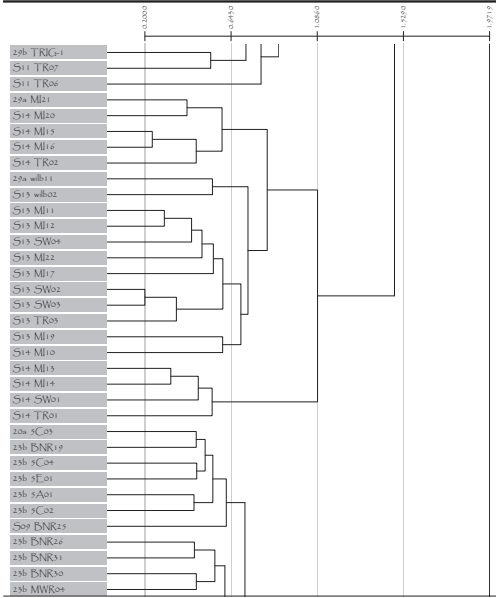
Column Fusion Dendrogram



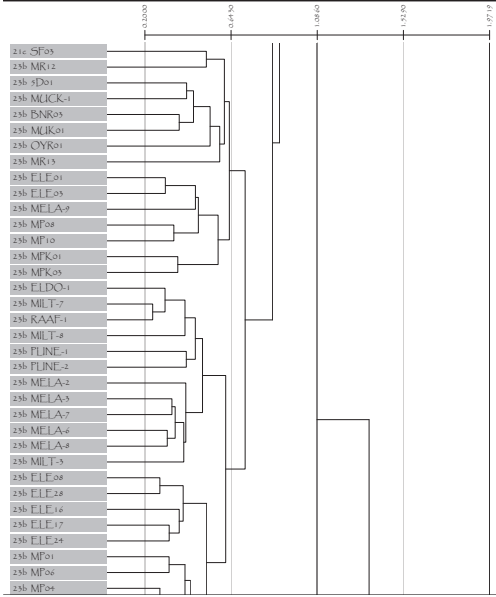
Column Fusion Dendrogram



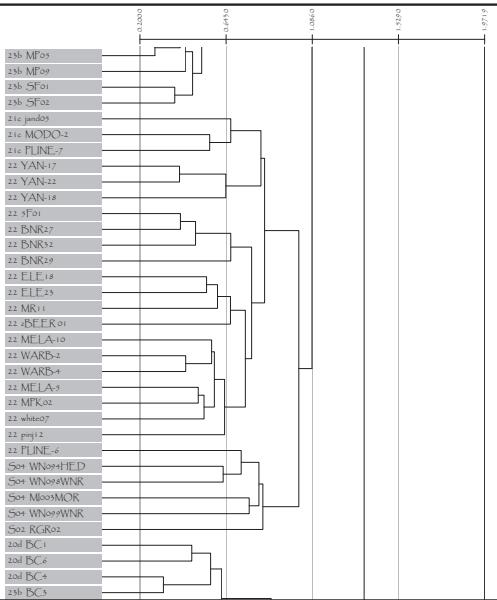
Column Fusion Dendrogram



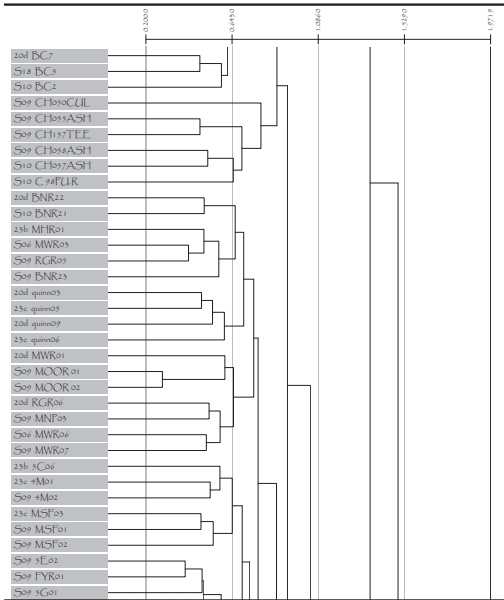
Column Fusion Dendrogram



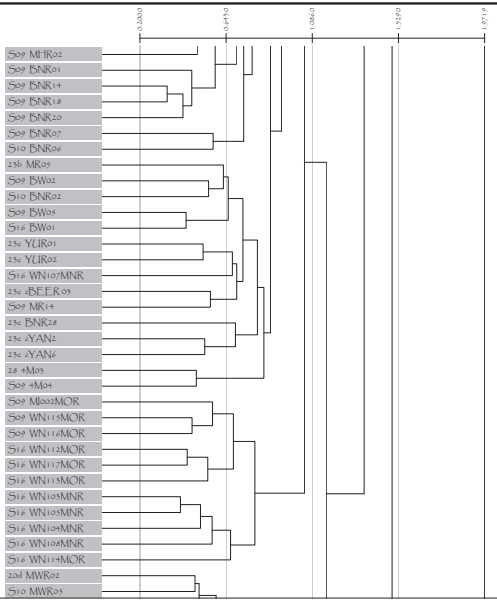
**Column Fusion Dendrogram**



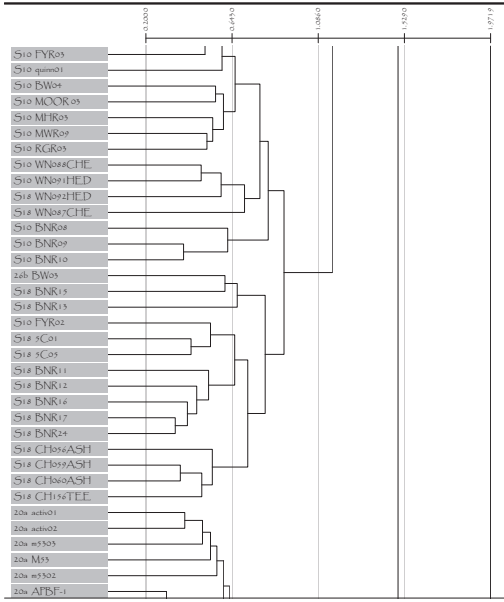
**Column Fusion Dendrogram**



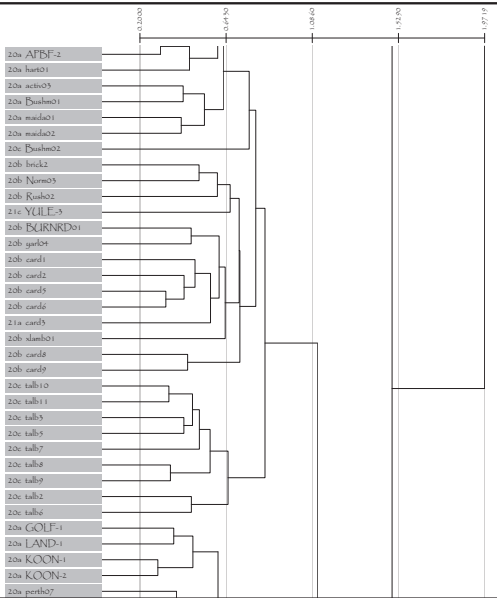
**Column Fusion Dendrogram**



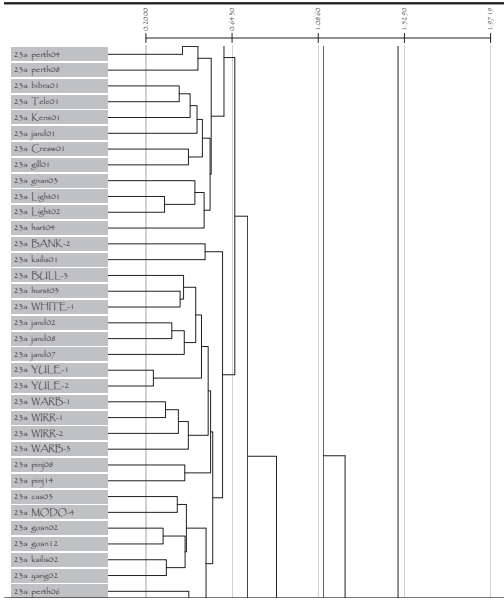
**Column Fusion Dendrogram**



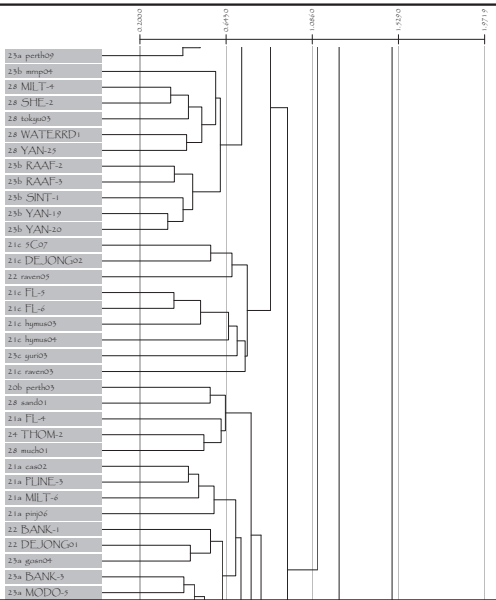
**Column Fusion Dendrogram**



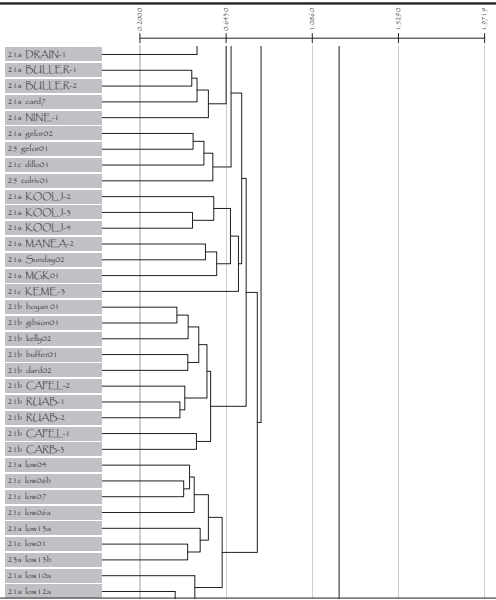
**Column Fusion Dendrogram**



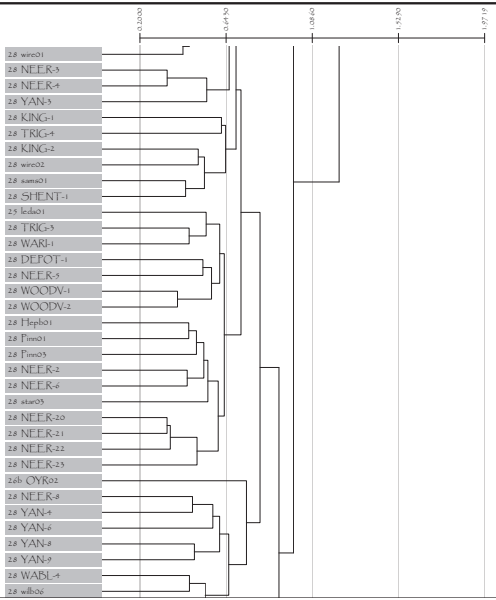
Column Fusion Dendrogram



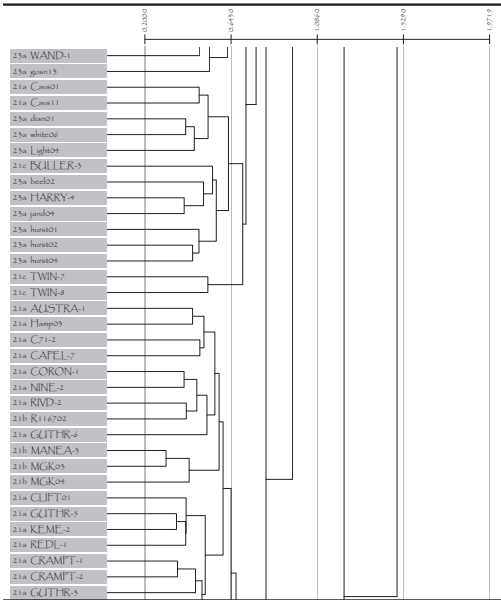
Column Fusion Dendrogram



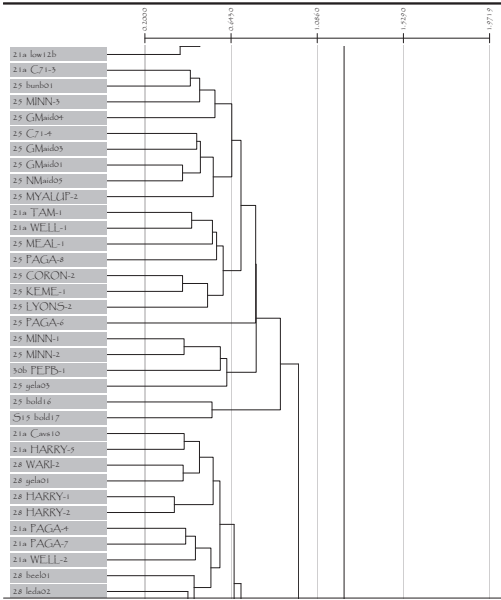
Column Fusion Dendrogram



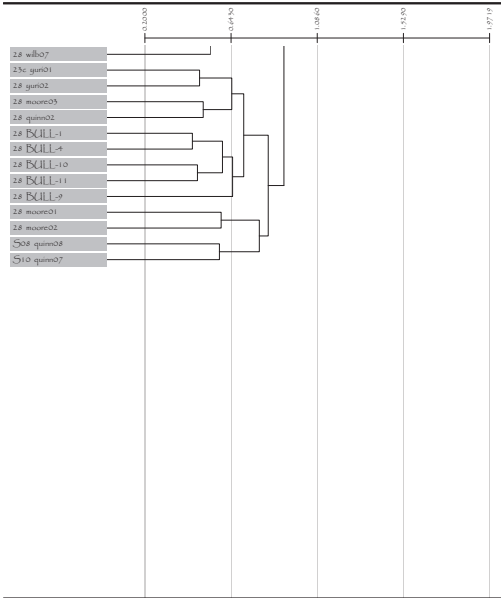
Column Fusion Dendrogram



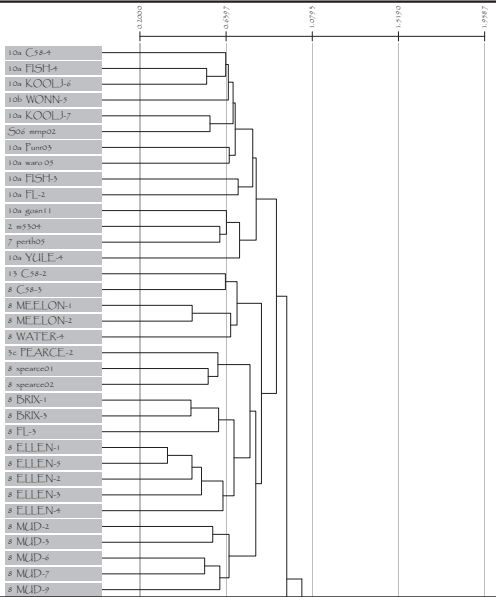
Column Fusion Dendrogram



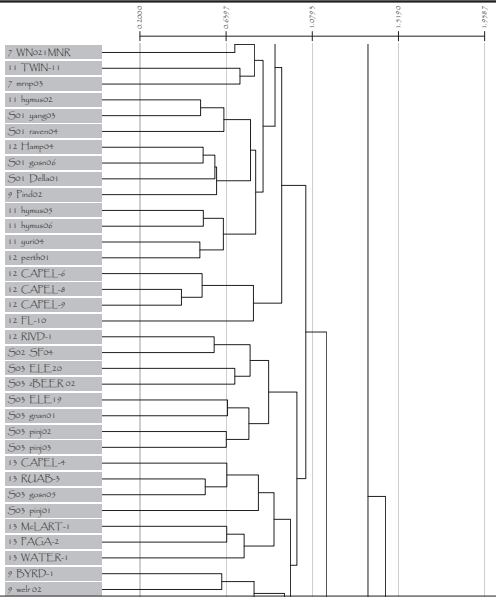
Column Fusion Dendrogram



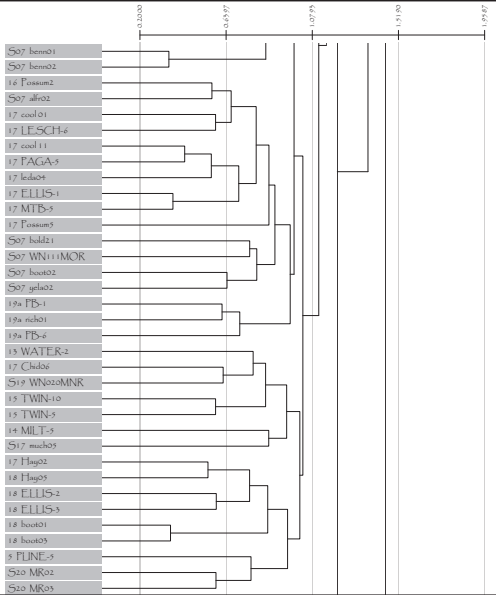
Column Fusion Dendrogram



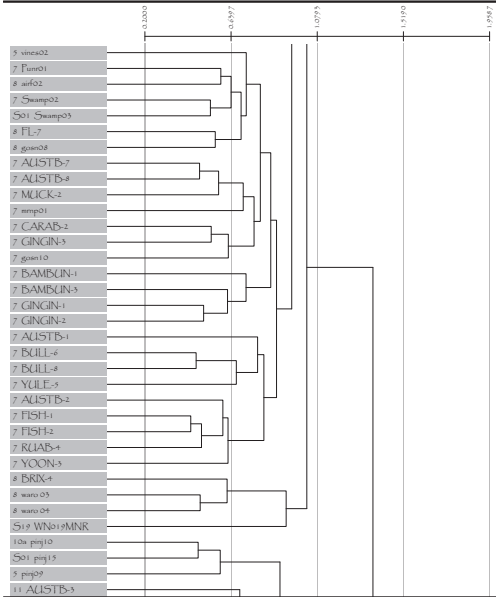
Column Fusion Dendrogram



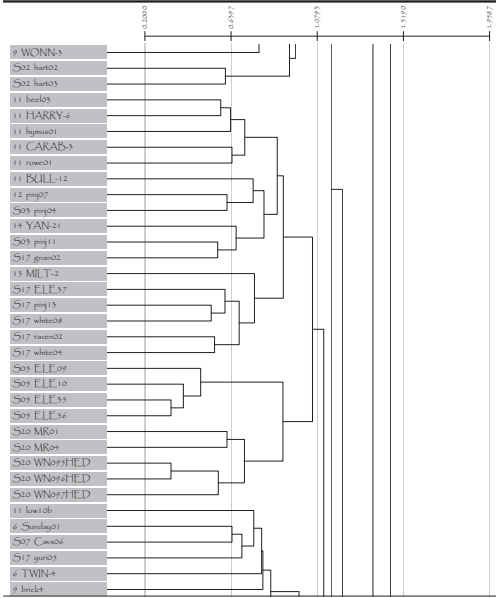
Column Fusion Dendrogram



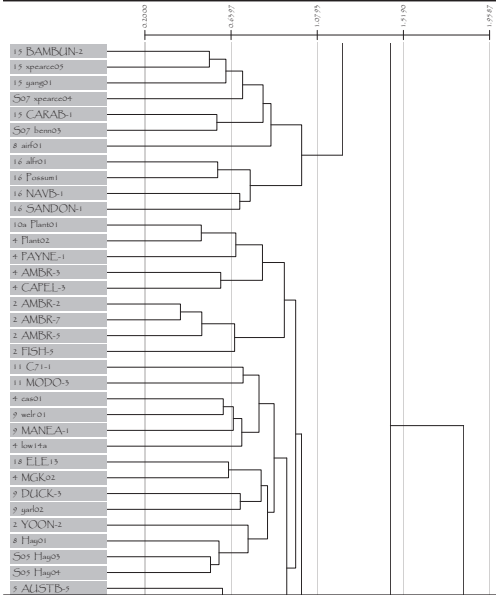
Column Fusion Dendrogram



Column Fusion Dendrogram

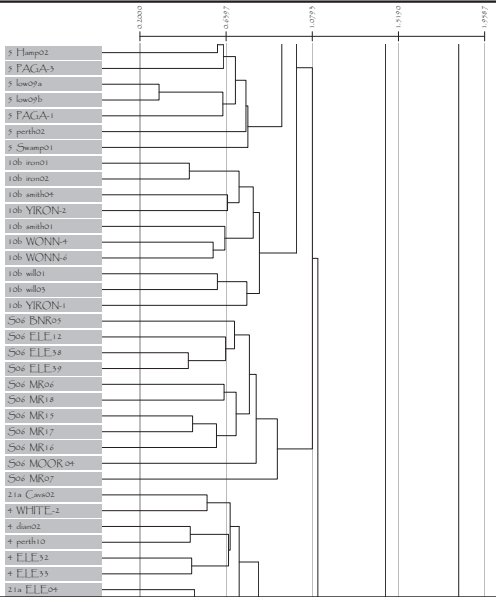


Column Fusion Dendrogram

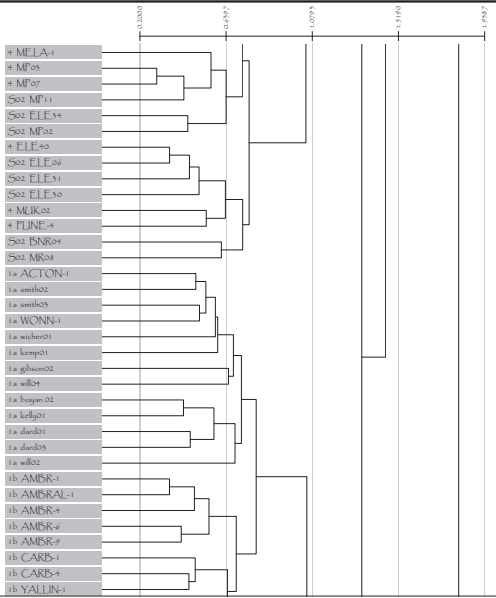




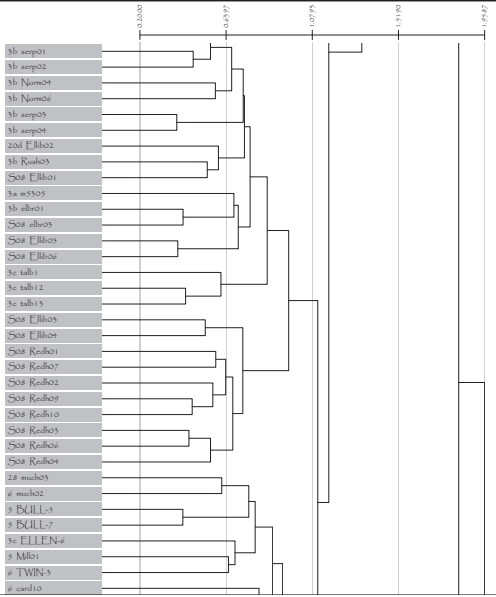
Column Fusion Dendrogram



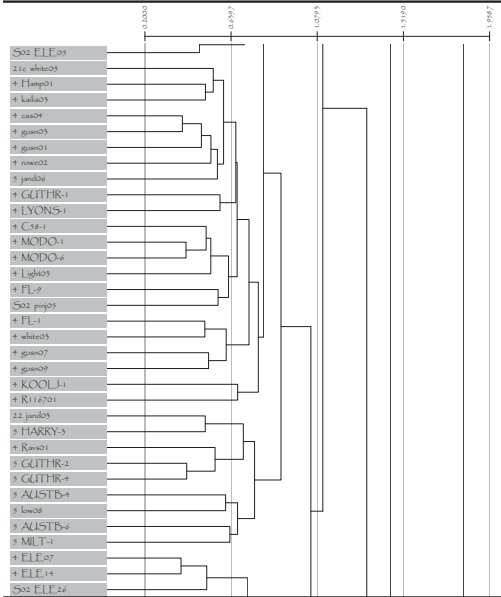
Column Fusion Dendrogram



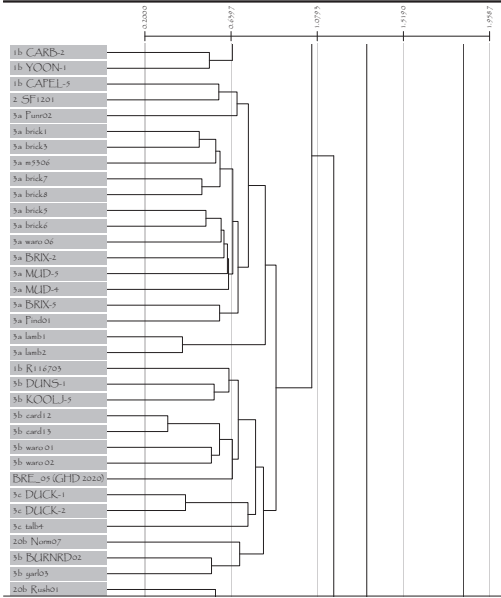
Column Fusion Dendrogram



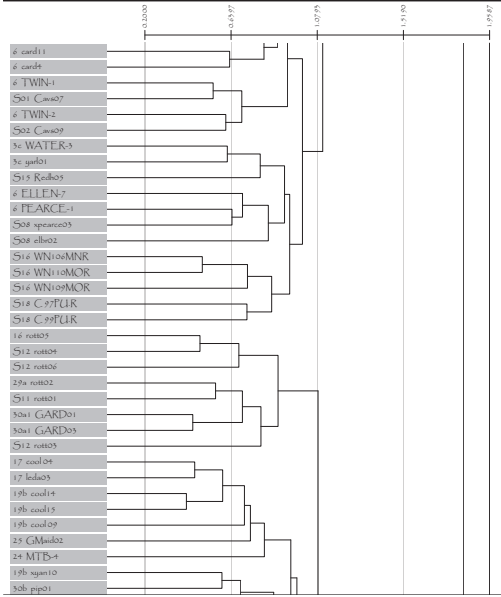
Column Fusion Dendrogram



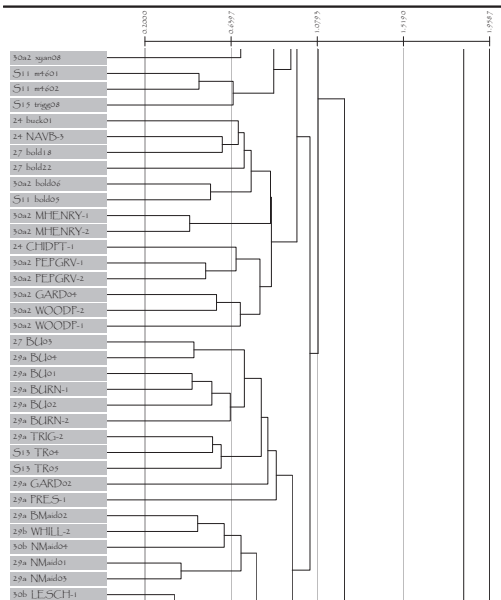
Column Fusion Dendrogram



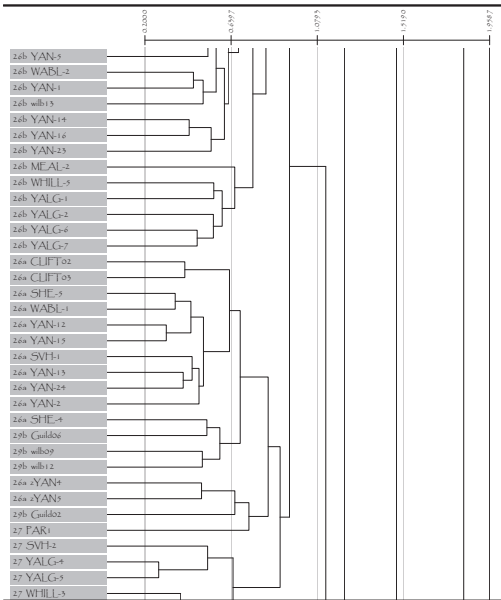
Column Fusion Dendrogram



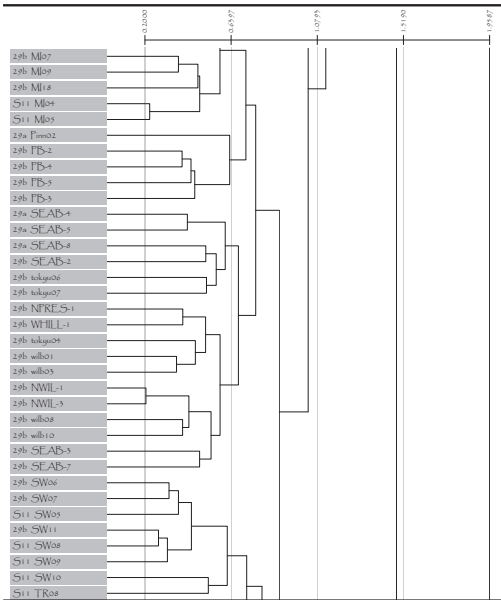
Column Fusion Dendrogram



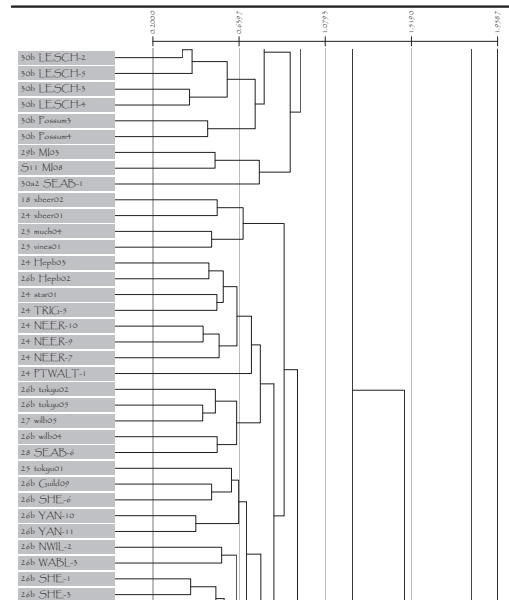
Column Fusion Dendrogram



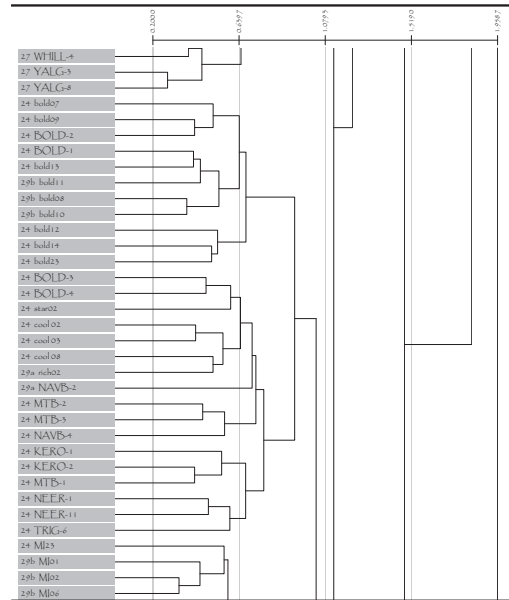
Column Fusion Dendrogram



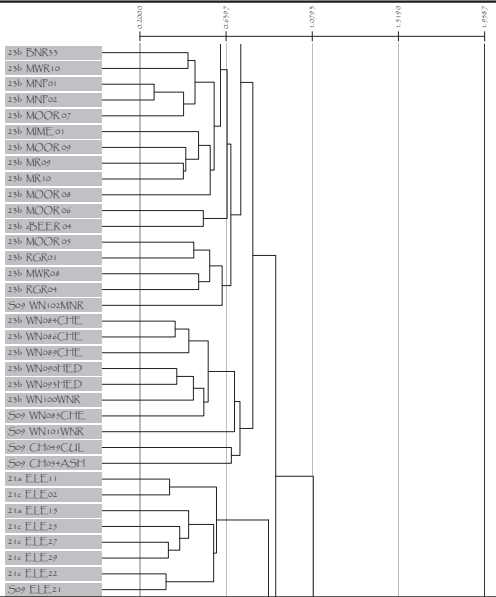
Column Fusion Dendrogram



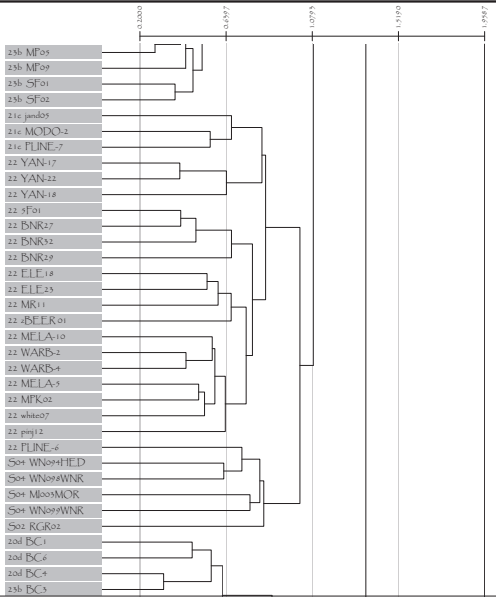
Column Fusion Dendrogram



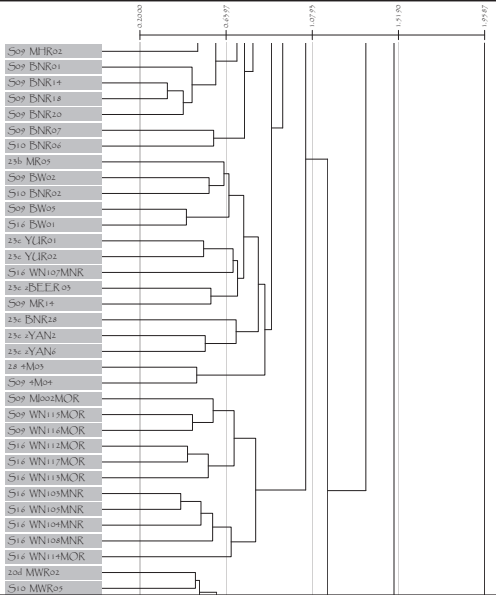
Column Fusion Dendrogram



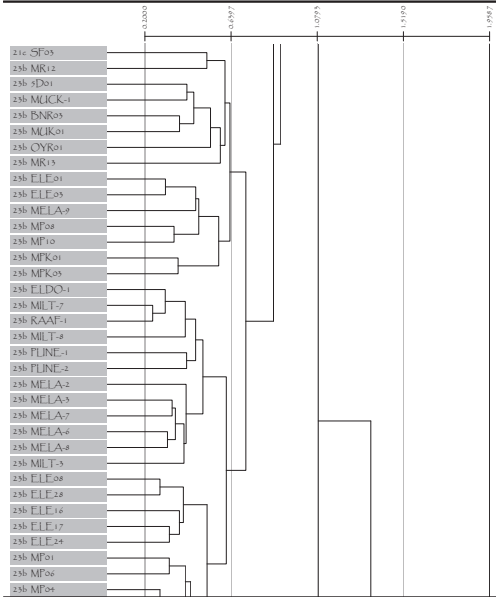
Column Fusion Dendrogram



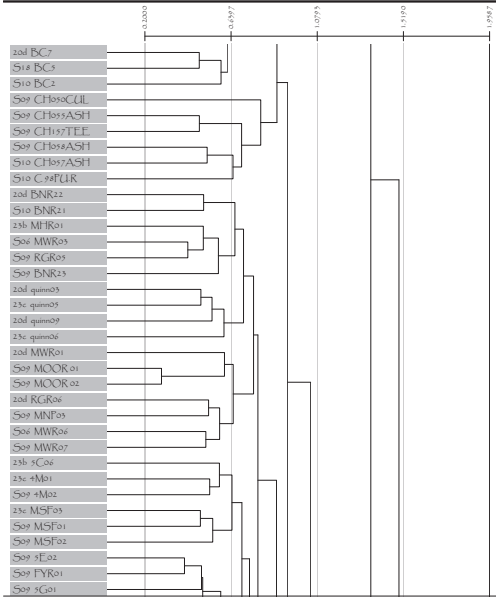
Column Fusion Dendrogram



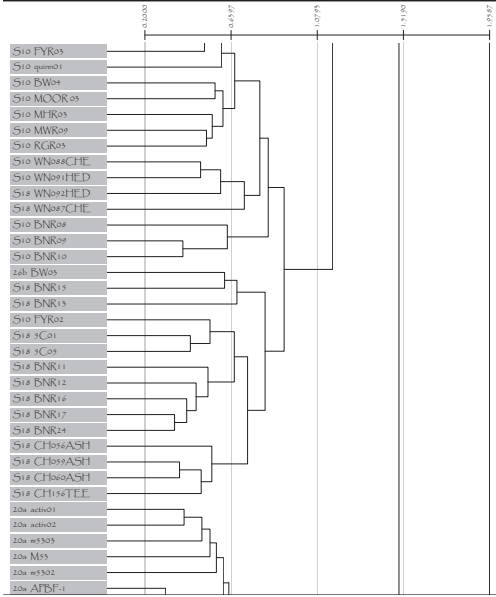
Column Fusion Dendrogram



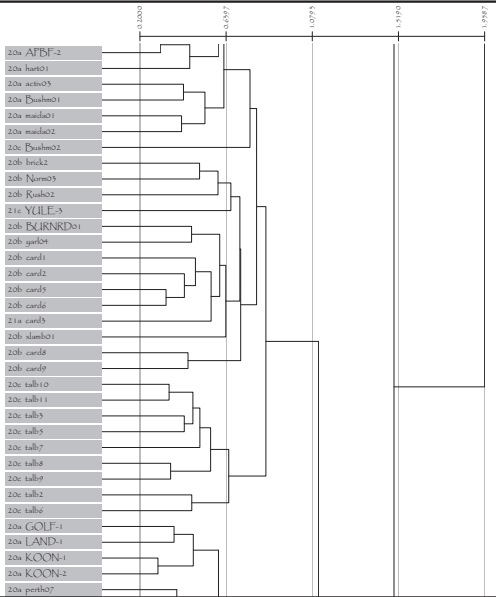
Column Fusion Dendrogram



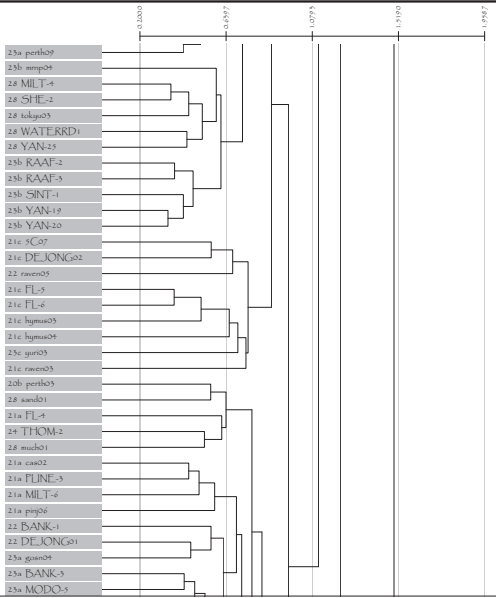
Column Fusion Dendrogram



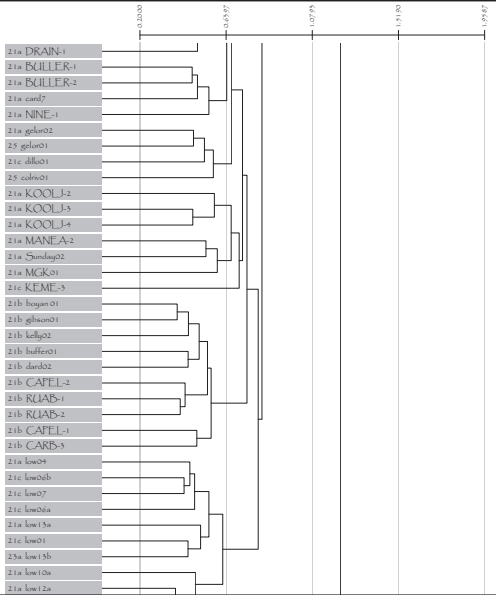
Column Fusion Dendrogram



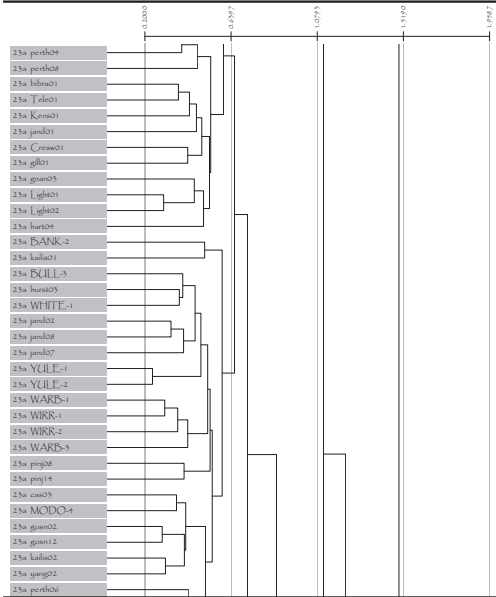
Column Fusion Dendrogram



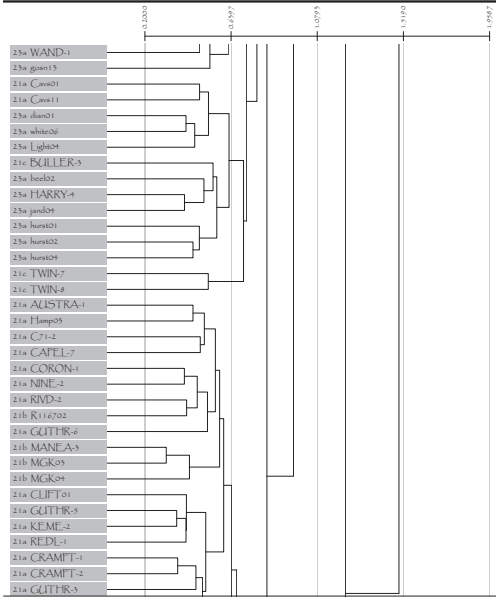
Column Fusion Dendrogram



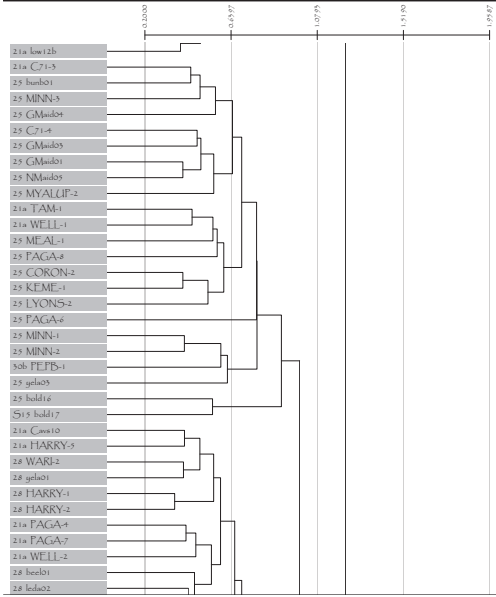
Column Fusion Dendrogram



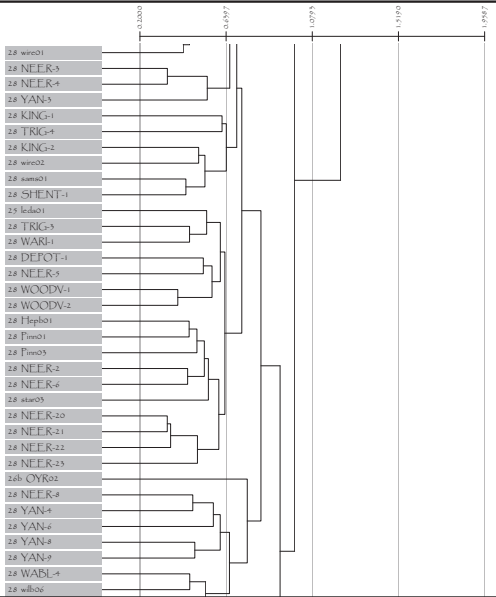
Column Fusion Dendrogram



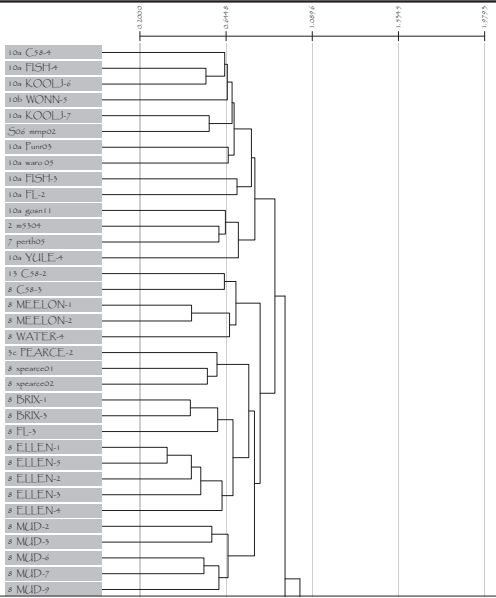
Column Fusion Dendrogram



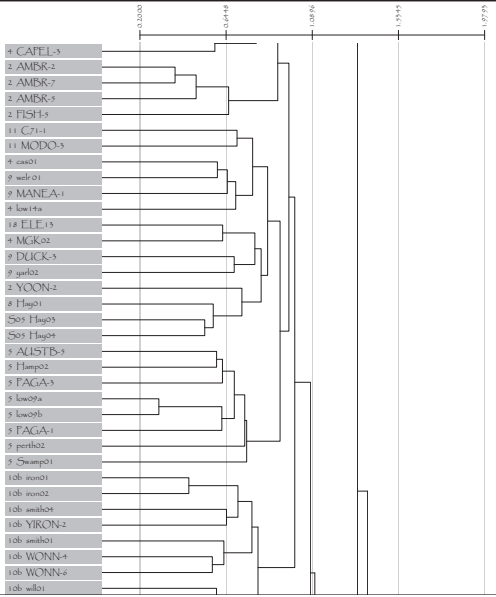
Column Fusion Dendrogram



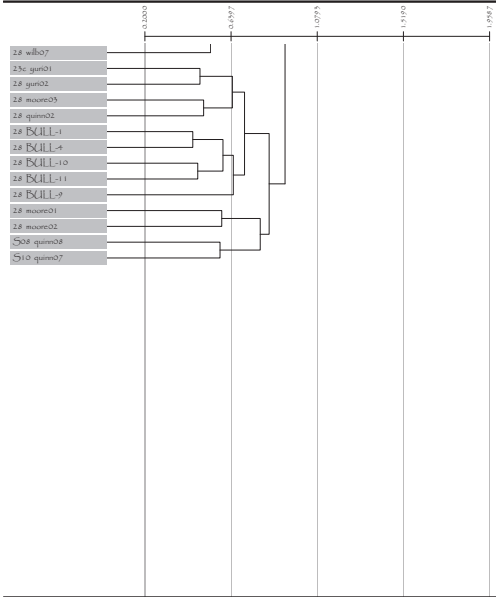
Column Fusion Dendrogram



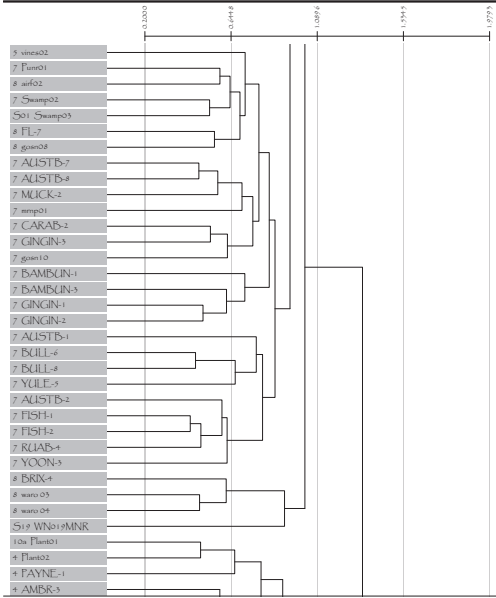
Column Fusion Dendrogram



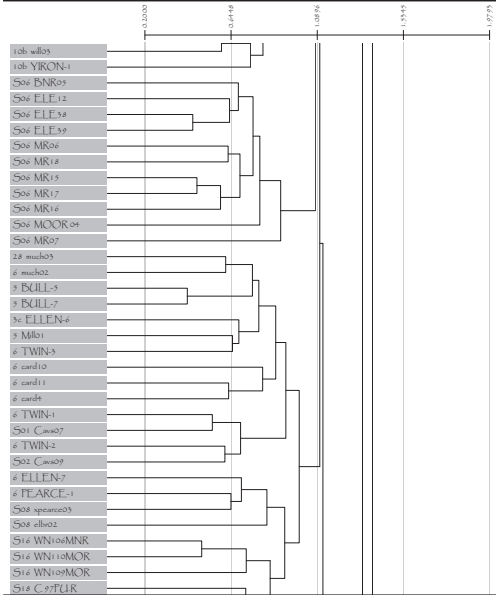
Column Fusion Dendrogram



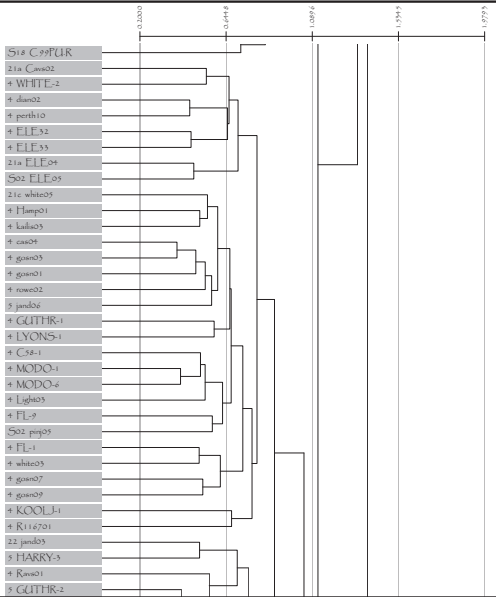
Column Fusion Dendrogram



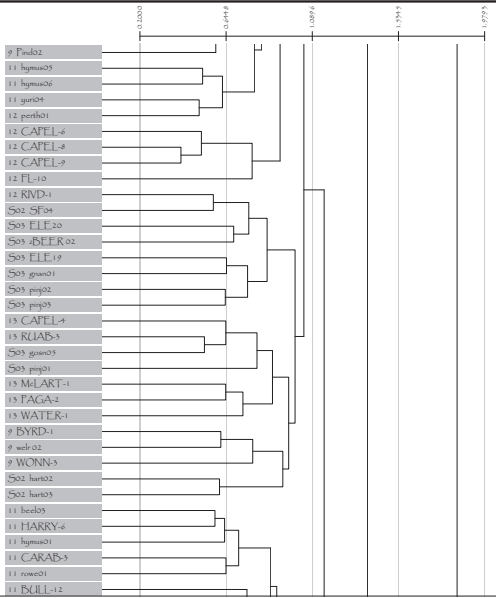
Column Fusion Dendrogram



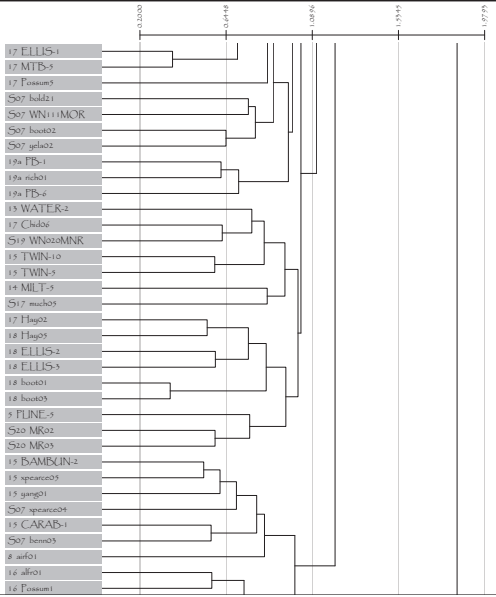
Column Fusion Dendrogram



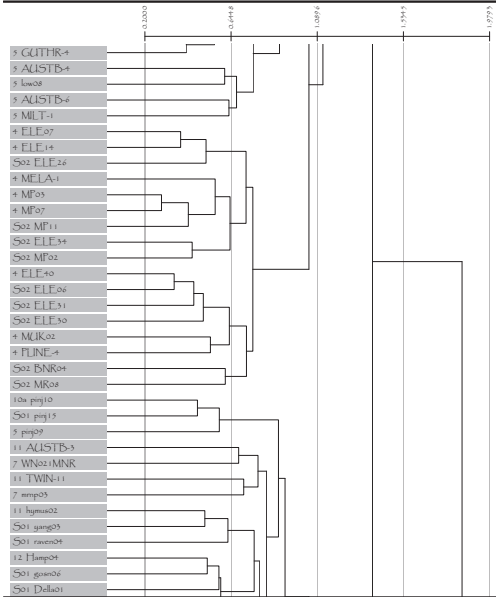
Column Fusion Dendrogram



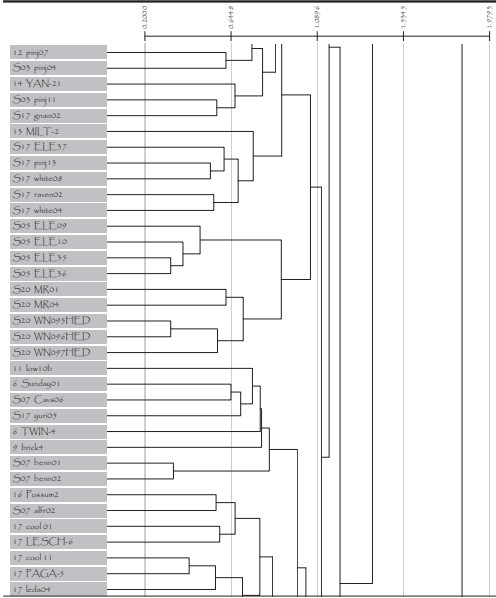
Column Fusion Dendrogram



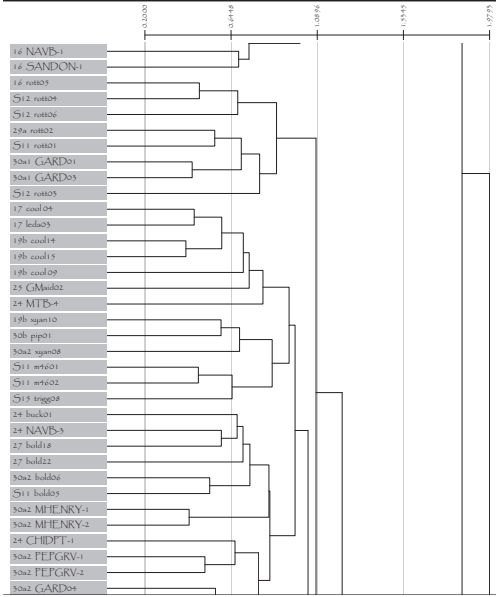
Column Fusion Dendrogram



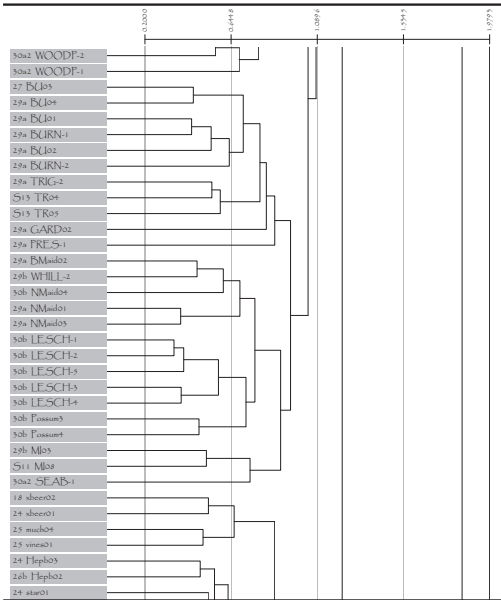
Column Fusion Dendrogram



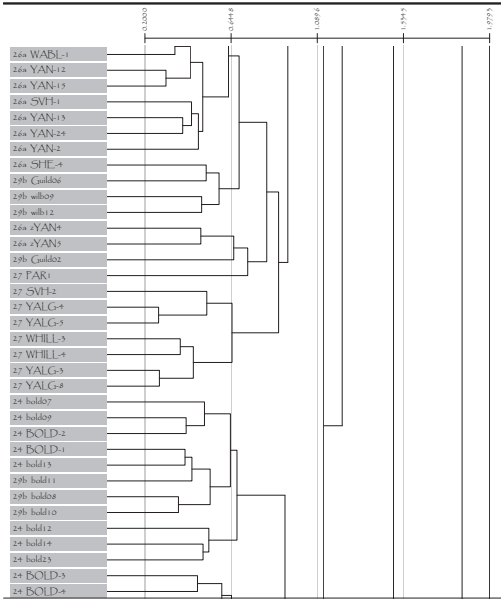
Column Fusion Dendrogram



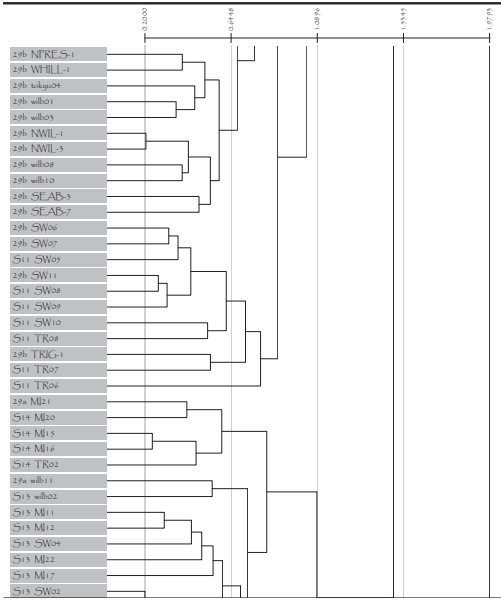
Column Fusion Dendrogram



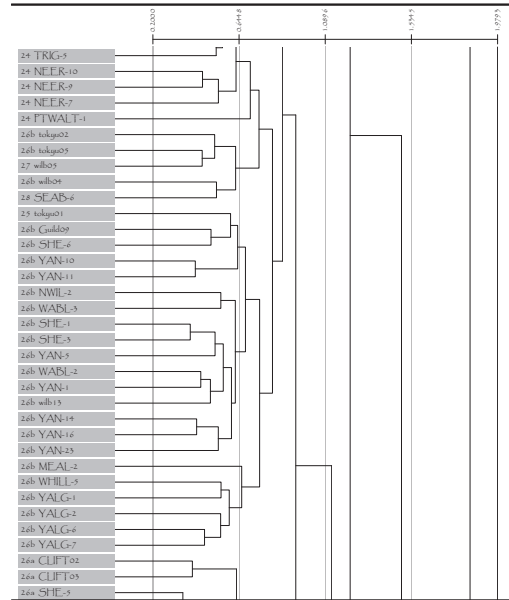
Column Fusion Dendrogram



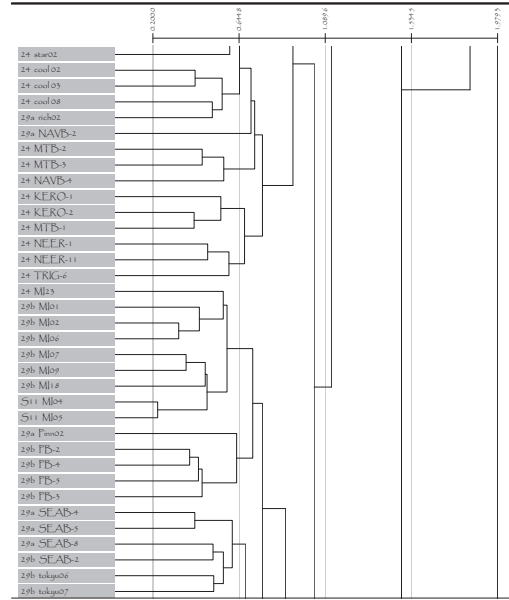
Column Fusion Dendrogram



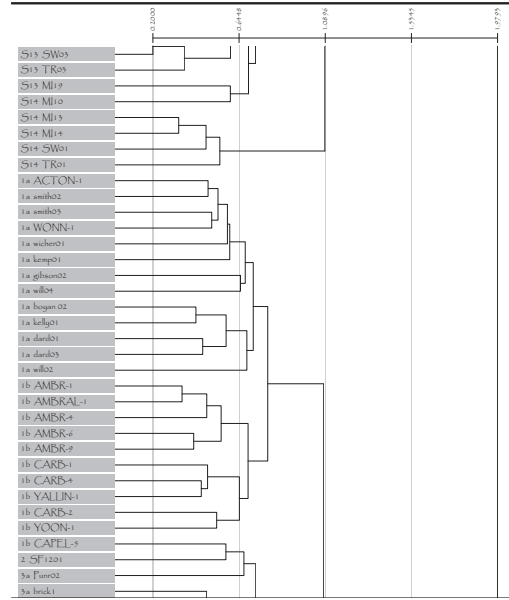
Column Fusion Dendrogram



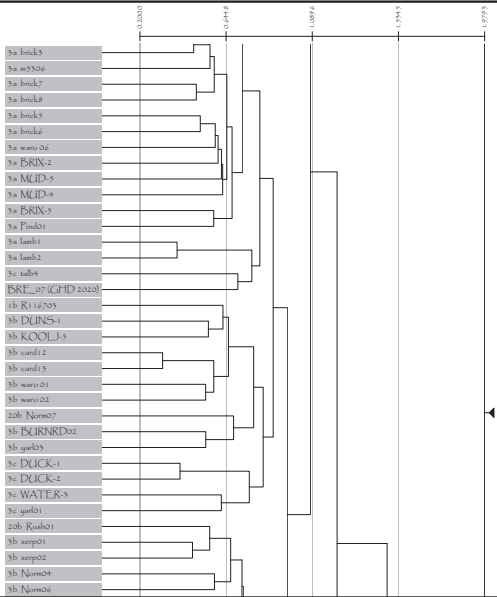
Column Fusion Dendrogram



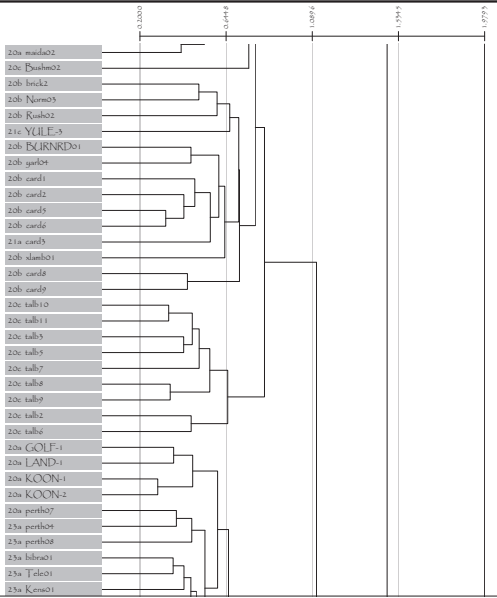
Column Fusion Dendrogram



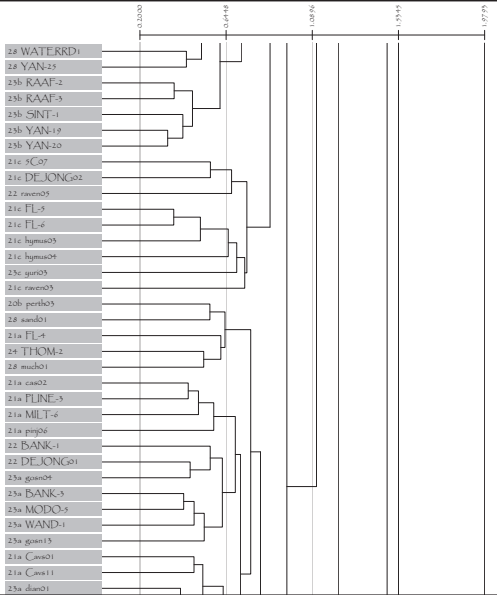
Column Fusion Dendrogram



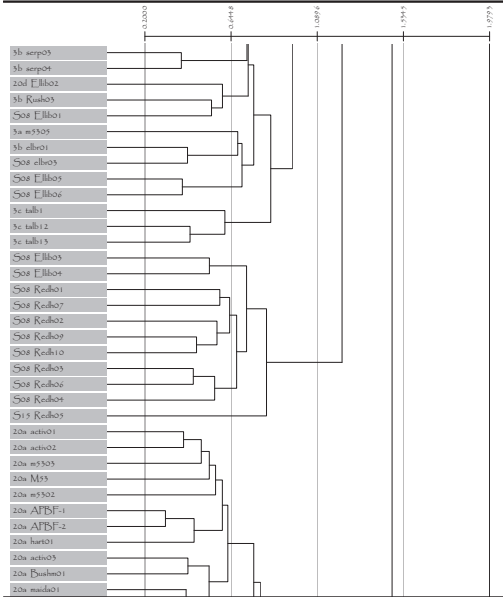
Column Fusion Dendrogram



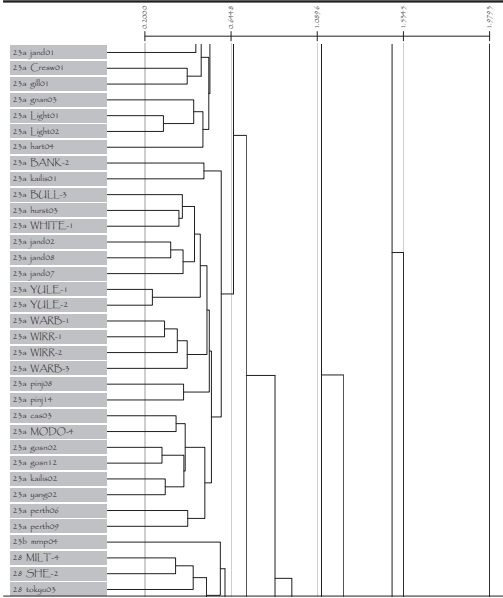
Column Fusion Dendrogram



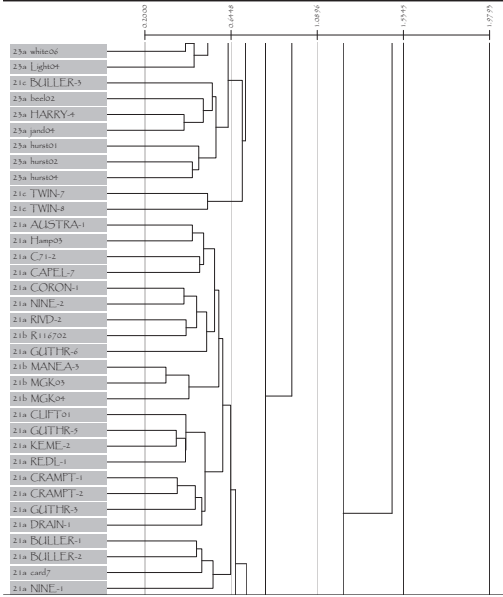
Column Fusion Dendrogram



Column Fusion Dendrogram

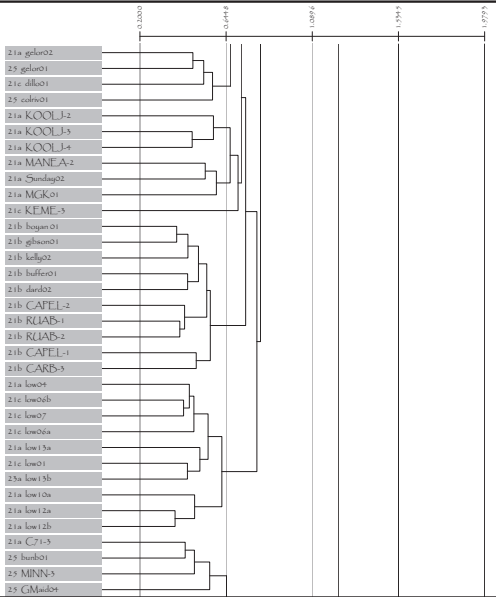


Column Fusion Dendrogram

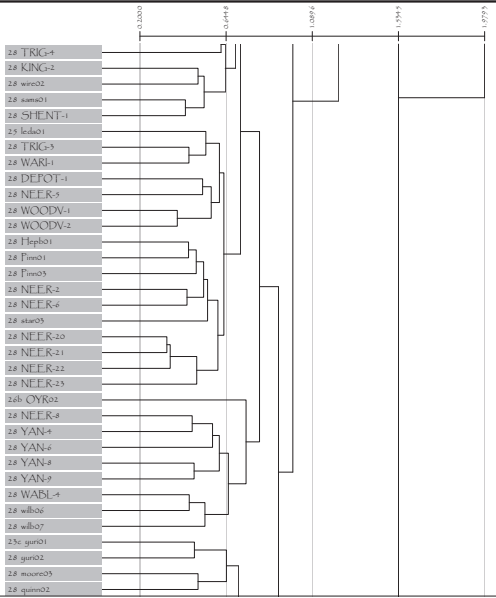




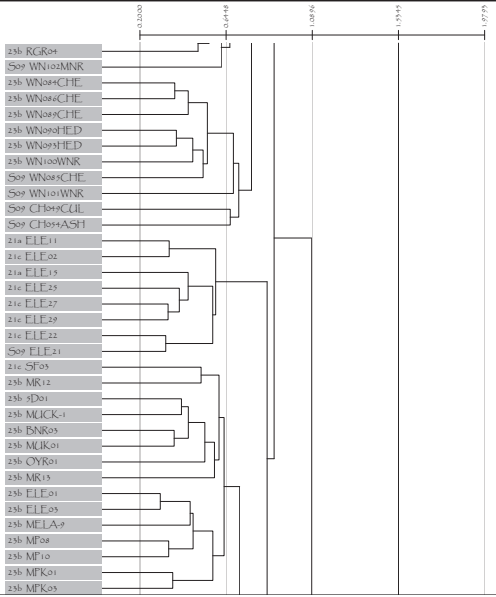
Column Fusion Dendrogram



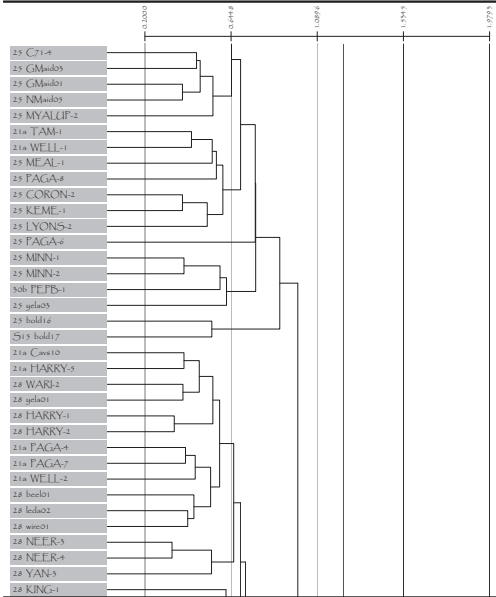
Column Fusion Dendrogram



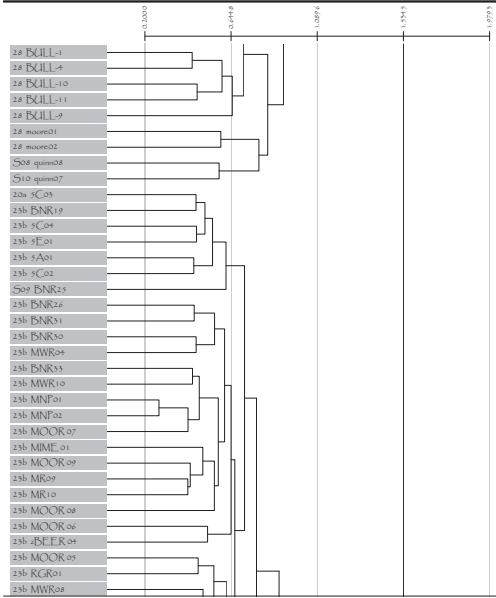
Column Fusion Dendrogram



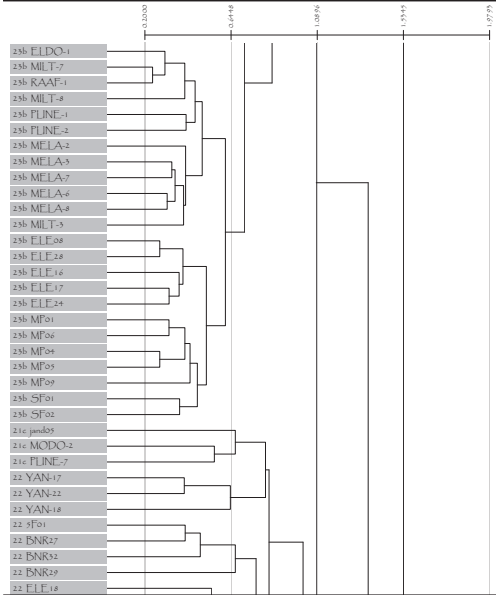
Column Fusion Dendrogram



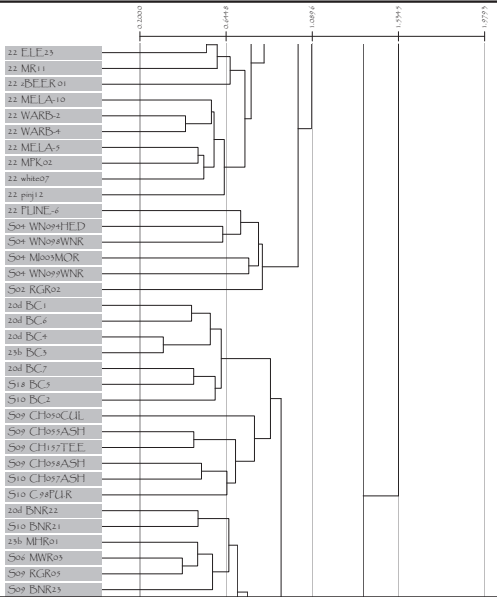
Column Fusion Dendrogram



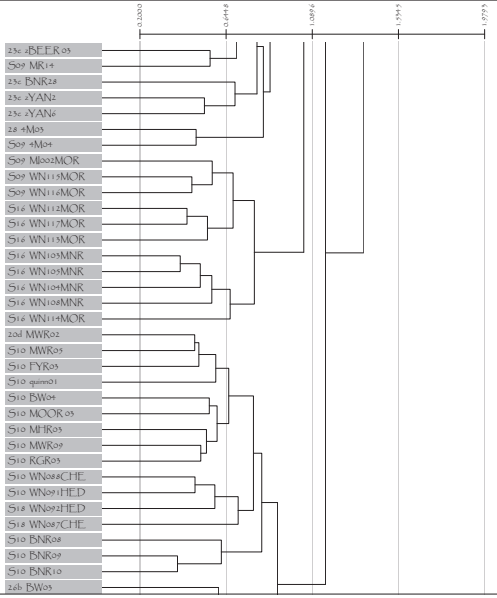
Column Fusion Dendrogram



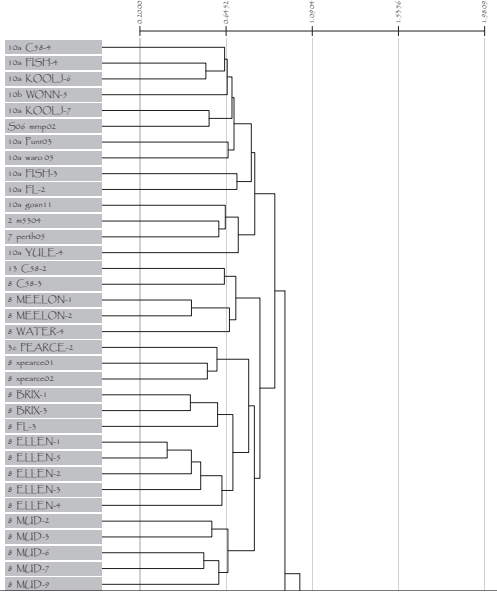
Column Fusion Dendrogram



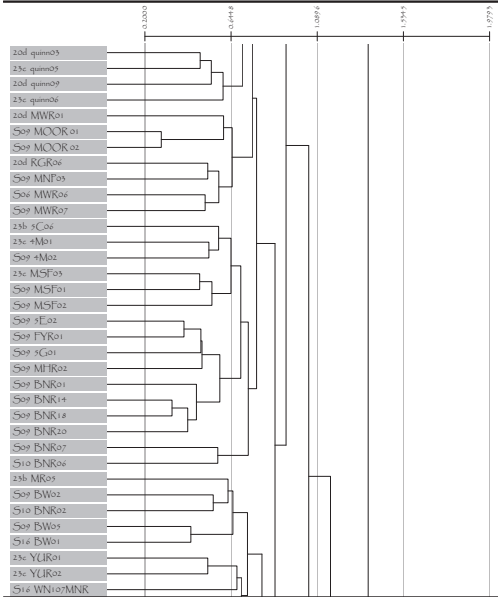
Column Fusion Dendrogram



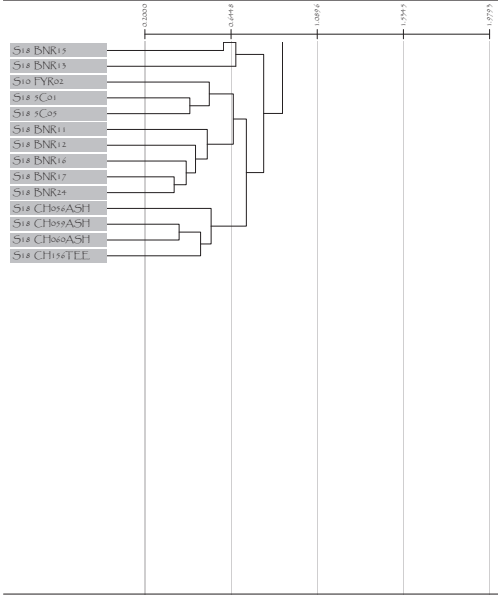
Column Fusion Dendrogram



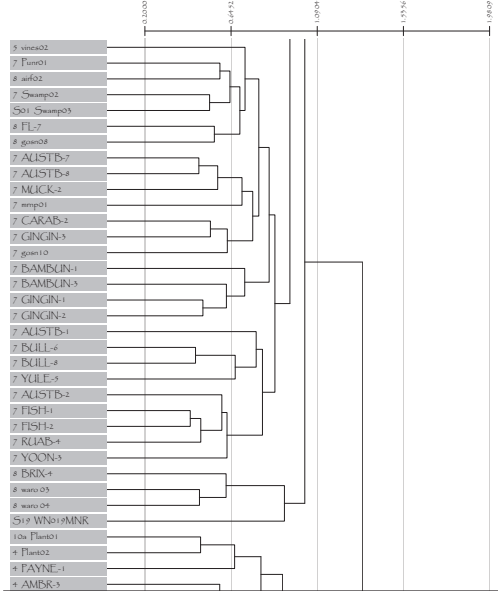
Column Fusion Dendrogram



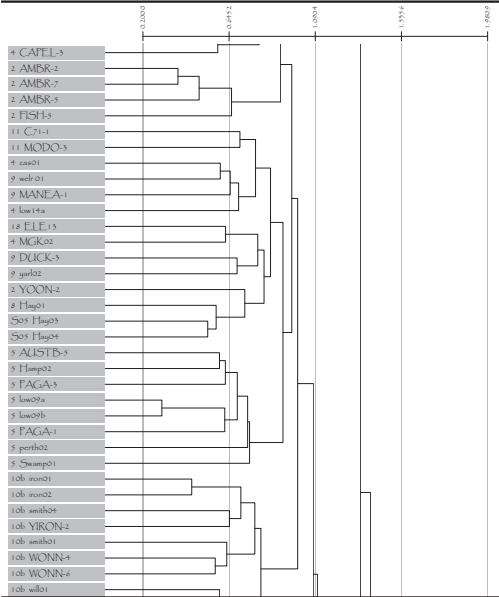
Column Fusion Dendrogram



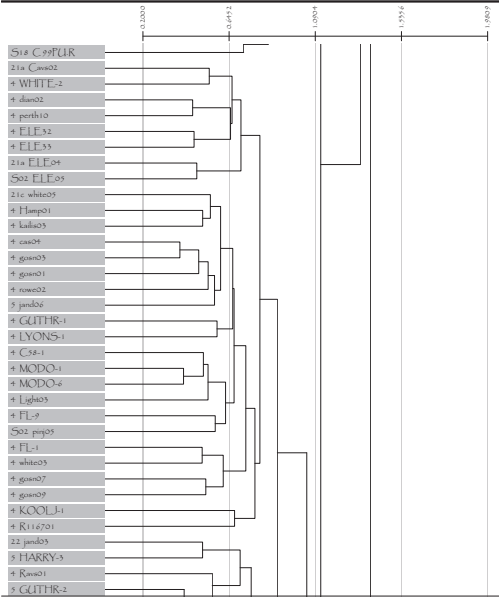
Column Fusion Dendrogram



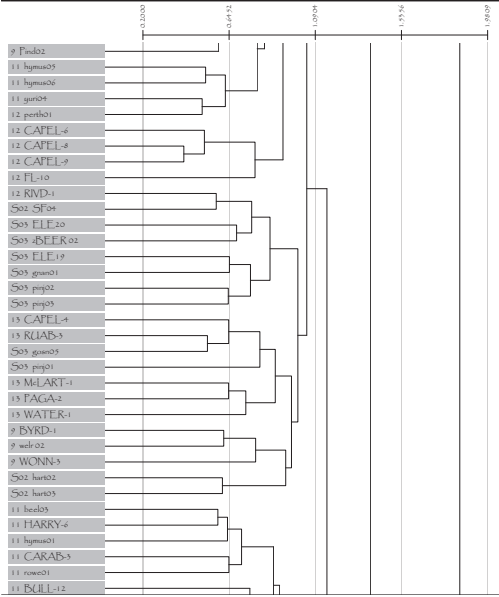
Column Fusion Dendrogram



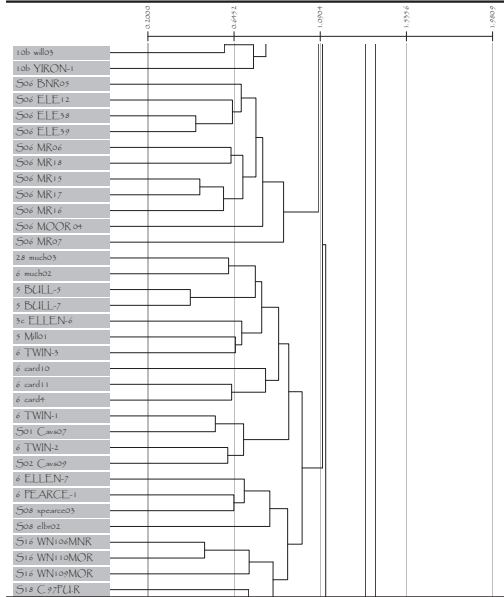
Column Fusion Dendrogram



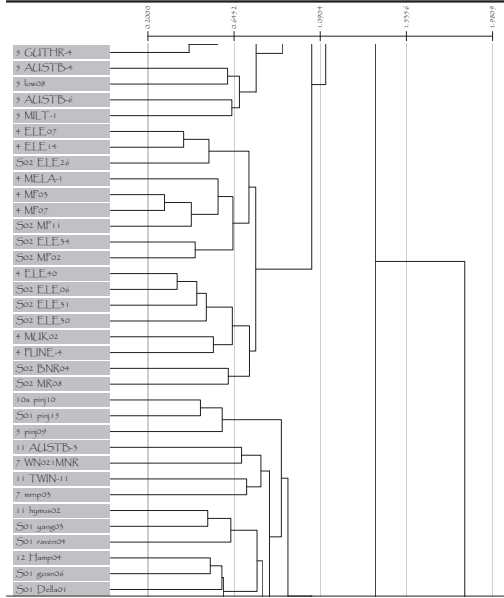
Column Fusion Dendrogram



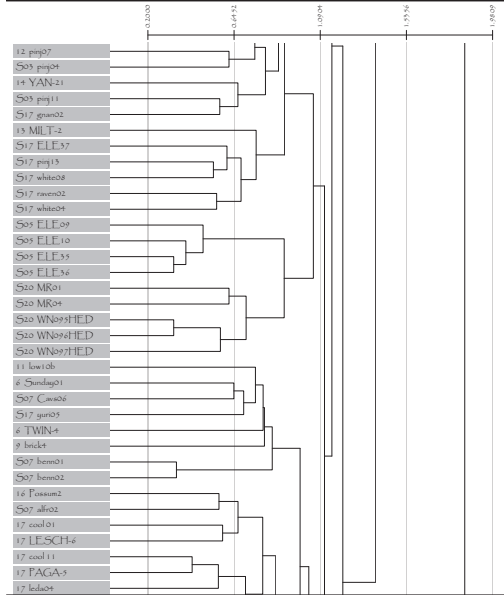
Column Fusion Dendrogram



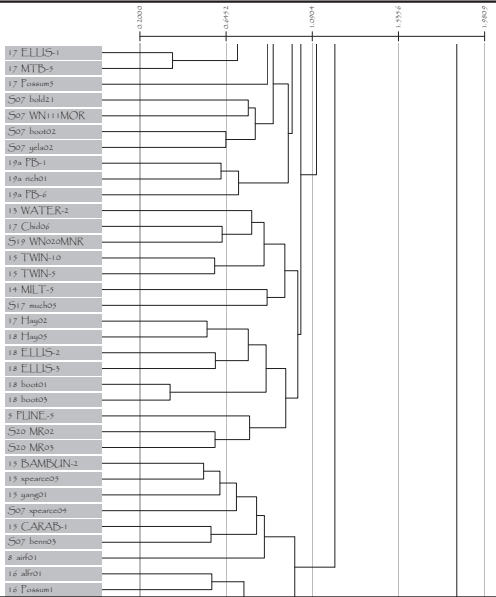
Column Fusion Dendrogram



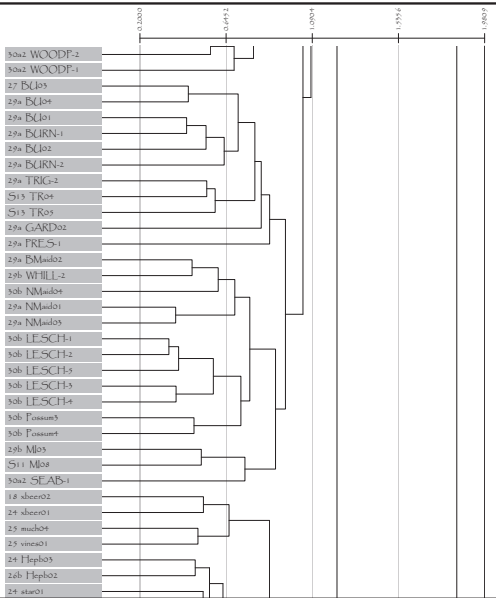
Column Fusion Dendrogram



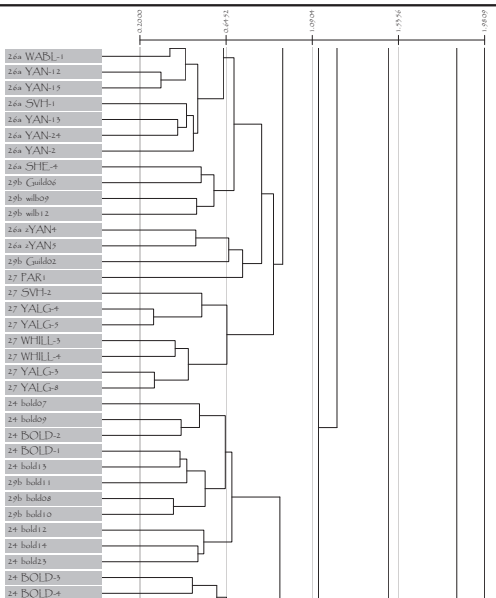
Column Fusion Dendrogram



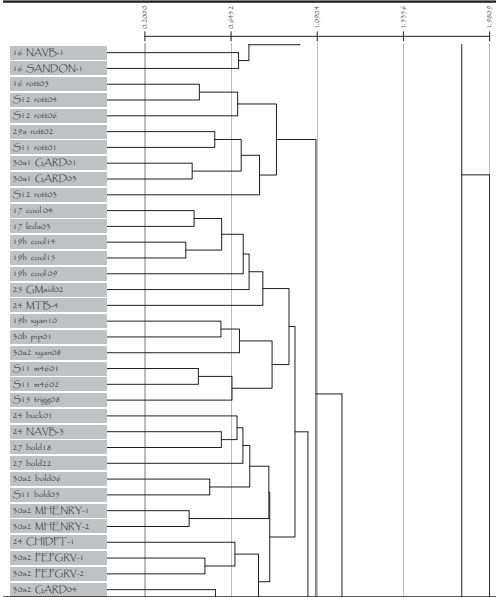
Column Fusion Dendrogram



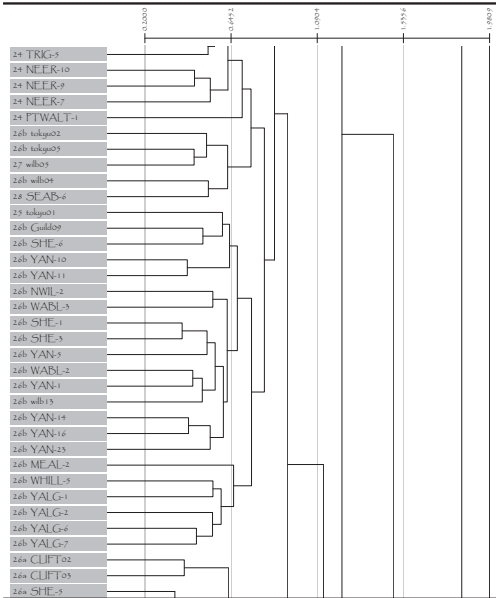
Column Fusion Dendrogram



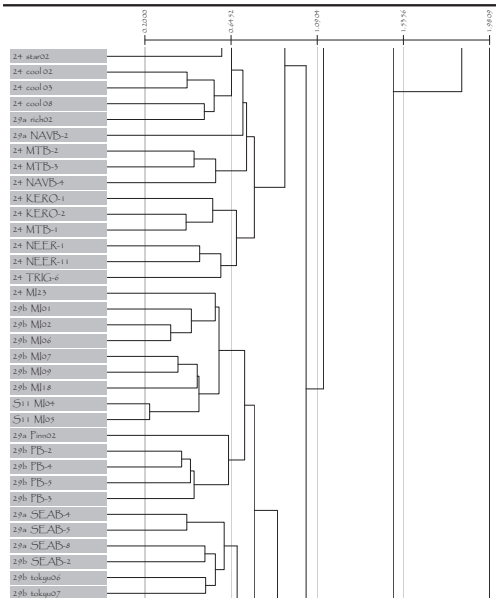
Column Fusion Dendrogram



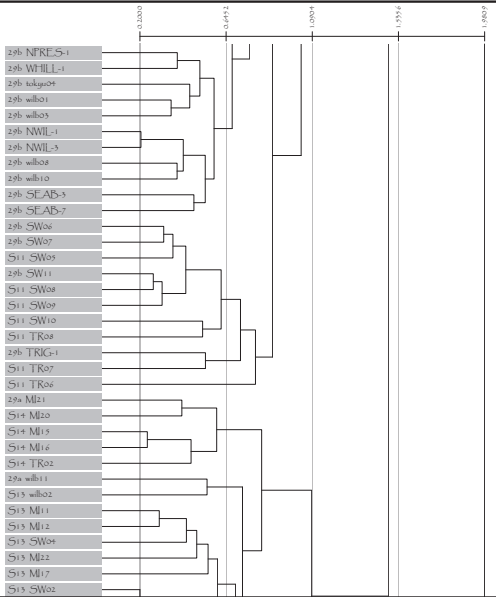
Column Fusion Dendrogram



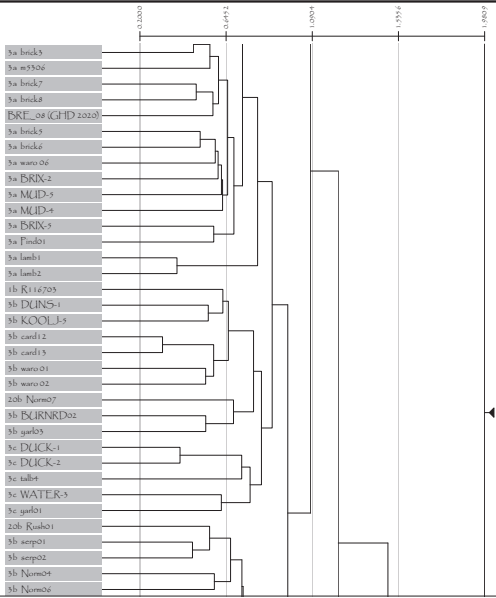
Column Fusion Dendrogram



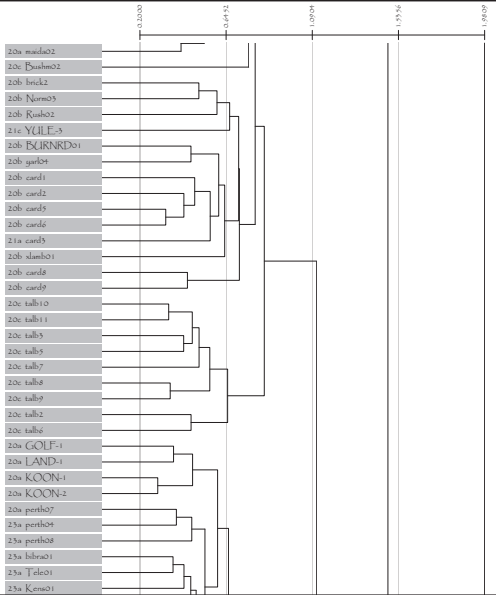
Column Fusion Dendrogram



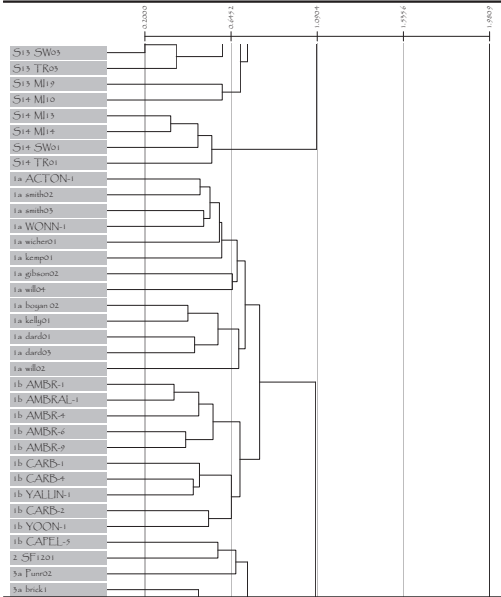
Column Fusion Dendrogram



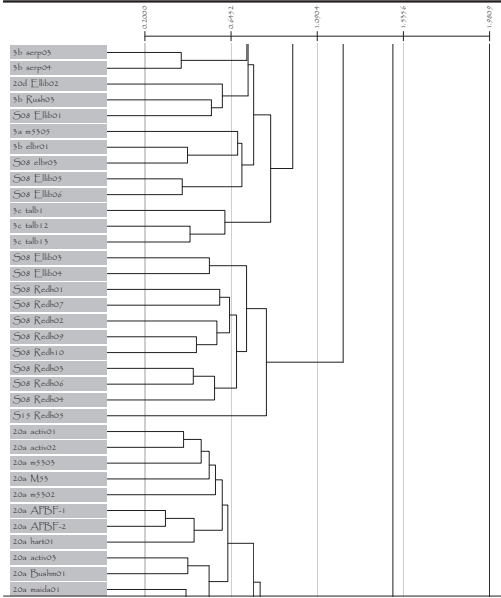
Column Fusion Dendrogram



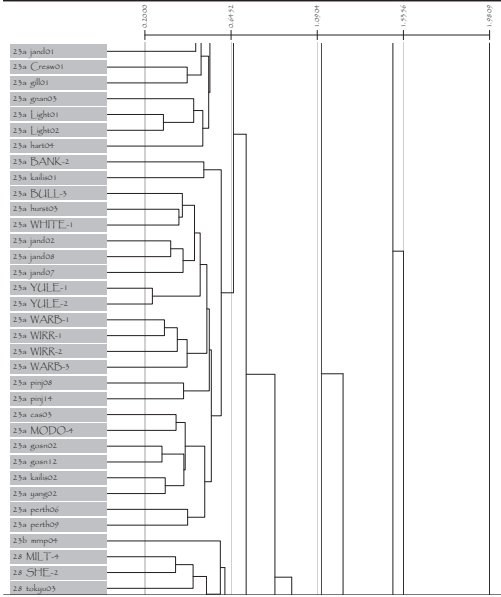
Column Fusion Dendrogram



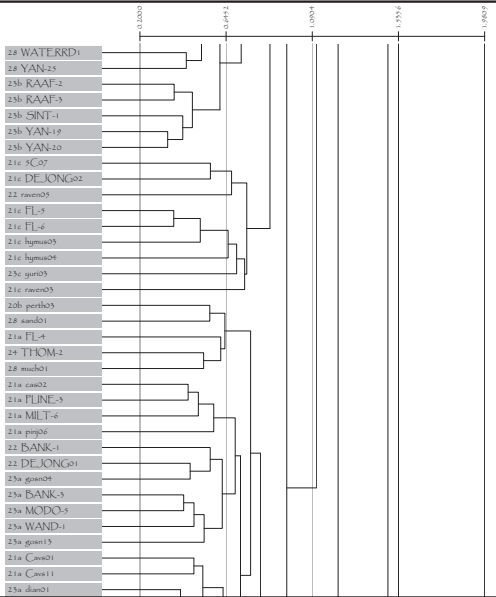
Column Fusion Dendrogram



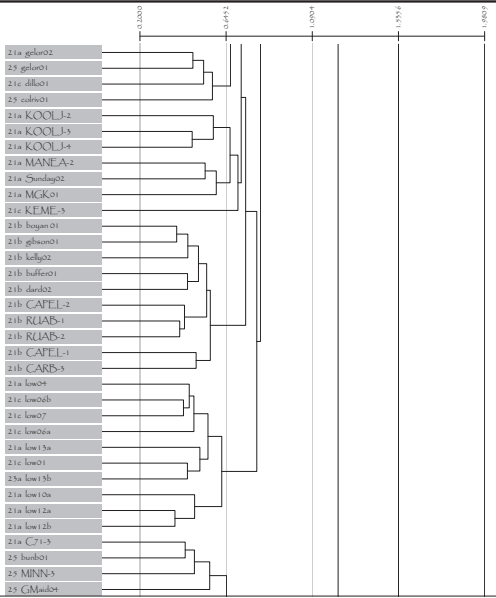
Column Fusion Dendrogram



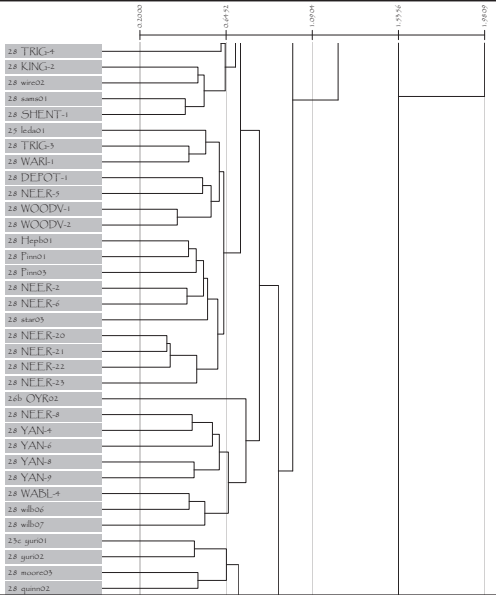
Column Fusion Dendrogram



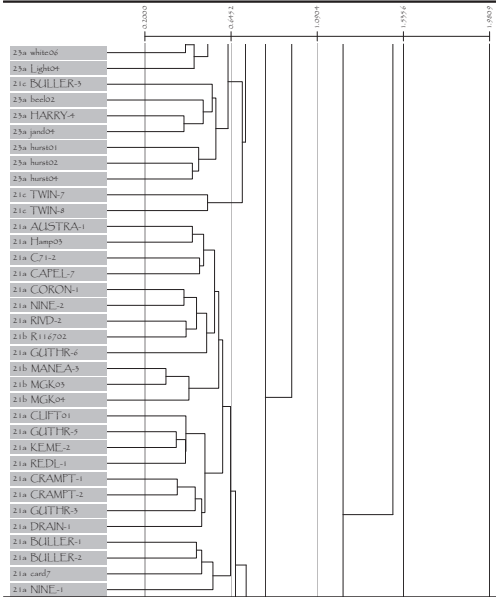
Column Fusion Dendrogram



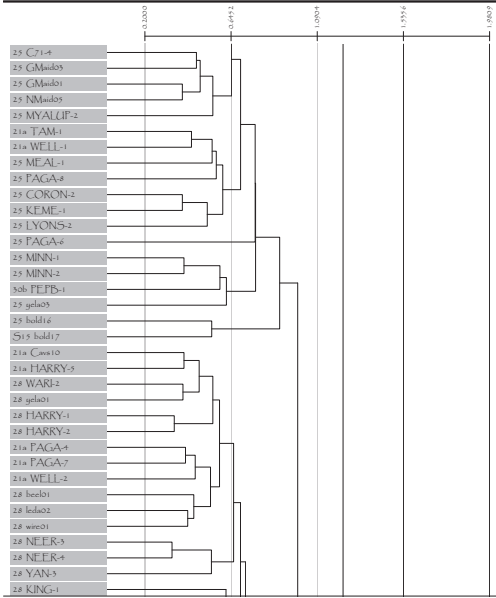
Column Fusion Dendrogram



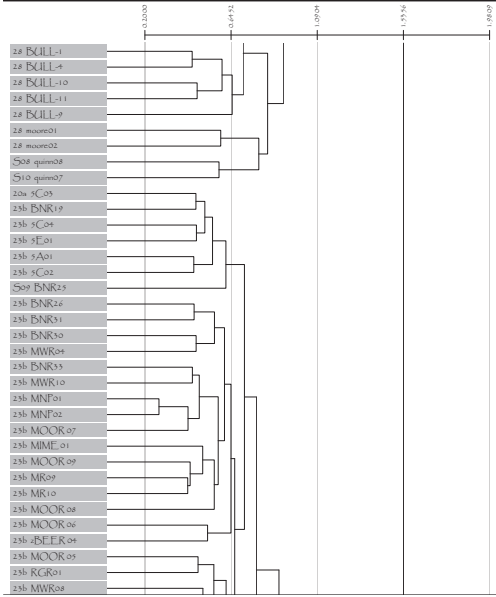
Column Fusion Dendrogram



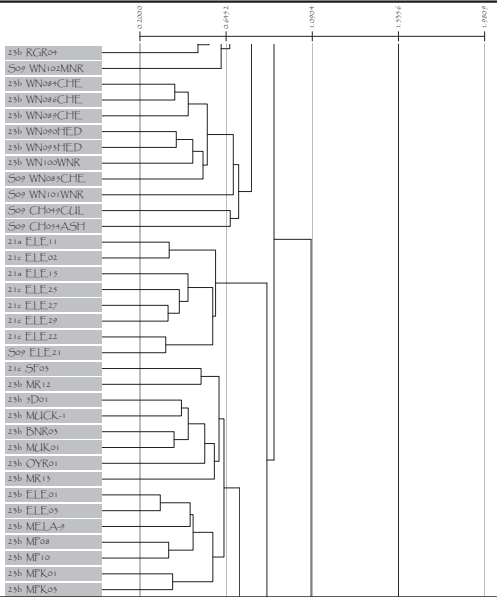
Column Fusion Dendrogram



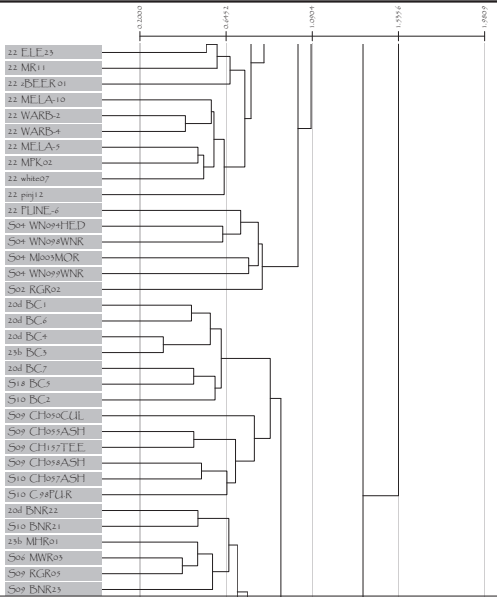
Column Fusion Dendrogram



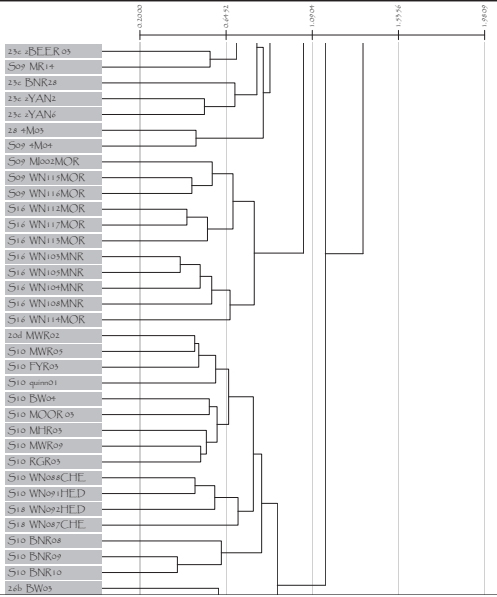
Column Fusion Dendrogram



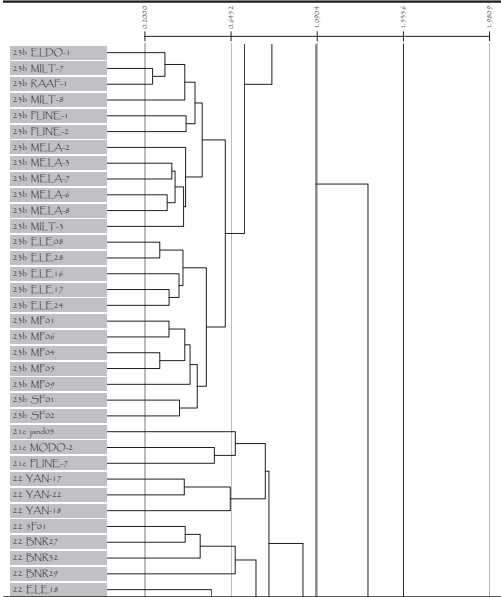
Column Fusion Dendrogram



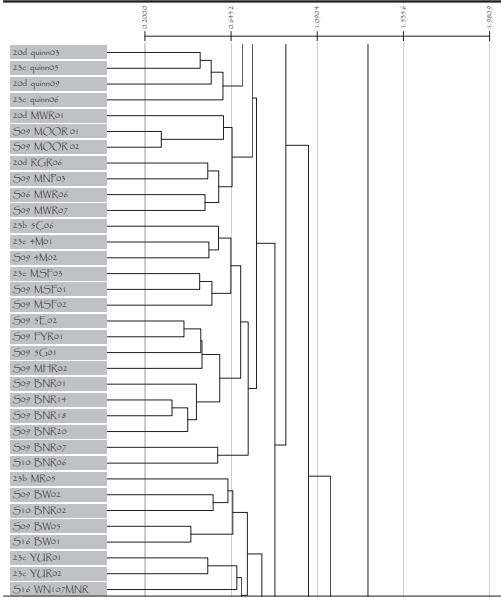
Column Fusion Dendrogram



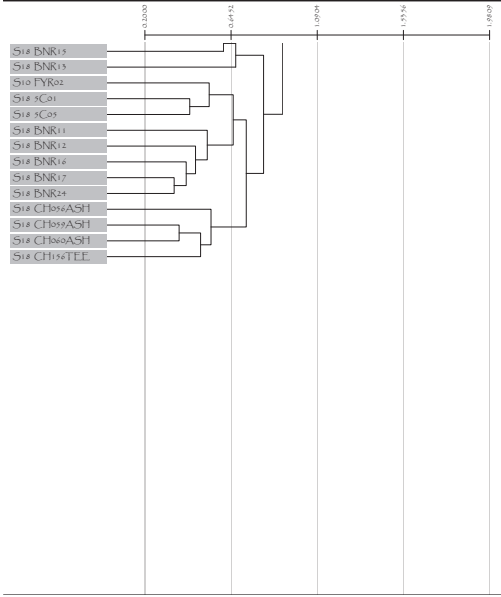
Column Fusion Dendrogram



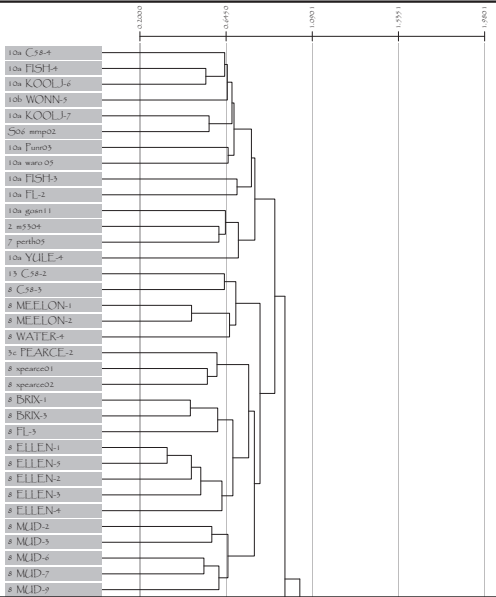
Column Fusion Dendrogram



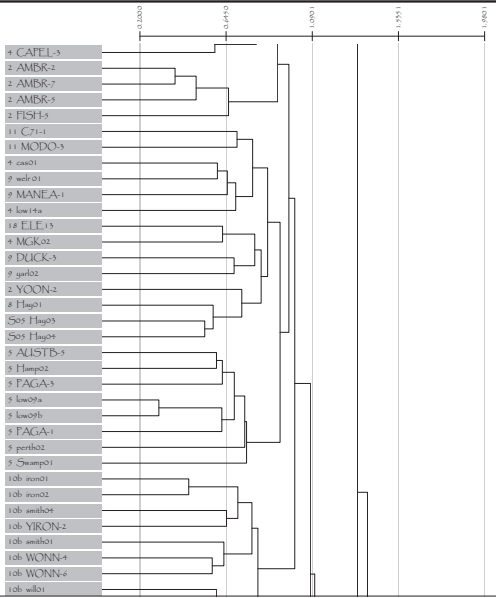
Column Fusion Dendrogram



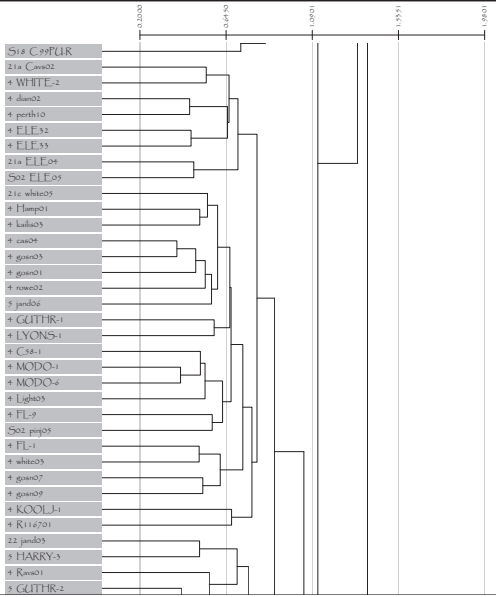
Column Fusion Dendrogram



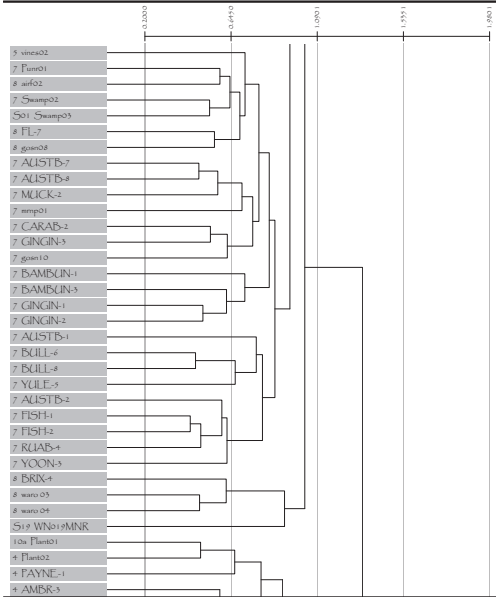
Column Fusion Dendrogram



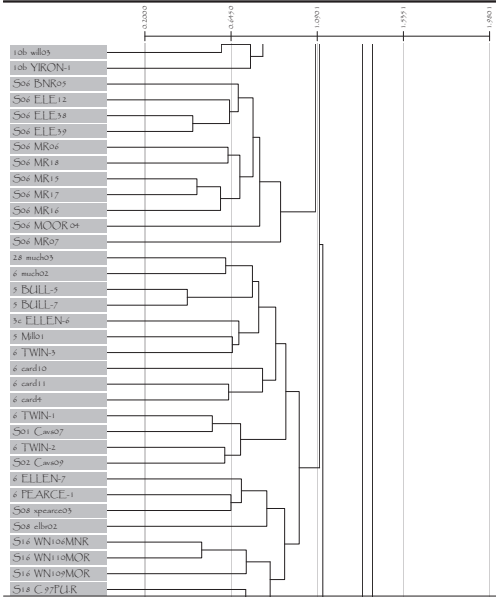
Column Fusion Dendrogram



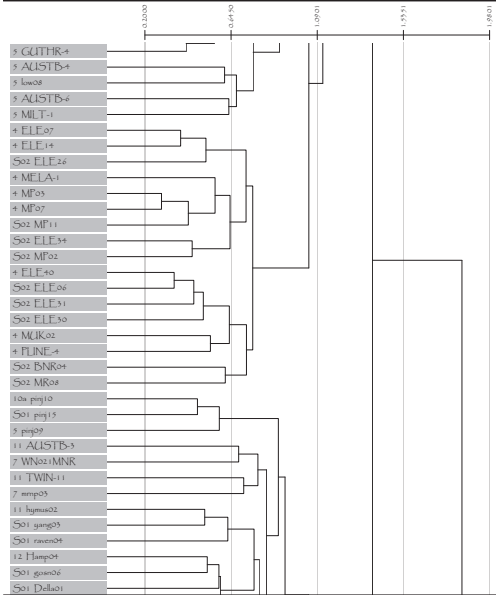
Column Fusion Dendrogram



Column Fusion Dendrogram

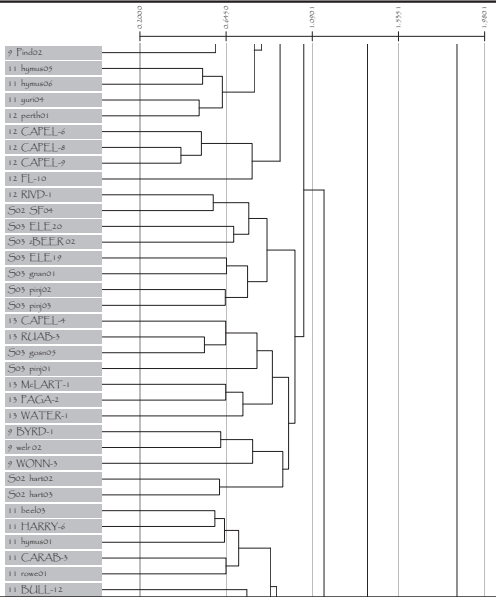


Column Fusion Dendrogram

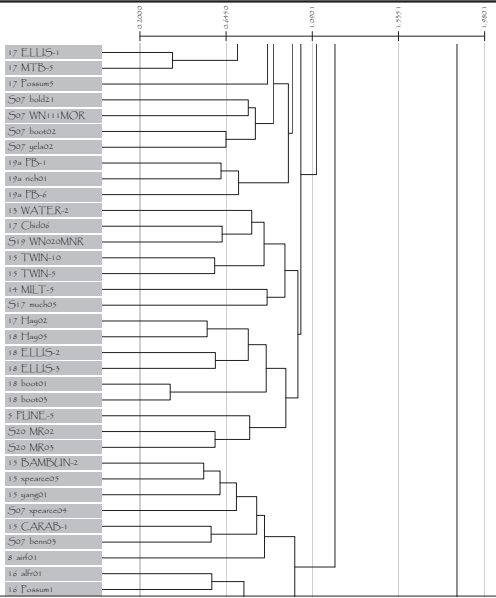




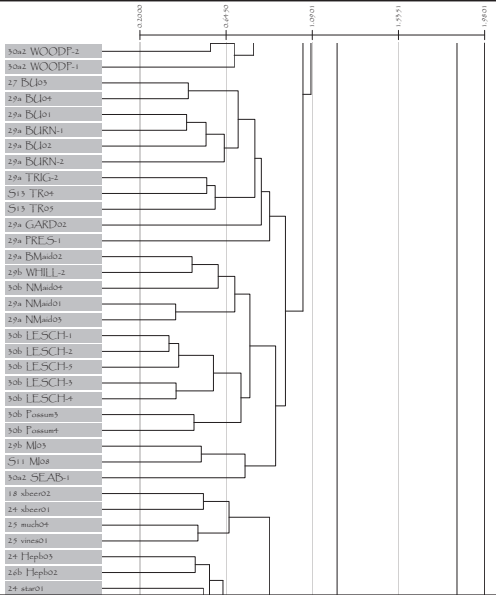
Column Fusion Dendrogram



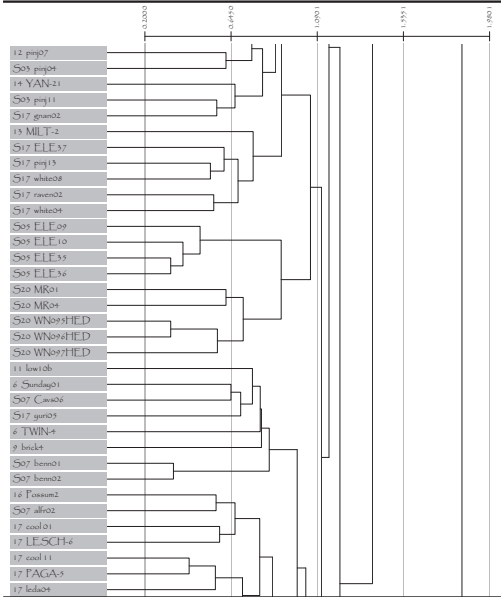
Column Fusion Dendrogram



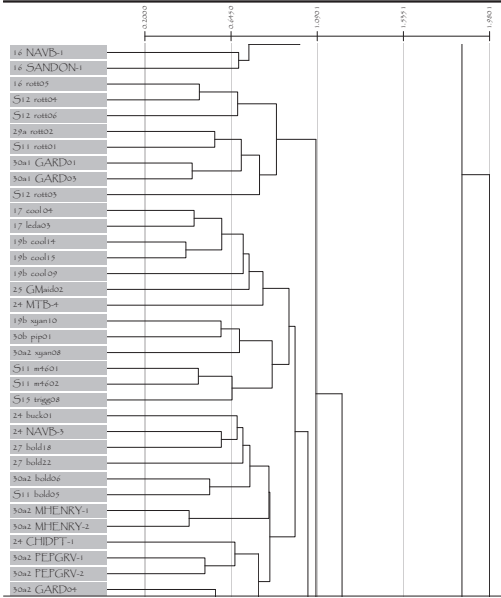
Column Fusion Dendrogram



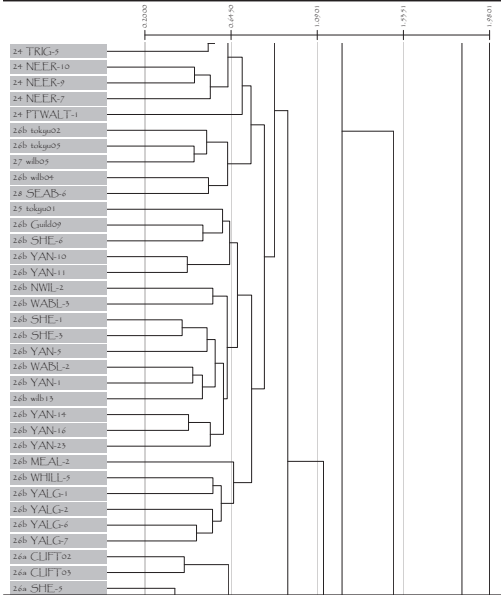
Column Fusion Dendrogram



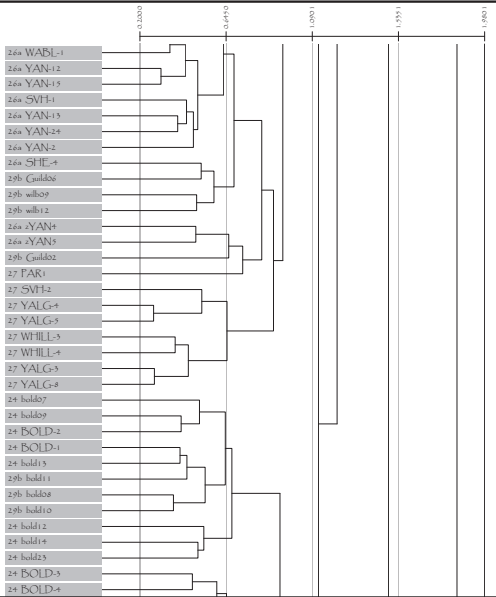
Column Fusion Dendrogram



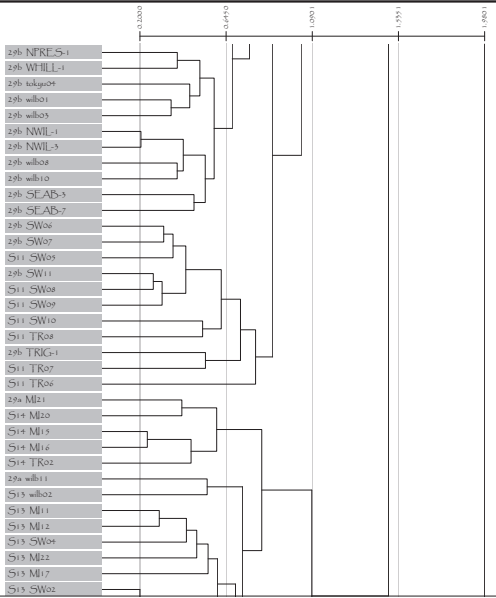
Column Fusion Dendrogram



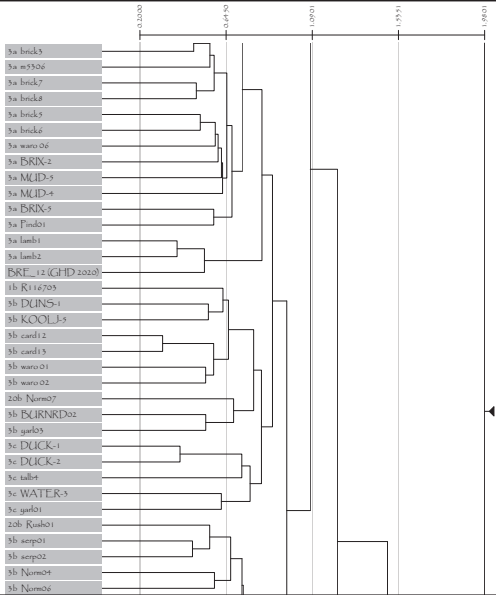
Column Fusion Dendrogram



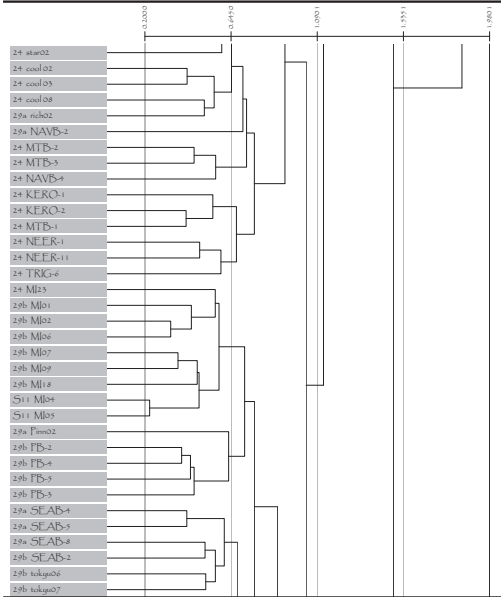
Column Fusion Dendrogram



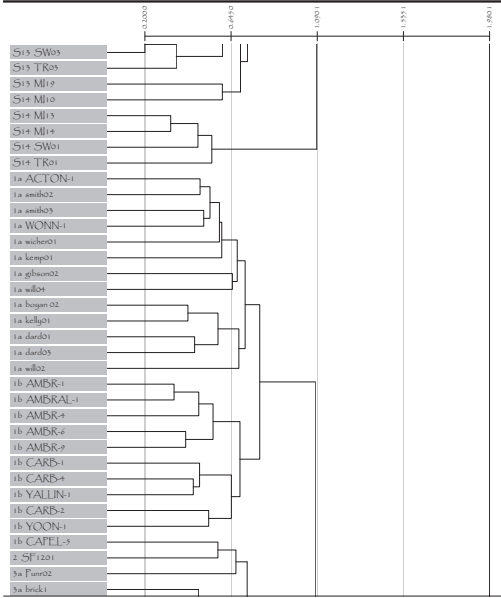
Column Fusion Dendrogram



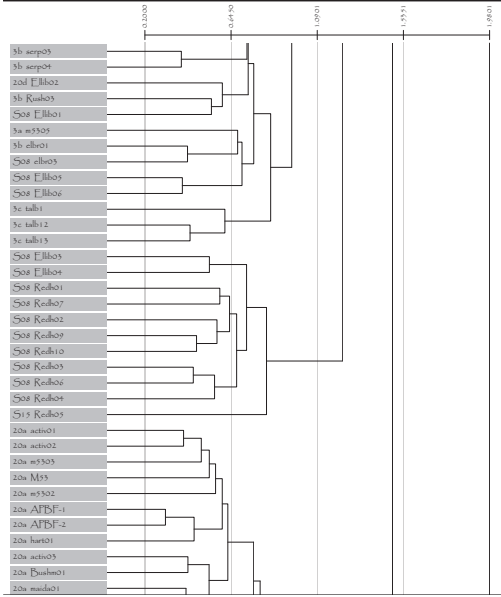
Column Fusion Dendrogram



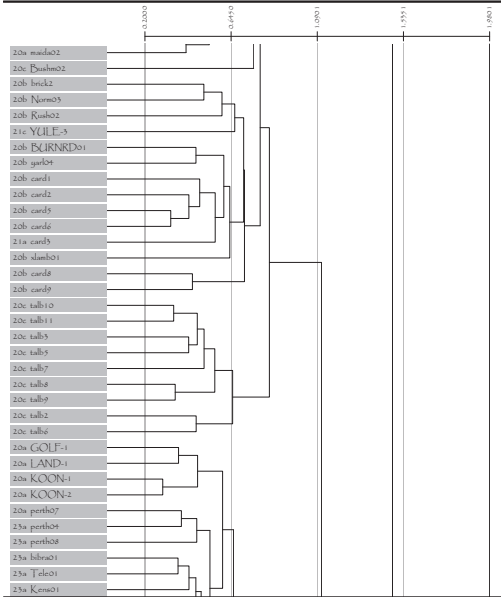
Column Fusion Dendrogram



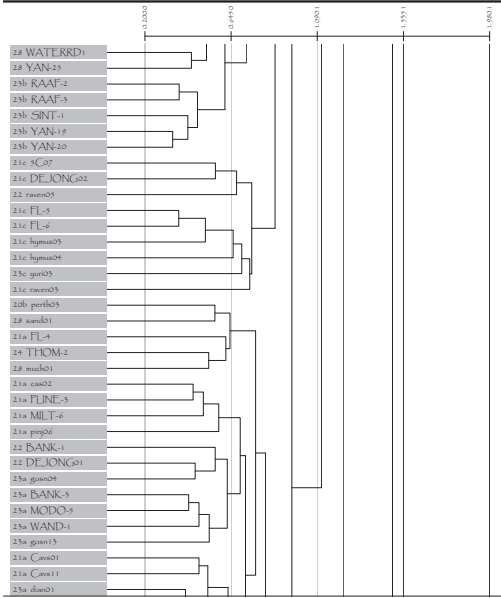
Column Fusion Dendrogram



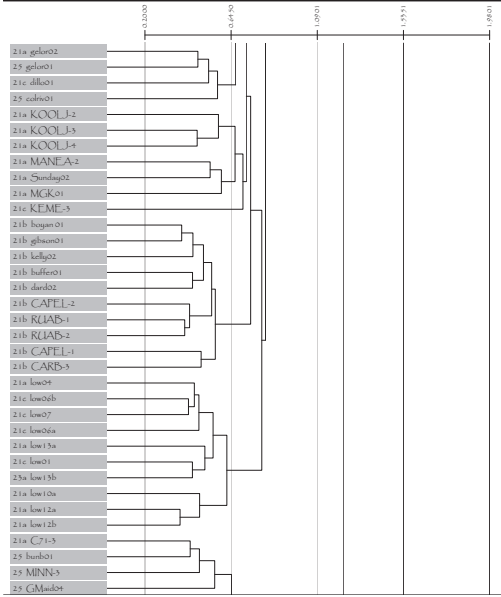
Column Fusion Dendrogram



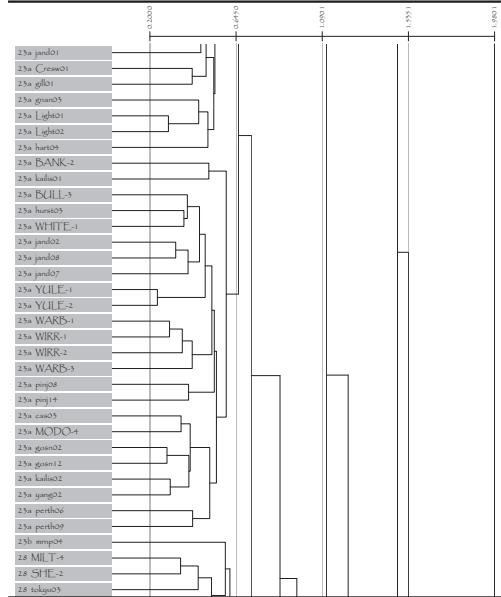
Column Fusion Dendrogram



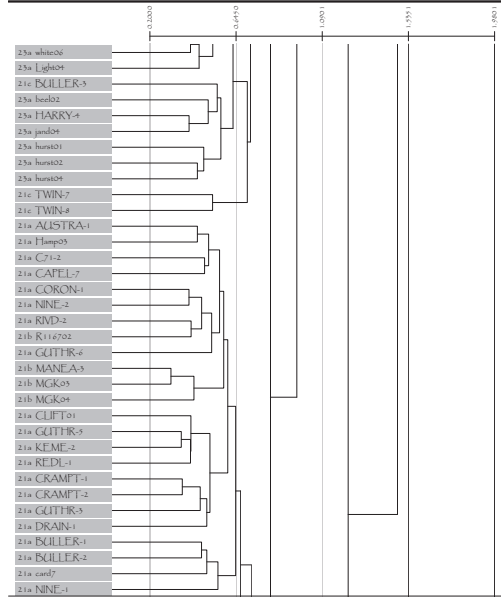
Column Fusion Dendrogram



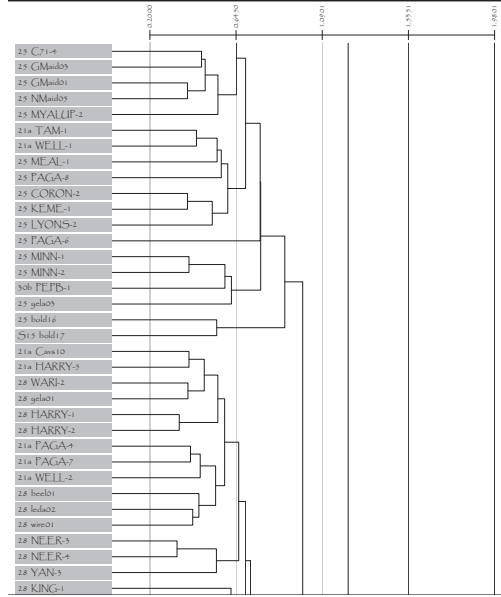
Column Fusion Dendrogram



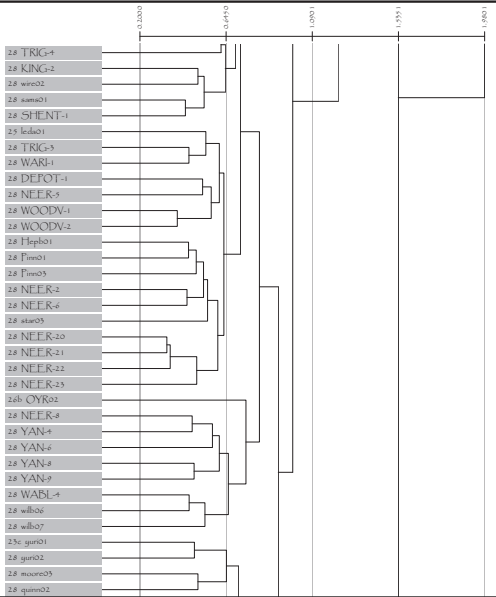
Column Fusion Dendrogram



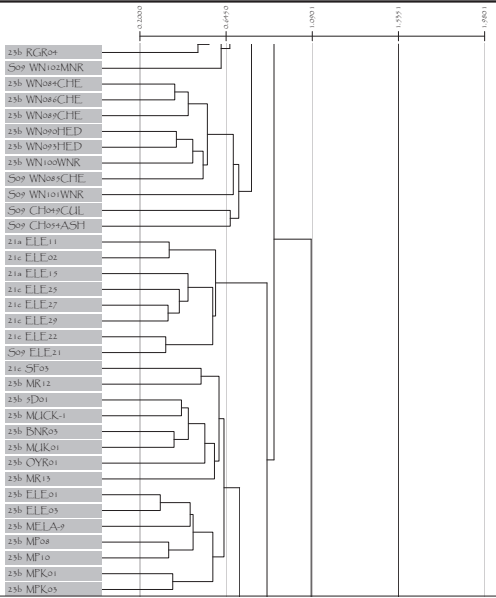
Column Fusion Dendrogram



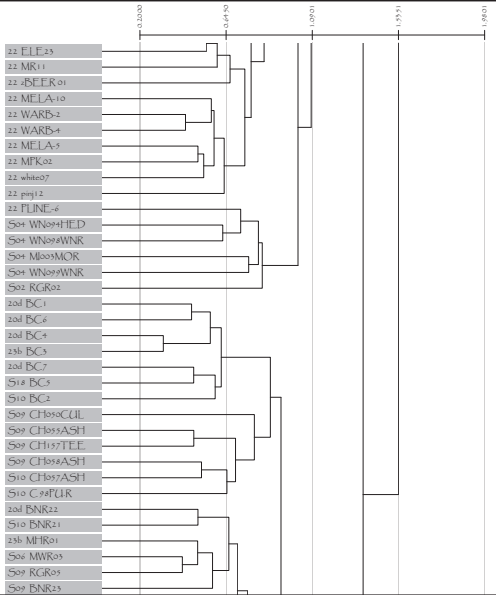
Column Fusion Dendrogram



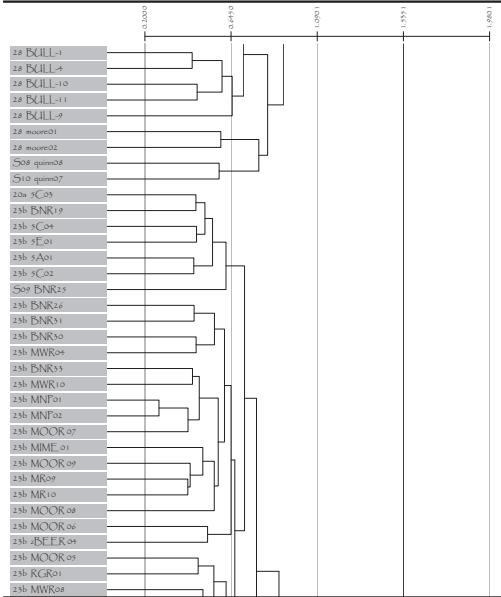
Column Fusion Dendrogram



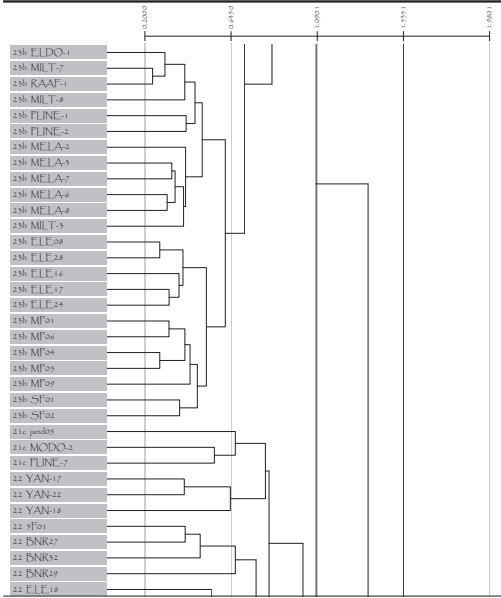
Column Fusion Dendrogram



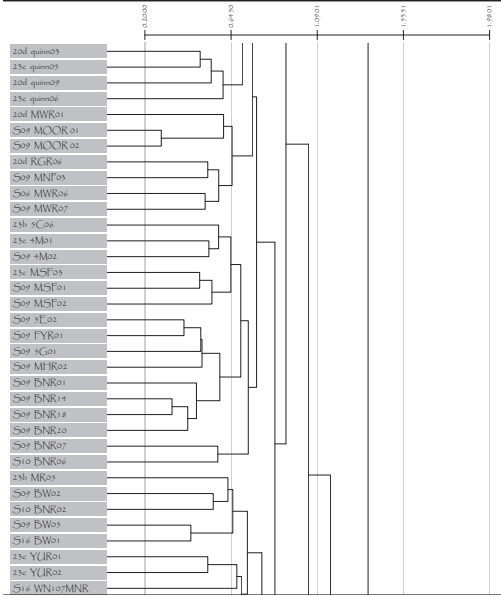
Column Fusion Dendrogram



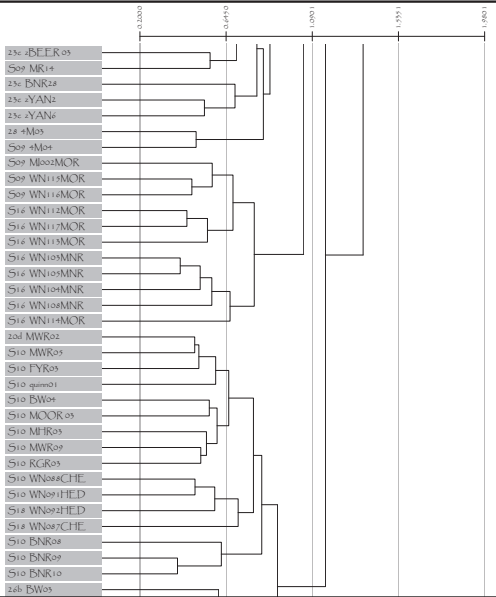
Column Fusion Dendrogram



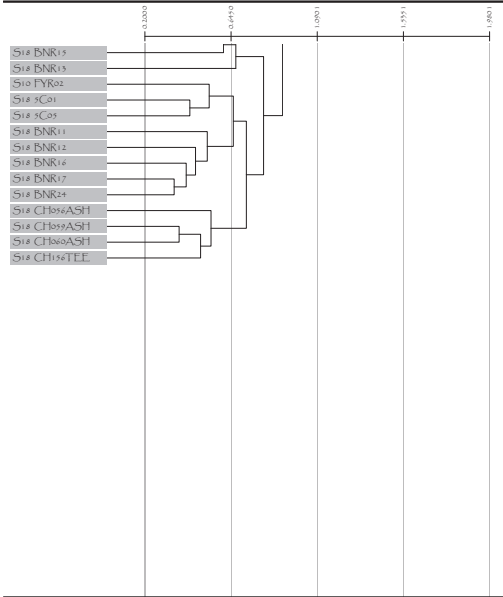
Column Fusion Dendrogram



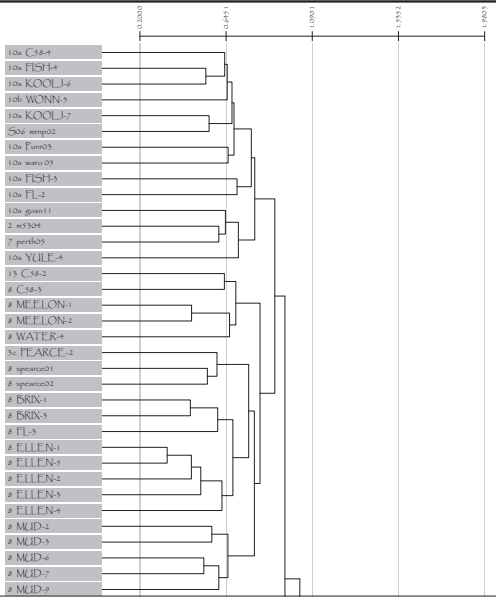
Column Fusion Dendrogram



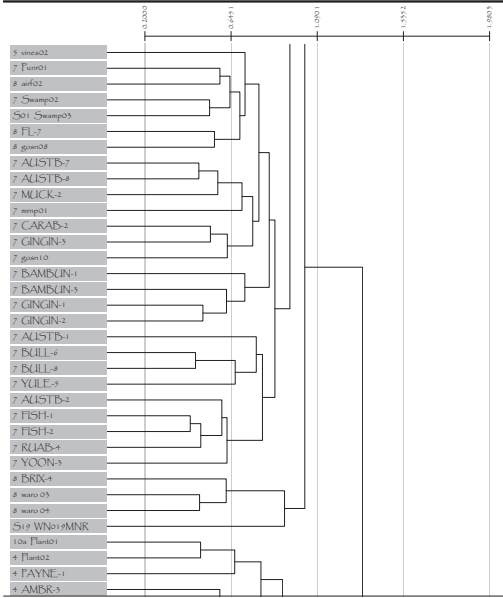
Column Fusion Dendrogram



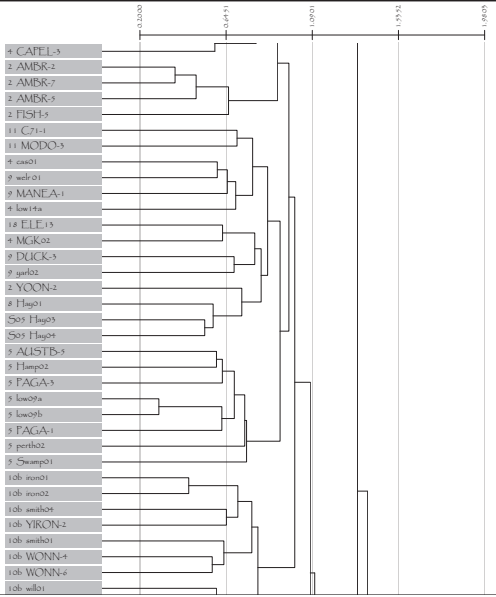
Column Fusion Dendrogram



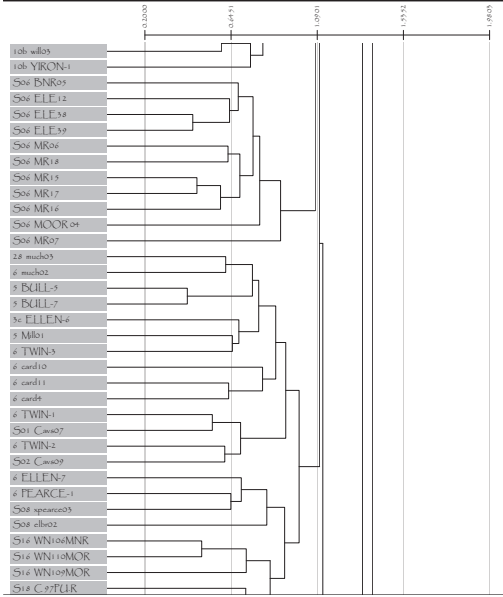
Column Fusion Dendrogram



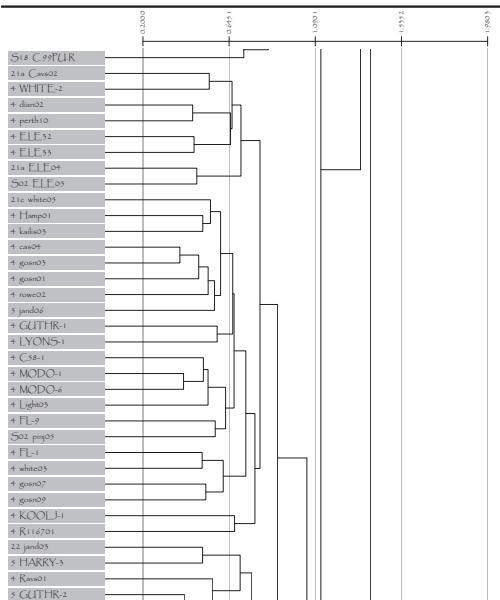
Column Fusion Dendrogram



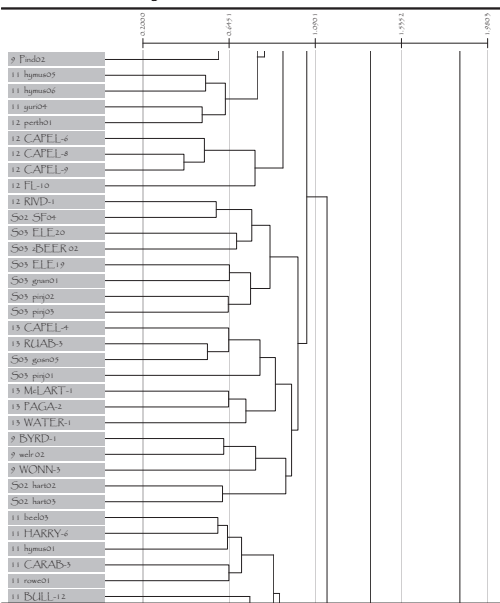
Column Fusion Dendrogram



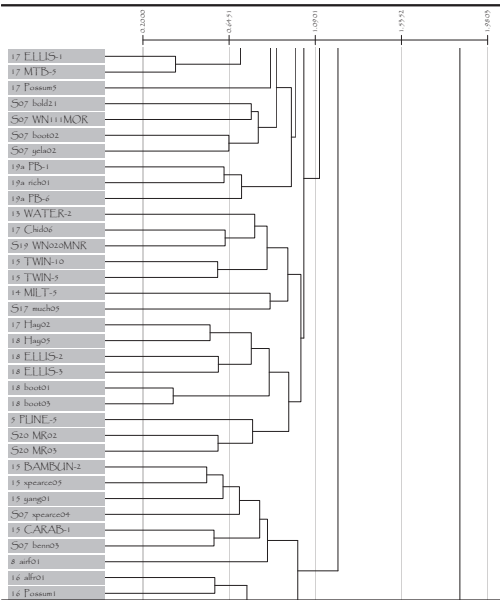
### Column Fusion Dendrogram



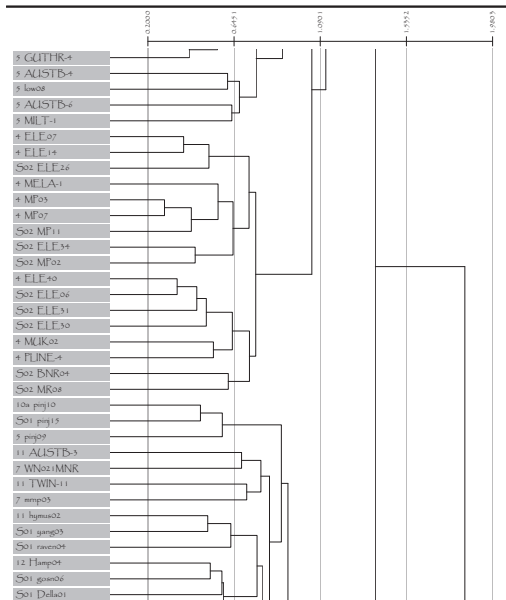
### Column Fusion Dendrogram



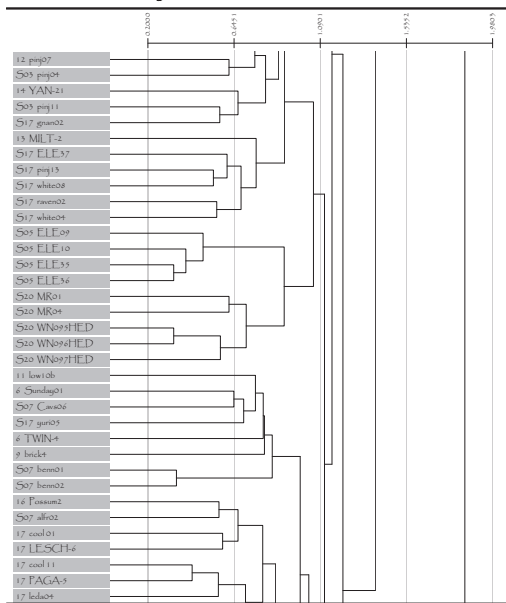
### Column Fusion Dendrogram



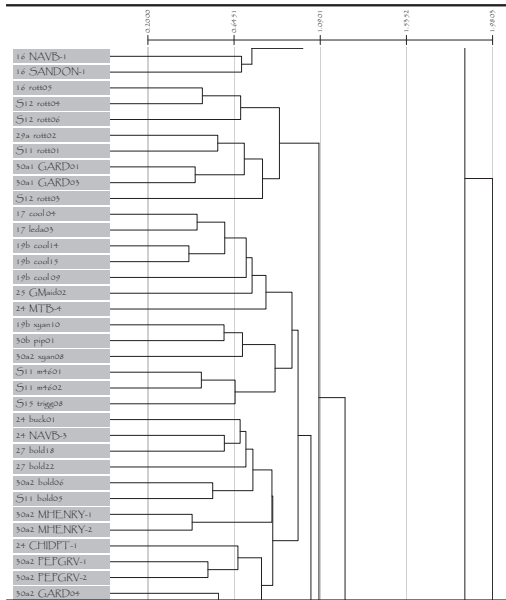
### Column Fusion Dendrogram



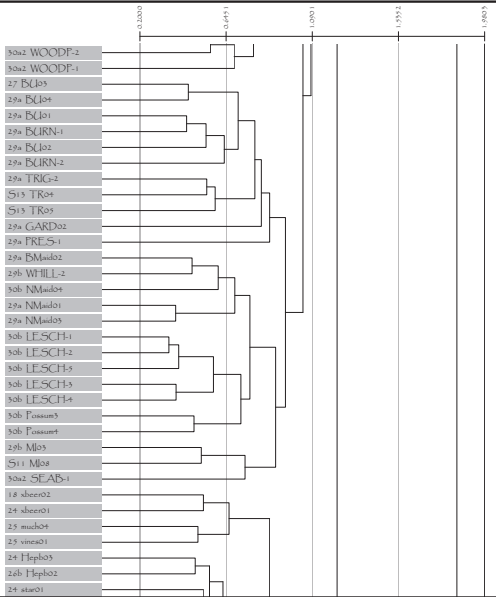
### Column Fusion Dendrogram



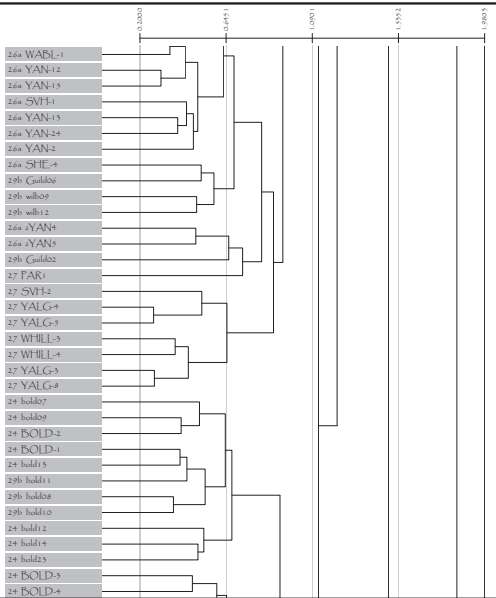
### Column Fusion Dendrogram



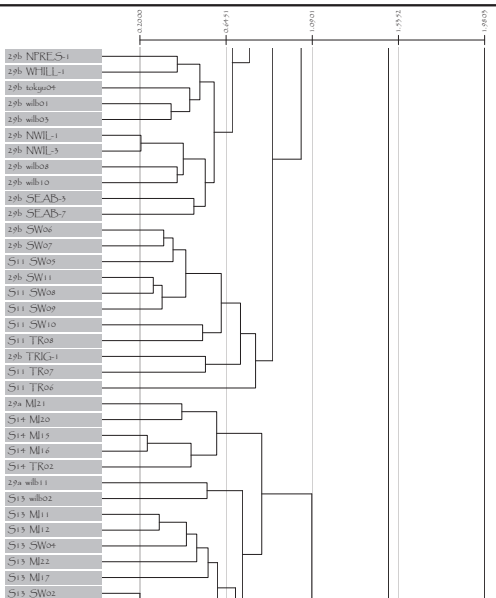
Column Fusion Dendrogram



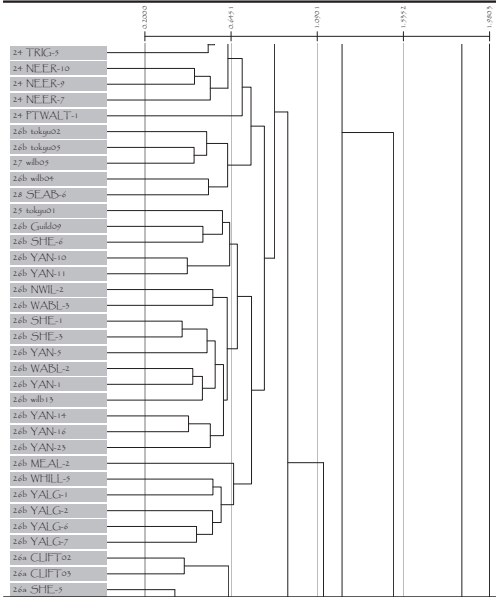
Column Fusion Dendrogram



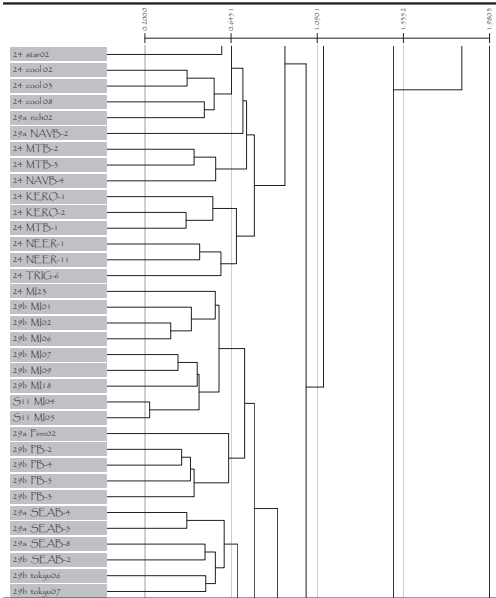
Column Fusion Dendrogram



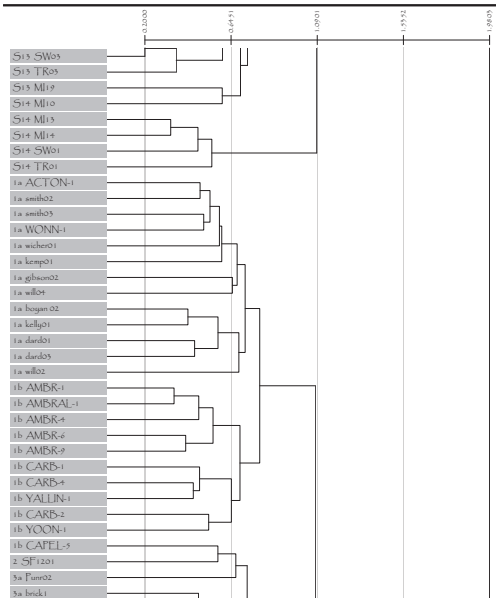
Column Fusion Dendrogram



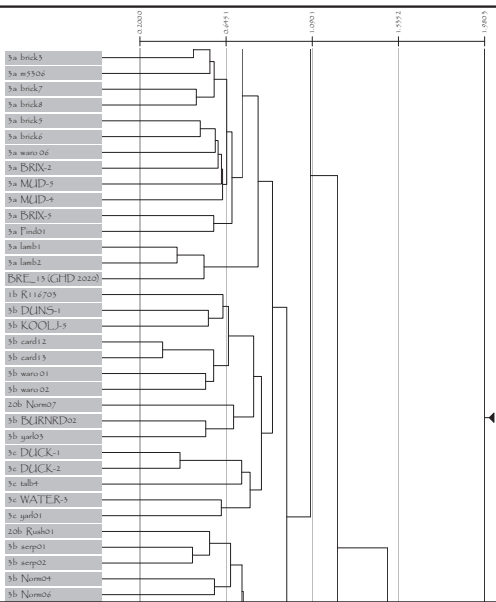
Column Fusion Dendrogram



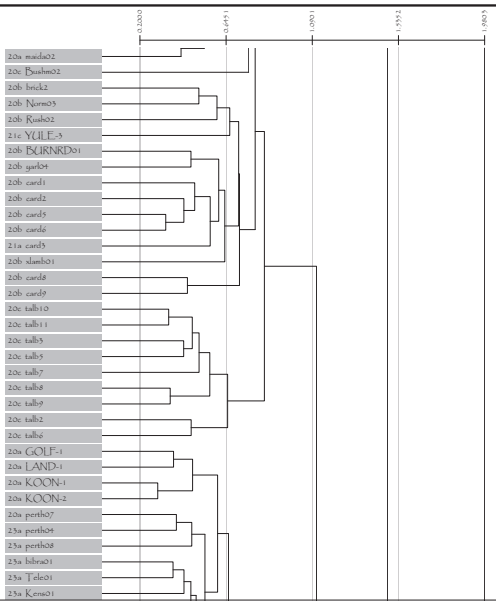
Column Fusion Dendrogram



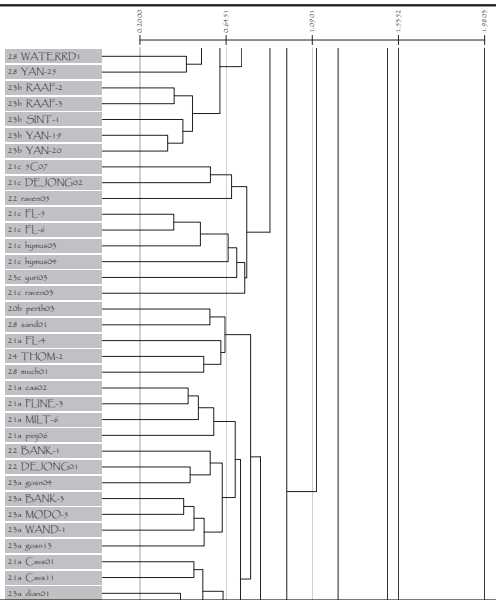
Column Fusion Dendrogram



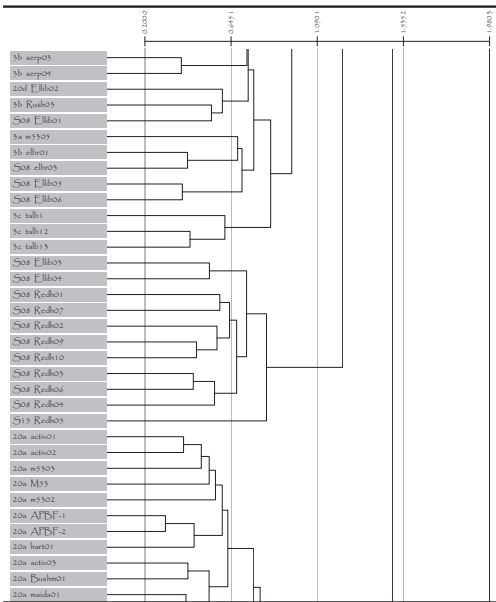
Column Fusion Dendrogram



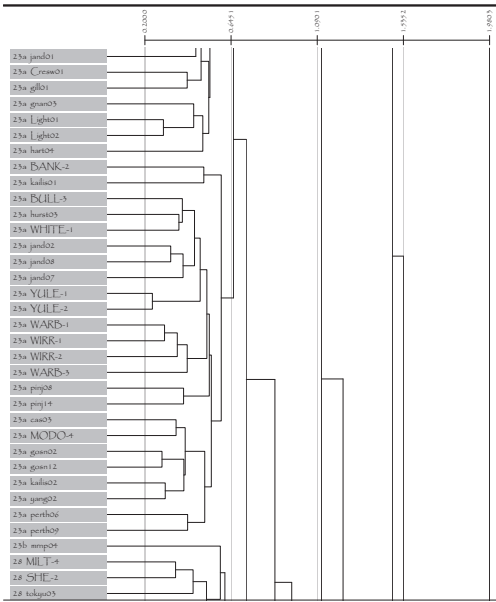
Column Fusion Dendrogram



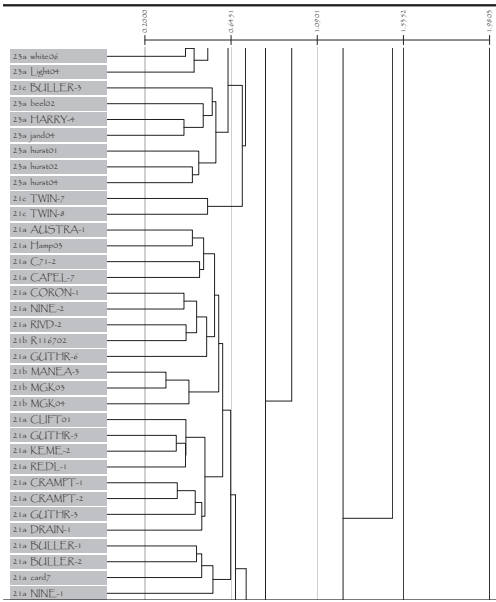
Column Fusion Dendrogram



Column Fusion Dendrogram

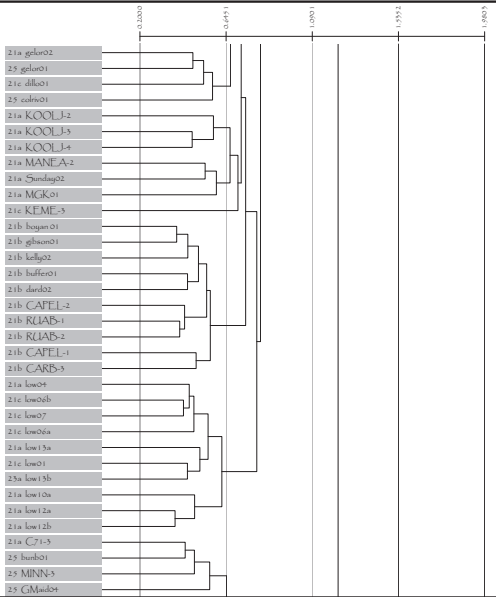


Column Fusion Dendrogram

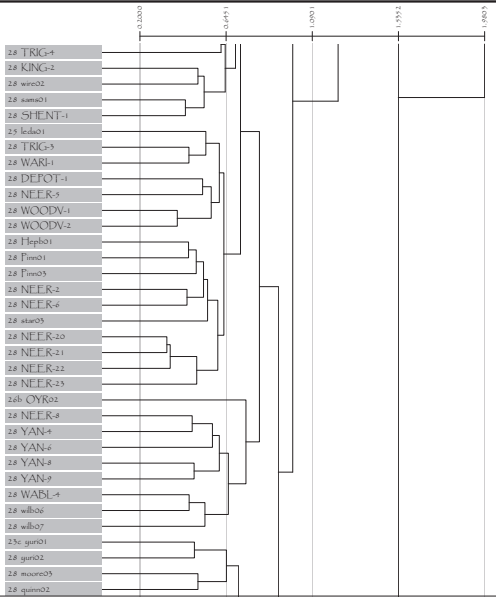




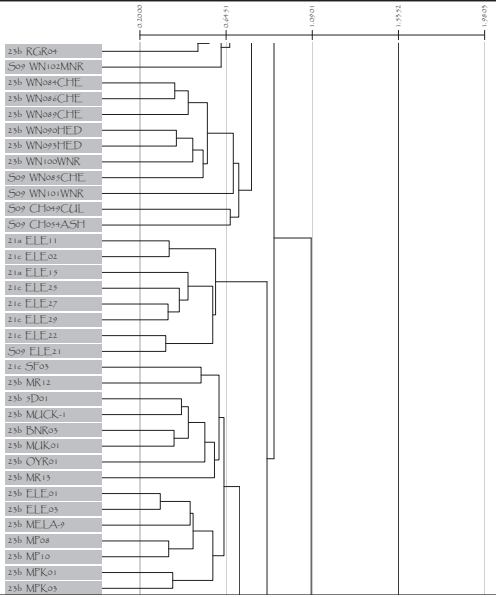
Column Fusion Dendrogram



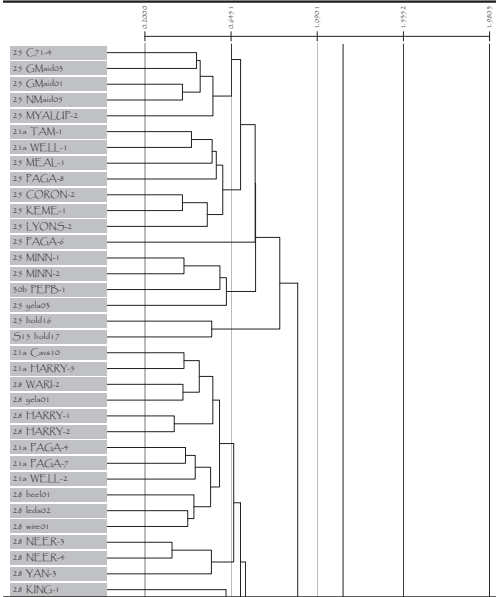
Column Fusion Dendrogram



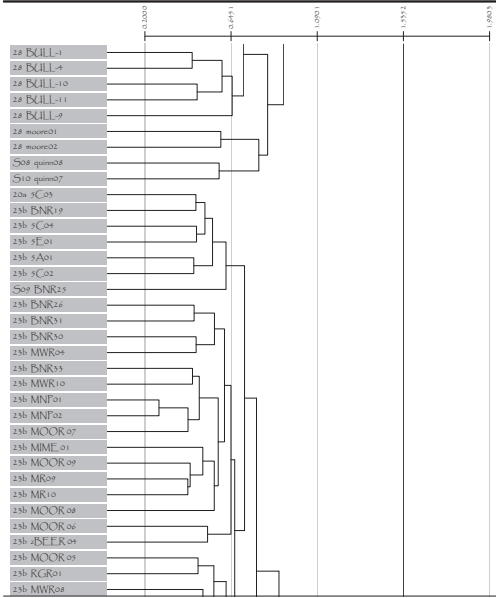
Column Fusion Dendrogram



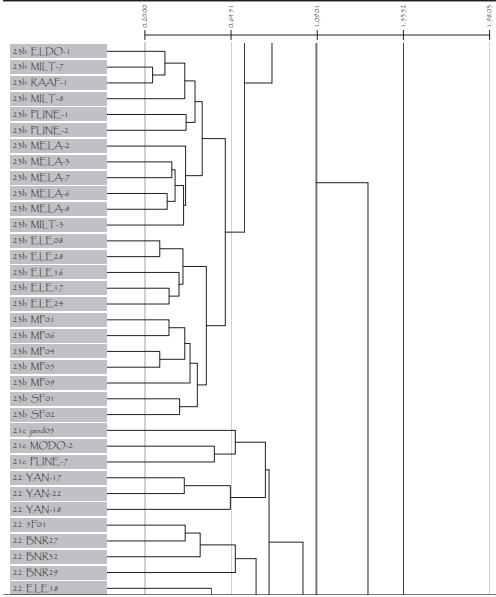
Column Fusion Dendrogram



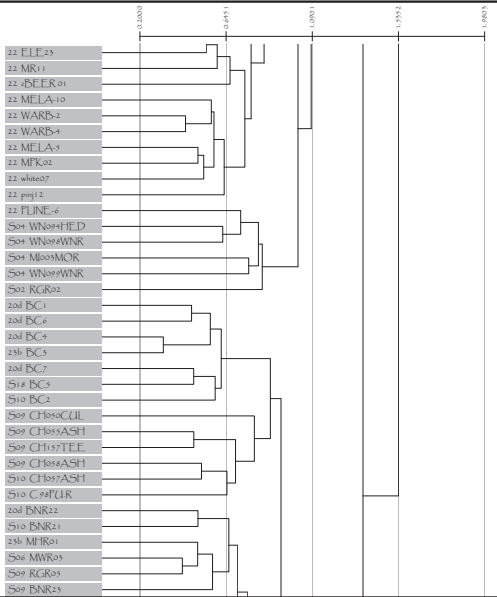
Column Fusion Dendrogram



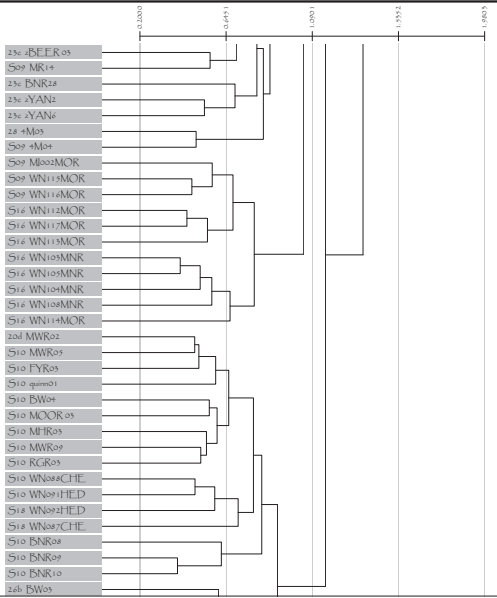
Column Fusion Dendrogram



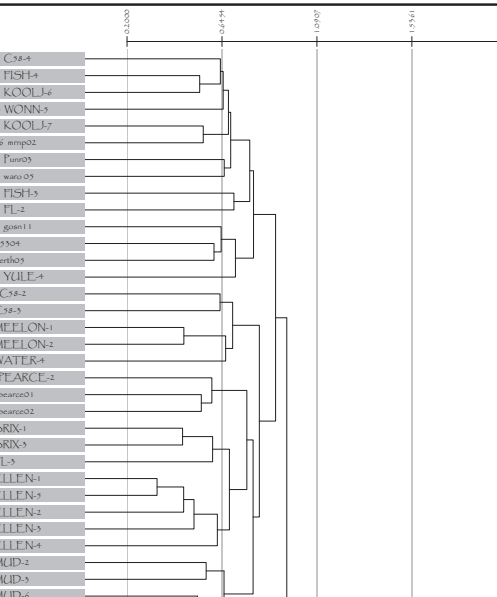
Column Fusion Dendrogram



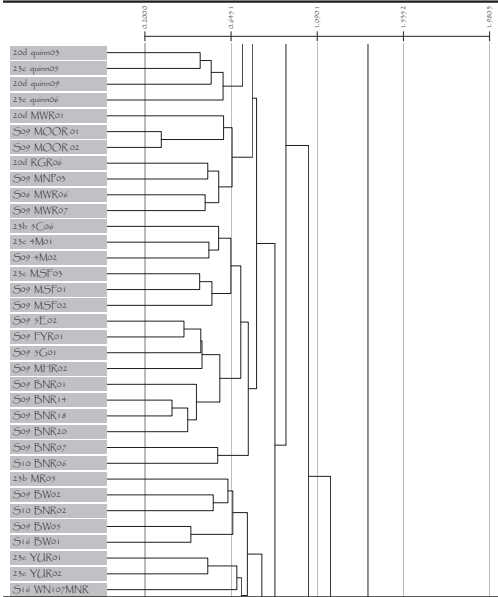
Column Fusion Dendrogram



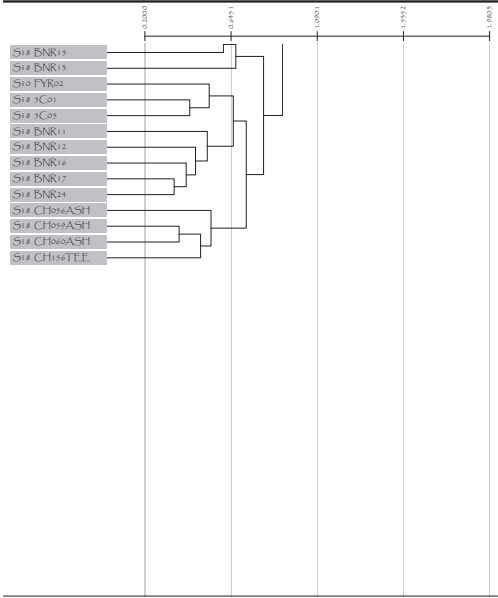
Column Fusion Dendrogram



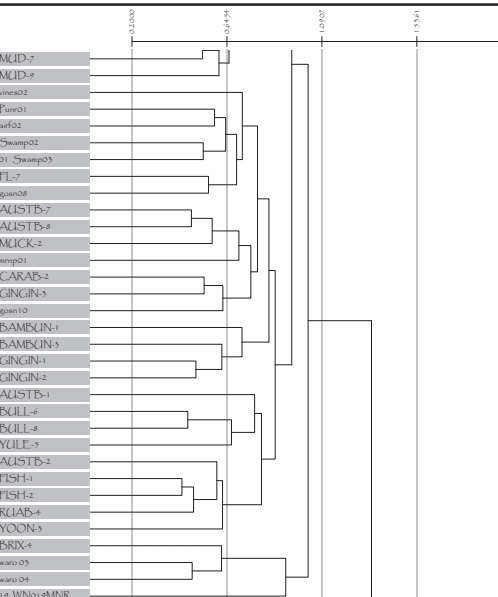
Column Fusion Dendrogram



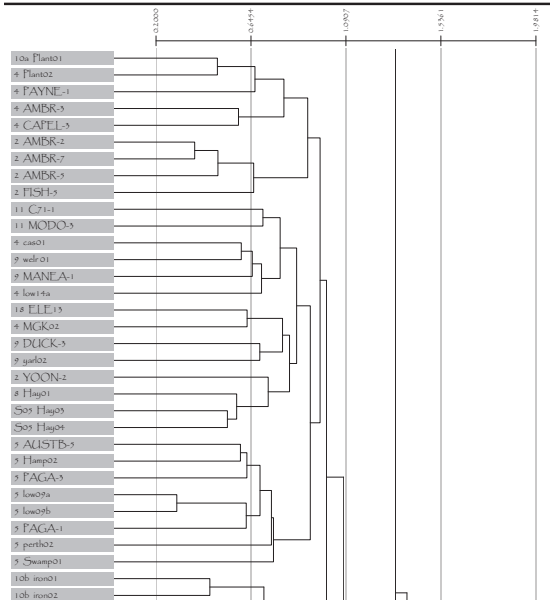
Column Fusion Dendrogram



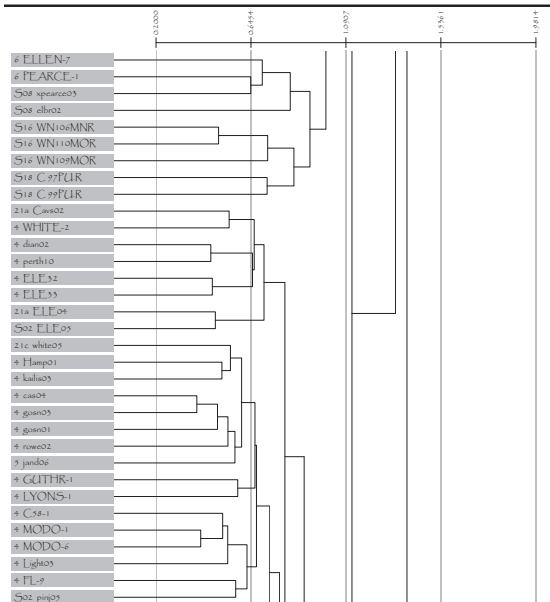
Column Fusion Dendrogram



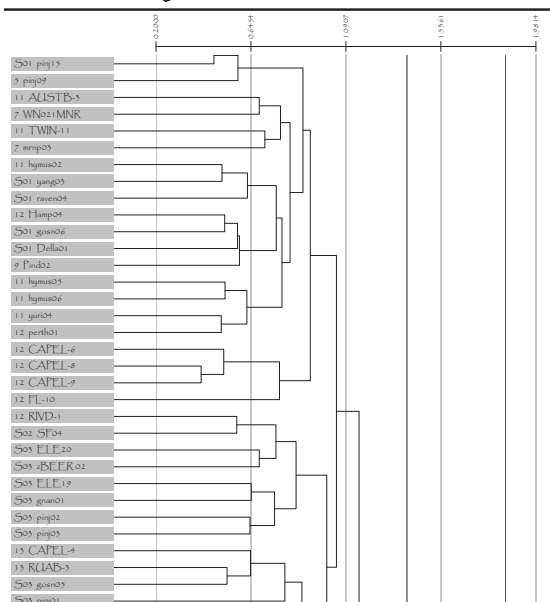
Column Fusion Dendrogram



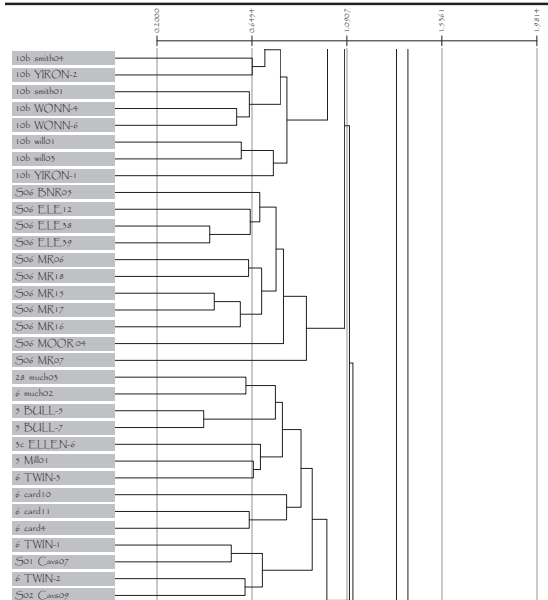
Column Fusion Dendrogram



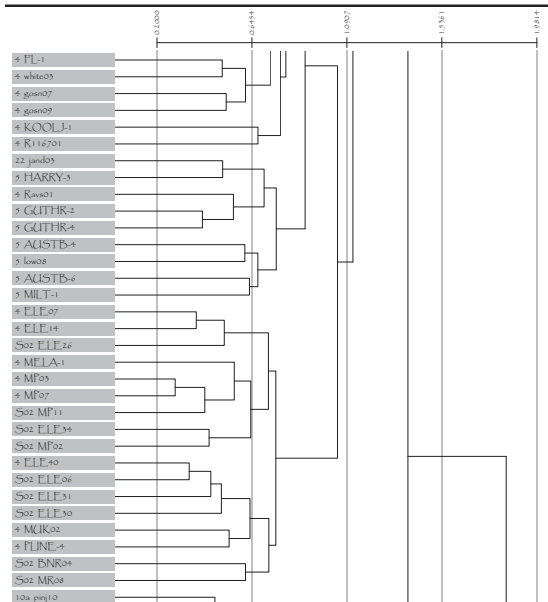
Column Fusion Dendrogram



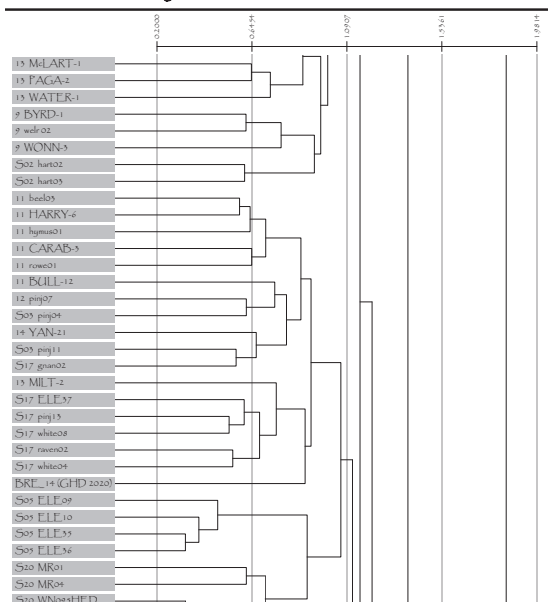
Column Fusion Dendrogram



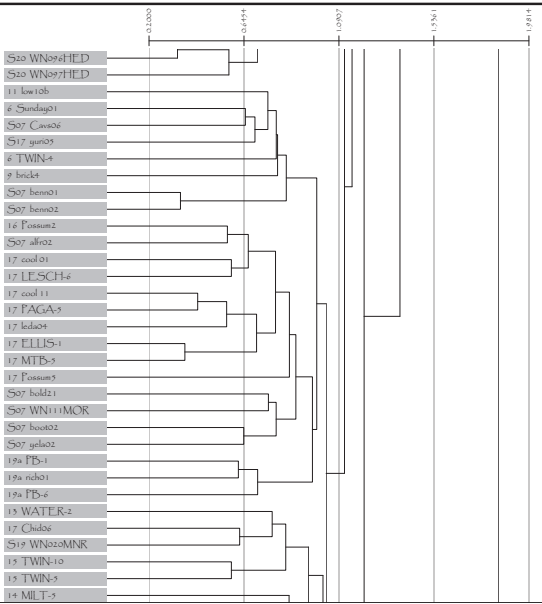
Column Fusion Dendrogram



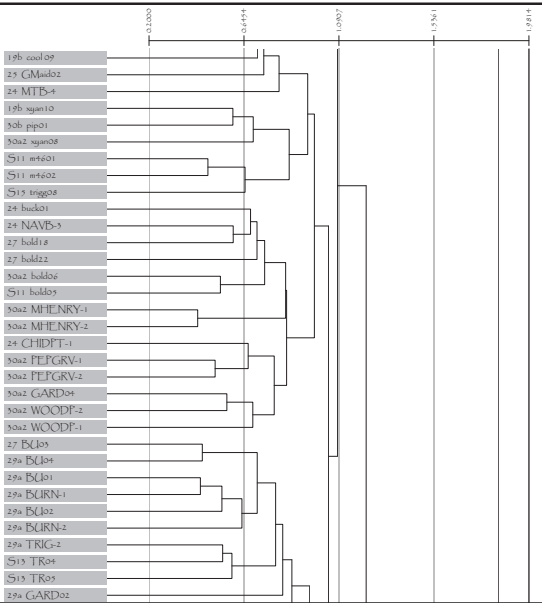
Column Fusion Dendrogram



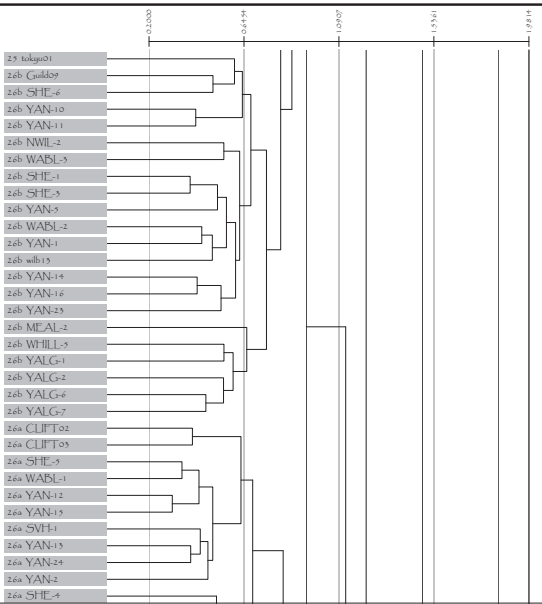
Column Fusion Dendrogram



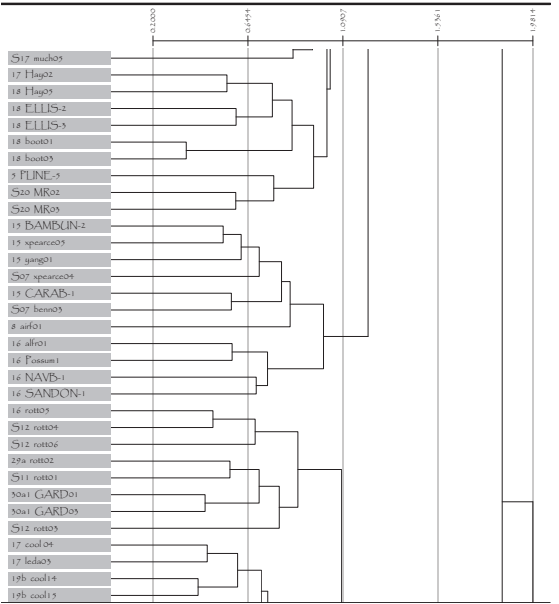
Column Fusion Dendrogram



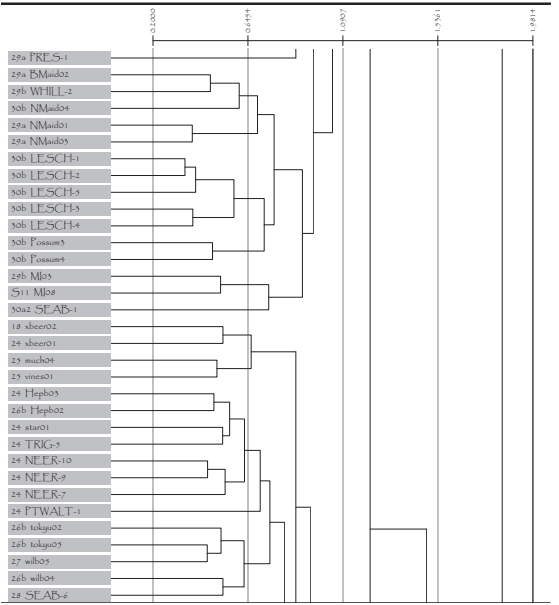
Column Fusion Dendrogram



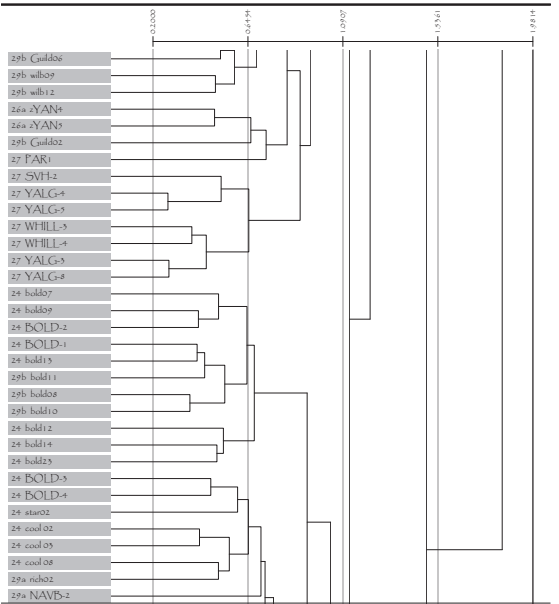
Column Fusion Dendrogram



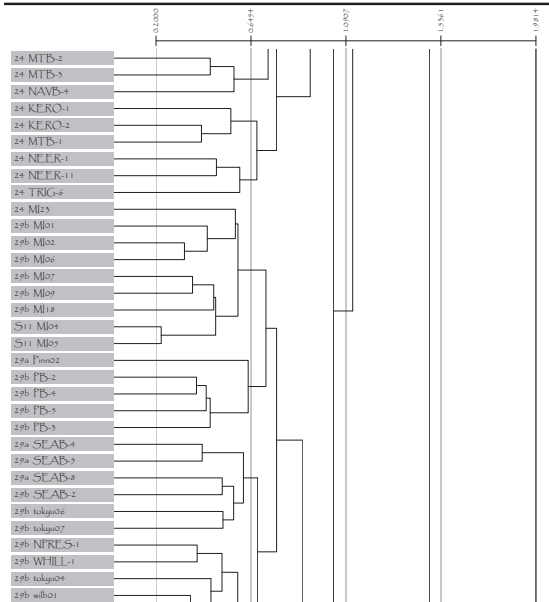
Column Fusion Dendrogram



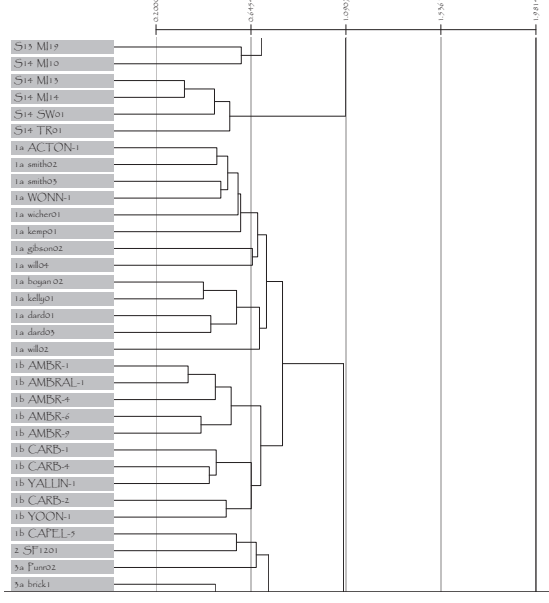
Column Fusion Dendrogram



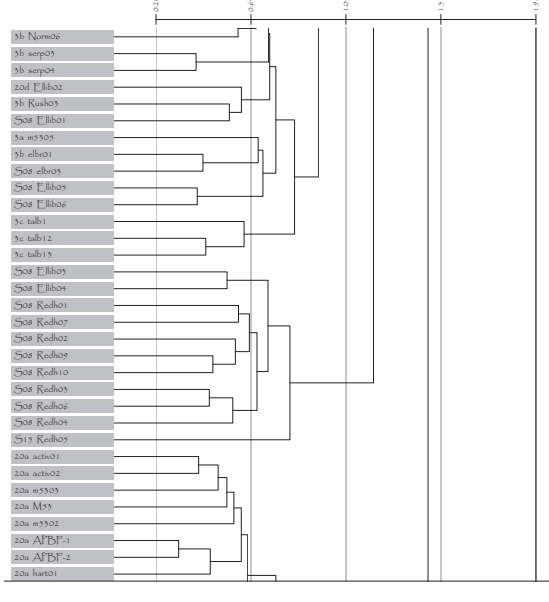
Column Fusion Dendrogram



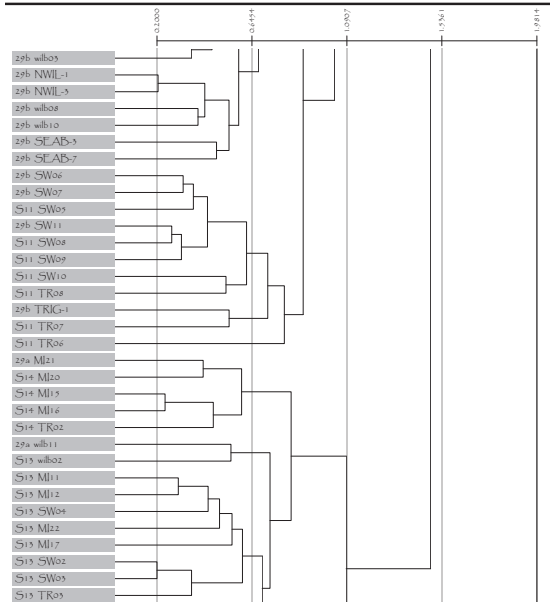
Column Fusion Dendrogram



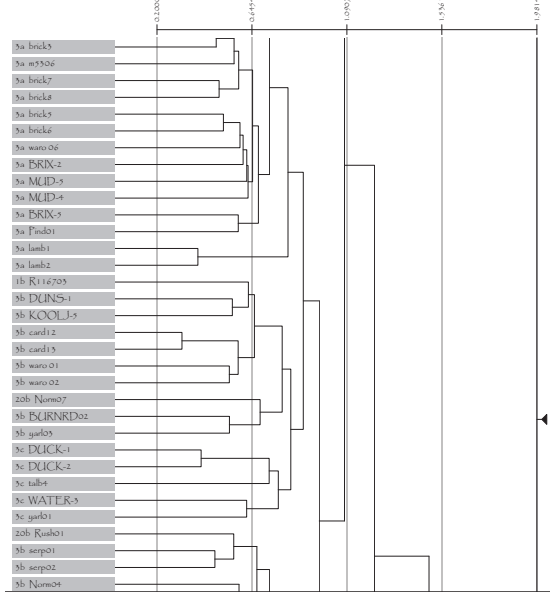
Column Fusion Dendrogram



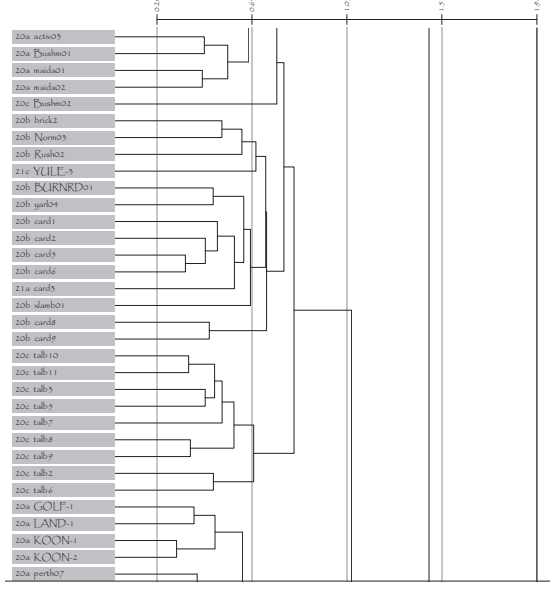
Column Fusion Dendrogram

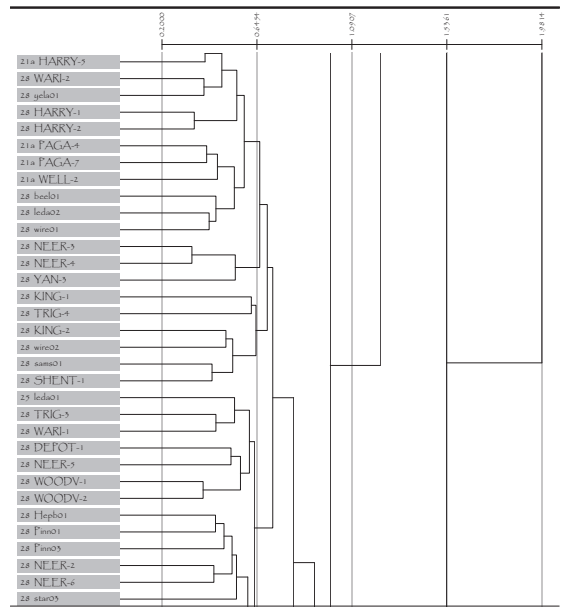
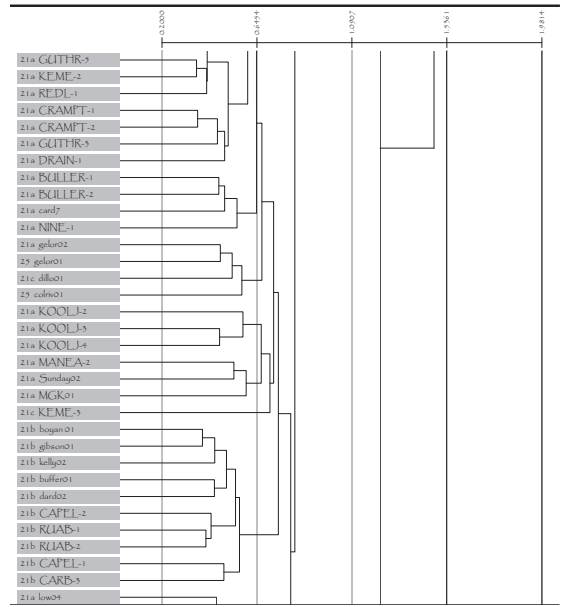
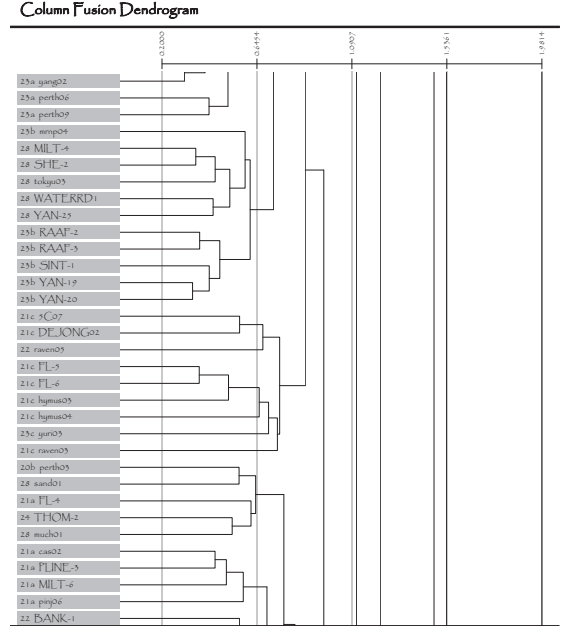
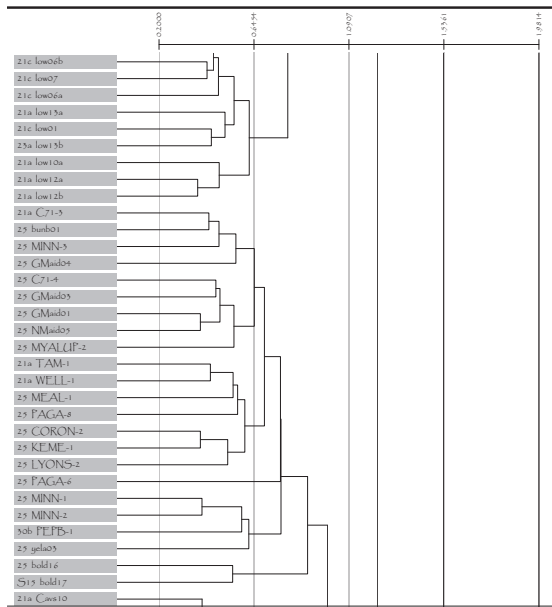
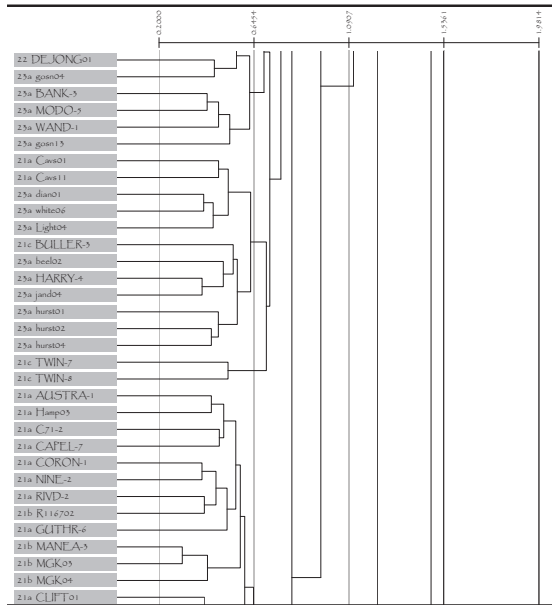
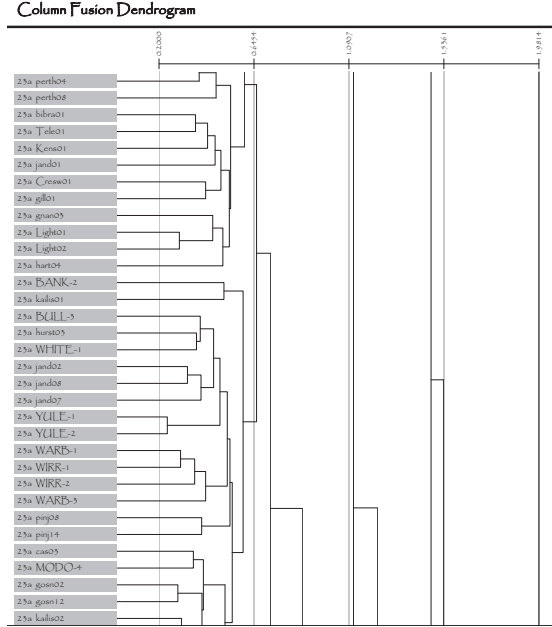


Column Fusion Dendrogram

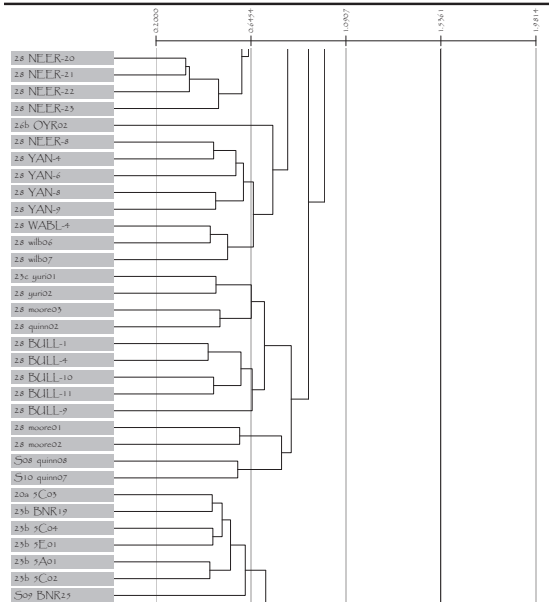


Column Fusion Dendrogram

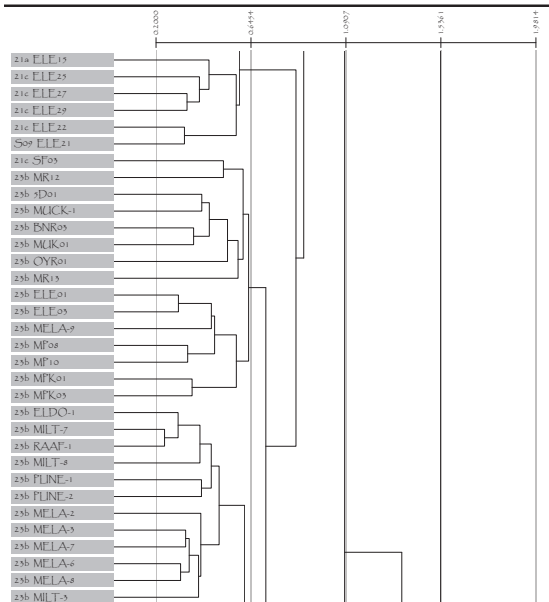




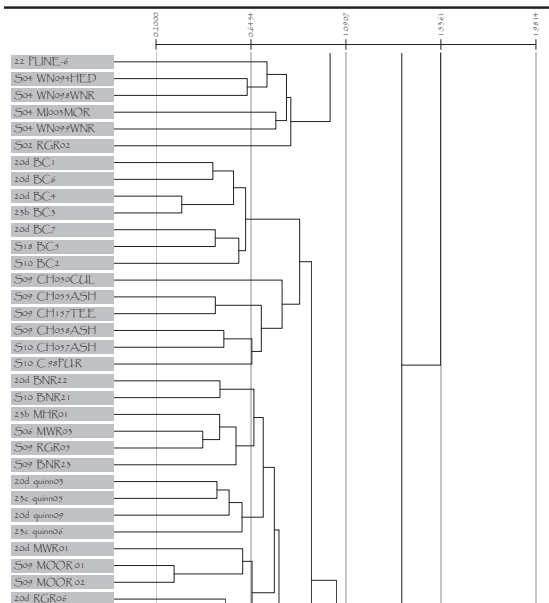
Column Fusion Dendrogram



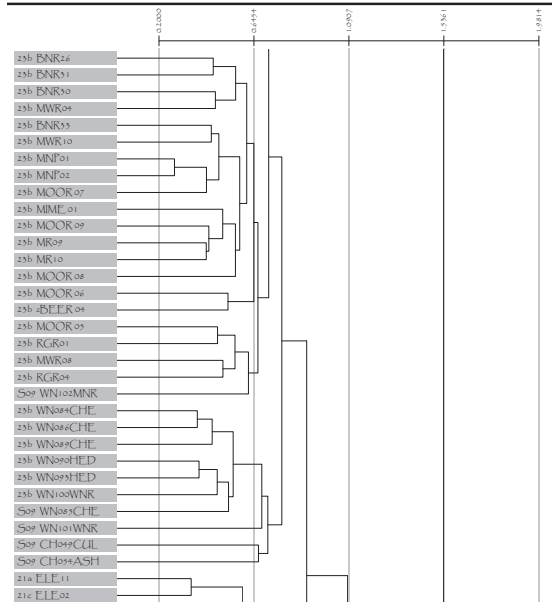
Column Fusion Dendrogram



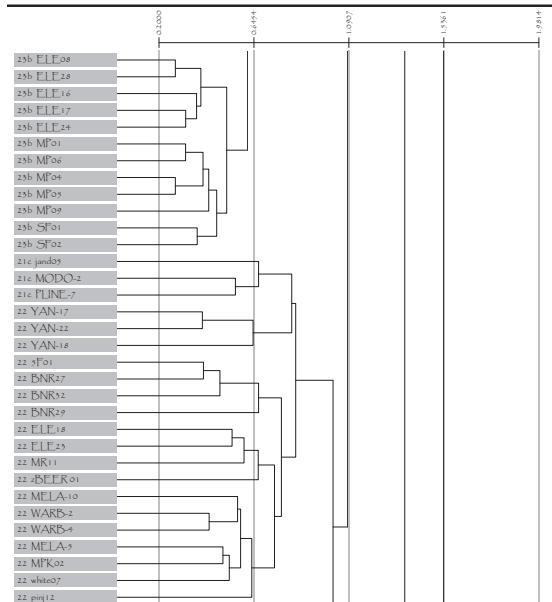
Column Fusion Dendrogram



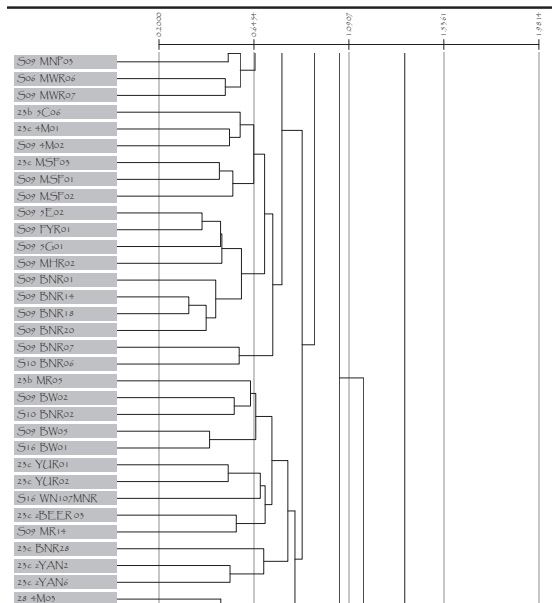
Column Fusion Dendrogram



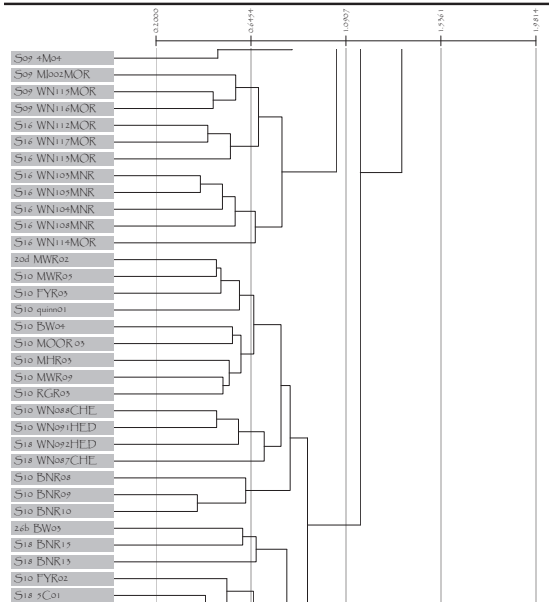
Column Fusion Dendrogram



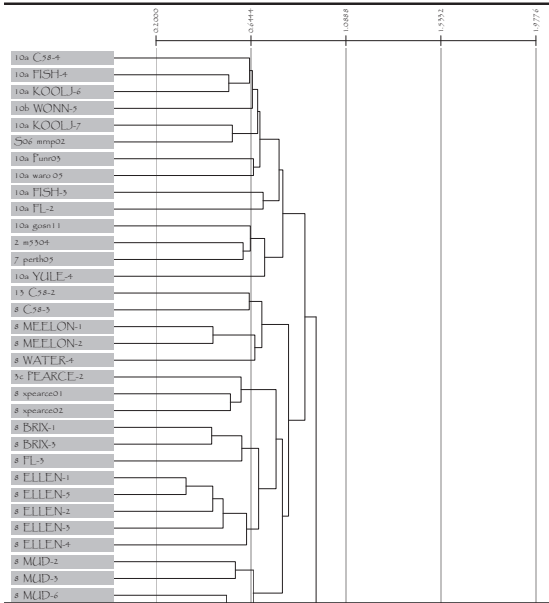
Column Fusion Dendrogram



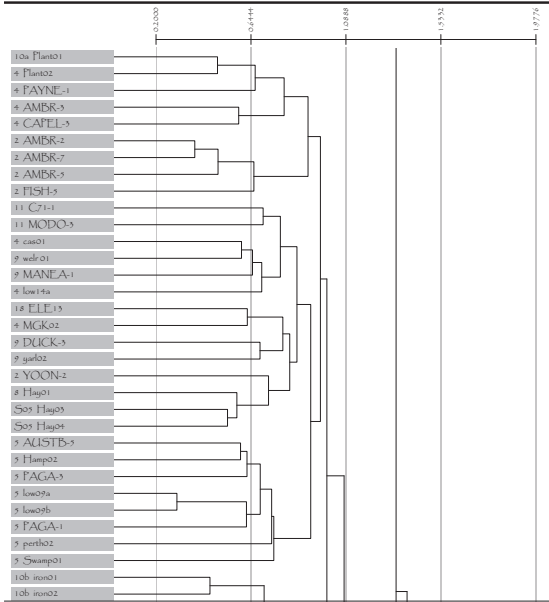
Column Fusion Dendrogram



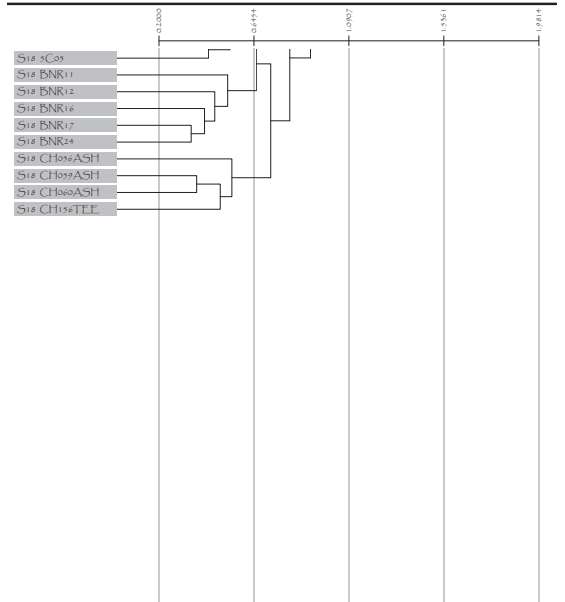
Column Fusion Dendrogram



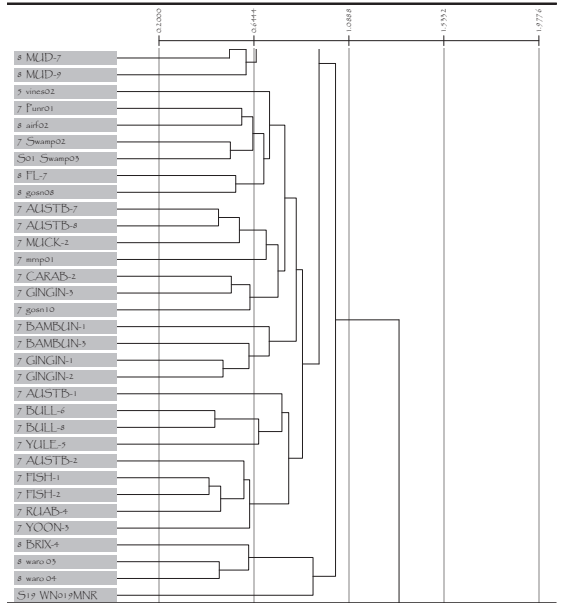
Column Fusion Dendrogram



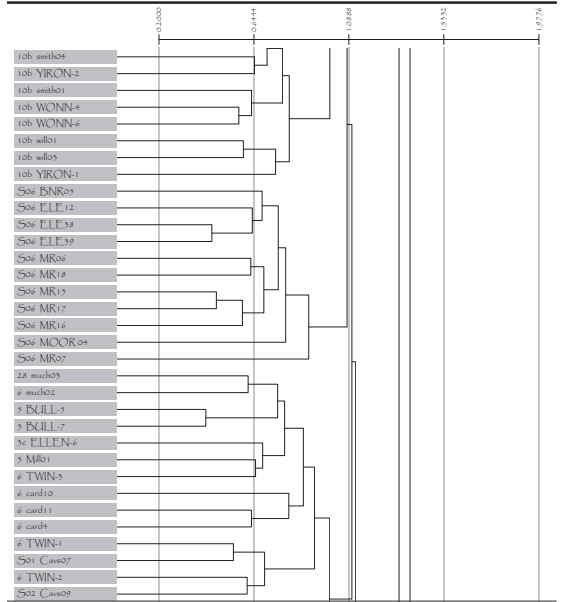
Column Fusion Dendrogram



Column Fusion Dendrogram

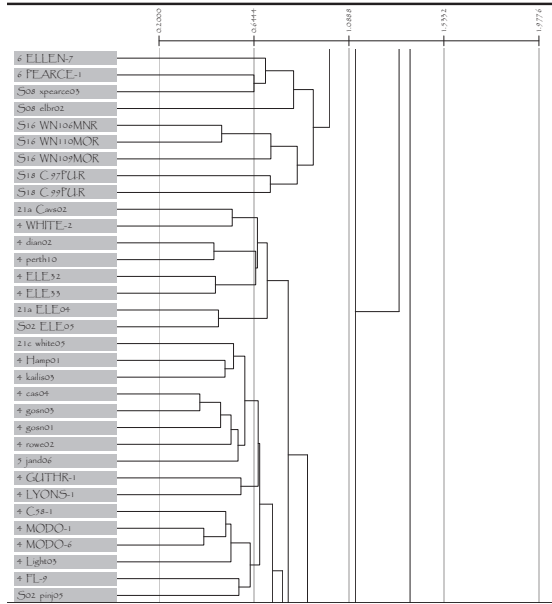


Column Fusion Dendrogram

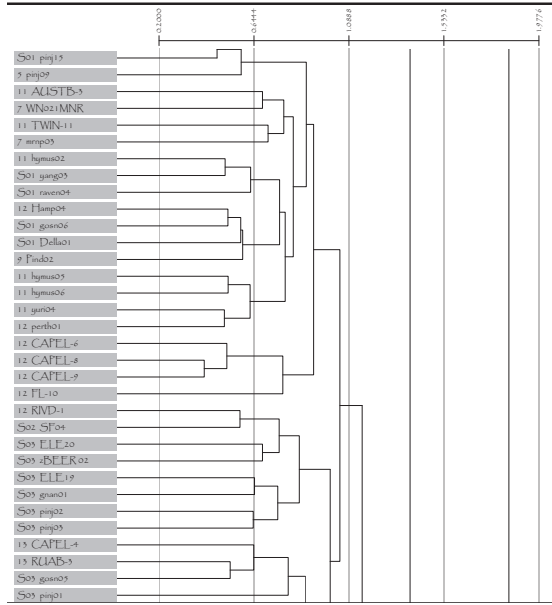




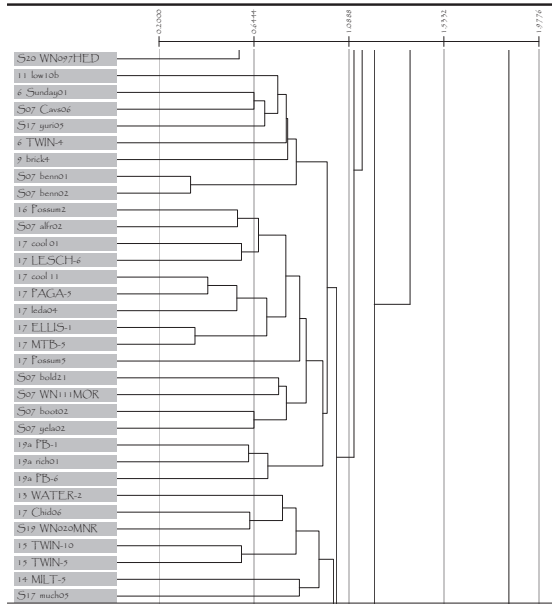
Column Fusion Dendrogram



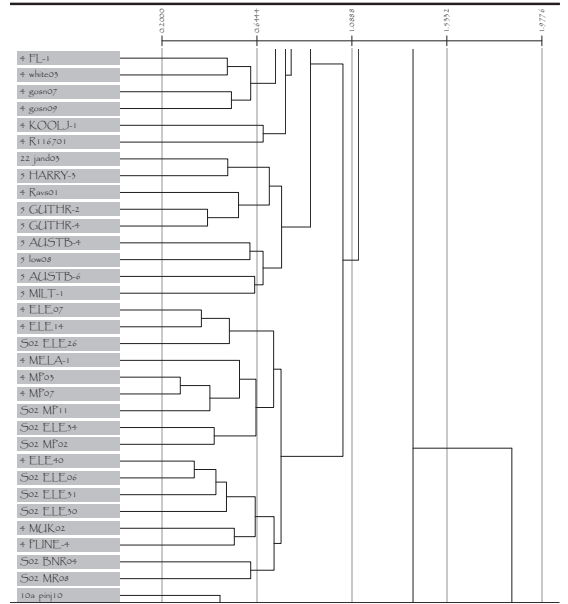
Column Fusion Dendrogram



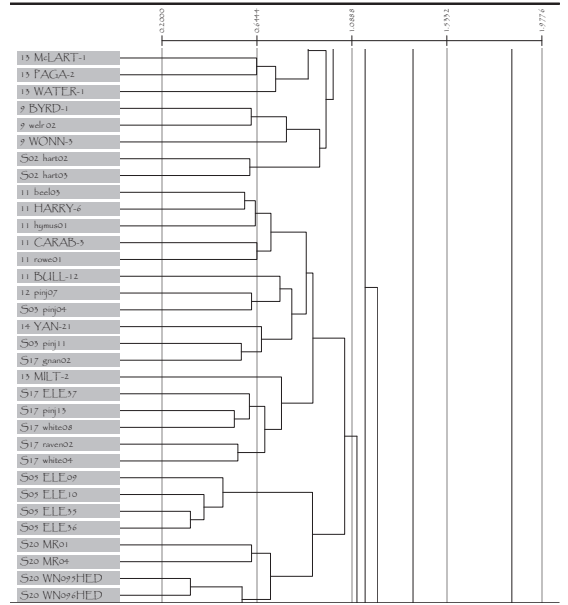
Column Fusion Dendrogram



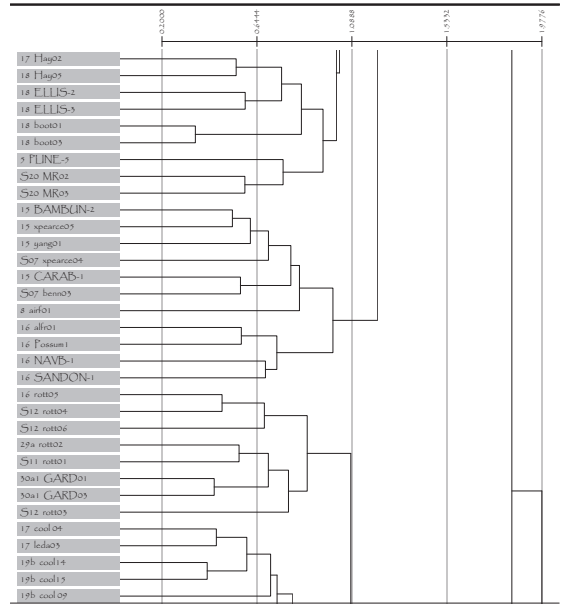
Column Fusion Dendrogram



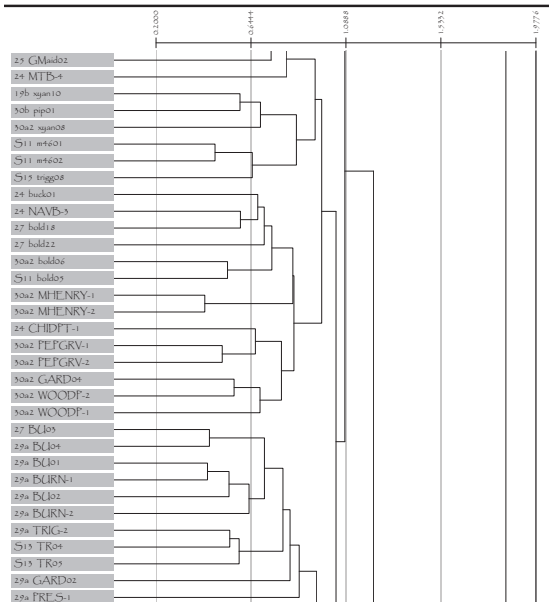
Column Fusion Dendrogram



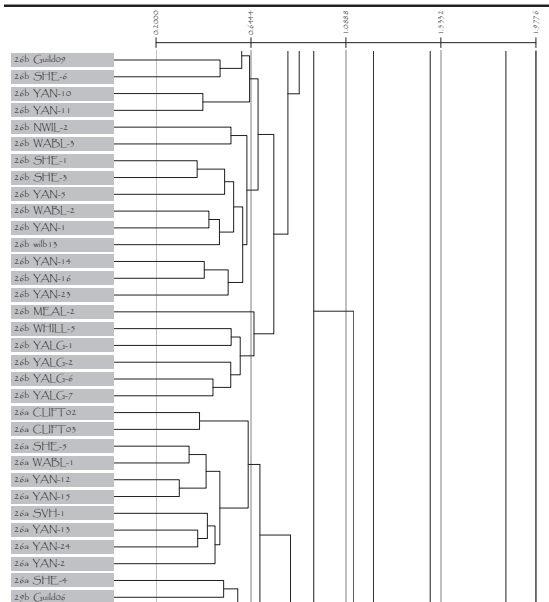
Column Fusion Dendrogram



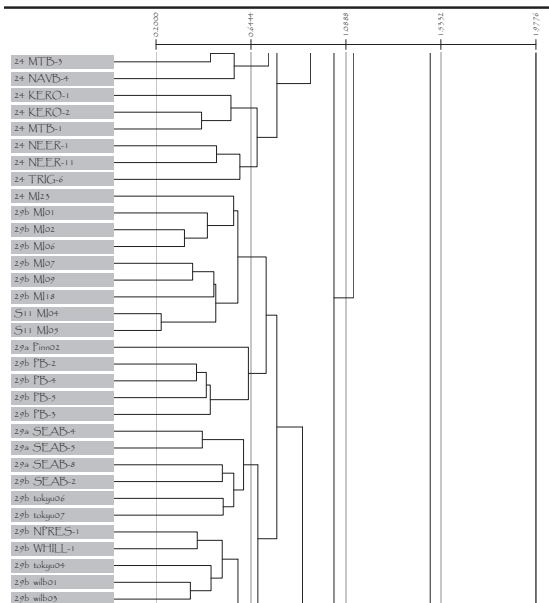
Column Fusion Dendrogram



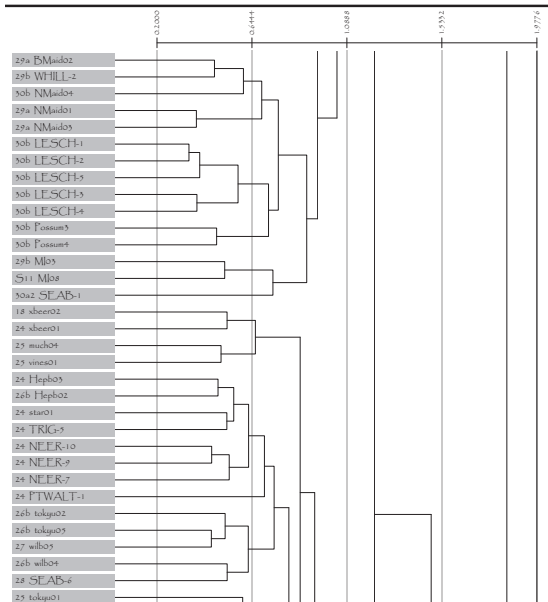
Column Fusion Dendrogram



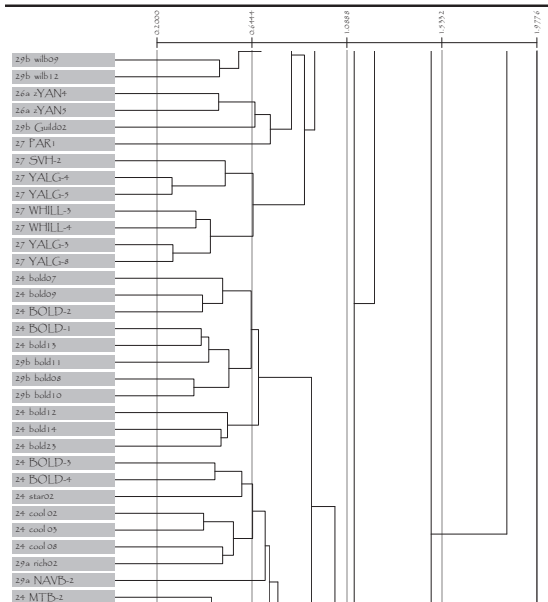
Column Fusion Dendrogram



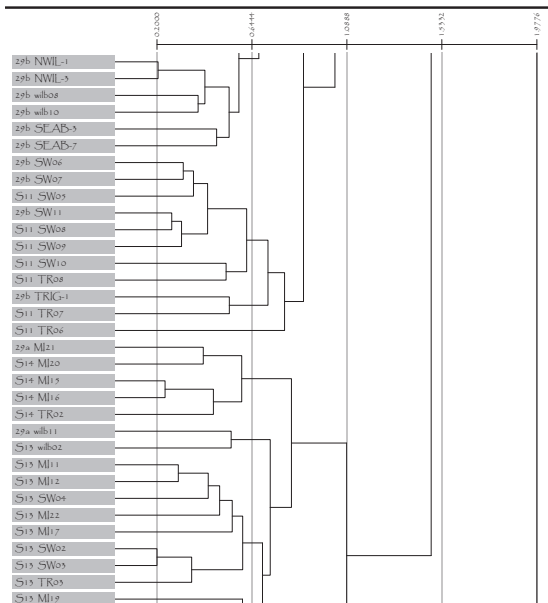
Column Fusion Dendrogram

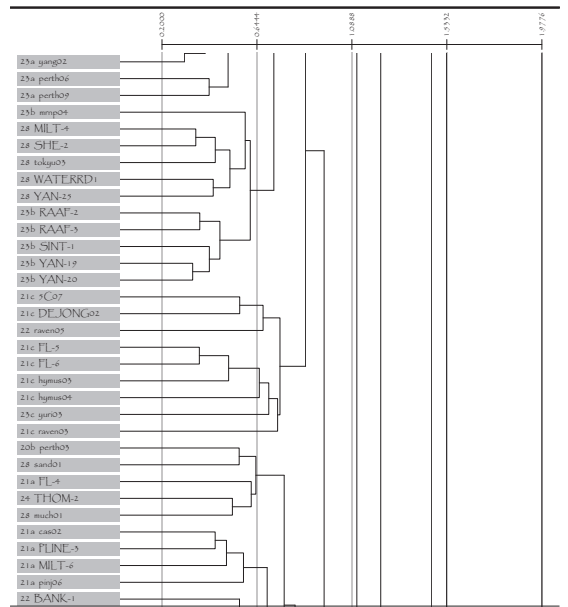
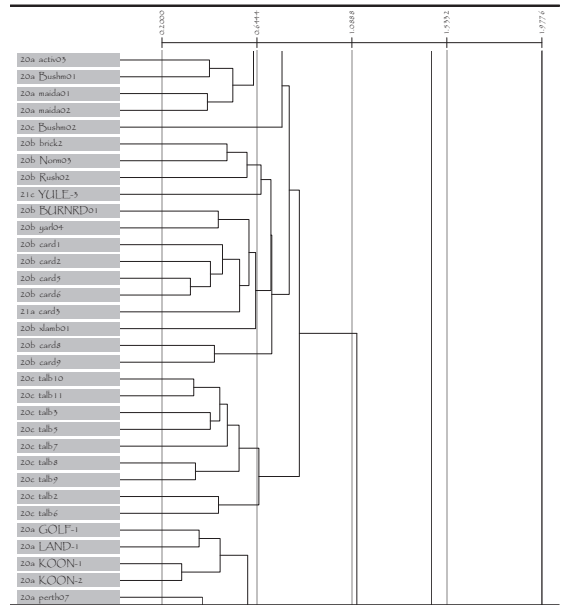
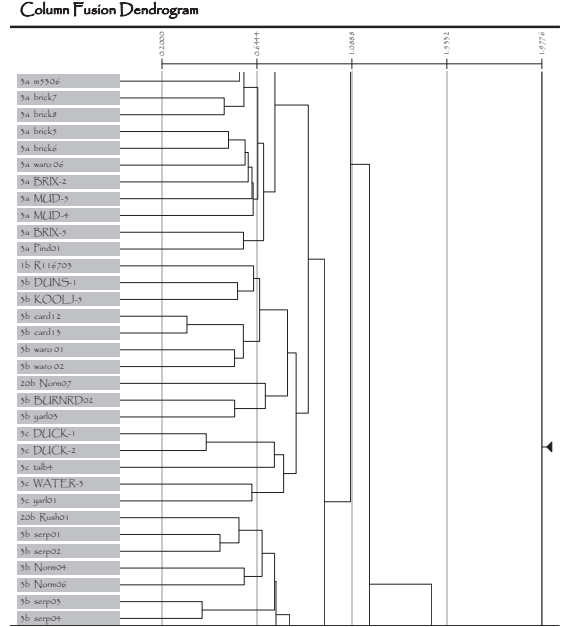
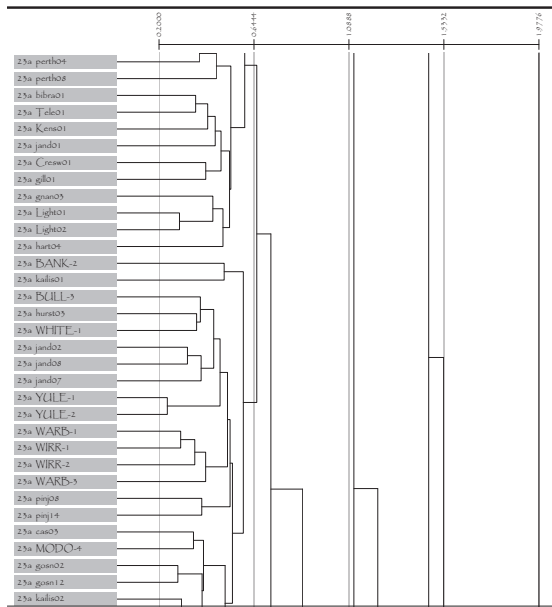
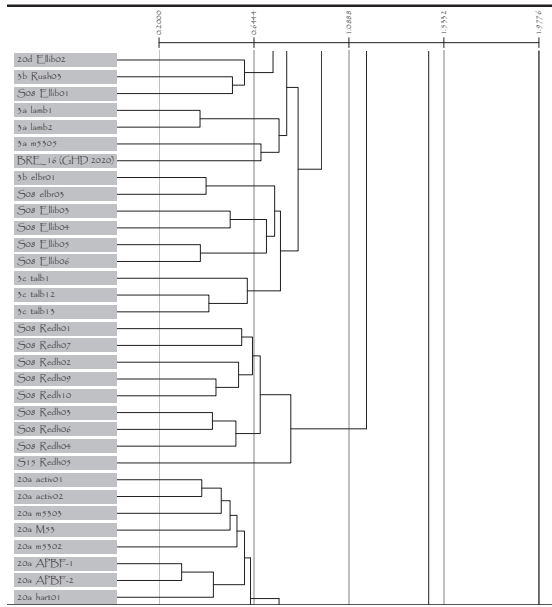
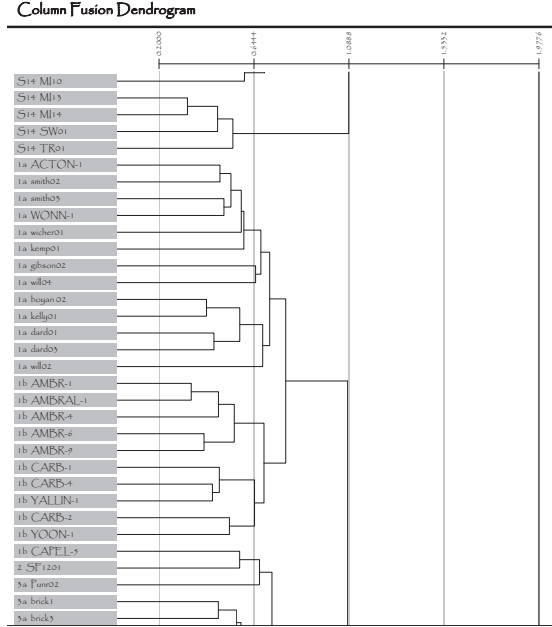


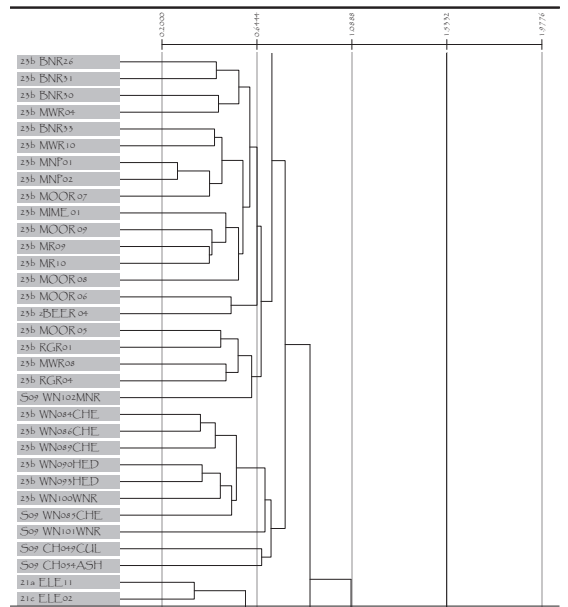
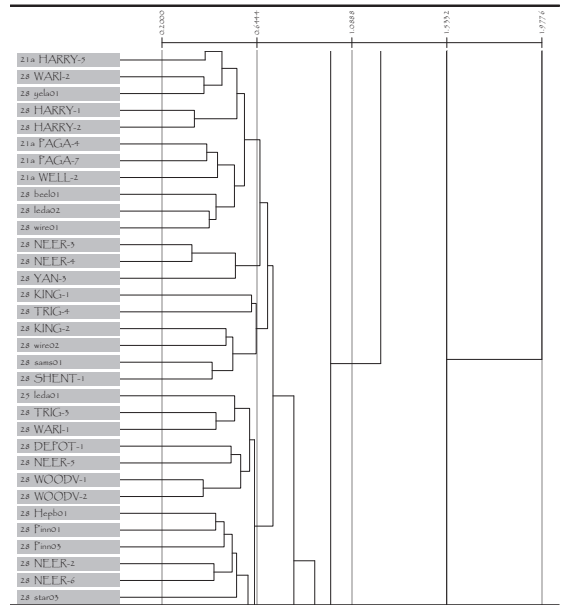
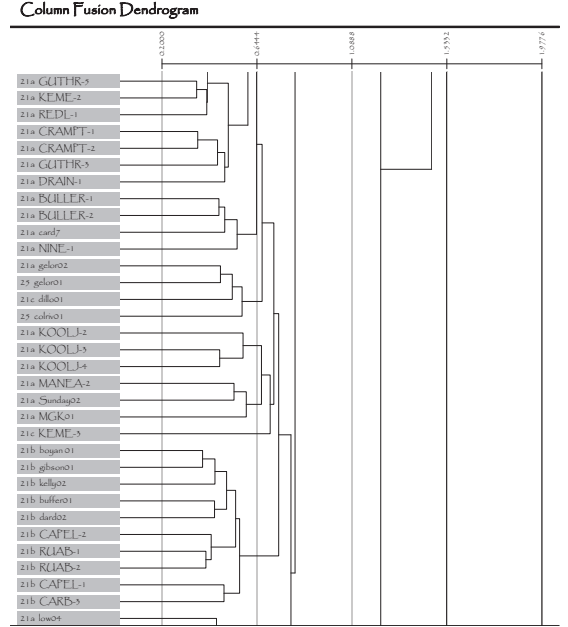
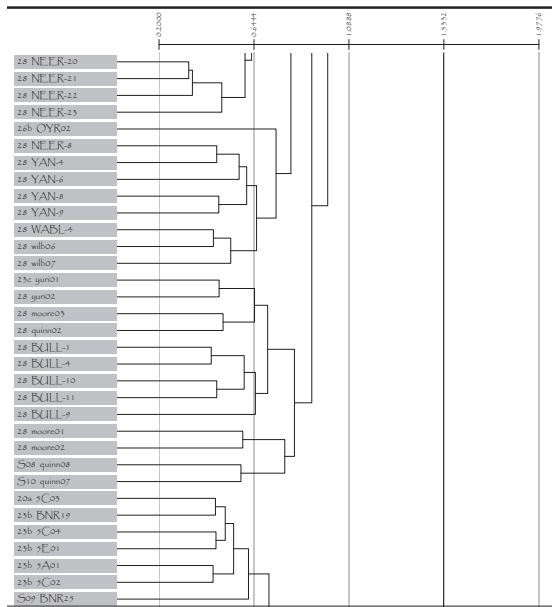
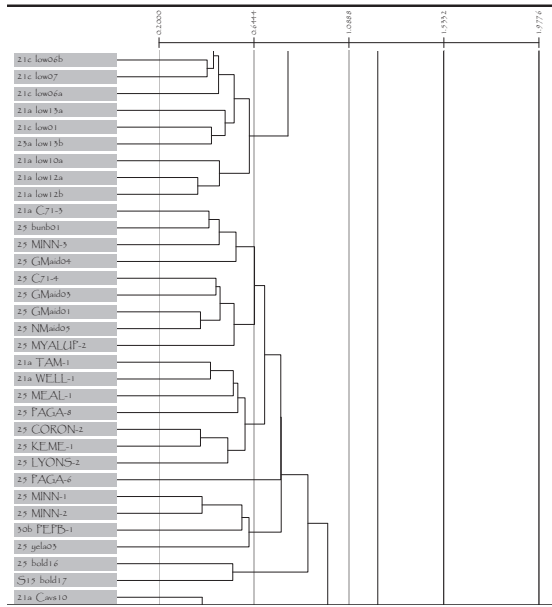
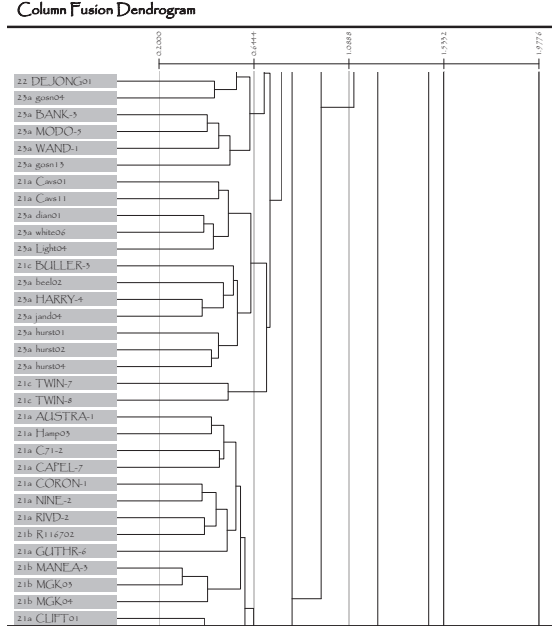
Column Fusion Dendrogram



Column Fusion Dendrogram

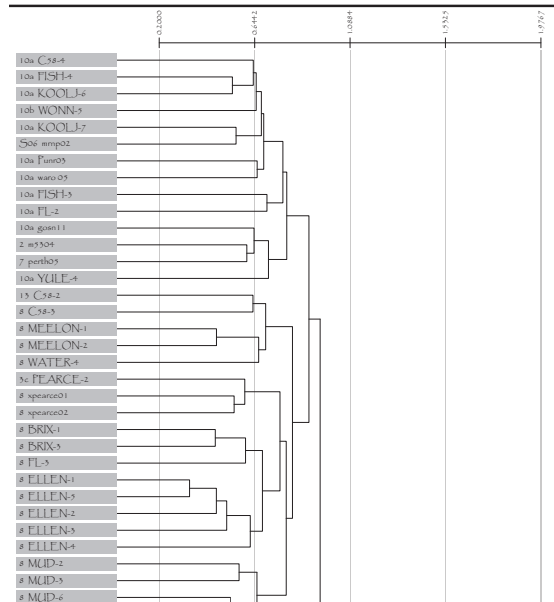




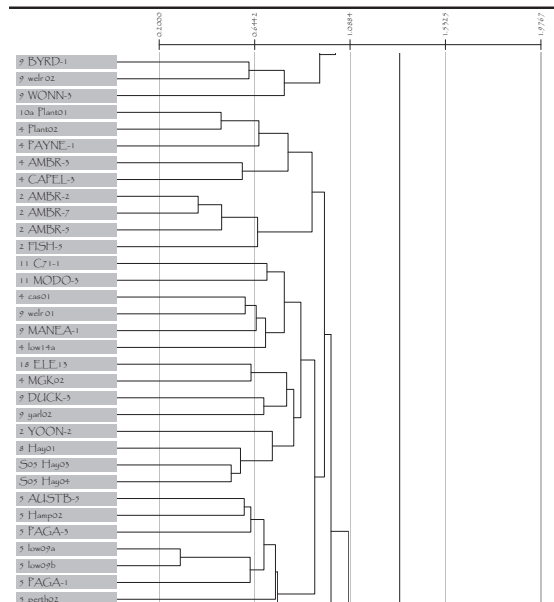




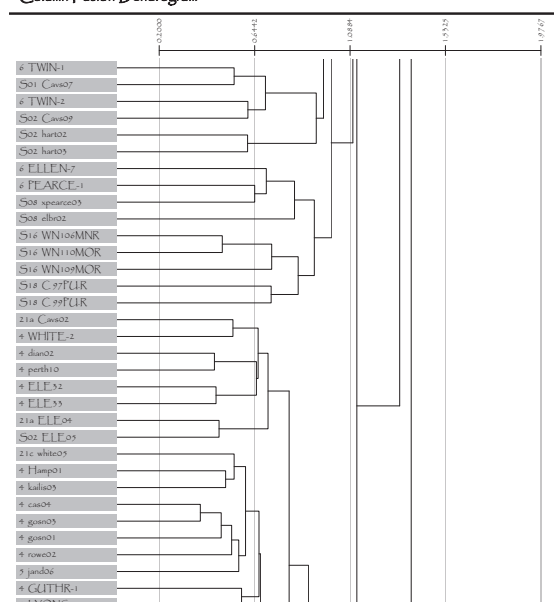
Column Fusion Dendrogram



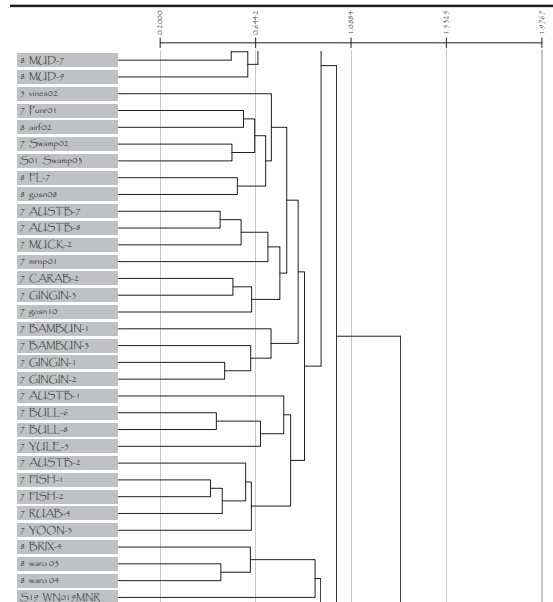
Column Fusion Dendrogram



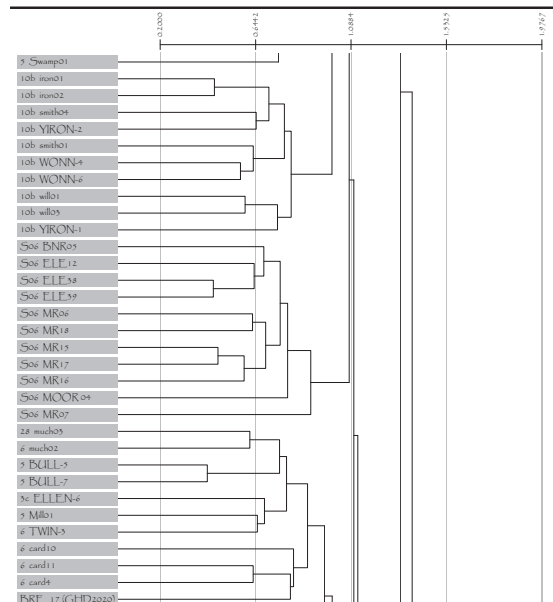
Column Fusion Dendrogram



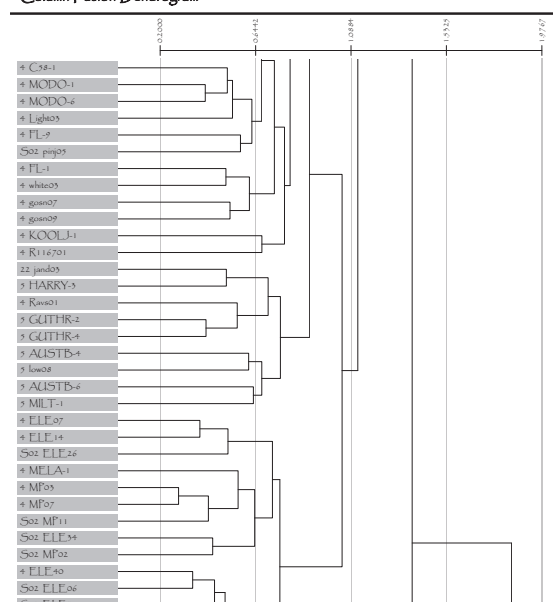
Column Fusion Dendrogram



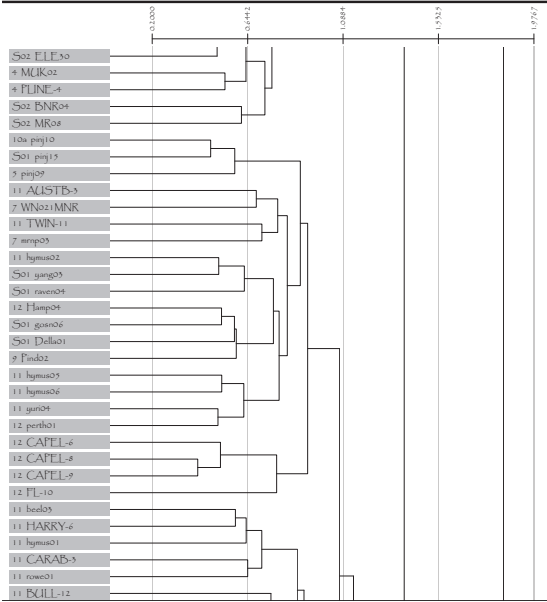
Column Fusion Dendrogram



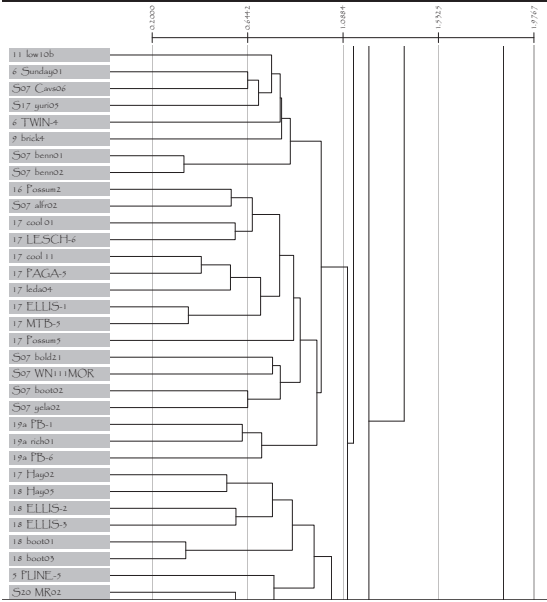
Column Fusion Dendrogram



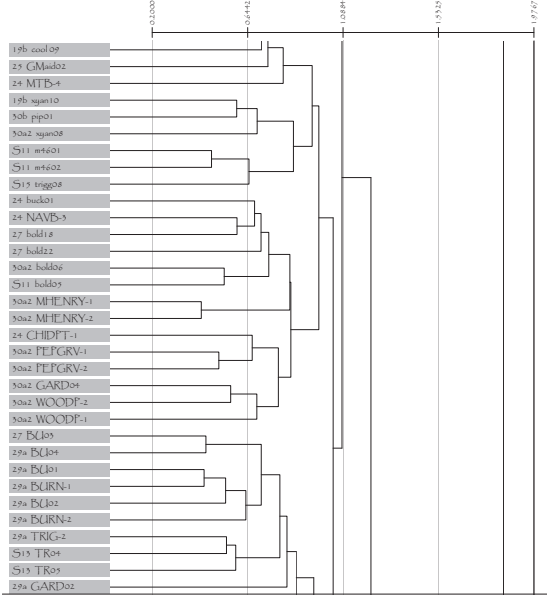
Column Fusion Dendrogram



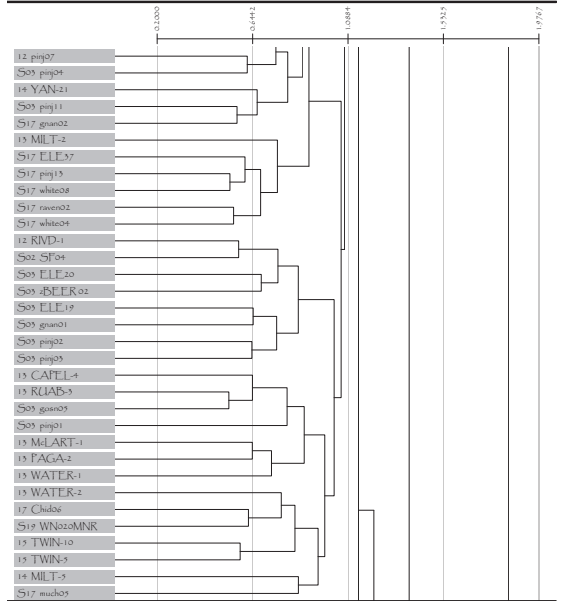
Column Fusion Dendrogram



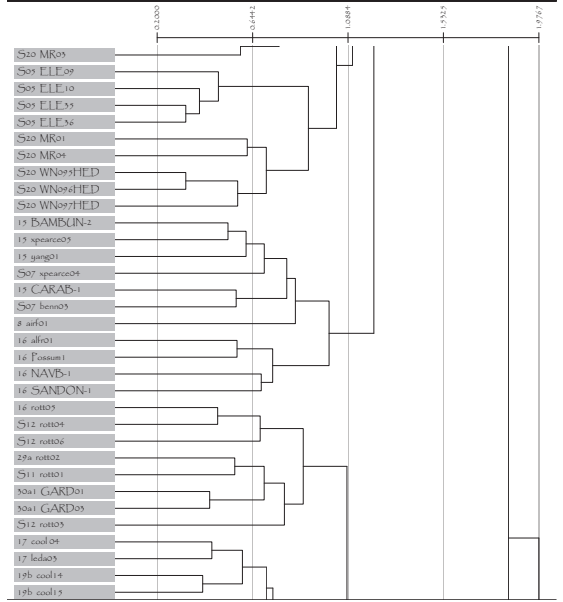
Column Fusion Dendrogram



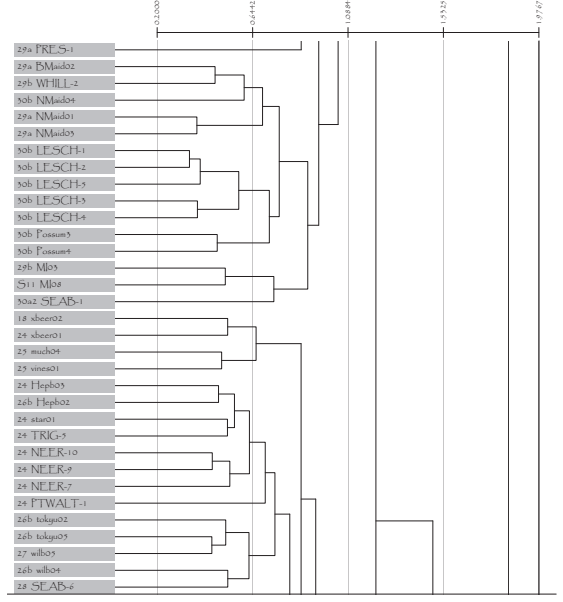
Column Fusion Dendrogram



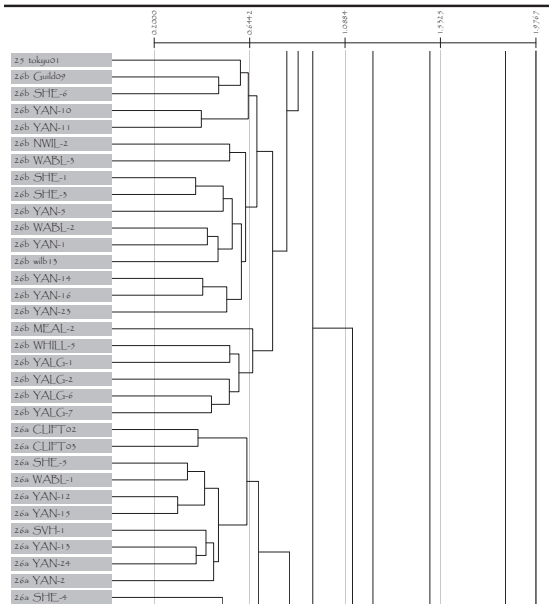
Column Fusion Dendrogram



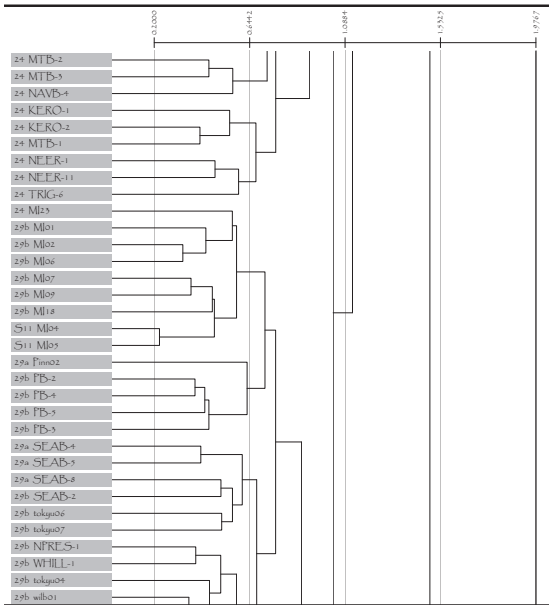
Column Fusion Dendrogram



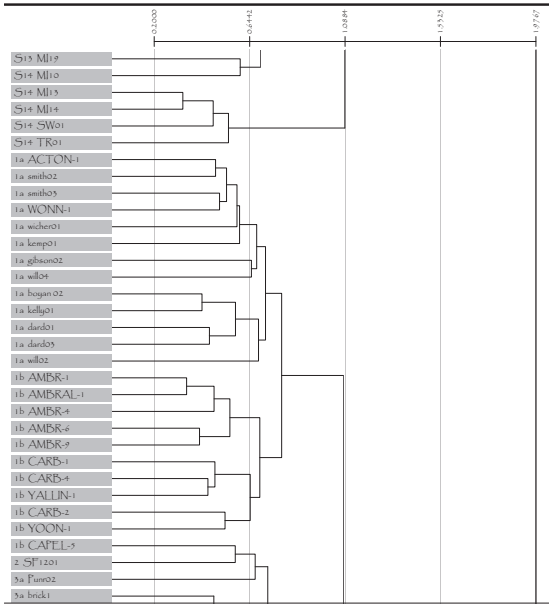
Column Fusion Dendrogram



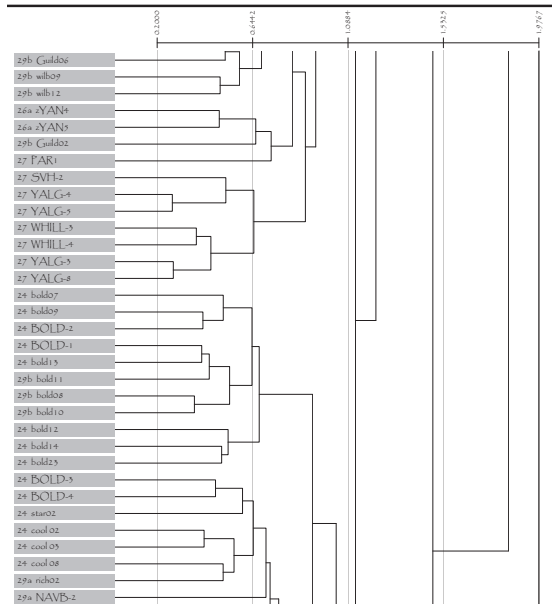
Column Fusion Dendrogram



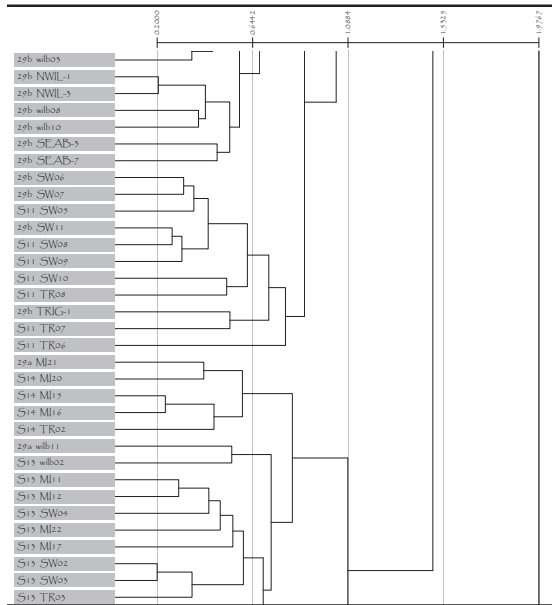
Column Fusion Dendrogram



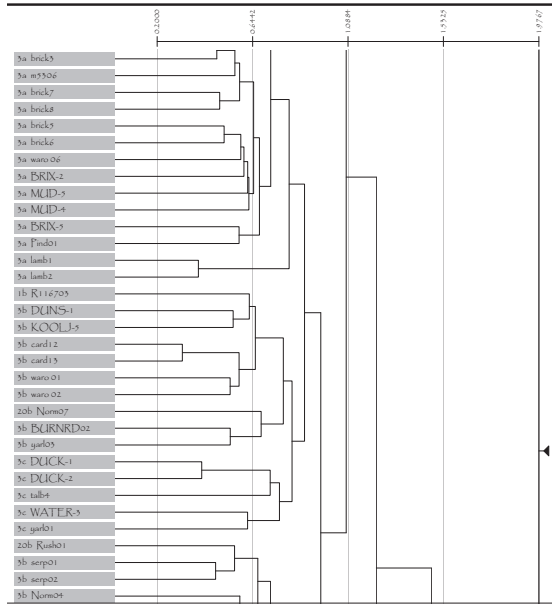
Column Fusion Dendrogram



Column Fusion Dendrogram

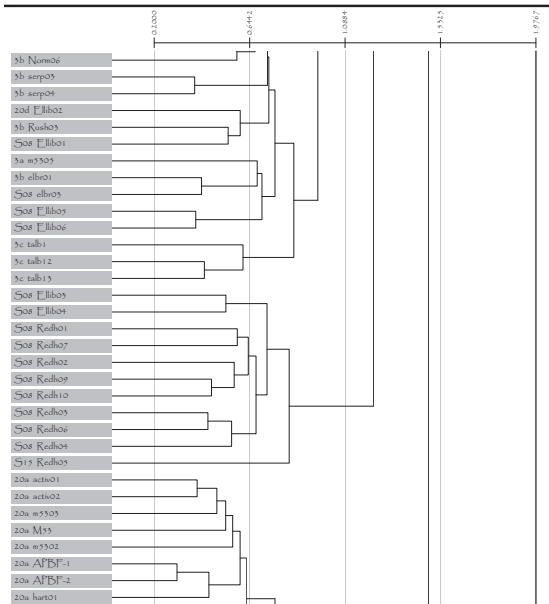


Column Fusion Dendrogram

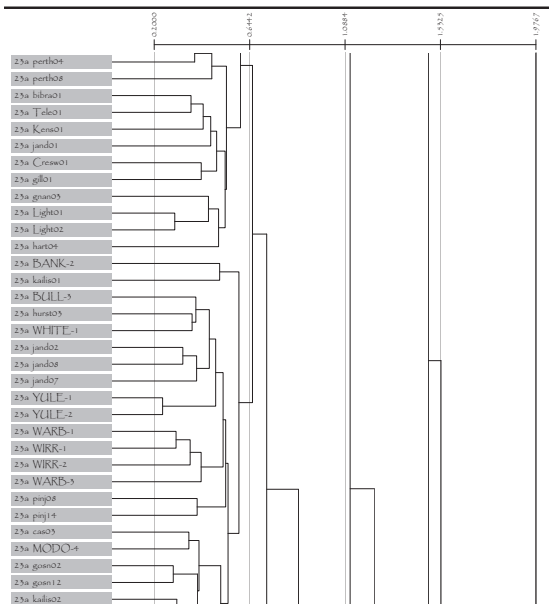




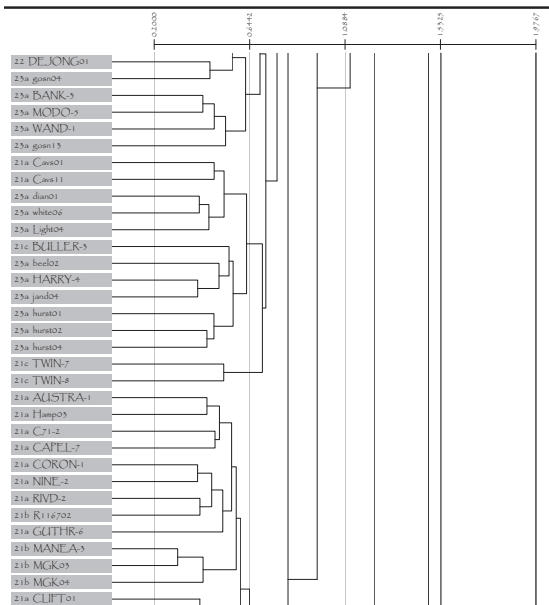
Column Fusion Dendrogram



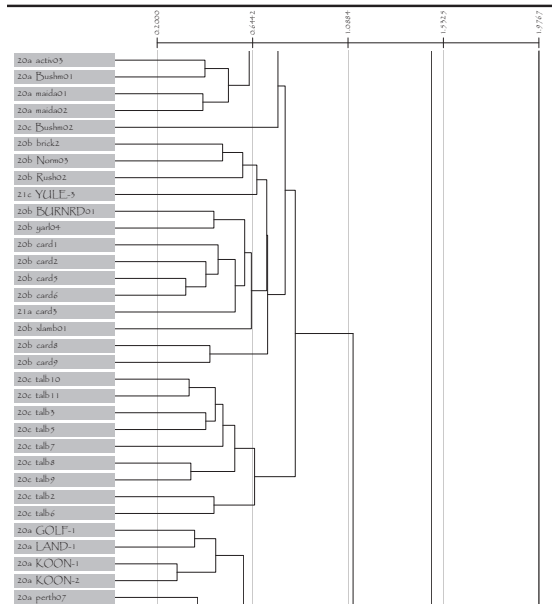
Column Fusion Dendrogram



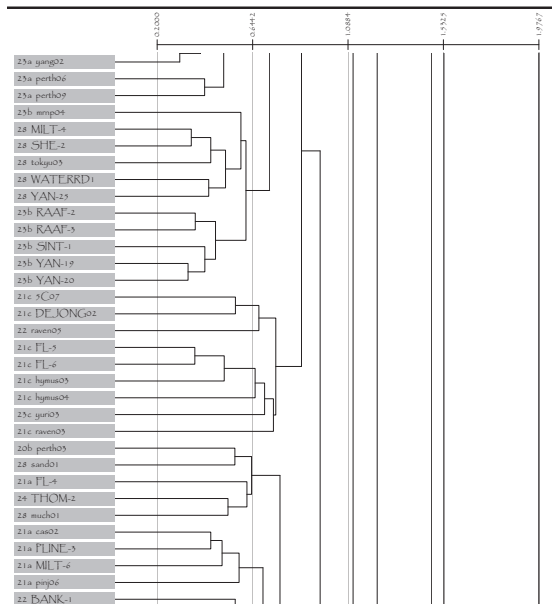
Column Fusion Dendrogram



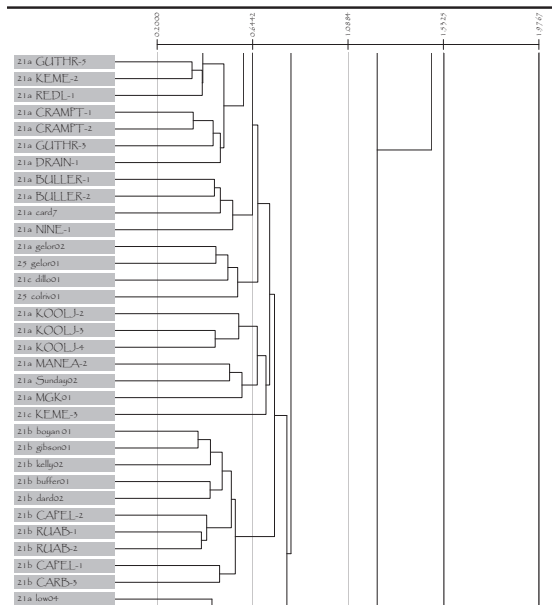
Column Fusion Dendrogram



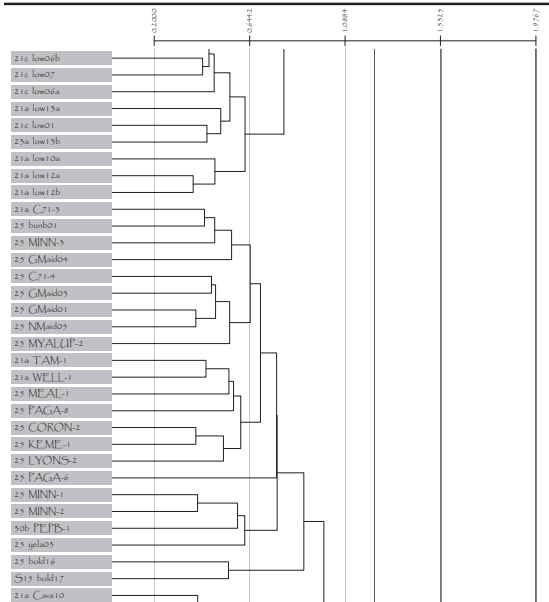
Column Fusion Dendrogram



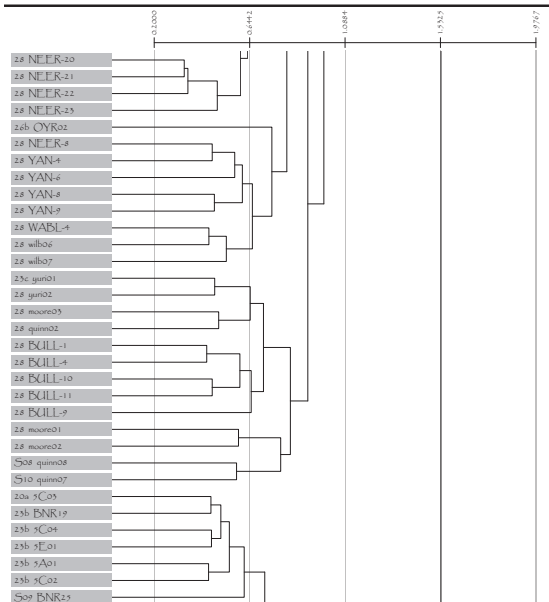
Column Fusion Dendrogram



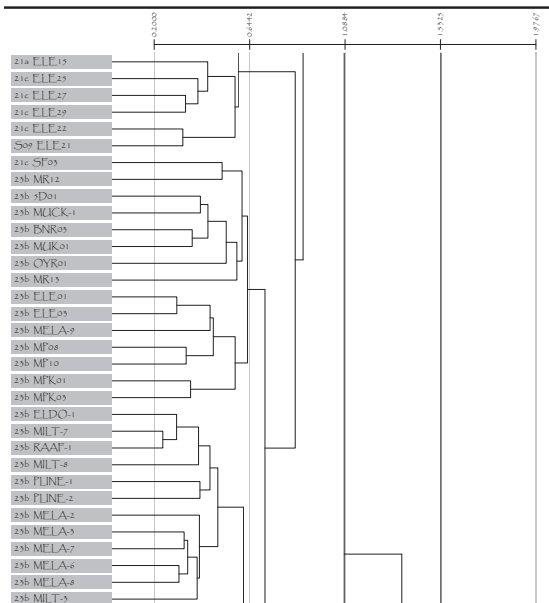
Column Fusion Dendrogram



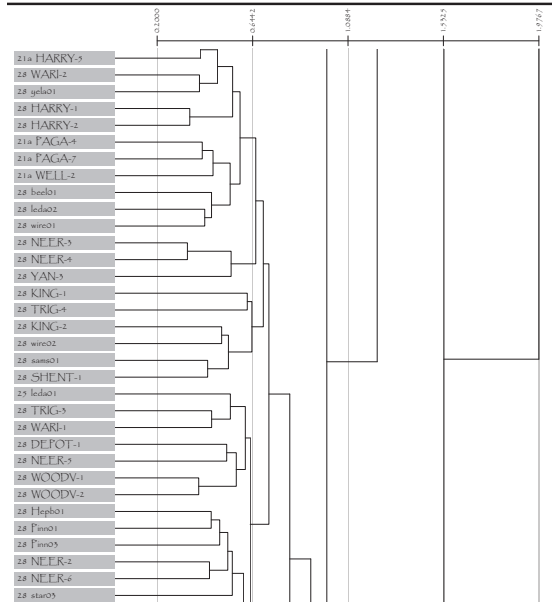
Column Fusion Dendrogram



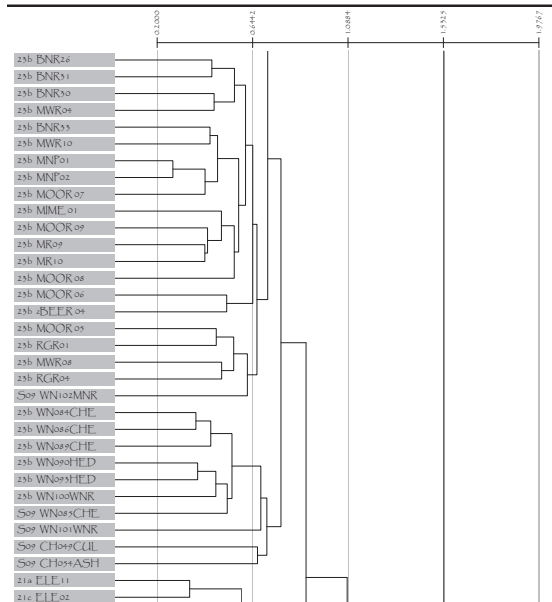
Column Fusion Dendrogram



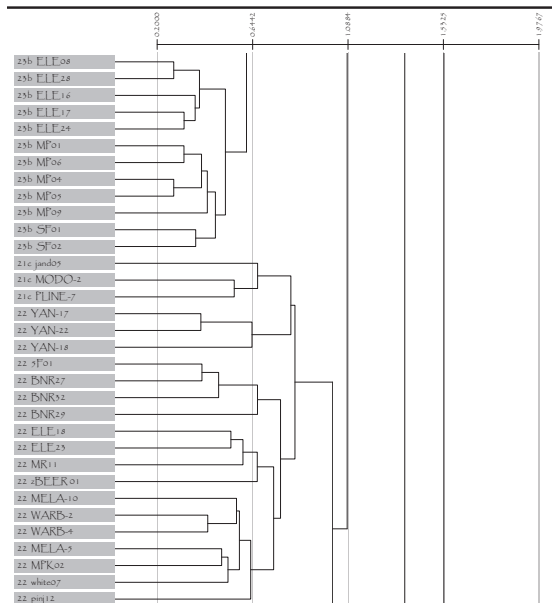
Column Fusion Dendrogram

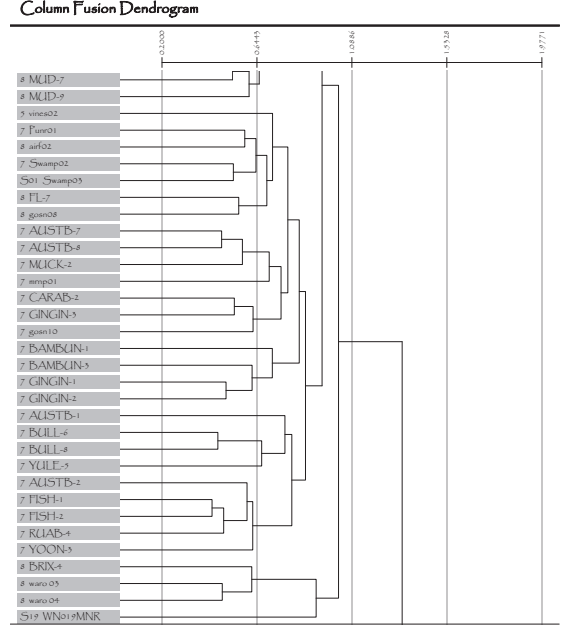
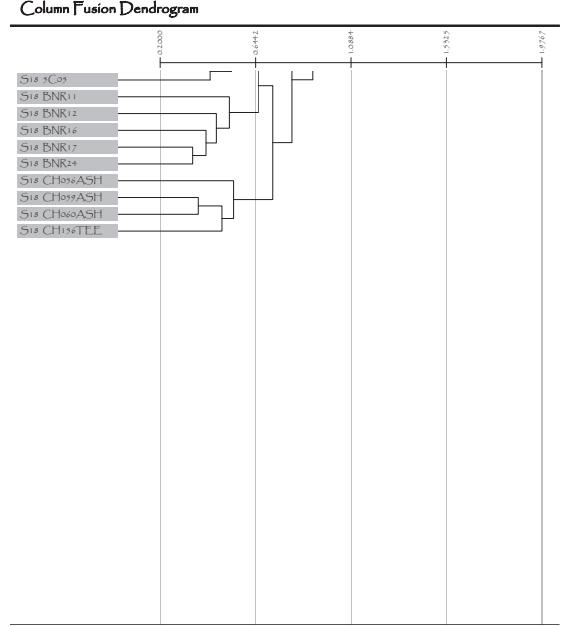
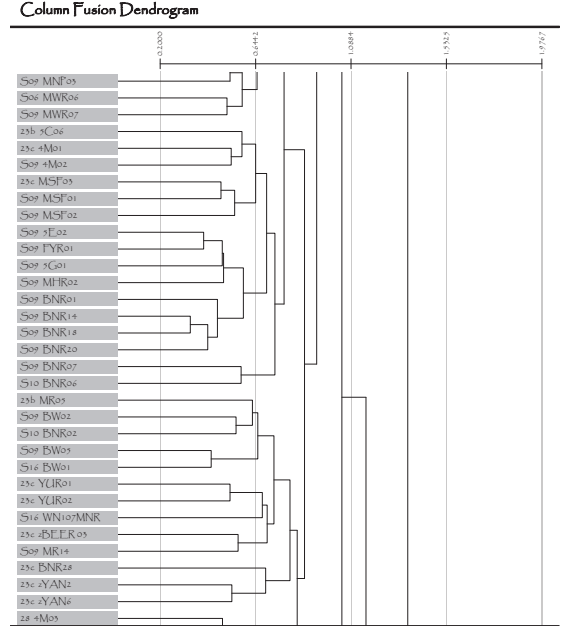
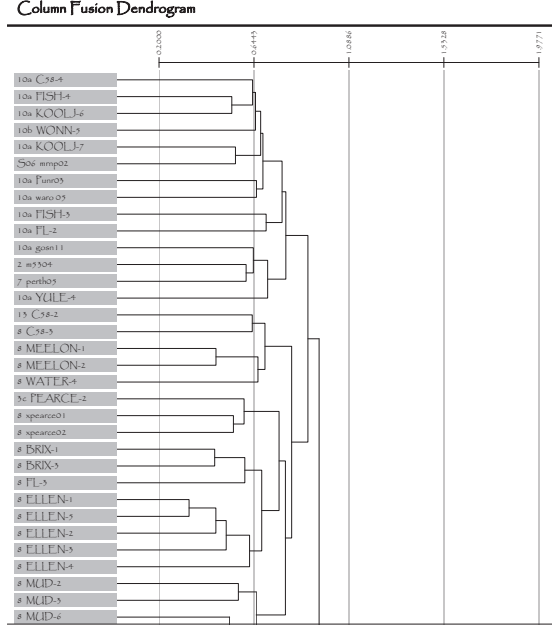
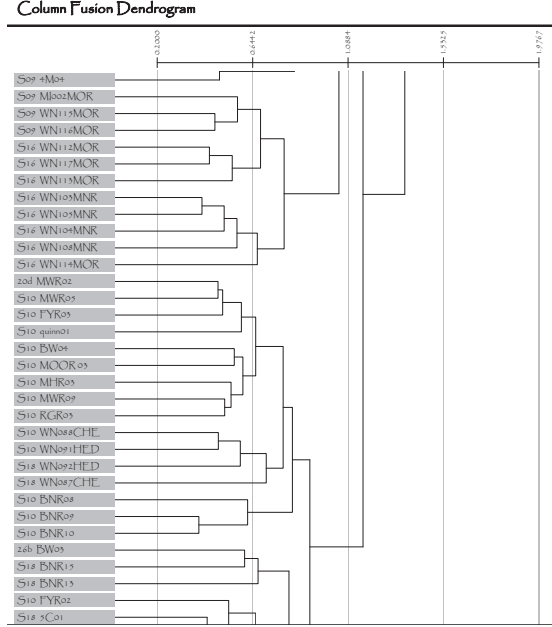
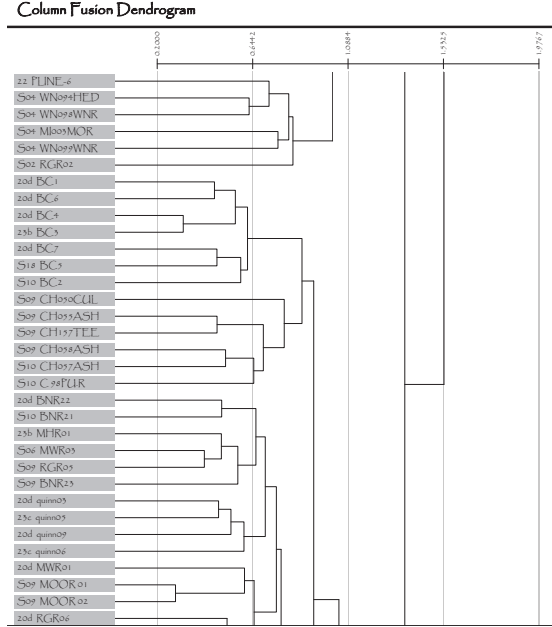


Column Fusion Dendrogram

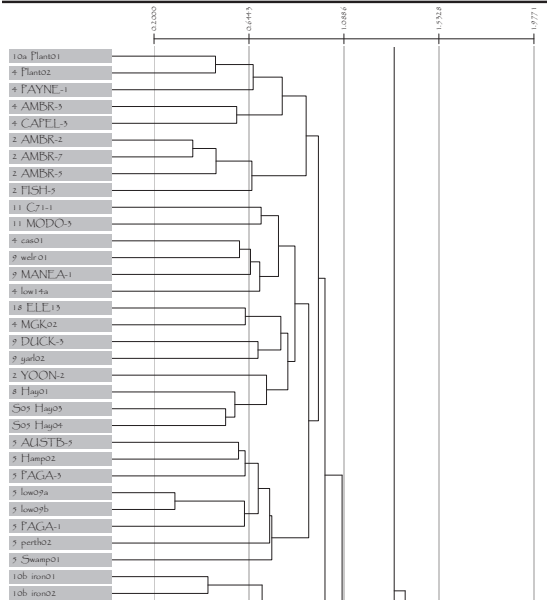


Column Fusion Dendrogram

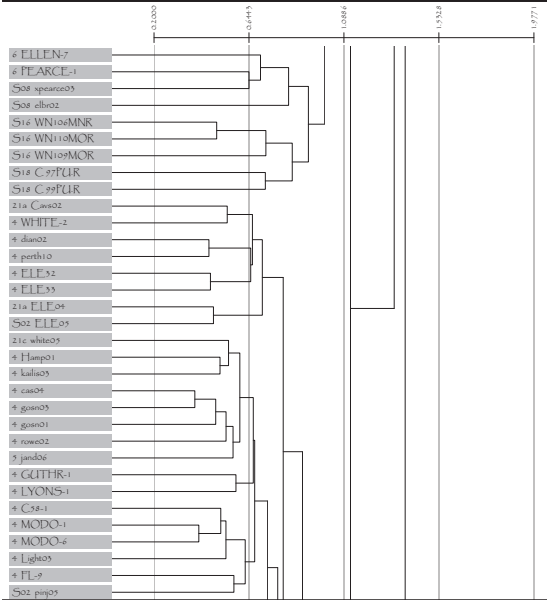




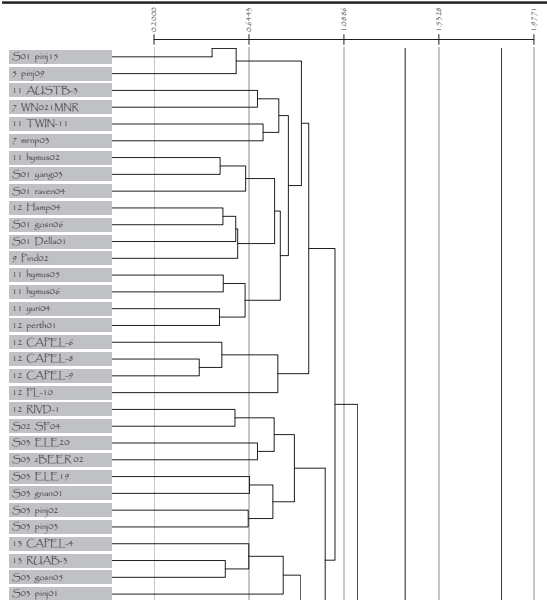
Column Fusion Dendrogram



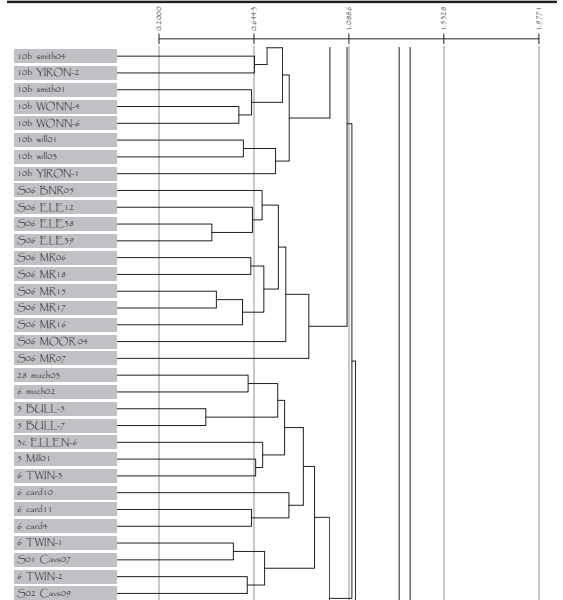
Column Fusion Dendrogram



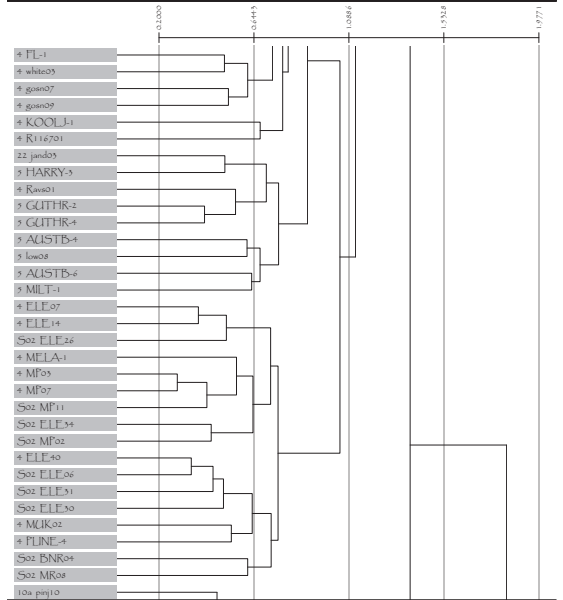
Column Fusion Dendrogram



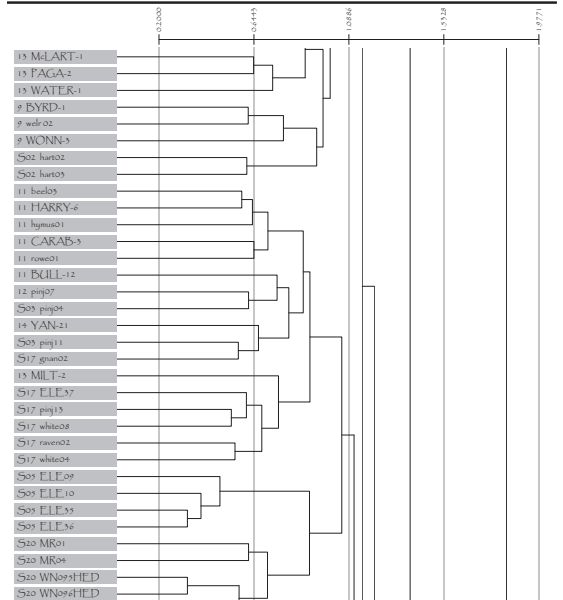
Column Fusion Dendrogram



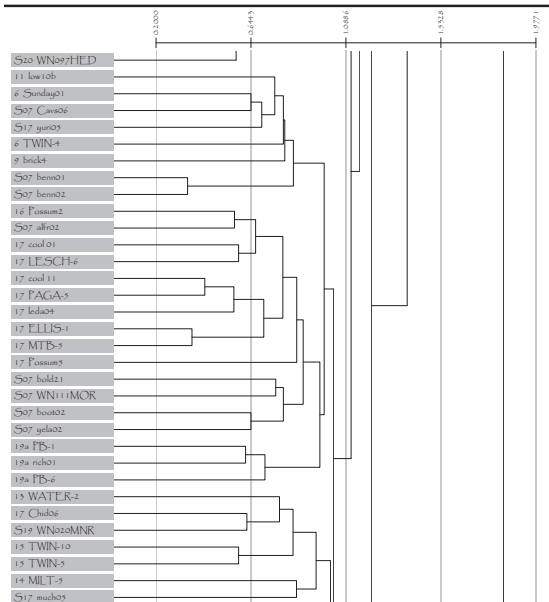
Column Fusion Dendrogram



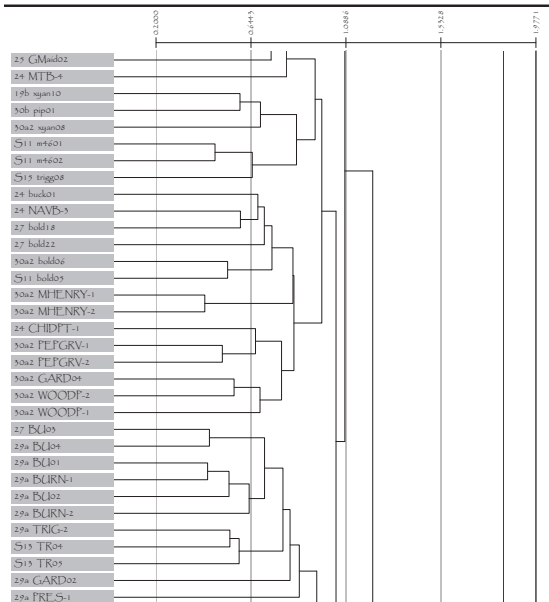
Column Fusion Dendrogram



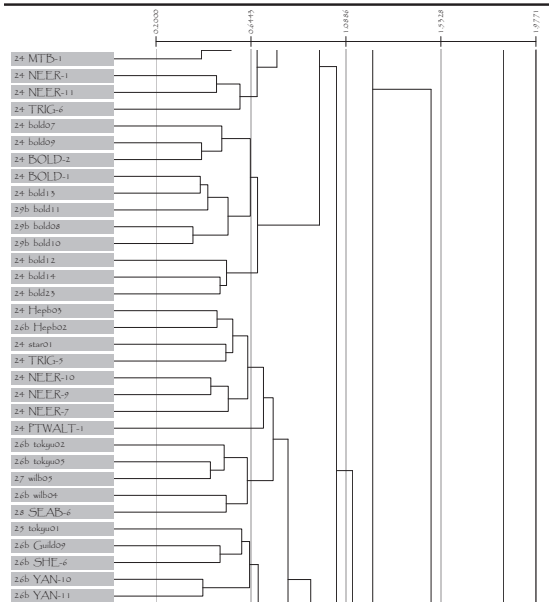
Column Fusion Dendrogram



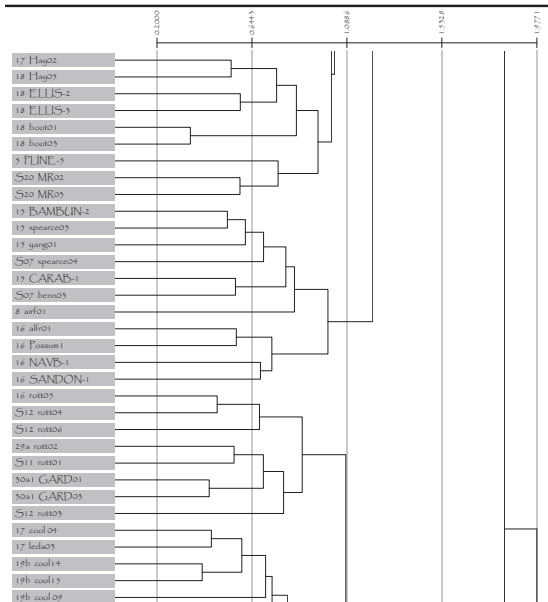
Column Fusion Dendrogram



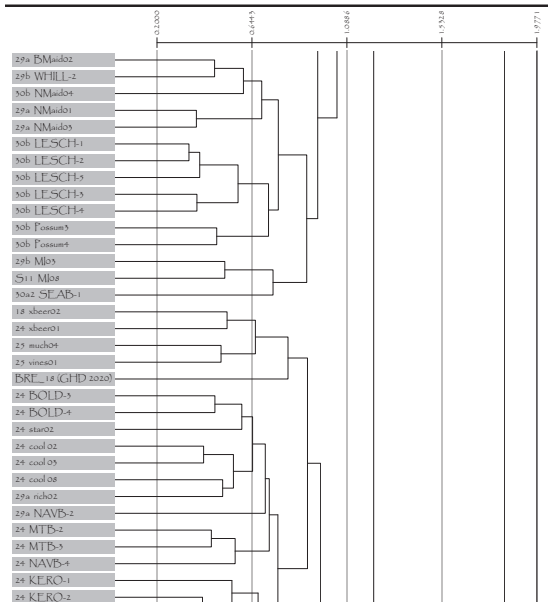
Column Fusion Dendrogram



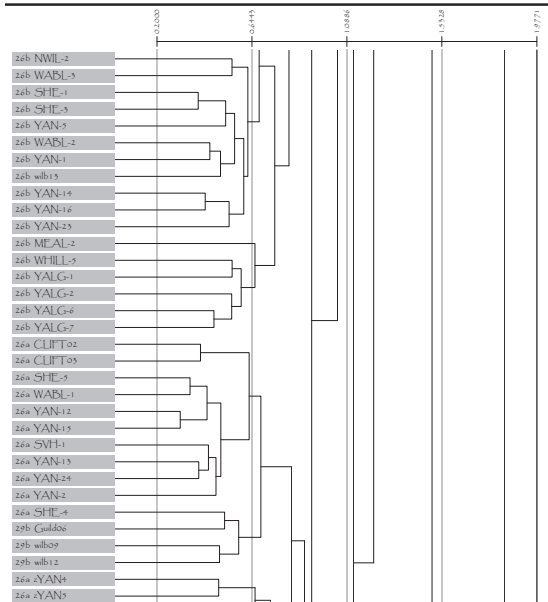
Column Fusion Dendrogram



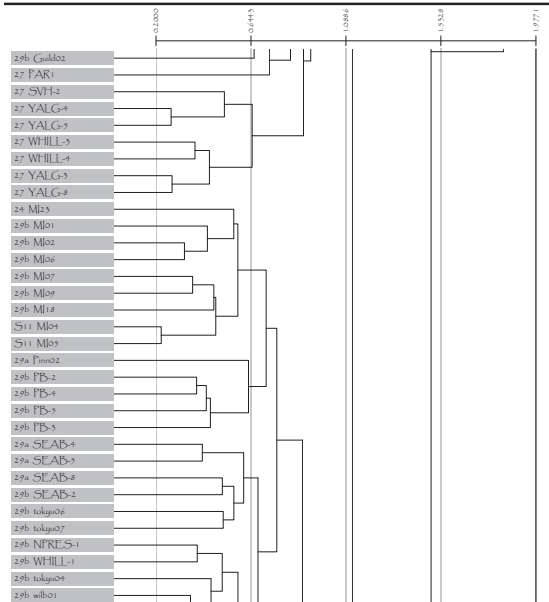
Column Fusion Dendrogram



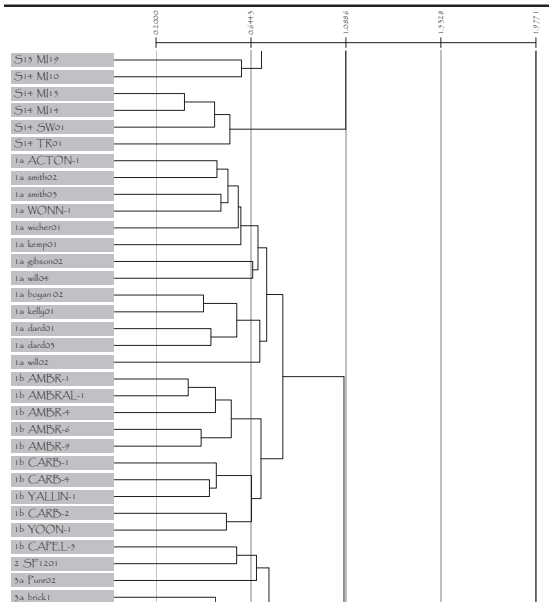
Column Fusion Dendrogram



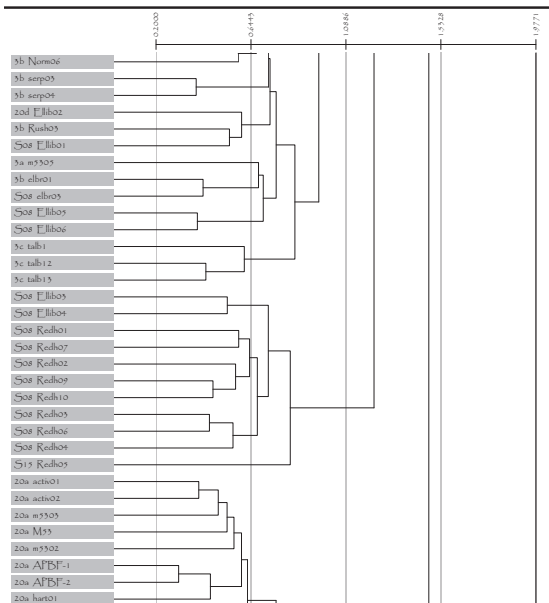
### Column Fusion Dendrogram



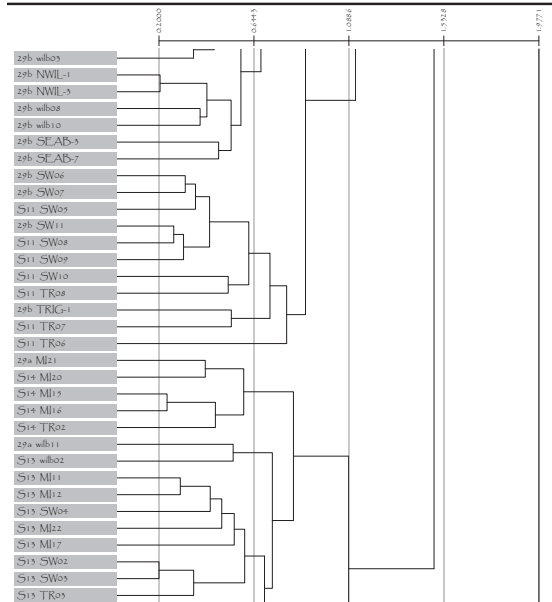
### Column Fusion Dendrogram



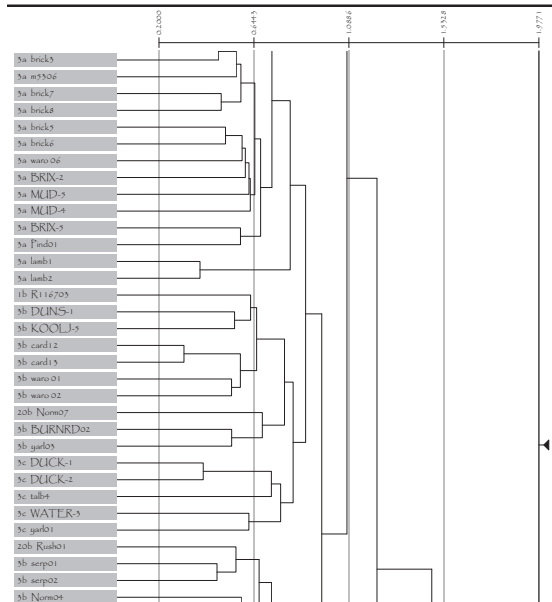
### Column Fusion Dendrogram



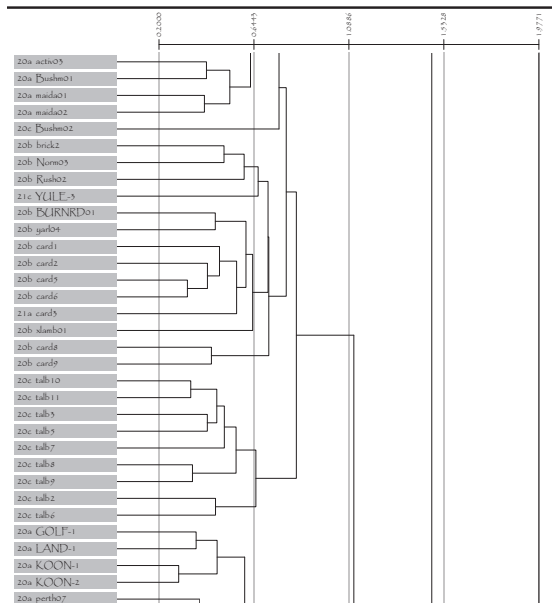
### Column Fusion Dendrogram



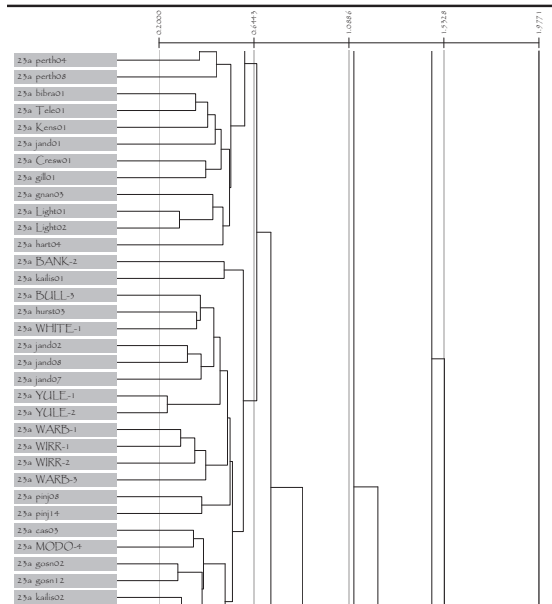
### Column Fusion Dendrogram



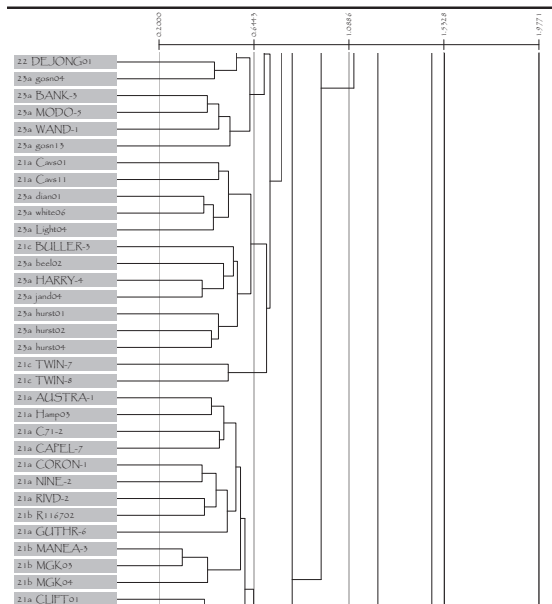
### Column Fusion Dendrogram



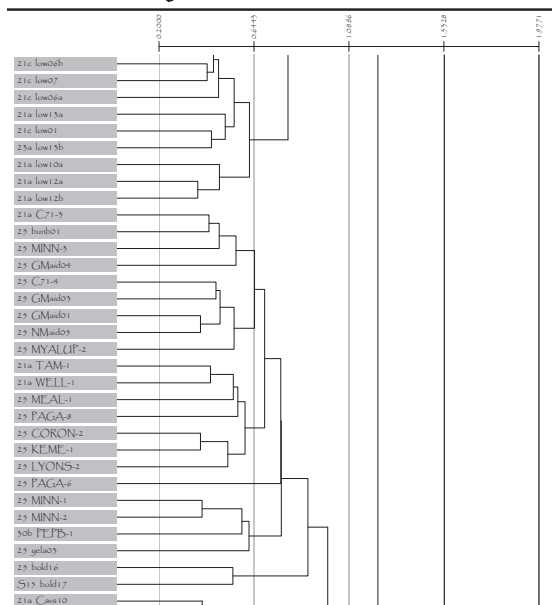
Column Fusion Dendrogram



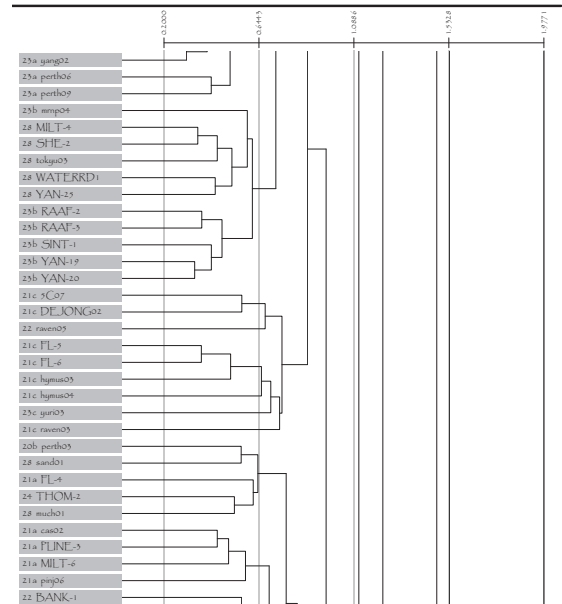
Column Fusion Dendrogram



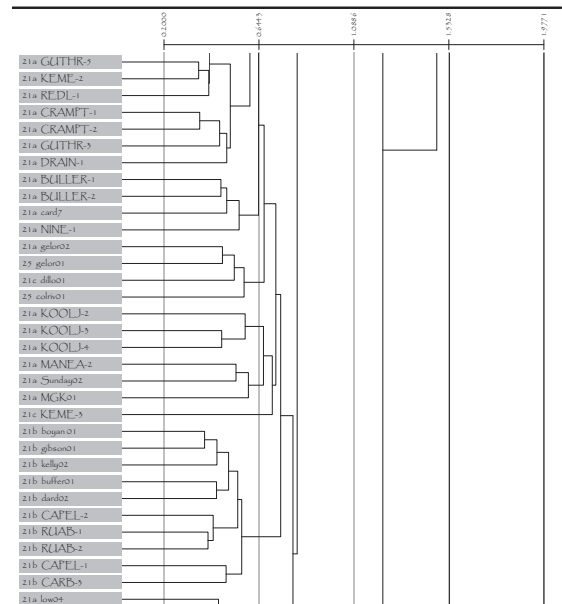
Column Fusion Dendrogram



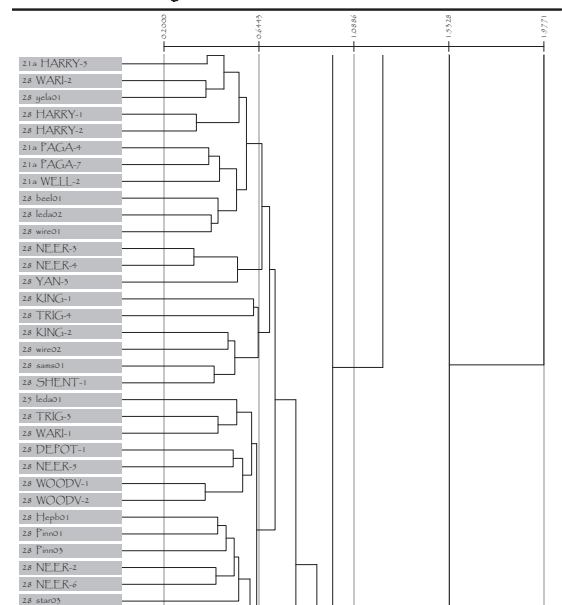
Column Fusion Dendrogram



Column Fusion Dendrogram



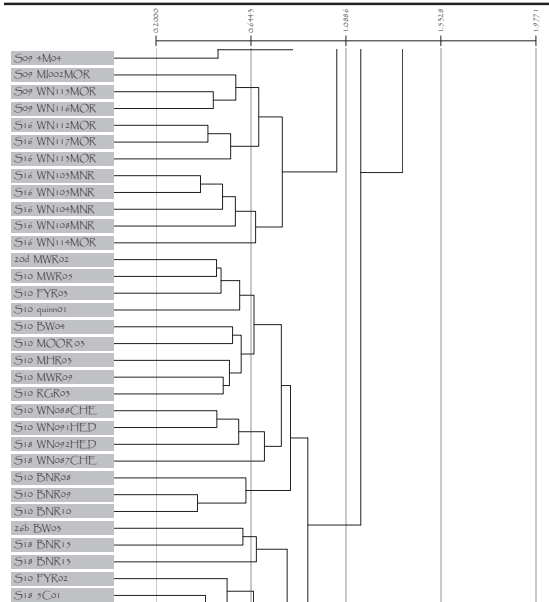
Column Fusion Dendrogram



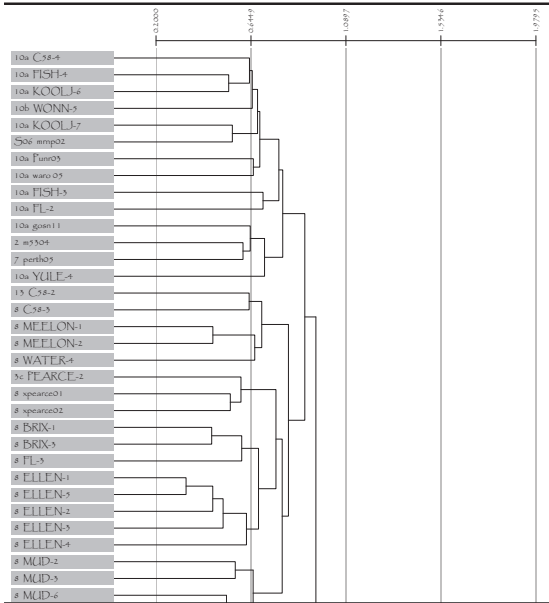




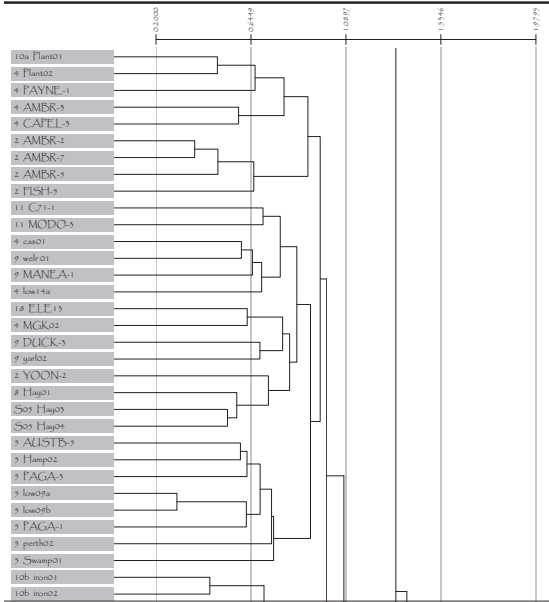
Column Fusion Dendrogram



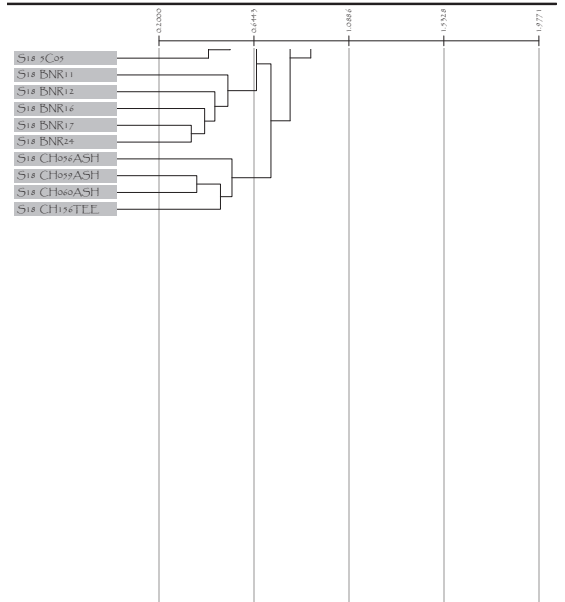
Column Fusion Dendrogram



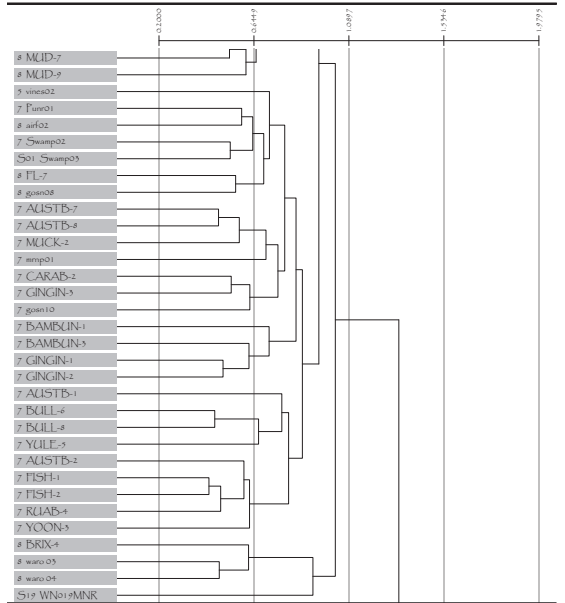
Column Fusion Dendrogram



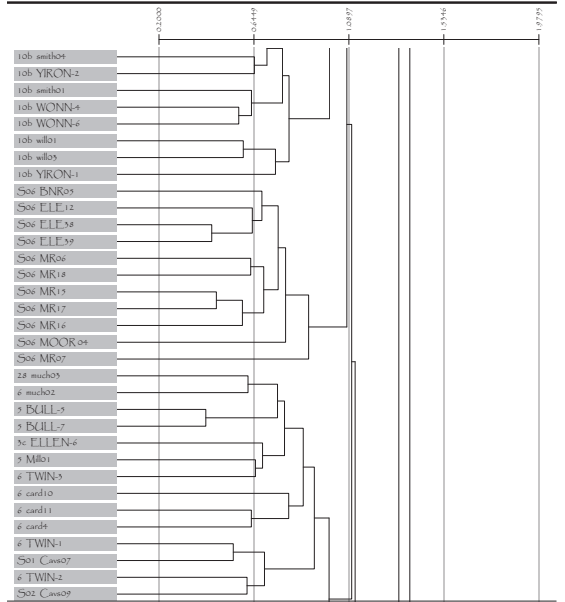
Column Fusion Dendrogram



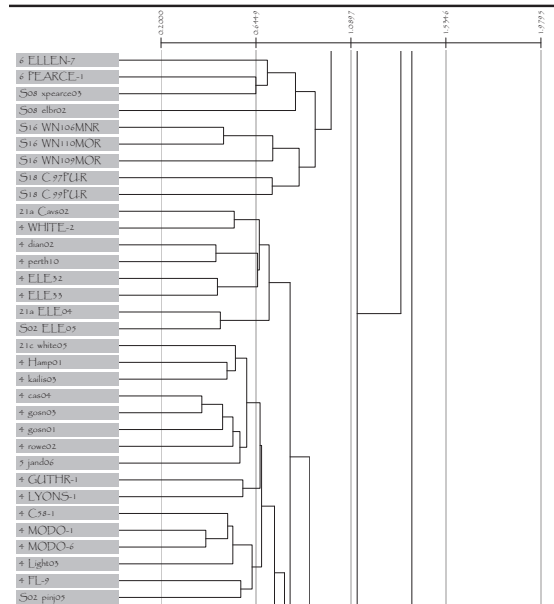
Column Fusion Dendrogram



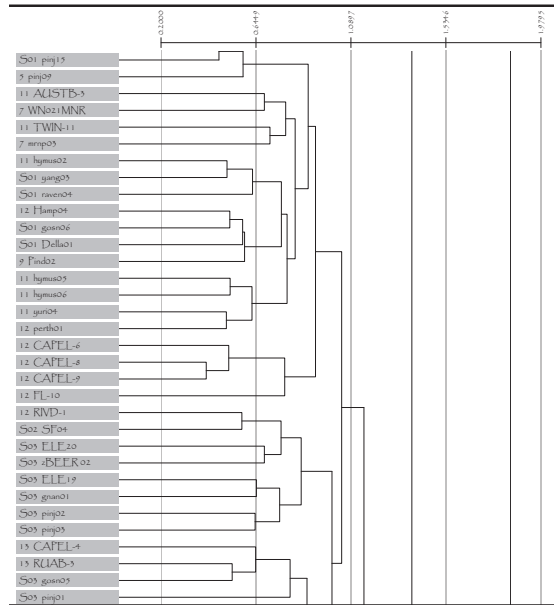
Column Fusion Dendrogram



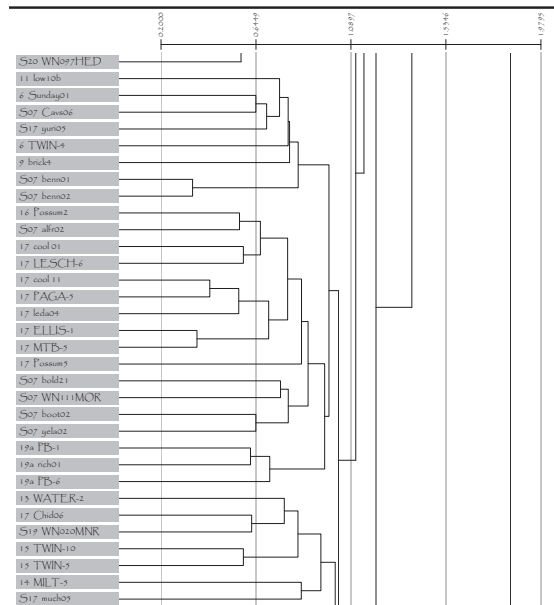
Column Fusion Dendrogram



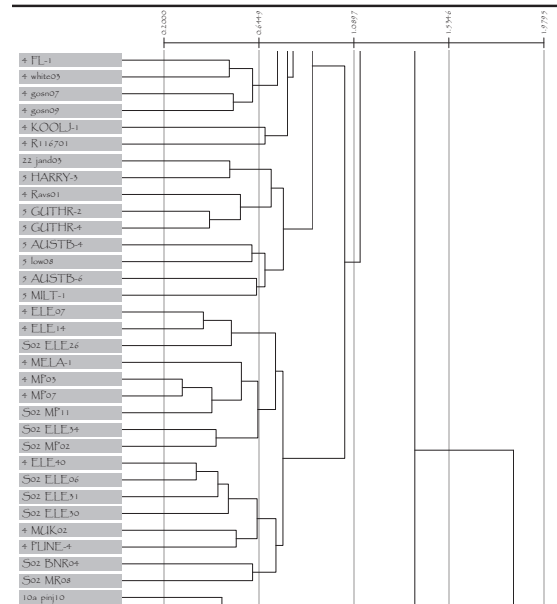
Column Fusion Dendrogram



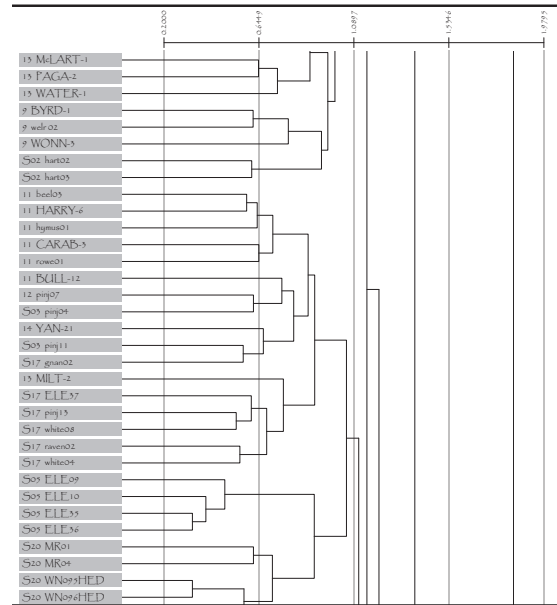
Column Fusion Dendrogram



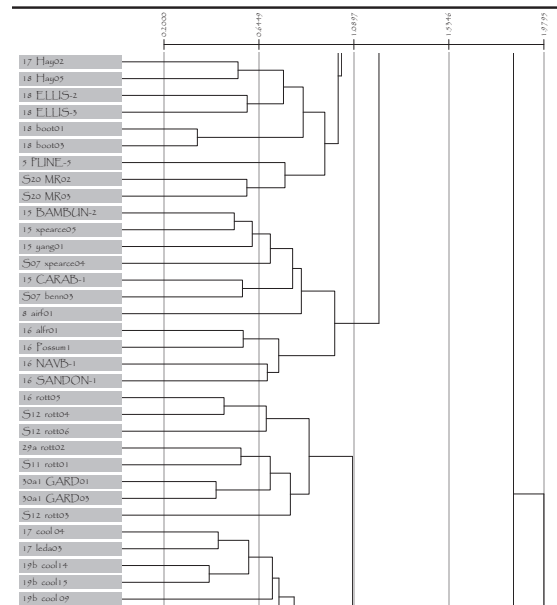
Column Fusion Dendrogram



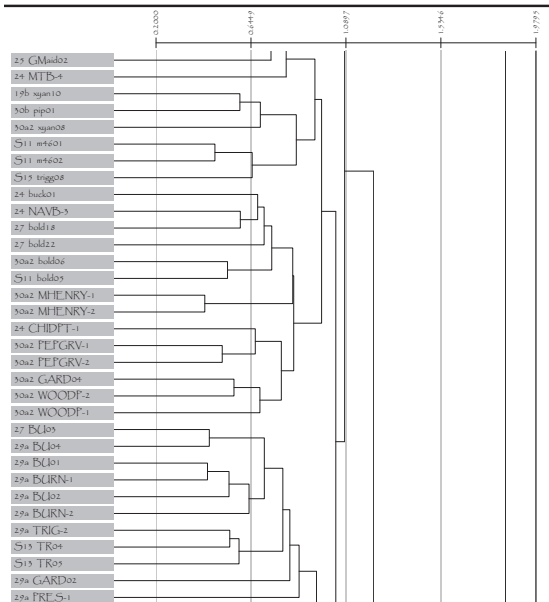
Column Fusion Dendrogram



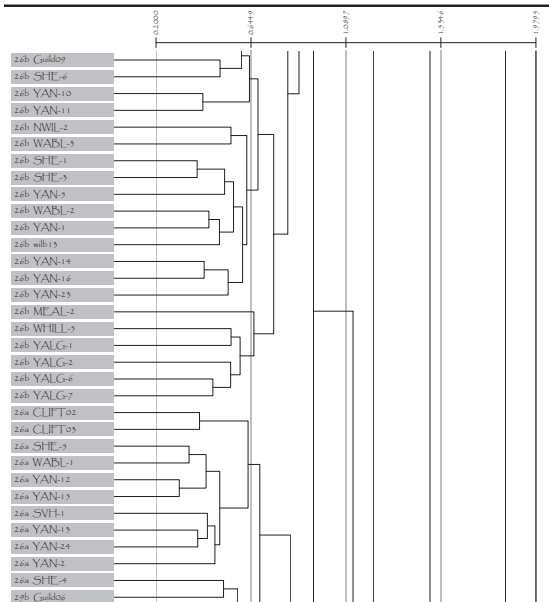
Column Fusion Dendrogram



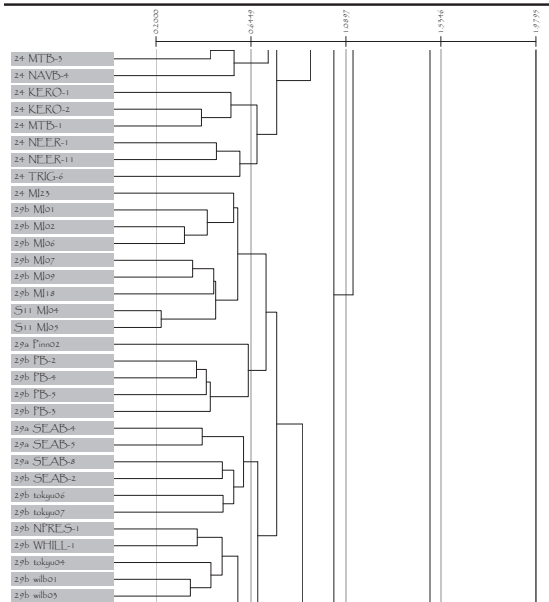
Column Fusion Dendrogram



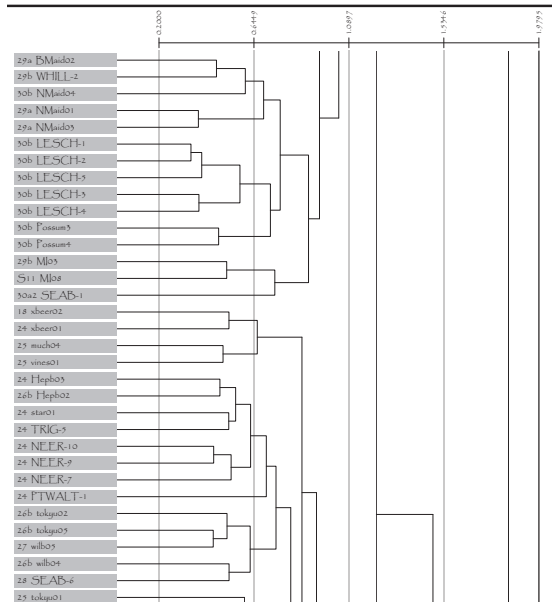
Column Fusion Dendrogram



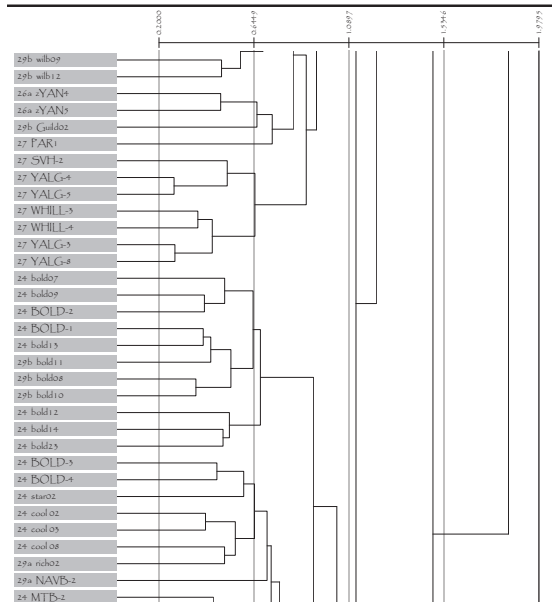
Column Fusion Dendrogram



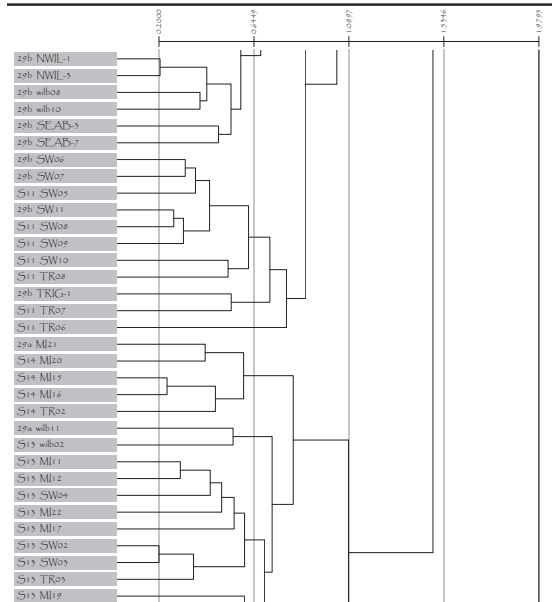
Column Fusion Dendrogram



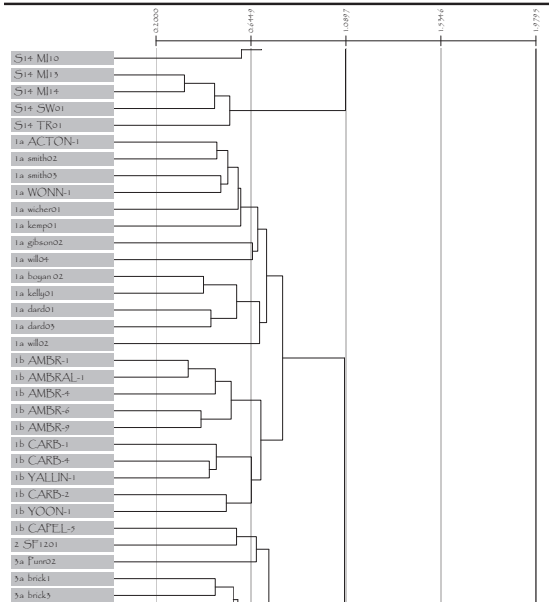
Column Fusion Dendrogram



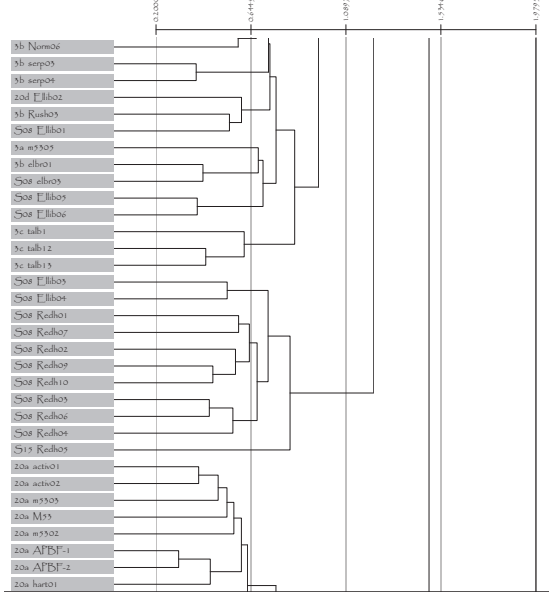
Column Fusion Dendrogram



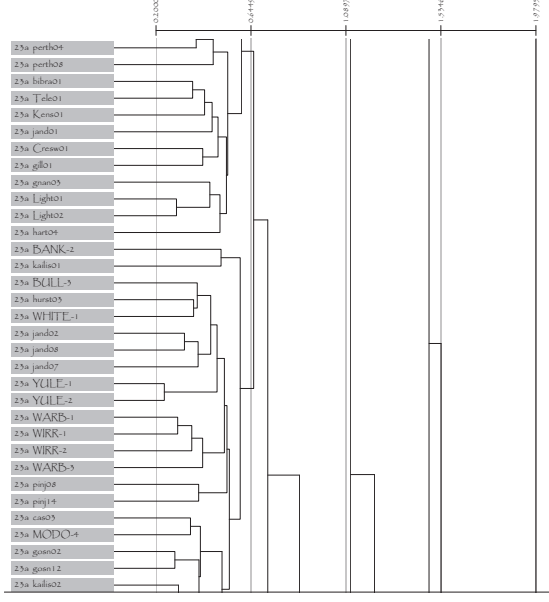
Column Fusion Dendrogram



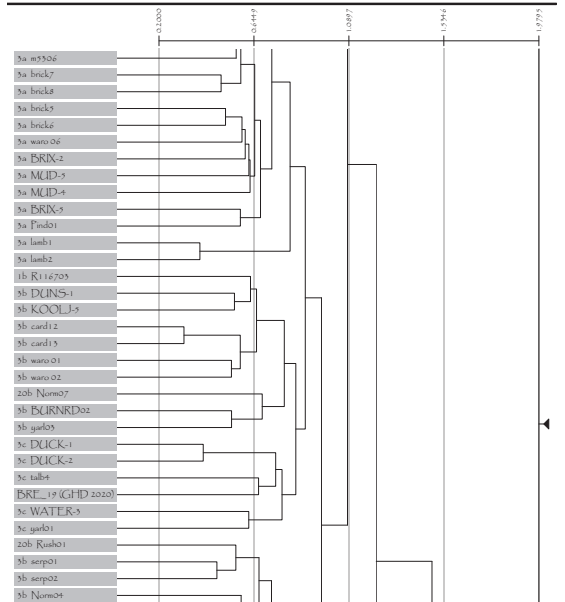
Column Fusion Dendrogram



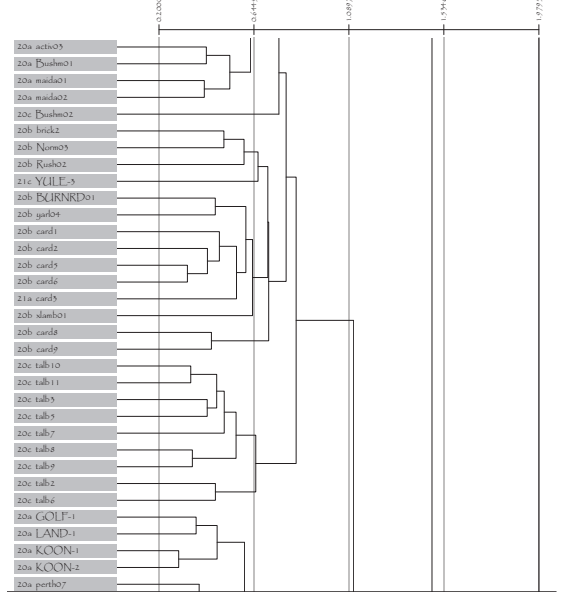
Column Fusion Dendrogram



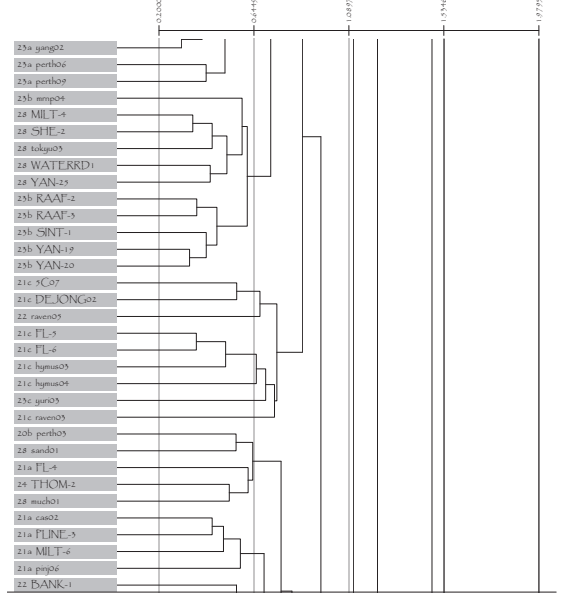
Column Fusion Dendrogram



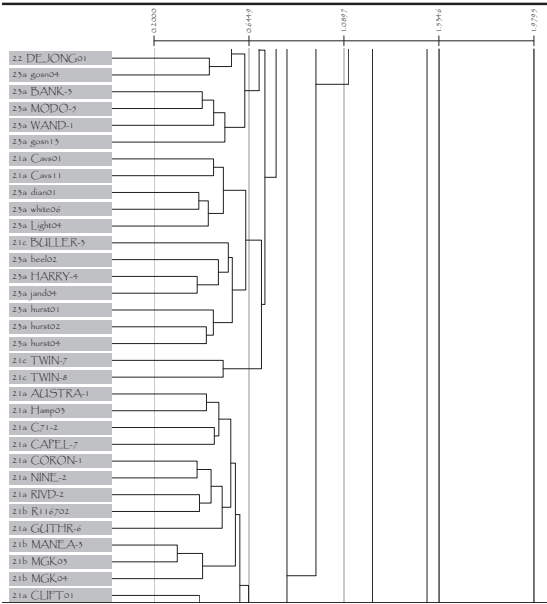
Column Fusion Dendrogram



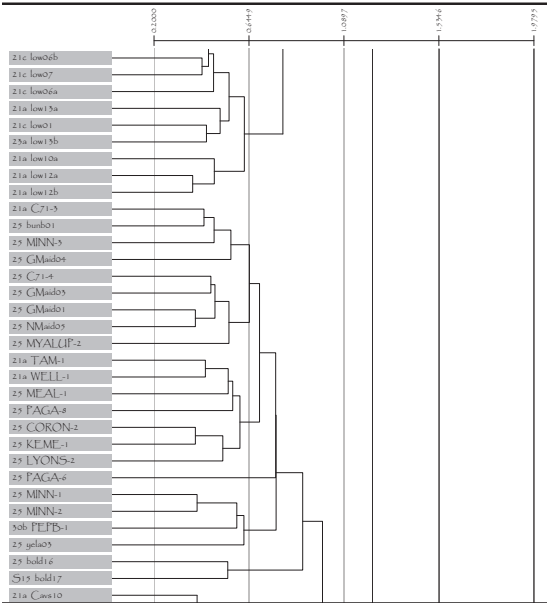
Column Fusion Dendrogram



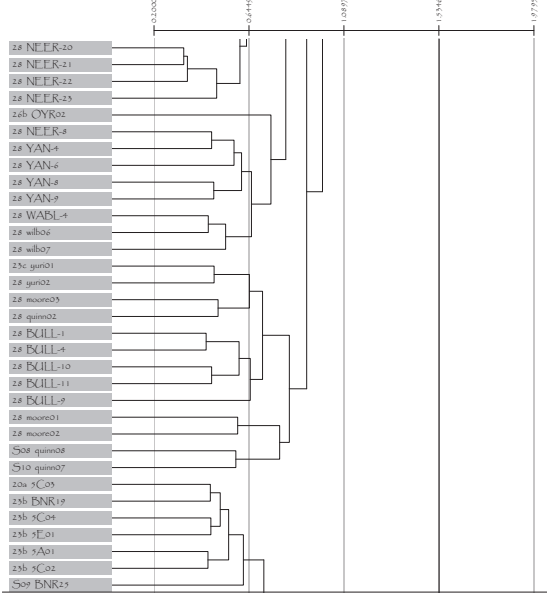
Column Fusion Dendrogram



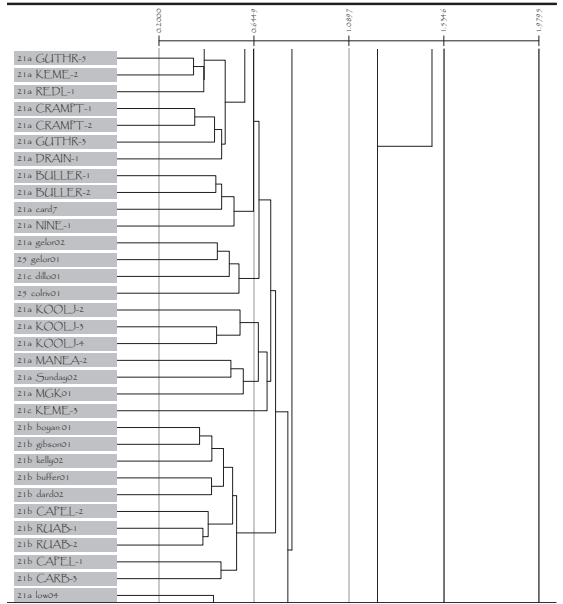
Column Fusion Dendrogram



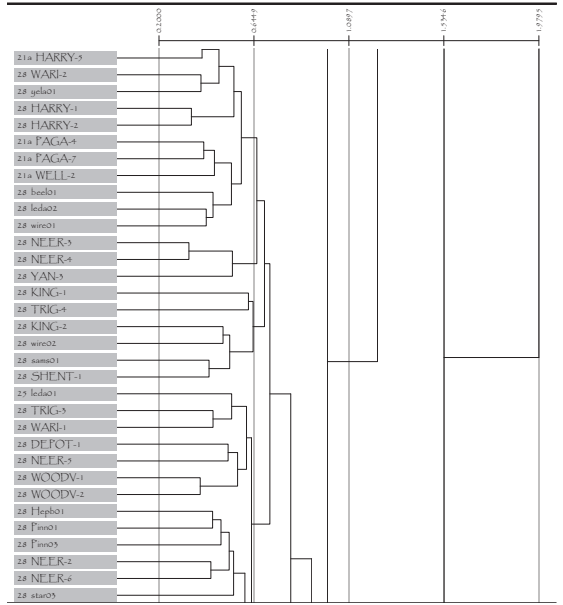
Column Fusion Dendrogram



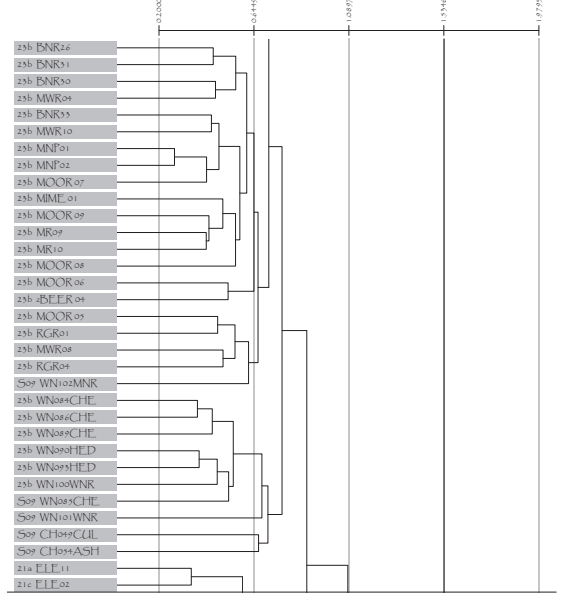
Column Fusion Dendrogram



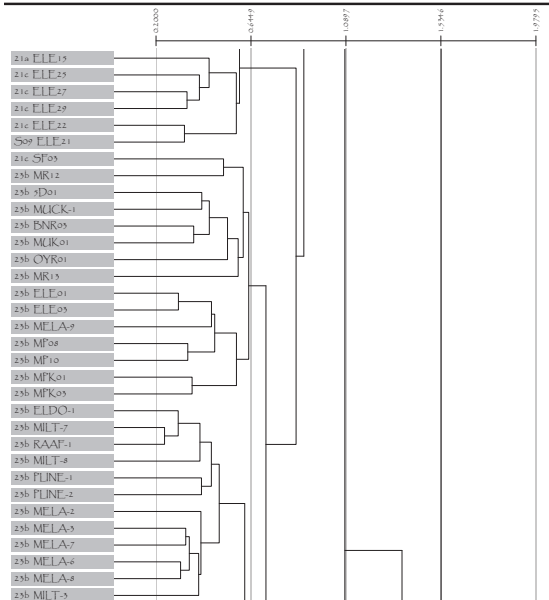
Column Fusion Dendrogram



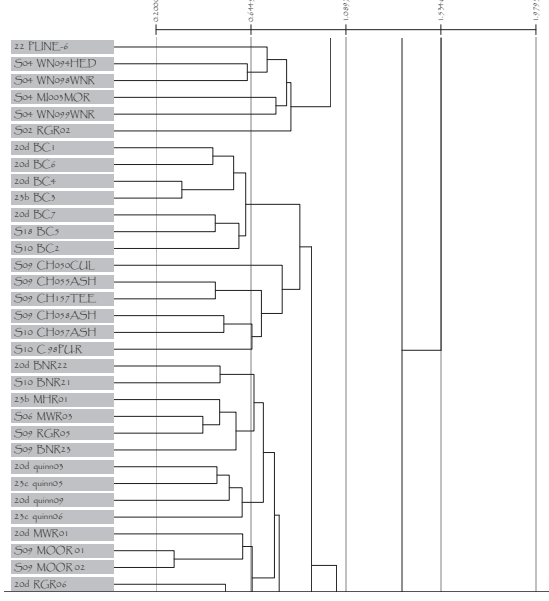
Column Fusion Dendrogram



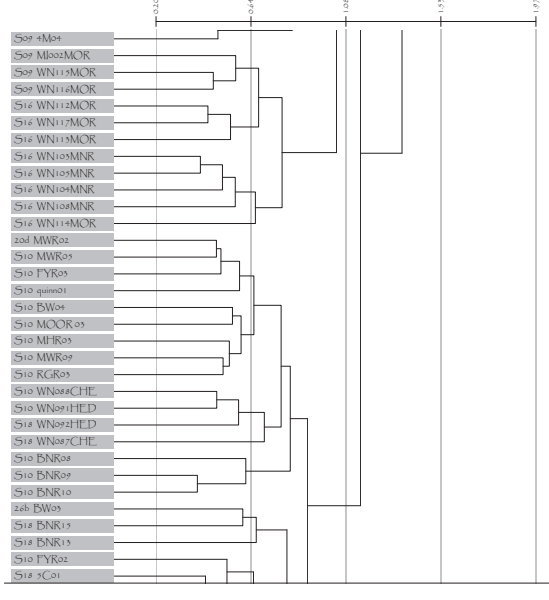
Column Fusion Dendrogram



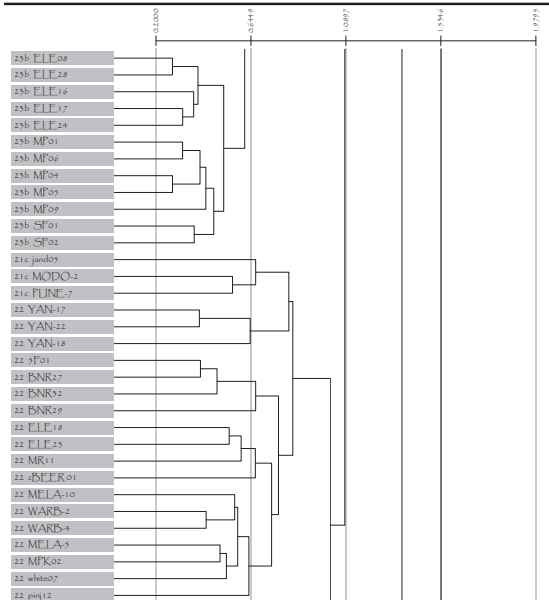
Column Fusion Dendrogram



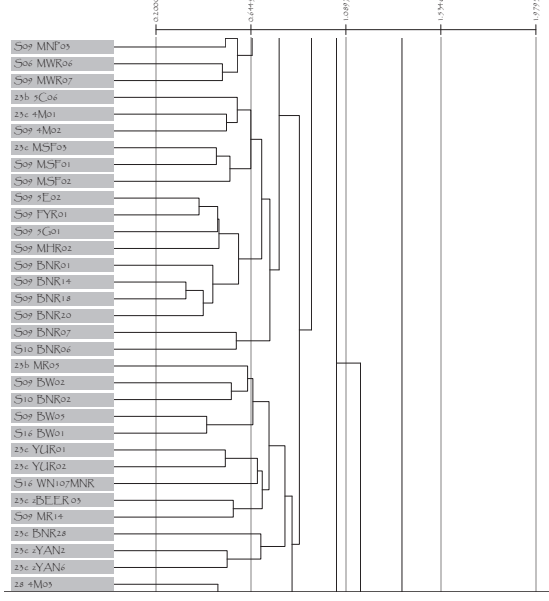
Column Fusion Dendrogram



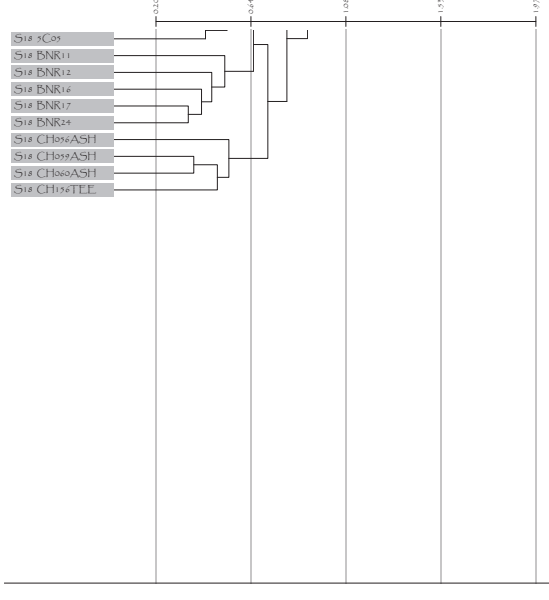
Column Fusion Dendrogram



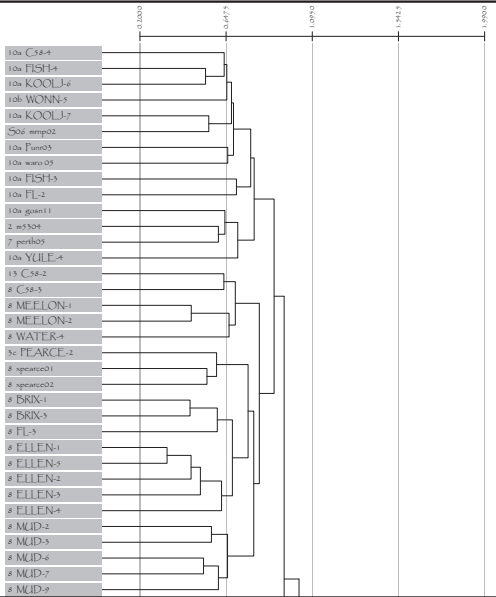
Column Fusion Dendrogram



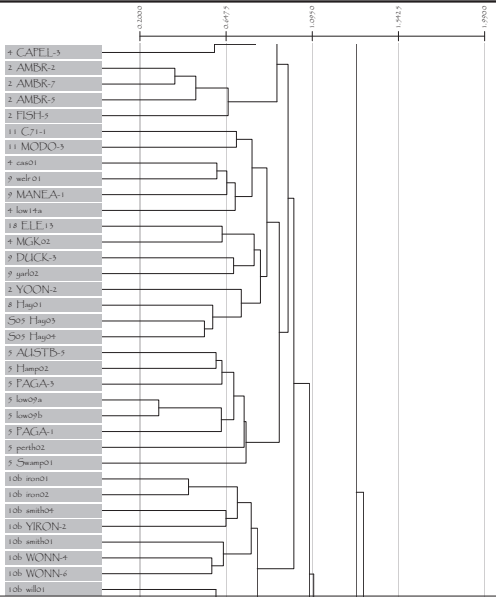
Column Fusion Dendrogram



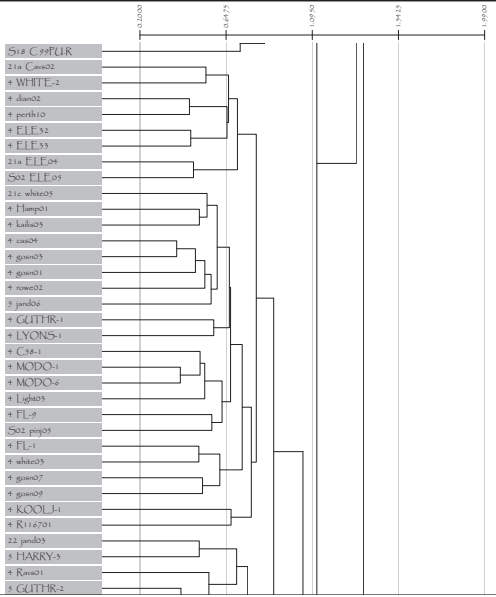
Column Fusion Dendrogram



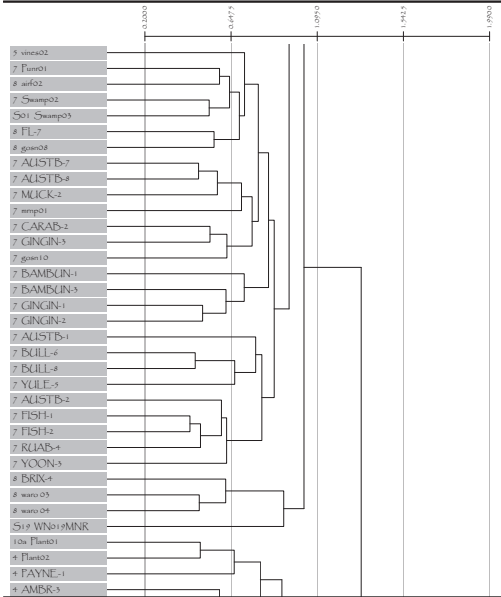
Column Fusion Dendrogram



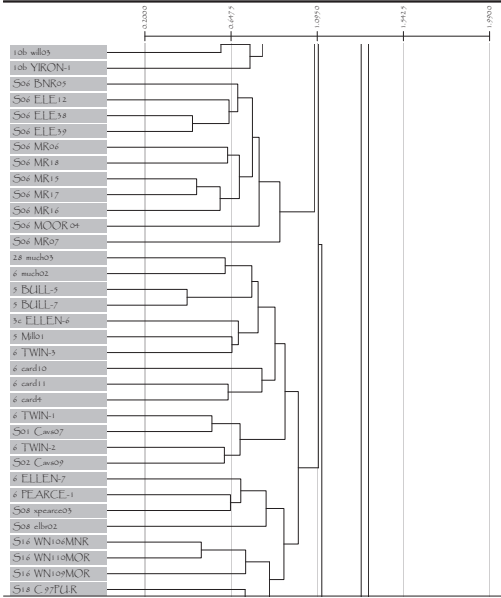
Column Fusion Dendrogram



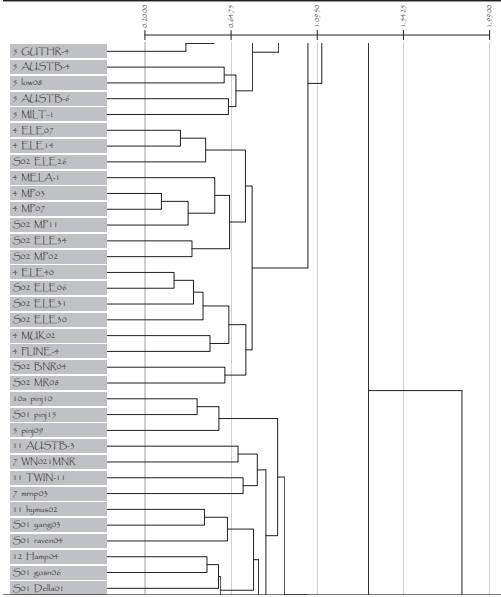
Column Fusion Dendrogram



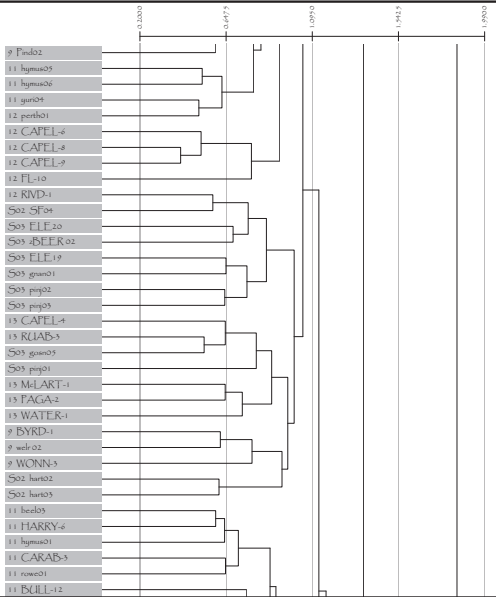
Column Fusion Dendrogram



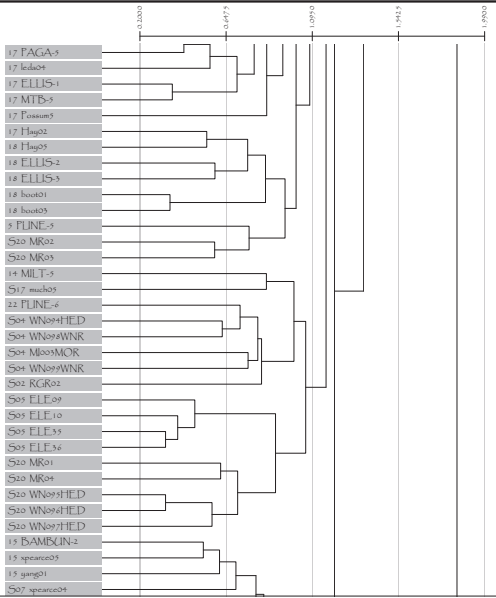
Column Fusion Dendrogram



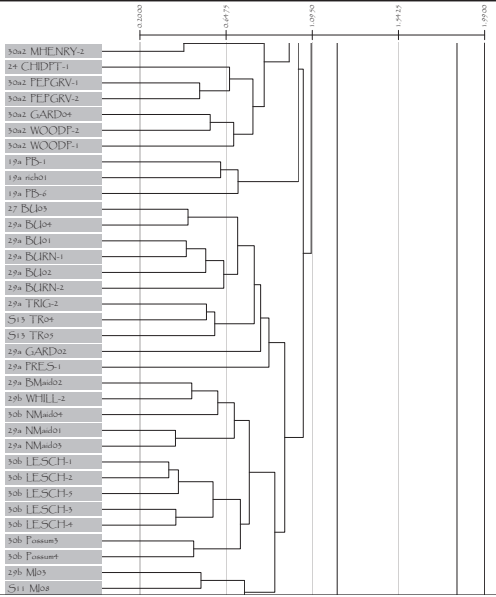
Column Fusion Dendrogram



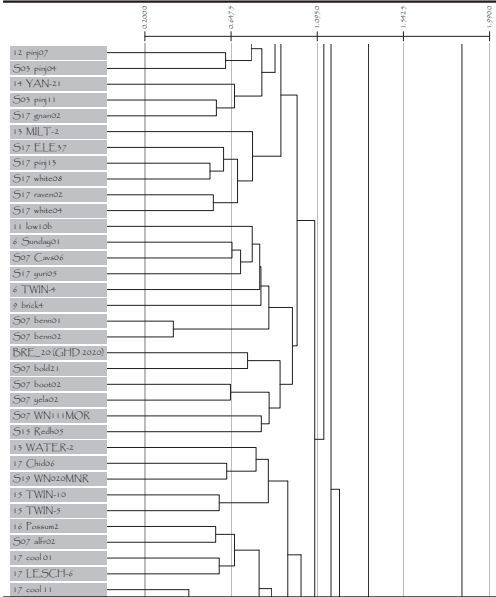
Column Fusion Dendrogram



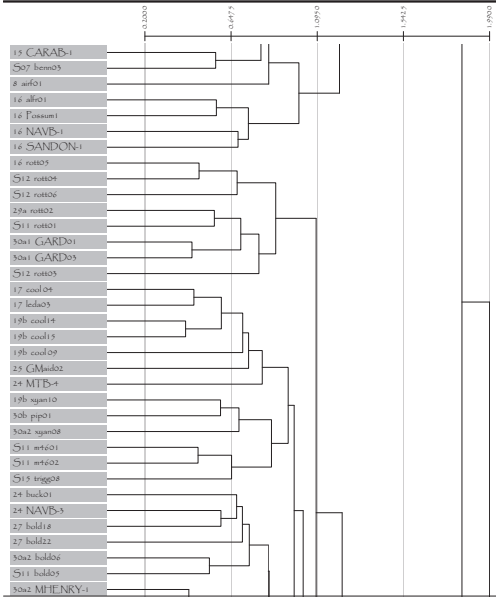
Column Fusion Dendrogram



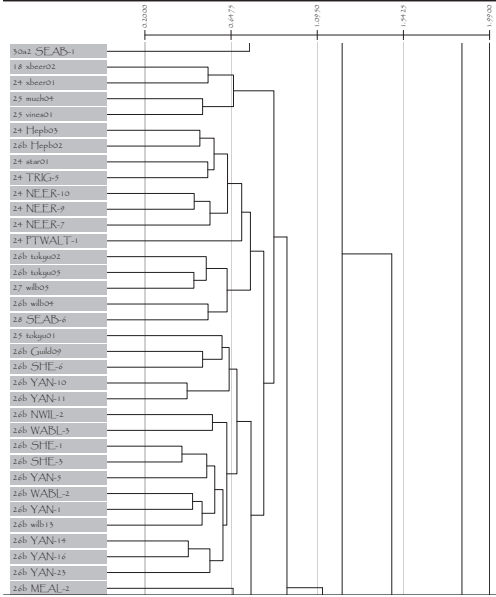
Column Fusion Dendrogram



Column Fusion Dendrogram

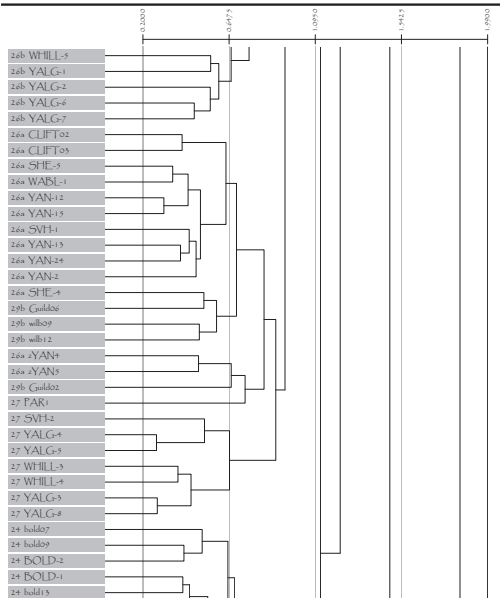


Column Fusion Dendrogram

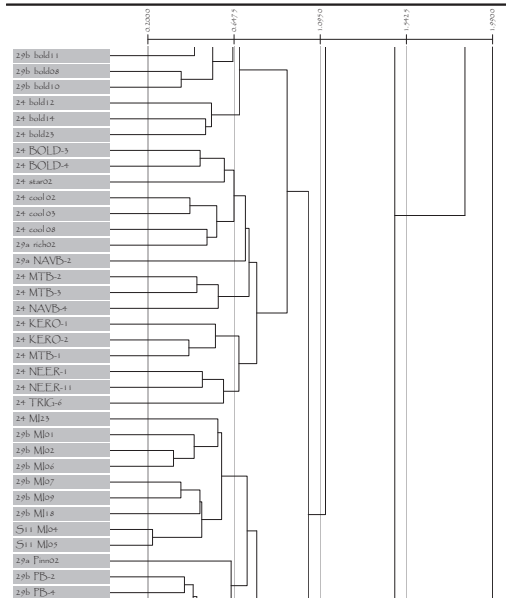




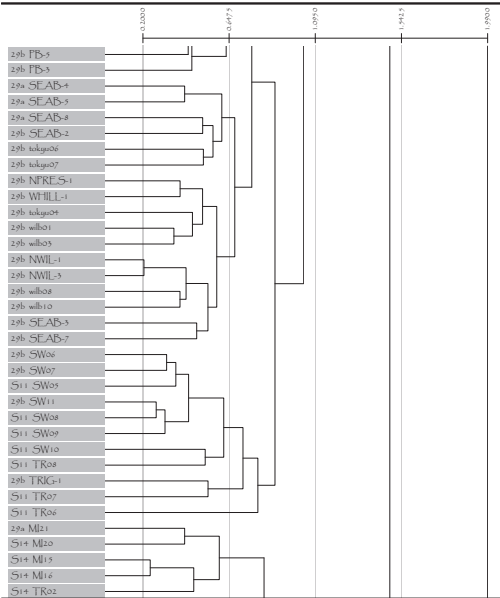
Column Fusion Dendrogram



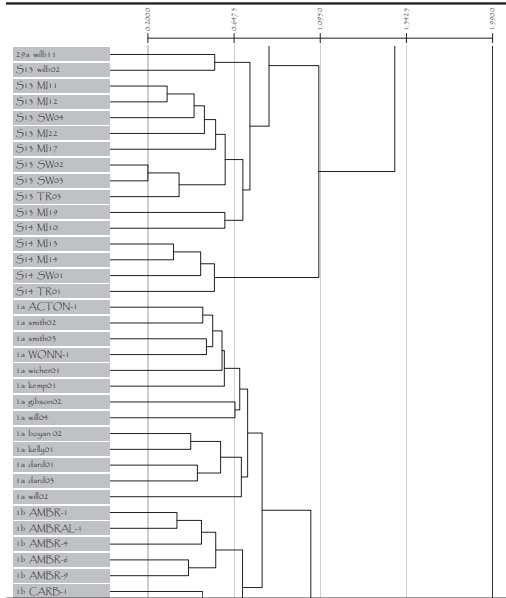
Column Fusion Dendrogram



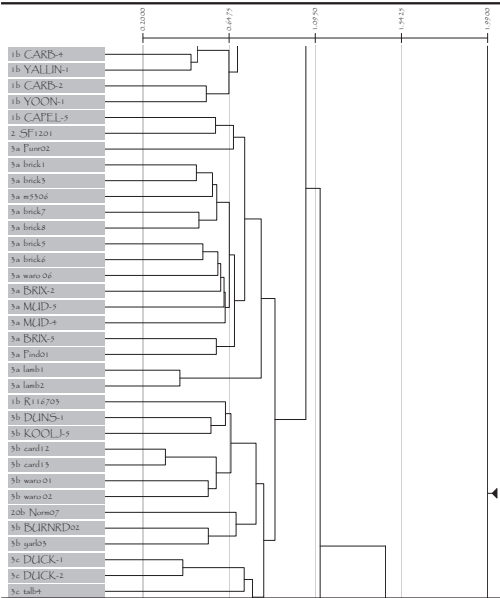
Column Fusion Dendrogram



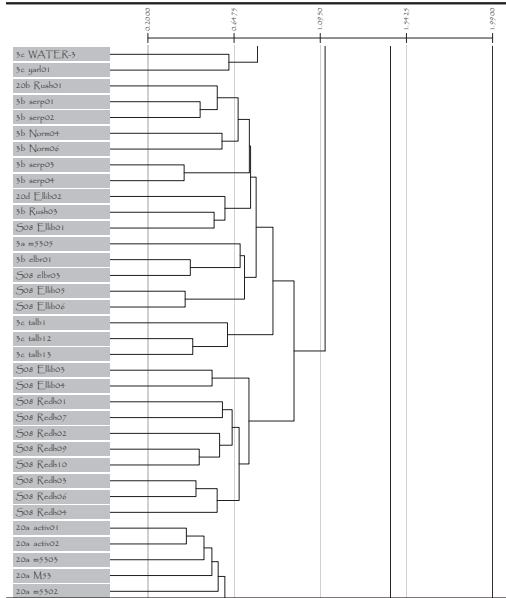
Column Fusion Dendrogram



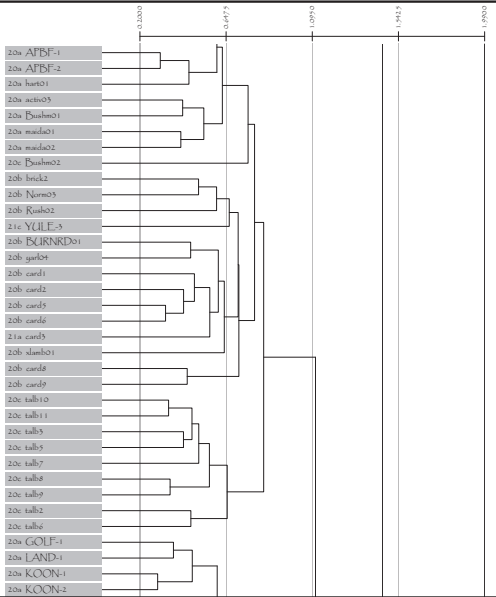
Column Fusion Dendrogram



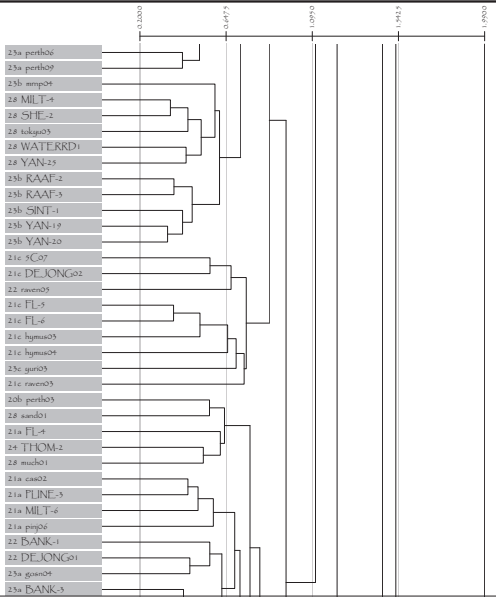
Column Fusion Dendrogram



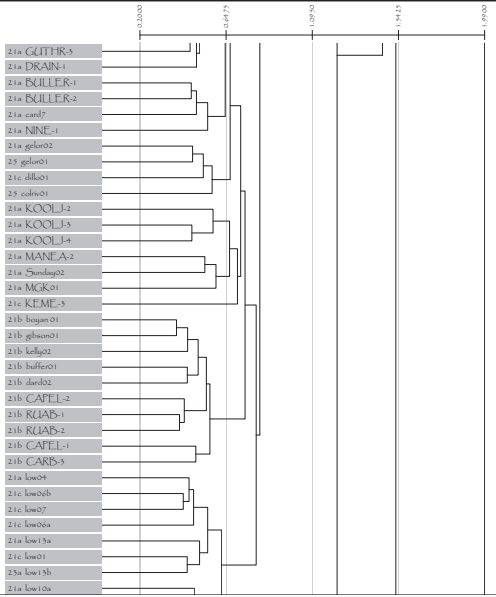
Column Fusion Dendrogram



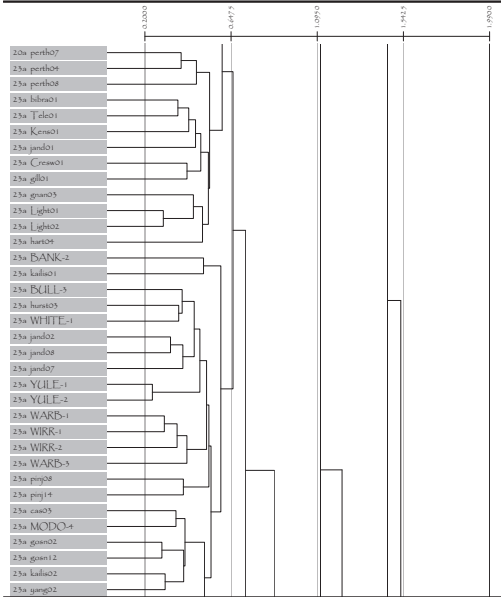
Column Fusion Dendrogram



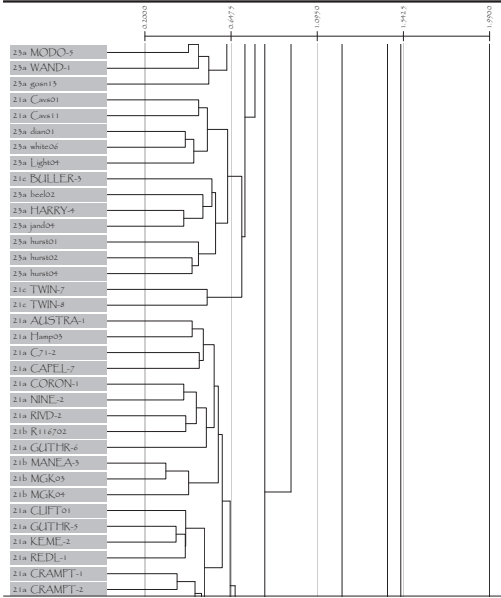
Column Fusion Dendrogram



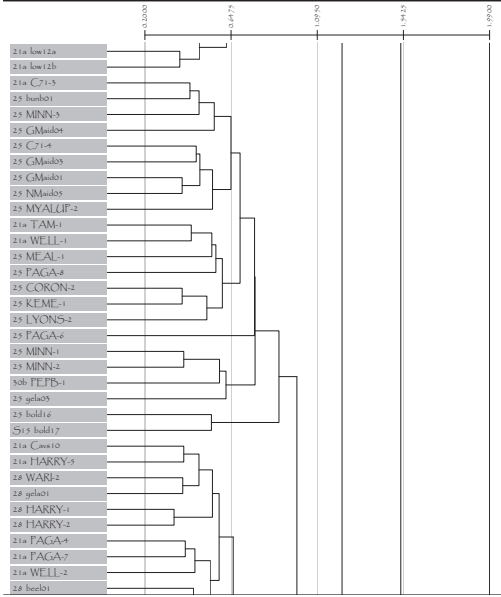
Column Fusion Dendrogram



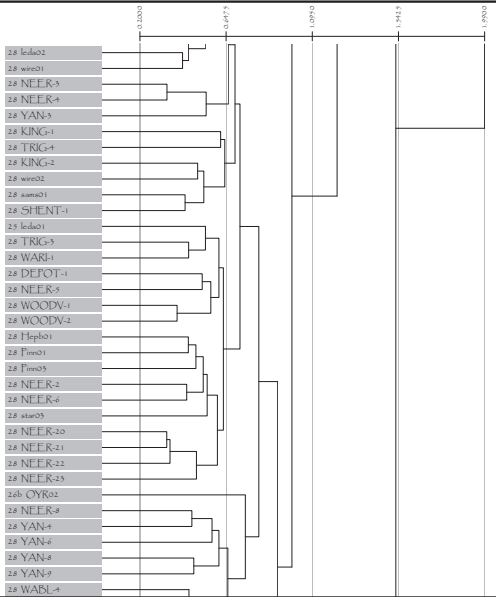
Column Fusion Dendrogram



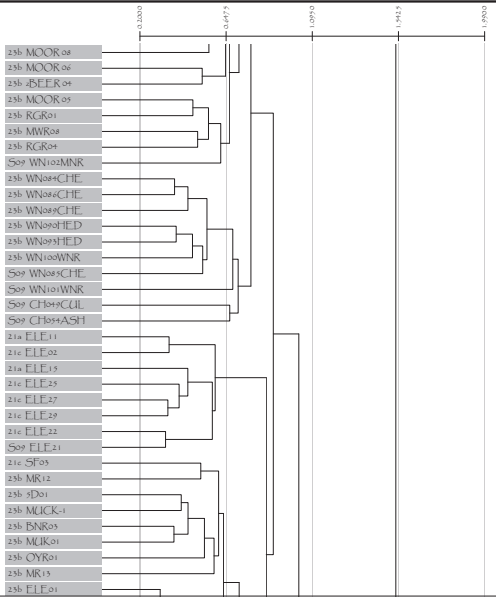
Column Fusion Dendrogram



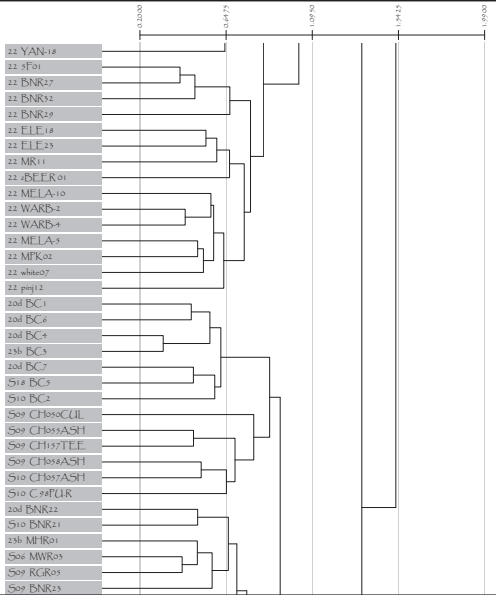
Column Fusion Dendrogram



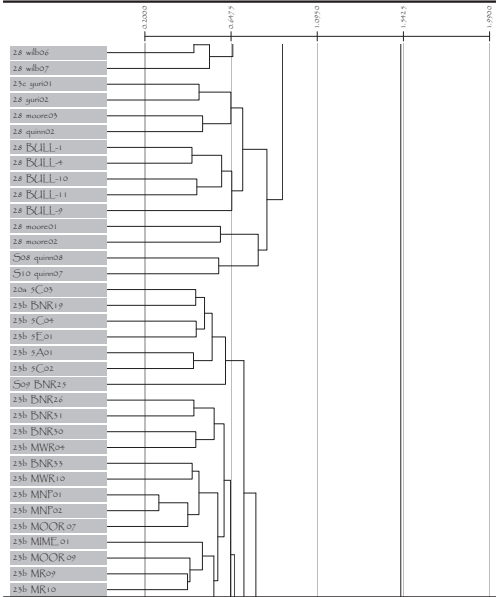
Column Fusion Dendrogram



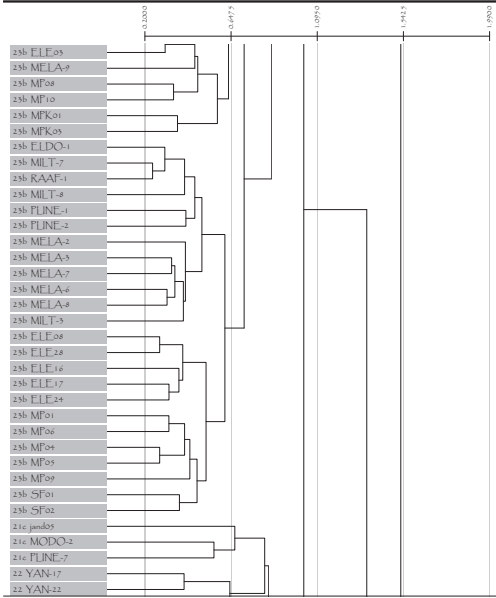
Column Fusion Dendrogram



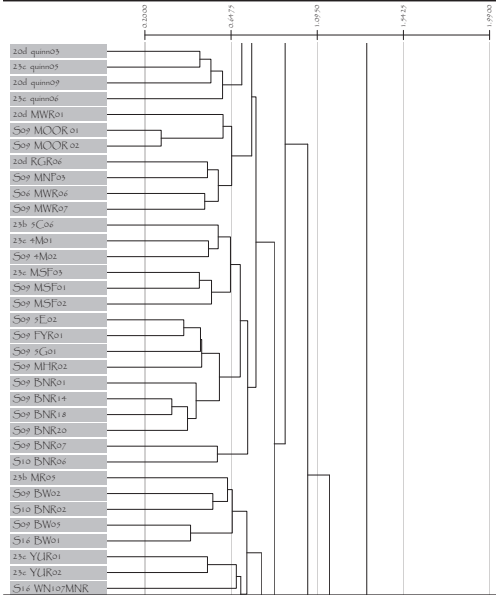
Column Fusion Dendrogram



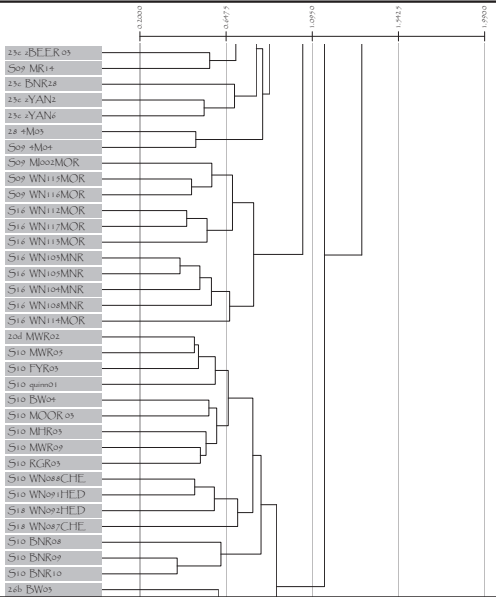
Column Fusion Dendrogram



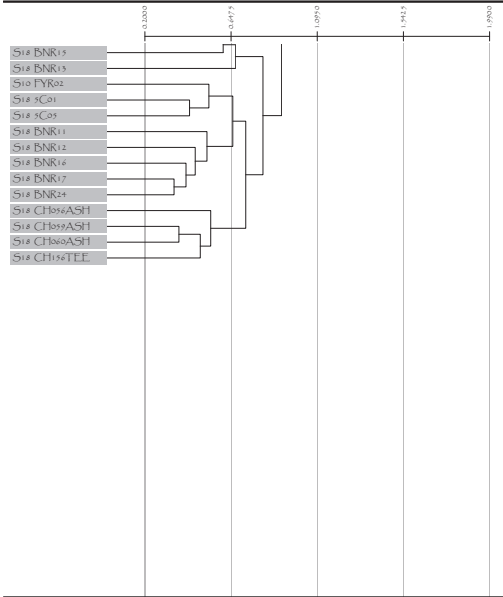
Column Fusion Dendrogram



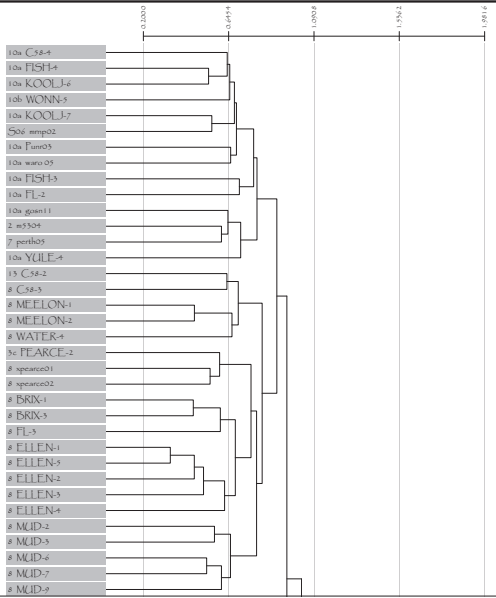
Column Fusion Dendrogram



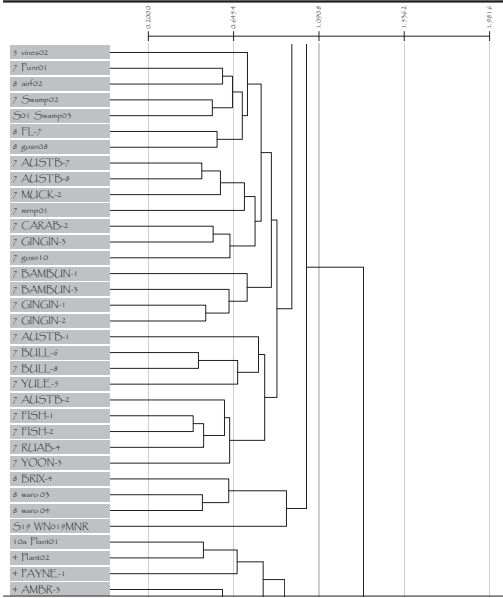
Column Fusion Dendrogram



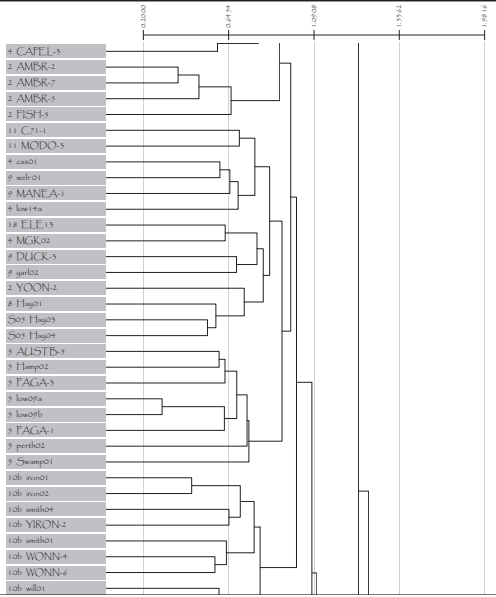
Column Fusion Dendrogram



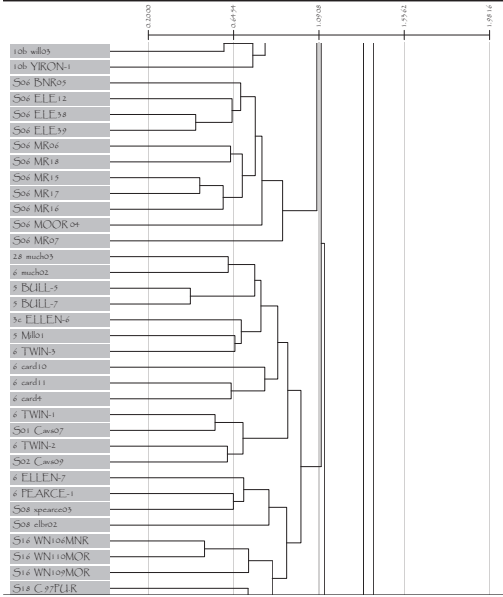
Column Fusion Dendrogram



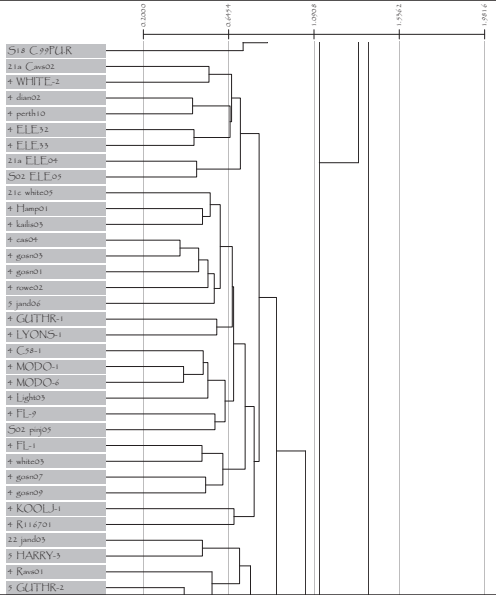
Column Fusion Dendrogram



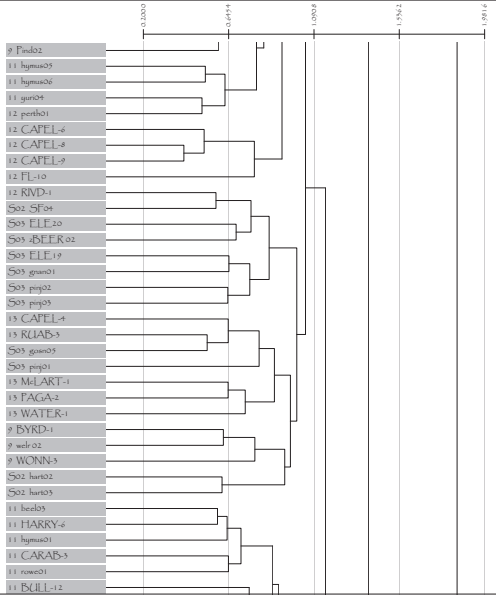
Column Fusion Dendrogram



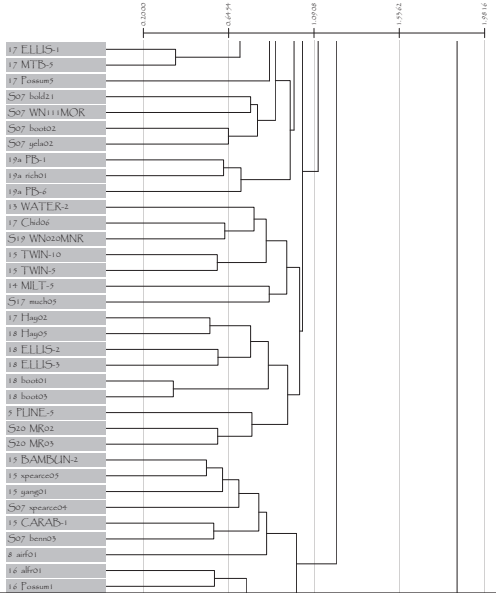
Column Fusion Dendrogram



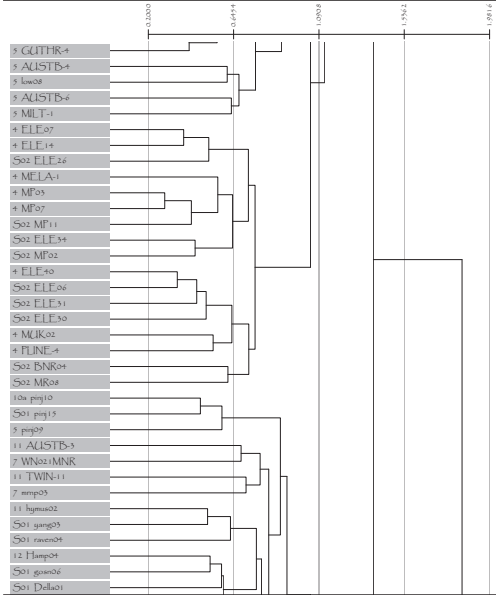
Column Fusion Dendrogram



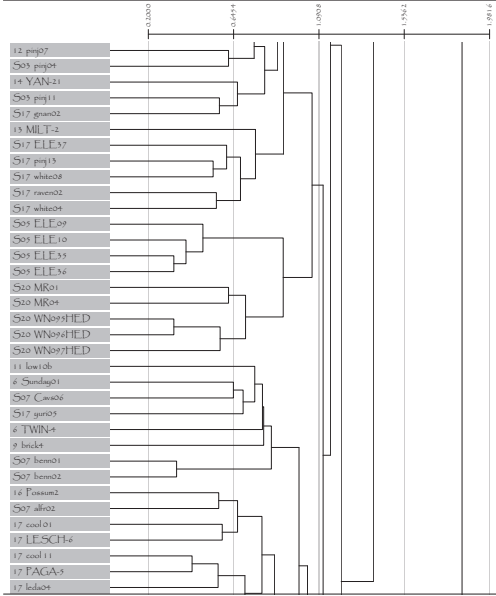
Column Fusion Dendrogram



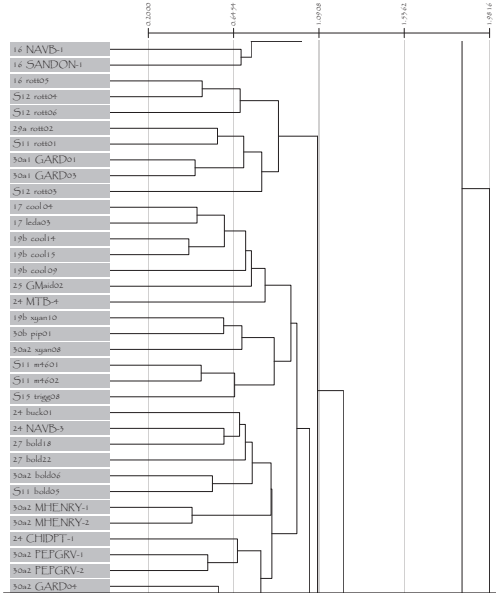
Column Fusion Dendrogram



Column Fusion Dendrogram

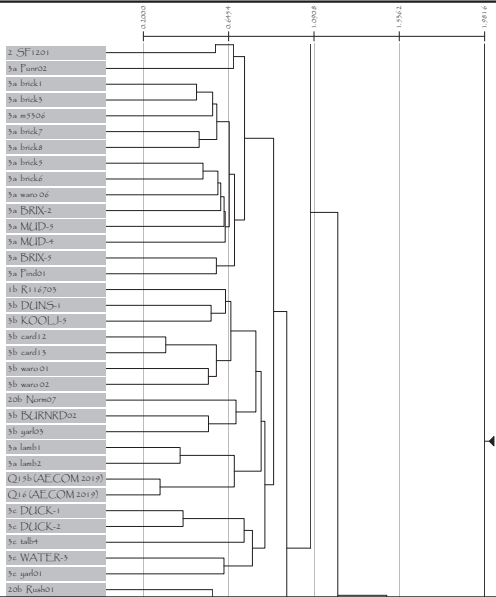


Column Fusion Dendrogram

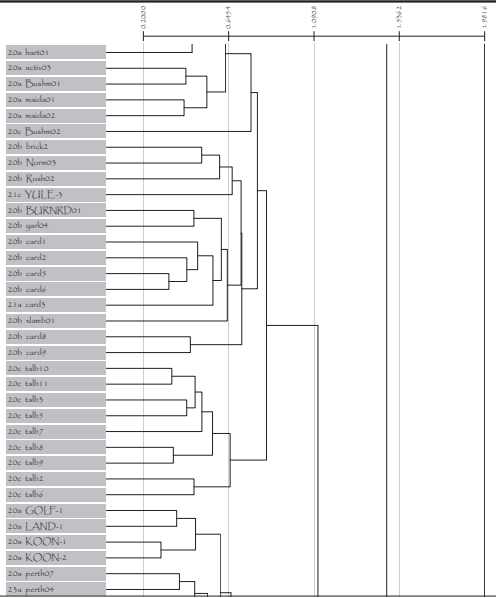




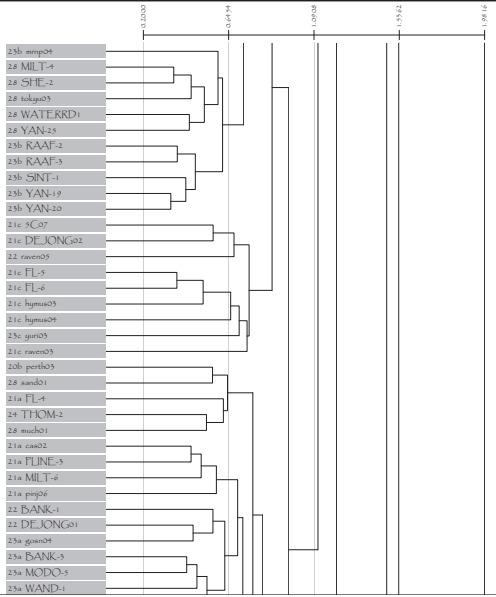
Column Fusion Dendrogram



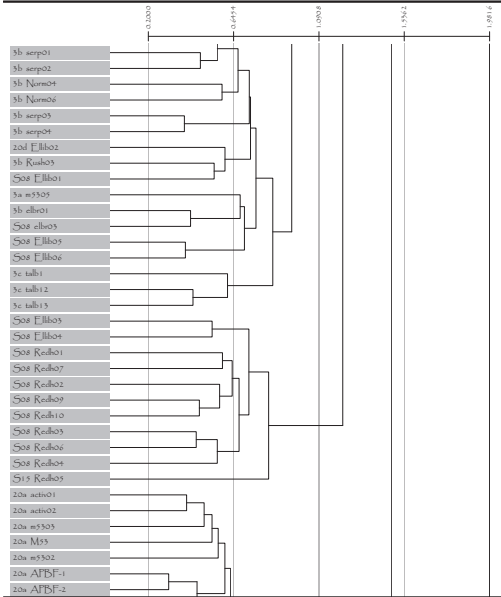
Column Fusion Dendrogram



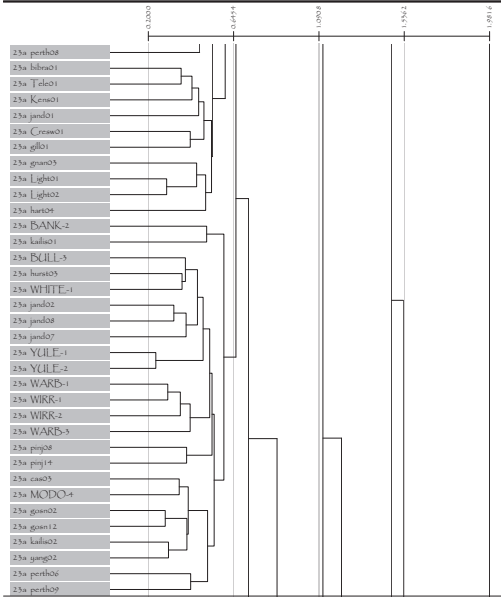
Column Fusion Dendrogram



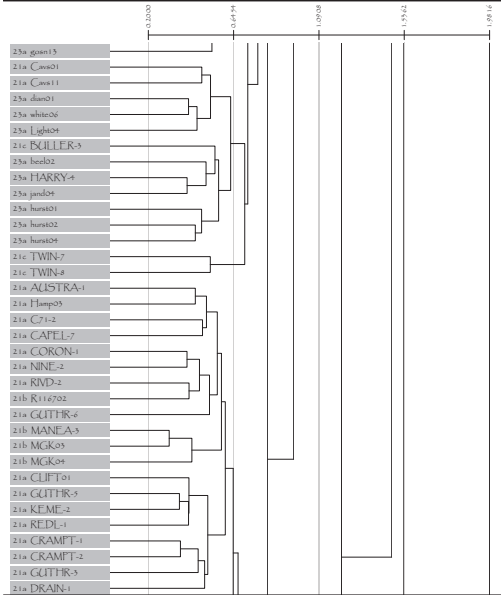
Column Fusion Dendrogram



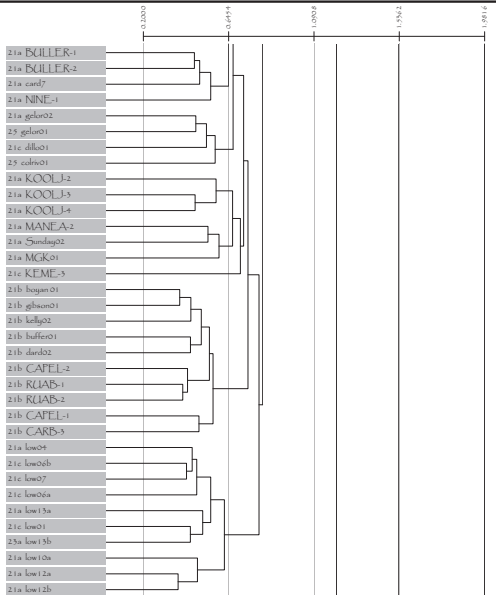
Column Fusion Dendrogram



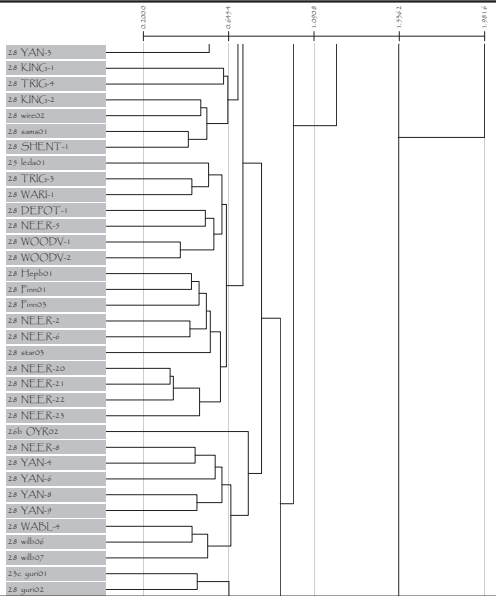
Column Fusion Dendrogram



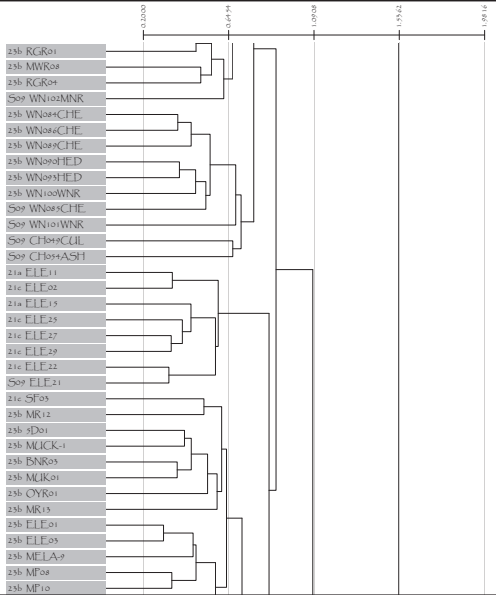
Column Fusion Dendrogram



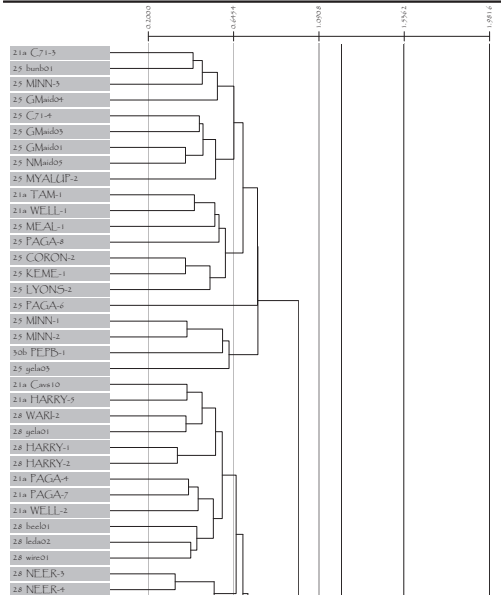
Column Fusion Dendrogram



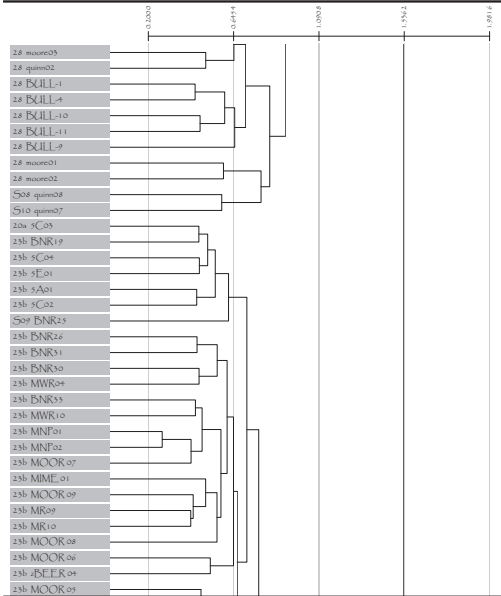
Column Fusion Dendrogram



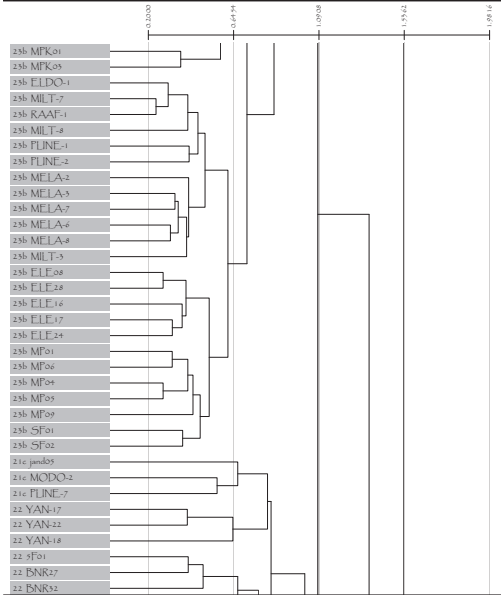
Column Fusion Dendrogram



Column Fusion Dendrogram

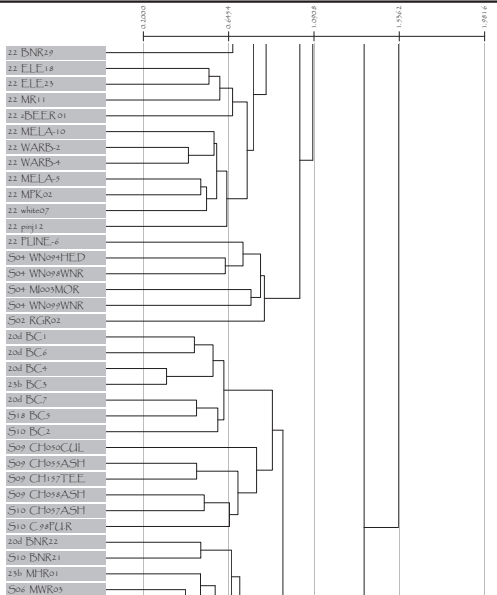


Column Fusion Dendrogram

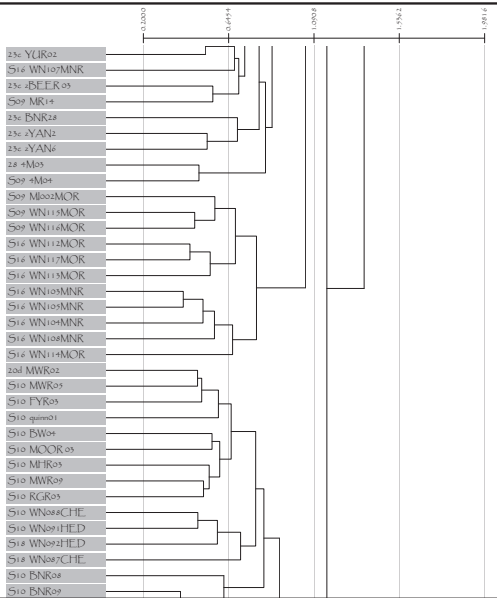




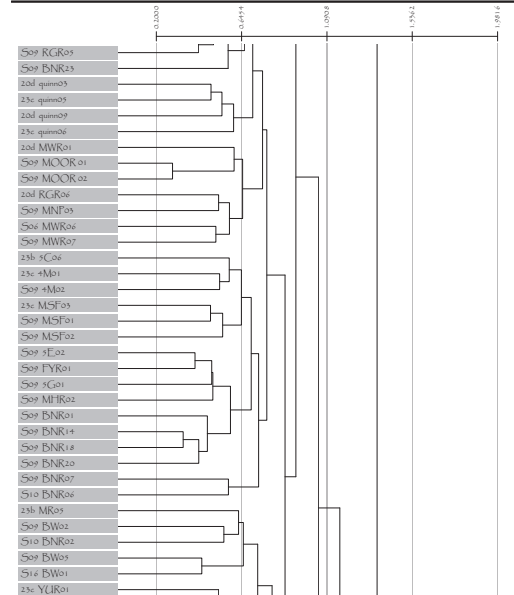
Column Fusion Dendrogram



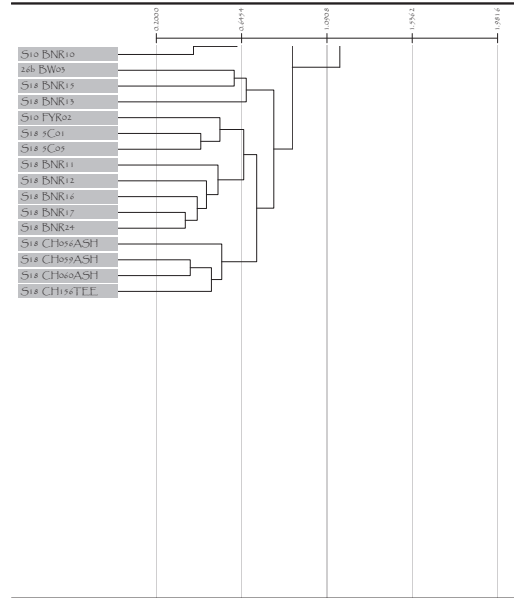
Column Fusion Dendrogram



Column Fusion Dendrogram



Column Fusion Dendrogram



# **Appendix F** – Flora species list and locations

Species list

Conservation listed species and introduced species location data

## Flora species list for the survey area

Family	Taxon	Status	GHD	AECOM
Anarthriaceae	<i>Anarthria humilis</i>		X	
Apiaceae	<i>Xanthosia candida</i>		X	
Apiaceae	<i>Xanthosia huegelii</i>		X	
Apocynaceae	<i>Gomphocarpus fruticosus</i>	*	X	
Araceae	<i>Zantedeschia aethiopica</i>	*, DP	X	
Araliaceae	<i>Hydrocotyle callicarpa</i>		X	
Araliaceae	<i>Trachymene pilosa</i>		X	X
Asparagaceae	<i>Asparagus asparagoides</i>	*, DP, WoNS	X	
Asparagaceae	<i>Laxmannia squarrosa</i>		X	X
Asparagaceae	<i>Lomandra caespitosa</i>		X	X
Asparagaceae	<i>Lomandra drummondii</i>			X
Asparagaceae	<i>Lomandra hermaphrodita</i>			X
Asparagaceae	<i>Lomandra micrantha</i>			X
Asparagaceae	<i>Lomandra purpurea</i>		X	
Asparagaceae	<i>Lomandra sonderi</i>			X
Asparagaceae	<i>Lomandra spartea</i>		X	
Asparagaceae	<i>Thysanotus manglesianus</i>		X	
Asparagaceae	<i>Thysanotus multiflorus</i>		X	
Asparagaceae	<i>Thysanotus triandrus</i>			X
Asteraceae	<i>Arctotheca calendula</i>	*	X	
Asteraceae	<i>Conyza bonariensis</i>	*	X	
Asteraceae	<i>Cotula turbinata</i>	*	X	
Asteraceae	<i>Crepis foetida</i> subsp. <i>foetida</i>	*	X	
Asteraceae	<i>Hypochaeris glabra</i>	*	X	
Asteraceae	<i>Pterochaeta paniculata</i>			X
Asteraceae	<i>Quinetia urvillei</i>		X	
Asteraceae	<i>Siloxerus multiflorus</i>		X	
Asteraceae	<i>Sonchus oleraceus</i>	*	X	
Asteraceae	<i>Taraxacum khatoonae</i>	*	X	
Asteraceae	<i>Tolpis barbata</i>	*	X	
Asteraceae	<i>Ursinia anthemoides</i>	*	X	X
Boryaceae	<i>Borya ?scirpoidea</i>			X
Boryaceae	<i>Borya sphaerocephala</i>		X	
Campanulaceae	<i>Wahlenbergia gracilentia</i>		X	
Casuarinaceae	<i>Allocasuarina fraseriana</i>		X	X
Casuarinaceae	<i>Allocasuarina humilis</i>		X	X
Celastraceae	<i>Tripterococcus brunonis</i>		X	
Centrolepidaceae	<i>Centrolepis aristata</i>		X	
Centrolepidaceae	<i>Centrolepis drummondiana</i>		X	
Colchicaceae	<i>Burchardia congesta</i>		X	X
Crassulaceae	<i>Crassula closiana</i>		X	
Cyperaceae	<i>Cyathochaeta avenacea</i>		X	X

Family	Taxon	Status	GHD	AECOM
Cyperaceae	<i>Gahnia ?aristata</i>		X	
Cyperaceae	<i>Lepidosperma apricola</i>		X	
Cyperaceae	<i>Lepidosperma leptostachyum</i>		X	X
Cyperaceae	<i>Lepidosperma pubisquameum</i>		X	
Cyperaceae	<i>Lepidosperma</i> sp.			X
Cyperaceae	<i>Mesomelaena stygia</i> subsp. <i>stygia</i>		X	X
Cyperaceae	<i>Mesomelaena tetragona</i>		X	X
Cyperaceae	<i>Schoenus ?sublateralis</i>		X	
Cyperaceae	<i>Schoenus clandestinus</i>		X	X
Cyperaceae	<i>Schoenus grandiflorus</i>		X	
Cyperaceae	<i>Schoenus</i> sp.			X
Cyperaceae	<i>Schoenus unispiculatus</i>		X	
Cyperaceae	<i>Tetraria octandra</i>		X	X
Dasypogonaceae	<i>Calectasia grandiflora</i>		X	
Dasypogonaceae	<i>Dasypogon bromeliifolius</i>		X	X
Dasypogonaceae	<i>Kingia australis</i>		X	X
Dilleniaceae	<i>Hibbertia hypericoides</i>		X	X
Droseraceae	<i>Drosera erythrorhiza</i>		X	
Droseraceae	<i>Drosera glanduligera</i>		X	
Droseraceae	<i>Drosera marchantii</i>			X
Droseraceae	<i>Drosera menziesii</i>		X	
Droseraceae	<i>Drosera porrecta</i>			X
Droseraceae	<i>Drosera stolonifera</i>		X	
Ericaceae	<i>Andersonia lehmanniana</i> subsp. <i>lehmanniana</i>		X	
Ericaceae	<i>Astroloma pallidum</i>		X	
Euphorbiaceae	<i>Euphorbia peplus</i>	*	X	
Euphorbiaceae	<i>Ricinus communis</i>	*	X	
Fabaceae	<i>Acacia alata</i>		X	
Fabaceae	<i>Acacia iteaphylla</i>	*	X	
Fabaceae	<i>Acacia lateriticola</i>		X	X
Fabaceae	<i>Acacia nervosa</i>		X	
Fabaceae	<i>Acacia pulchella</i> var. <i>glaberrima</i>		X	
Fabaceae	<i>Acacia saligna</i>		X	
Fabaceae	<i>Acacia</i> sp.			X
Fabaceae	<i>Acacia</i> sp. (planted)	Planted		X
Fabaceae	<i>Bossiaea eriocarpa</i>		X	
Fabaceae	<i>Chorizema dicksonii</i>		X	
Fabaceae	<i>Cristonia biloba</i> subsp. <i>biloba</i>		X	
Fabaceae	<i>Daviesia decurrens</i> subsp. <i>decurrens</i>		X	X
Fabaceae	<i>Gastrolobium capitatum</i>		X	
Fabaceae	<i>Gastrolobium spathulatum</i>			X
Fabaceae	<i>Gompholobium marginatum</i>		X	X
Fabaceae	<i>Hovea trisperma</i>		X	X

Family	Taxon	Status	GHD	AECOM
Fabaceae	<i>Jacksonia alata</i>		X	
Fabaceae	<i>Labichea punctata</i>			X
Fabaceae	<i>Lotus angustissimus</i>	*	X	X
Fabaceae	<i>Lupinus angustifolius</i>	*	X	
Fabaceae	<i>Sphaerolobium medium</i>		X	X
Fabaceae	<i>Trifolium angustifolium</i>	*	X	
Fabaceae	<i>Trifolium campestre</i>	*	X	
Fabaceae	<i>Trifolium subterraneum</i>	*	X	
Fabaceae	<i>Vicia sativa</i>	*	X	
Francoaceae	<i>Melianthus major</i>	*	X	
Geraniaceae	<i>Erodium botrys</i>	*	X	
Goodeniaceae	<i>Dampiera alata</i>		X	
Goodeniaceae	<i>Dampiera linearis</i>		X	
Goodeniaceae	<i>Goodenia coerulea</i>		X	
Goodeniaceae	<i>Lechenaultia biloba</i>		X	X
Haemodoraceae	<i>Conostylis aculeata</i> subsp. <i>preissii</i>		X	
Haemodoraceae	<i>Conostylis caricina</i> subsp. <i>caricina</i>		X	
Haemodoraceae	<i>Conostylis serrulata</i>			X
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>		X	X
Haemodoraceae	<i>Haemodorum laxum</i>		X	X
Haemodoraceae	<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	P2	X	
Haemodoraceae	<i>Tricoryne elatior</i>		X	
Haloragaceae	<i>Gonocarpus cordiger</i>		X	
Hemerocallidaceae	<i>Agrostocrinum scabrum</i>		X	X
Hemerocallidaceae	<i>Caesia micrantha</i>		X	X
Hemerocallidaceae	<i>Tricoryne elatior</i>		X	X
Iridaceae	<i>Babiana angustifolia</i>	*	X	
Iridaceae	<i>Freesia alba</i> x <i>leichtlinii</i>	*	X	X
Iridaceae	<i>Gladiolus caryophyllaceus</i>	*	X	
Iridaceae	<i>Moraea flaccida</i>	*	X	
Iridaceae	<i>Patersonia juncea</i>		X	
Iridaceae	<i>Patersonia occidentalis</i>			X
Iridaceae	<i>Patersonia pygmaea</i>		X	X
Iridaceae	<i>Romulea rosea</i>	*	X	
Iridaceae	<i>Watsonia meriana</i>	*	X	X
Juncaceae	<i>Juncus capitatus</i>	*	X	
Juncaceae	<i>Juncus pallidus</i>		X	
Lamiaceae	<i>Hemigenia incana</i>		X	
Lauraceae	<i>Cassytha racemosa</i>			X
Loranthaceae	<i>Cassytha pomiformis</i>		X	
Loranthaceae	<i>Nuytsia floribunda</i>		X	X
Moraceae	<i>Ficus carica</i>	*	X	
Myrtaceae	<i>Astartea leptophylla</i>		X	
Myrtaceae	<i>Babingtonia camphorosmae</i>		X	

Family	Taxon	Status	GHD	AECOM
Myrtaceae	<i>Calothamnus quadrifidus</i>	Planted	x	
Myrtaceae	<i>Corymbia calophylla</i>		x	x
Myrtaceae	<i>Eucalyptus x balanites</i>	T	x	
Myrtaceae	<i>Eucalyptus lane-poolei</i>		x	x
Myrtaceae	<i>Eucalyptus marginata</i>		x	x
Myrtaceae	<i>Eucalyptus rudis</i>		x	
Myrtaceae	<i>Eucalyptus</i> sp. (planted)	*	x	x
Myrtaceae	<i>Eucalyptus wandoo</i>		x	
Myrtaceae	<i>Hypocalymma angustifolium</i>			x
Myrtaceae	<i>Kunzea glabrescens</i>		x	
Myrtaceae	<i>Melaleuca parviceps</i>		x	
Myrtaceae	<i>Scholtzia involucrata</i>			x
Myrtaceae	<i>Taxandria linearifolia</i>		x	
Myrtaceae	<i>Verticordia densiflora</i>		x	x
Oleaceae	<i>Olea europaea</i>	*	x	
Orchidaceae	<i>Disa bracteata</i>	*	x	
Orchidaceae	<i>Diuris ostrina</i>		x	
Orchidaceae	<i>Lyperanthus serratus</i>		x	
Orchidaceae	<i>Microtis media</i>		x	
Orchidaceae	<i>Microtis media</i> subsp. <i>media</i>			x
Orchidaceae	<i>Thelymitra graminea</i>			x
Orobanchaceae	<i>Parentucellia latifolia</i>	*	x	
Oxalidaceae	<i>Oxalis glabra</i>	*	x	
Oxalidaceae	<i>Oxalis pes-caprae</i>	*	x	x
Oxalidaceae	<i>Oxalis purpurea</i>	*	x	
Papaveraceae	<i>Fumaria capreolata</i>	*	x	
Phyllanthaceae	<i>Phyllanthus calycinus</i>		x	
Phyllanthaceae	<i>Poranthera microphylla</i>		x	
Phytolaccaceae	<i>Phytolacca octandra</i>	*	x	
Pittosporaceae	<i>Billardiera fusiformis</i>		x	x
Poaceae	<i>Austrostipa campylachne</i>		x	
Poaceae	<i>Austrostipa compressa</i>			x
Poaceae	<i>Austrostipa</i> sp.		x	
Poaceae	<i>Avena barbata</i>	*	x	x
Poaceae	<i>Briza maxima</i>	*	x	x
Poaceae	<i>Briza minor</i>	*	x	
Poaceae	<i>Bromus</i> sp.	*	x	
Poaceae	<i>Cenchrus clandestinus</i>	*	x	
Poaceae	<i>Cynodon dactylon</i>	*	x	
Poaceae	<i>Ehrharta calycina</i>	*	x	x
Poaceae	<i>Ehrharta longiflora</i>	*	x	
Poaceae	<i>Eragrostis curvula</i>	*	x	x
Poaceae	<i>Melinis repens</i>	*	x	
Poaceae	<i>Neurachne alopecuroidea</i>		x	x

Family	Taxon	Status	GHD	AECOM
Poaceae	<i>Pentameris airoides</i>	*	X	
Primulaceae	<i>Lysimachia arvensis</i>	*	X	
Proteaceae	<i>Banksia armata</i> var. <i>armata</i>		X	X
Proteaceae	<i>Banksia dallaneyi</i>		X	X
Proteaceae	<i>Banksia squarrosa</i>			X
Proteaceae	<i>Conospermum huegelii</i>		X	
Proteaceae	<i>Grevillea pilulifera</i>		X	
Proteaceae	<i>Grevillea wilsonii</i>		X	X
Proteaceae	<i>Hakea cyclocarpa</i>			X
Proteaceae	<i>Hakea incrassata</i>		X	X
Proteaceae	<i>Hakea lissocarpha</i>		X	
Proteaceae	<i>Hakea neospathulata</i>		X	X
Proteaceae	<i>Hakea ruscifolia</i>		X	
Proteaceae	<i>Hakea stenocarpa</i>		X	
Proteaceae	<i>Hakea trifurcata</i>		X	X
Proteaceae	<i>Hakea undulata</i>		X	
Proteaceae	<i>Hyparrhenia hirta</i>	*	X	
Proteaceae	<i>Isopogon asper</i>		X	
Proteaceae	<i>Lambertia multiflora</i> var. <i>darlingensis</i>			X
Proteaceae	<i>Petrophile striata</i>		X	
Proteaceae	<i>Stirlingia latifolia</i>		X	X
Proteaceae	<i>Synaphea acutiloba</i>		X	
Proteaceae	<i>Synaphea gracillima</i>		X	
Proteaceae	<i>Synaphea petiolaris</i> subsp. <i>petiolaris</i>		X	X
Restionaceae	<i>Desmocladus fasciculatus</i>		X	X
Restionaceae	<i>Hypolaena exsulca</i>		X	X
Rhamnaceae	<i>Trymalium odoratissimum</i> subsp. <i>odoratissimum</i>		X	
Rosaceae	<i>Rubus ulmifolius</i>	*, DP	X	
Rubiaceae	<i>Opercularia vaginata</i>		X	
Rutaceae	<i>Philothea spicata</i>		X	
Sapindaceae	<i>Diplopeltis huegelii</i> subsp. <i>lehmannii</i>		X	
Solanaceae	<i>Solanum nigrum</i>	*	X	
Stylidiaceae	<i>Levenhookia pusilla</i>			X
Stylidiaceae	<i>Stylidium araeophyllum</i>			X
Stylidiaceae	<i>Stylidium brunonianum</i>			X
Stylidiaceae	<i>Stylidium ciliatum</i>		X	
Stylidiaceae	<i>Stylidium dichotomum</i>		X	
Stylidiaceae	<i>Stylidium emarginatum</i>		X	
Stylidiaceae	<i>Stylidium hispidum</i>		X	
Stylidiaceae	<i>Stylidium purpureum</i>		X	
Stylidiaceae	<i>Stylidium repens</i>		X	X
Stylidiaceae	<i>Stylidium</i> sp.		X	
Thymelaeaceae	<i>Pimelea imbricata</i> var. <i>piligera</i>		X	

Family	Taxon	Status	GHD	AECOM
Thymelaeaceae	<i>Pimelea</i> sp.			X
Xanthorrhoeaceae	<i>Chamaescilla corymbosa</i>		X	X
Xanthorrhoeaceae	<i>Xanthorrhoea acanthostachya</i>			X
Xanthorrhoeaceae	<i>Xanthorrhoea gracilis</i>			X
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		X	X

\* = weed; WONS = Weed of National Significance, DP = Declared Plant, P2 = Priority 2



## Significant flora and weed locations

Taxon	Status	Count	Easting	Northing
<i>Asparagus asparagoides</i>	Declared Pest, WONS	2	406684.6787	6438617.273
<i>Zantedeschia aethiopica</i>	Declared Pest	1	406677.0095	6438618.069
<i>Zantedeschia aethiopica</i>	Declared Pest	12	406684.1922	6438613.778
<i>Zantedeschia aethiopica</i>	Declared Pest	1	406613.8825	6438939.923
<i>Rubus ulmifolius</i>	Declared Pest	15	406393.8318	6437854.41
<i>Rubus ulmifolius</i>	Declared Pest	10	406436.6012	6437873.003
<i>Rubus ulmifolius</i>	Declared Pest	13	406437.7517	6437838.572
<i>Rubus ulmifolius</i>	Declared Pest	35	406366.5599	6437916.55
<i>Rubus ulmifolius</i>	Declared Pest	28	406409.4836	6437847.995
<i>Rubus ulmifolius</i>	Declared Pest	20	406433.3652	6437850.117
<i>Rubus ulmifolius</i>	Declared Pest	20	406361.3392	6437934.358
<i>Moraea flaccida</i>	Declared Pest	10	406471.136	6435874.831
<i>Moraea flaccida</i>	Declared Pest	20	406650.179	6438612.723
<i>Eucalyptus x balanites</i>	Threatened	1	406911.6096	6439494.278
<i>Eucalyptus x balanites</i>	Threatened	1	406921.559	6439456.896
<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	Priority 2	1	406538.5939	6438897.56
<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	Priority 2	1	406542.5913	6438895.7
<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	Priority 2	1	406471.9233	6439314.593
<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	Priority 2	1	406574.4651	6439363.363
<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	Priority 2	2	406466.043	6435991.379
<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	Priority 2	2	406468.6484	6436048.282

# **Appendix G** – Flora likelihood of occurrence assessment

### Flora likelihood of occurrence assessment guidelines

Likelihood of occurrence	Guideline
Known/Recorded	Species recorded within survey area from field survey results or previous record
Likely	Species previously recorded within 5 km and large areas of suitable habitat occur in the survey area
Possible	Species previously recorded within 5 km and areas of suitable habitat occur/may occur in the survey area
Unlikely	Species previously recorded within 5 km, but suitable habitat does not occur in the survey area
Highly unlikely	Species not previously recorded within 5-10 km, suitable habitat does not occur in the survey area and/or the survey area is outside the natural distribution of the species
Other considerations	Intensity of the survey, availability of access, growth form type, recorded flowering times, cryptic nature of species

### Flora likelihood of occurrence assessment for conservation significant flora

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
Amaranthaceae	<i>Ptilotus sericostachyus</i> subsp. <i>roseus</i>	P1	-	Prostrate to ascending perennial, herb. Fl. pink-white, Sep to Dec. Habitat unknown. Last collected in 1906. Closest record is 0.6 km north east, however, coordinates unreliable. There is no information on FloraBase or from vouchered specimens. Two known locations in vicinity are in cleared areas.	Unlikely. Historical record within 2 km, however, coordinates unreliable. Suitable search effort did not record the taxon. Survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB
Apiaceae	<i>Eryngium pinnatifidum</i> subsp. <i>Palustre</i> (G.J. Keighery 13459)	P3	-	Herb. Recorded in <i>Melaleuca viminea</i> , <i>M. uncinata</i> open shrubland. Recorded from winter-wet flats. Brown sandy loam.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon.	NatureMap
Aponogetonaceae	<i>Aponogeton hexatepalus</i>	P4	-	Rhizomatous or cormous, aquatic perennial, herb, leaves floating. Fl. green-white, Jul to Oct. Mud. Freshwater: ponds, rivers, claypans. Closest record is 8.5 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB TPFL
Asparagaceae	<i>Thysanotus anceps</i>	P3	-	Rhizomatous, leafless perennial, herb, to 0.4 m high. Fl. purple, Oct to Dec. White or grey sand, lateritic gravel, laterite. Closest record is 9.2 km north east.	Unlikely. Suitable habitat does not occur in the survey area. Taxon associated with Darling Range. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	WAHERB TPFL
Asparagaceae	<i>Thysanotus glaucus</i>	P4	-	Caespitose, glaucous perennial, herb, 0.1-0.2 m high. Fl. purple, Oct to Dec or Jan to Mar. White, grey or	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken	WAHERB

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post- survey)	Source
				yellow sand, sandy gravel. Closest record is 4.1 km north west.	during reported flowering period for the taxon.	
Asparagaceae	<i>Thysanotus</i> sp. Badgingarra (E.A. Griffin 2511)	P2		Perennial, herb (with tuberous roots), ca 0.35 m high. Fl. blue, Dec. Grey sand with lateritic gravel. Closest record is 1.7 km north east.	Unlikely. Suitable habitat does not occur in the survey area. Taxon associated with Darling Range. Targeted search effort did not record the taxon.	WAHERB
Asteraceae	<i>Angianthus drummondii</i>	P3	-	Erect annual, herb, to 0.1 m high. Flowers yellow, Oct to Dec. Grey or brown clay soils, ironstone. Seasonally wet flats. Closest record is 9.5 km south west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB
Asteraceae	<i>Asteridea gracilis</i>	P3	-	Annual, herb, 0.15-0.35 m high. Fl. white-pink, Sep to Dec. Sand, clay, gravelly soils. Closest record is 6.2 km north.	Unlikely. Suitable habitat does not occur in the survey area. Taxon associated with Darling Range. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB TPFL
Asteraceae	<i>Millotia tenuifolia var. laevis</i>	P2	-	Ascending to erect annual, herb, 0.02-0.1 m high. Fl. yellow, Sep to Oct. Granite or laterite soils. Closest record is 6.8 km south east in Forestdale Nature Reserve.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB TPFL
Asteraceae	<i>Pithocarpa corymbulosa</i>	P3	-	Erect to scrambling perennial, herb, 0.5-1 m high. Flowers white, Jan to Apr. Gravelly or sandy loam. Amongst granite outcrops. Closest record is 6.8 km south east.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon.	NatureMap WAHERB TPFL

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
Boraginaceae	<i>Halgania corymbosa</i>	P3	-	Erect shrub, 0.35-1 m high. Fl. blue-purple, Aug to Nov. Gravelly soils, soils over granite. Closest record is 6.1 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB TPFL
Byblidaceae	<i>Byblis gigantea</i>	P3	-	Small, branched perennial, herb (or sub-shrub), to 0.45 m high. Fl. pink-purple/white, Sep to Dec or Jan. Sandy-peat swamps. Seasonally wet areas. Closest record is 4.2 km west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB
Casuarinaceae	<i>Allocasuarina grevilleoides</i>	P3	-	Dioecious, lignotuberous shrub, 0.15-0.4 m high. Species grows in sand over laterite and gravel on slopes in Darling Scarp. Closest record is 8.6 km north.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range. Targeted search effort did not record the taxon.	NatureMap WAHERB
Celastraceae	<i>Stackhousia</i> sp. Red-blotched corolla (A. Markey 911)	P3	-	Recorded on scarp associated with damplands in heath vegetation. Closest record is 6.3 km north east	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range. Targeted search effort did not record the taxon.	NatureMap WAHERB
Celastraceae	<i>Tripterococcus</i> sp. <i>Brachylobus</i> (A.S. George 14234)	P4	-	Erect perennial herb 80 cm high and 15 cm wide. Fl. green to yellow, Nov to Dec. Species grows in <i>Melaleuca preissiana</i> with <i>Nuytsia floribunda</i> low lying damplands on grey sand. Closest record is 6 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon.	WAHERB TPFL
Cyperaceae	<i>Eleocharis keigheryi</i>	T	V	Rhizomatous, clumped perennial, grass-like or herb (sedge), to 0.4 m high. Flowers green, Aug to Nov. Clay, sandy loam. Emergent in freshwater: creeks, claypans.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken	PMST NatureMap WAHERB

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post- survey)	Source
					during reported flowering period for the taxon.	
Cyperaceae	<i>Lepidosperma rostratum</i>	T	E	Rhizomatous, tufted perennial, grass-like or herb (sedge), 0.5 m high. Flowers brown. Peaty sand, clay amongst low heath in winter-wet swamps. Flowering May to June and the distinctive fruits are beaked toward the base of the style, and generally appear between late June and August. Closest record is 5 km west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon.	PMST NatureMap WAHERB TPFL
Cyperaceae	<i>Schoenus benthamii</i>	P3		Tufted perennial, grass-like or herb (sedge), 0.15-0.45 m high. Fl. brown, Oct to Nov. White, grey sand, sandy clay. Winter-wet flats, swamps. Closest record is 6.1 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	PMST NatureMap WAHERB
Cyperaceae	<i>Schoenus capillifolius</i>	P3	-	Semi-aquatic tufted annual, grass- like or herb (sedge), 0.05 m high. Flowers green, Oct to Nov. Brown mud. Claypans. Closest record is 8.2 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB TPFL
Cyperaceae	<i>Schoenus pennisetis</i>	P3		Tufted annual, grass-like or herb (sedge), 0.05-0.15 m high. Fl. purple- black, Aug to Sep. Grey or peaty sand, sandy clay. Swamps, winter- wet depressions. Closest record is 6.3 km north east.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	WAHERB TPFL
Cyperaceae	<i>Schoenus</i> sp. Waroona (G.J. Keighery 12235)	P3	-	Tufted annual, grass-like or herb (sedge), 0.02-0.06 m high. Flowers brown-red-green, Oct to Nov. Clay or	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken	NatureMap WAHERB

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
				sandy clay. Winter-wet flats. Closest record is 9.4 km south west.	during reported flowering period for the taxon.	
Cyperaceae	<i>Tetraria australiensis</i>	T	V	Rhizomatous, tufted perennial, grass-like or herb (sedge), to 1 m high. Flowers brown, Nov to Dec. Has been recorded on yellow and grey sand, moist grey sandy loam/light clay in open sedgelands amongst open Marri/Jarrah woodlands. The species favours winter-wet, swampy depressions, drainage lines or rises surrounding swamps. Closest record 4.7 km south (from Brickwood Reserve).	Unlikely. While potential suitable habitat may exist in the survey area (VT01), suitable search effort did not record the species. The survey was undertaken during reported flowering period for the taxon. While <i>Tetraria australiensis</i> is reported to be a fire ephemeral, flowering on mass post-fire (DEWHA 2008), no uncertain <i>Tetraria</i> collections were made within the survey area. The survey area lacks winter-wet, swampy depressions, or rises surrounding swamps. The drainage lines in the survey area are modified and contain aggressive weeds species.	PMST NatureMap WAHERB TPFL
Dasypogonaceae	<i>Calectasia cyanea</i>	T	CE	Rhizomatous, clump forming, woody perennial, herb, 0.1-0.6 m high, to 0.3 m wide. Fl. blue/purple, Jun to Oct. White, grey or yellow sand, gravel.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon	NatureMap
Droseraceae	<i>Drosera occidentalis</i>	P4		Fibrous-rooted, rosetted perennial, herb, to 0.025 m high. Fl. pink/white, Oct to Dec or Jan. Sandy & clayey soils. Swamps & wet depressions. Closest record is 0.9 km south (from Brickwood Reserve).	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	PMST NatureMap WAHERB
Ericaceae	<i>Andersonia gracilis</i>	T	E	Slender erect or open straggly shrub, 0.1-0.5(-1) m high. Fl. white-pink-purple, Sep to Nov. White/grey sand,	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the	PMST



Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
				sandy clay, gravelly loam. Winter-wet areas, near swamps.	taxon and the survey undertaken during reported flowering period for the taxon.	
Ericaceae	<i>Andersonia</i> sp. <i>Blepharifolia</i> (F. & J. Hort 1919)	P2		Recorded on hilltops on red sandy clays or gravel in heathland to woodland on Darling Scarp. Closest record is 7.07 km north.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range.	WAHERB
Ericaceae	<i>Styphelia filifolia</i>	P3		Grows on sandy soils of the coastal, usually in Banksia or Jarrah woodland and in low-lying situations. Closest record is 7.4 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	WAHERB
Fabaceae	<i>Acacia benthamii</i>	P2		Shrub, ca 1 m high. Fl. yellow, Aug to Sep. Sand. Typically found on limestone breakaways, and sand. Recorded along the SCP from Dandaragan to Rockingham. Closest record 3.6 km north east.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap TPFL
Fabaceae	<i>Acacia horridula</i>	P3		Harsh, slender, single-stemmed shrub, 0.3-0.6(-1) m high. Fl. yellow, May to Aug. Gravelly soils over granite, sand. Rocky hillsides. Closest record is 1.3 km west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon.	NatureMap WAHERB TPFL
Fabaceae	<i>Acacia lasiocarpa</i> var. <i>bracteolata</i> long peduncle variant (G.J. Keighery 5026)	P1		Shrub, 0.4-1.5 m high. Fl. yellow, May or Aug. Grey or black sand over clay. Swampy areas, winter wet lowlands. Closest record 9.3 km south west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB TPFL
Fabaceae	<i>Acacia oncinophylla</i> subsp. <i>patulifolia</i>	P4		Shrub, 0.5-2.5(-3) m high, 'minni-ritchi' bark, phyllodes 4-9 cm long, 3-6 mm wide. Fl. yellow, Aug to Nov or	Unlikely. Suitable habitat does not occur in the survey area. Taxon associated with Darling Range.	NatureMap WAHERB TPFL

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
				Nov to Dec. Granitic soils, occasionally on laterite. Closest record >10 km south.	Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	
Fabaceae	<i>Jacksonia gracillima</i>	P3		Perennial tufted herb with narrow leaves 10-40 cm long, with rose pink flowers, Oct-Nov. Grey sand, winter wet. Closest record 5.3 km west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB
Fabaceae	<i>Jacksonia sericea</i>	P4		Low spreading shrub, to 0.6 m high. Fl. orange, usually Dec or Jan to Feb. Species is found on calcareous and sandy soils. Closest record 7 km west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap TPFL
Goodeniaceae	<i>Goodenia arthrotricha</i>	T	E	Erect perennial, herb, to 0.4 m high. Fl. blue, Oct to Nov. Gravel. Granite rocks, slopes. Closest record is 8.1 km north.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	PMST NatureMap WAHERB TPFL
Haemodoraceae	<i>Meionectes tenuifolia</i>	P3		Annual semi aquatic herb. Flowers in Oct – Nov. Moist sandy clay. One record nearby in Forestdale Nature Reserve. Closest record is 5.2 km west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB
Hemerocallidaceae	<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	P2		Tufted perennial, herb, 0.15-0.25 m high. Flowers white-green, Sep. Grey-white-yellow sand, sandy clay. Flats, seasonally-wet sites.	Known – recorded in this survey and previous record in Lambert Lane Nature Reserve (DBCA)	NatureMap WAHERB TPFL

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
Malvaceae	<i>Lasiopetalum glutinosum</i> subsp. <i>glutinosum</i>	P3		Branched shrub, 1 m high. Fl pink, Sep to Dec. Brown clayey sand over granite. Closest record is 3.3 km east.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB
Malvaceae	<i>Lasiopetalum pterocarpum</i>	T	E	Open, multi-stemmed shrub (with distinctly winged fruit), to 1.2 m high. Flowers pink, Aug to Dec. Dark red-brown loam or clayey sand over granite. On sloping banks near creeklines.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon	PMST
Menyanthaceae	<i>Ornduffia submersa</i>	P4		Aquatic annual, 0.3 cm high. Fl white, Oct to Nov. Wetland. Closest record is 5.2 km west.	Unlikely. Suitable habitat does not occur in the survey area. Areas with open water within the survey area were associated with drainage and were degraded. Targeted search effort did not record the taxon.	NatureMap WAHERB TPFL
Myrtaceae	<i>Babingtonia urbana</i>	P3		Spreading shrub to 1 m tall x 1.5 m wide. Flowers pink, Jan to Feb. Brown clay loam, grey peaty sand over clay. Wetlands, seasonal damplands. Known from remnant bushland under <i>Corymbia calophylla</i> and <i>Xanthorrhoea preissii</i> on grey sandy clay sands and damplands. Closest record is 1.2 km south.	Unlikely. Some habitat occurs in the survey area (VT01). Targeted search effort did not record the taxon. The survey was undertaken outside the flowering period, but this species is not cryptic.	NatureMap WAHERB TPFL
Myrtaceae	<i>Beaufortia purpurea</i>	P3		Erect or spreading shrub, 0.3- 1.5 m high. Fl. red-purple, Oct to Dec or Jan to Feb. Lateritic or granitic soils. Rocky slopes. Closest record is 7.5 km north east.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range. Targeted search effort did not record the taxon.	NatureMap WAHERB

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
Myrtaceae	<i>Calothamnus accedens</i>	P4		Erect & slender shrub, to 1.8 m high. Fl. pink-red. Found on road verges and grows in sandy soils over laterite. Closest record is 6.2 km north east.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon.	NatureMap WAHERB
Myrtaceae	<i>Calothamnus graniticus</i> subsp. <i>leptophyllus</i>	P4		Erect, multi-stemmed shrub, 1-2 m high. Fl. red, Jun to Aug. Clay over granite, lateritic soils. Hillsides. Closest record 7.6 km north east.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range. Targeted search effort did not record the taxon	NatureMap WAHERB TPFL
Myrtaceae	<i>Calytrix breviseta</i> subsp. <i>breviseta</i>	T	EN	Shrub, 0.4-1 m high. Fl. purple-blue, Oct to Nov. Occurs on sandy clay on swampy flats. Occurs in the Kenwick area of Perth. Historically, the species was also known from Gosnells and Bellevue, but it is now extinct in these areas. Recorded from the Greater Brixton St wetlands. The species is restricted to winter-wet clay flats with low shrubs or jarrah forest. Germination is likely to be stimulated by fire or smoke, however, germination has also been observed in the absence of disturbance. Closest record is 6.1 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB PMST
Myrtaceae	<i>Calytrix simplex</i> subsp. <i>simplex</i>	P1		Shrub, ca 0.2 m high. Fl. purple, Oct to Nov. Records are in heath and Jarrah woodland on Scarp / Jarrah Forest. Closest record is 1.1 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range. Targeted search effort did not record the taxon.	NatureMap WAHERB
Myrtaceae	<i>Darwinia apiculata</i>	T	EN	Densely branched shrub, 0.4-0.5 m high. Fl. green & yellow/red, Oct. Lateritic soils.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range.	NatureMap WAHERB

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
				Closest record is 8.1 km north east.	Targeted search effort did not record the taxon.	TPFL PMST
Myrtaceae	<i>Eucalyptus x balanites</i>	T	E	(Mallee), to 5 m high, bark rough, flaky. Fl. white, Oct to Dec or Jan to Feb. Sandy soils with lateritic gravel. Grows in open Marri woodland with <i>Allocasuarina humilis</i> , <i>Corymbia calophylla</i> , <i>Eucalyptus lane-poolei</i> , <i>Hakea</i> sp., <i>Xanthorrhoea preissii</i> . Population known from Fletcher Park.	Known – recorded during this survey from previous record at Fletcher Park.	PMST NatureMap WAHERB TPFL
Myrtaceae	<i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>	P4		Erect shrub, 0.2-0.75 m high. Flowers pink, May or Nov to Dec or Jan. Sand, sandy clay. Winter-wet depressions. Frequently in heath, shrubland and open woodland. Closest record 2.7 km west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon. The survey was undertaken outside the flowering period, but this species is not cryptic.	NatureMap WAHERB TPFL
Orchidaceae	<i>Caladenia huegelii</i>	T	EN	Tuberous, perennial, herb, 0.25- 0.6 m high. Flowers green & cream & red. Grey or brown sand, clay loam. Grows in well-drained, deep sandy soils in low mixed woodlands of <i>Banksia attenuata</i> , <i>B. menziesii</i> , <i>B. ilicifolia</i> , <i>Allocasuarina fraseriana</i> and Jarrah. It tends to favour areas of lush undergrowth. The preferred soil conditions are variable and range from wet to moist to dry. Killed by fire when flowers or leaves are present and its growth is suppressed by weed invasion. Flowers from September to October and is thought to fruit in the same season. The species dies back to underground	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB TPFL PMST

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
				tubers over summer. Plants may not flower each year. However, after disturbance to the canopy, or following summer fire, this species can be found flowering profusely. Closest record is 6.95 km north west.		
Orchidaceae	<i>Diplolaena andrewsii</i>	T	EN	Erect shrub, 0.5-1 m high, inner involucre bracts glabrous, leaves broadly cordate. Fl. red, Jul to Oct. Loam, clay. Granite outcrops & hillsides. No recent records within the study area.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	PMST
Orchidaceae	<i>Diuris drummondii</i>	T	VU	Tuberous, perennial, herb, 0.5-1.05 m high. Fl. yellow, Nov to Dec or Jan. Grows in Low-lying depressions, areas that often contain surface water well into summer. No recent records within the study area.	Unlikely. Suitable habitat does not occur in the survey area. The preferred habitat for the species is depressions and low-lying areas with surface water, which were not recorded within the survey area Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	PMST
Orchidaceae	<i>Diuris micrantha</i>	T	VU	Tuberous, perennial, herb, 0.3- 0.6 m high. Fl. yellow & brown, Sep to Oct. Brown loamy clay. Winter-wet swamps, in shallow water. This species is known from seven populations, from east of Kwinana and south towards the Frankland area, WA. It is found in small populations, on dark, grey to blackish, sandy clay-loam substrates in winter wet depressions or	Unlikely. Suitable habitat does not occur in the survey area. The preferred habitat for the species is winter-wet swamps, in shallow water, which was not recorded within the survey area Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	PMST WAHERB

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
				swamps. The bases of the flowering plants are often covered with shallow water. Closest record is 3.6 km north west.		
Orchidaceae	<i>Diuris purdiei</i>	T	EN	Tuberous, perennial, herb, 0.15- 0.35 m high. Flowers yellow, from late September to mid- October, but only after a summer or early autumn fire (Brown et al. 1998). It grows on sand to sandy clay soils, in areas subject to winter inundation, and amongst native sedges and dense heath with scattered emergent <i>Melaleuca preissiana</i> , <i>Corymbia calophylla</i> , <i>E. marginata</i> and <i>Nuytsia floribunda</i> . Closest record is within the survey area at Fletcher Park (DBCA TPFL record dated 2005).	Possible. A previous record in the south of Fletcher Park (outside of the rail corridor) is present in the survey area with VT01. Targeted search effort (traverses) during the flowering period did not record this species. <i>Diuris purdiei</i> flowers between late September to mid-October, but only in the season after a hot summer or early autumn fire (Brown et al. 1998). The species is dependent on fire for flowering and may not respond unless a suitable fire event occurs in the area. While the species was not recorded during this survey, in the absence of fire, post-survey it is considered possibly occurring. It is noted that the area has <i>*Watsonia meriana</i> which may have reduced the ability for the population to persist.	TPFL
Orchidaceae	<i>Drakaea elastica</i>	T	EN	Tuberous, perennial, herb, 0.12- 0.3 m high. Flowers red and green and yellow. Flowers are first seen in late September and continue flowering until late October or more rarely early November. Individual plants may not flower every year. The plant dies back to a dormant underground tuber over summer. The best time to look	Unlikely. Suitable habitat does not occur in the survey area. The preferred habitat for the species is <i>Banksia</i> woodlands and tall shrublands, which was not recorded within the survey area. Targeted search effort did not record the taxon and the survey undertaken	NatureMap TPFL PMST

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
				<p>for the plant is in July and August when the leaves are relatively conspicuous.</p> <p>Occurs on bare patches of white or grey sand in low-lying situations adjoining winter-wet swamps. Occurs in south-west WA and grows at only 42 locations with a total population size of around 230 plants. To survive, the orchid relies on a specific fungus which assists germination and provides nutrients. It is also dependent on a single species of wasp that pollinates its flowers.</p> <p>Closest record is 5.5 km west.</p>	during reported flowering period for the taxon.	
Orchidaceae	<i>Drakaea micrantha</i>	T	V	<p>Tuberous, perennial, herb, 0.15- 0.3 m high. Flowers red &amp; yellow, September to October. Known from 32 small, scattered populations from Perth to Albany, with secure populations in Frankland National Park. The populations are often very difficult to locate from year-to year, as they do not necessarily flower annually (Brown et al. 1998). The Dwarf Hammer-orchid is usually found on cleared firebreaks or open sandy patches that have been disturbed, where competition from other plants has been removed (Brown et al. 1998). This suggests that the plants may need a disturbance event at some point, and that plants regenerate from soil</p>	Unlikely. Suitable habitat does not occur in the survey area. The preferred habitat for the species is typically <i>Banksia</i> woodland or <i>Kunzea glabrescens</i> thickets, which was not recorded within the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap



Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
				stored seed after such an event (DEC 2008). The Dwarf Hammer-orchid occurs in infertile grey sands, in Jarrah ( <i>Eucalyptus marginata</i> ) and Common Sheoak ( <i>Allocasuarina fraseriana</i> ) woodland or forest associated with Banksia species. No recent records within the study area.		
Orchidaceae	<i>Eriochilus</i> sp. Roleystone (G. Brockman 1140)	P1		Tuberous, perennial, herb. Fl. white or pink. Associated with gravelly soils on scarp. Closest record is 5.8 km north east	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range.	NatureMap WAHERB
Orchidaceae	<i>Thelymitra dedmaniarum</i>	T	EN	Tuberous, perennial, herb, to 0.8 m high. Fl. yellow, Nov to Dec or Jan. Found over a small area near Gidgegannup in the Darling Range, growing on granite slopes and in open wandoo woodland (Brown et al. 2013). No recent records within the study area.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range.	PMST
Orchidaceae	<i>Thelymitra magnifica</i>	P1		Tuberous, perennial, herb to 0.3 m high. Fl. brown and yellow, fragrant, late Sep to Oct. Found over a small area along the edge of the Darling Scarp east of Perth, growing amongst dense heath in rocky soils surrounding exposed granite outcrops (Brown et al. 2013). A historic record is 0.6 km east, arials indicate this has been cleared. Closest record from Darling Range Regional Park, 6.4 km north.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range.	NatureMap WAHERB TPFL

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
Orchidaceae	<i>Thelymitra stellata</i>	T	E	Tuberous, perennial, herb, 0.15-0.25 m high. Flowers yellow & brown, late Sep to Nov. Found between Three Springs and Pinjarra with disjunct populations near Corrigin and Dumbleyung. In the Darling Range grows in Jarrah forests, but further north is found in low heath on the rocky tops of small hills (Brown et al. 2013). Closest record is 2.2 km east.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range.	NatureMap WAHERB TPFL
Poaceae	<i>Austrostipa jacobiana</i>	T	CE	Tufted rhizomatous herb, to 1.2 m, leaf sheaths hairy. Fl. Oct to Nov. Mature seeds present Nov to Dec with some spikelets not falling until early January. Grows on the SCP in a flat low-lying area on the fringe of a seasonally wet depression on calcareous clay to fine sandy clay. Recorded from Bunbury and Southern River. At Southern River associated vegetation is sparse Marri over <i>Xanthorrhoea preissii</i> , <i>Viminaria juncea</i> and <i>Jacksonia sternbergiana</i> over occasional <i>Phyllanthus calycinus</i> , <i>Tricoryne elatior</i> , <i>Lepidosperma longitudinale</i> and <i>Mesomelaena tetragona</i> amongst weeds of Poaceae and Iridaceae spp. Closest record is 4.7 km north west.	Unlikely. Some suitable habitat occurs in the survey area (VT01). Targeted search effort did not record the taxon. The survey was undertaken during the flowering period and this species is not cryptic.	NatureMap WAHERB TPFL PMST

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
Proteaceae	<i>Banksia kippistiana</i> var. <i>paenepeccata</i>	P3		Erect, prickly, lignotuberous shrub, 0.3-1.2 m high. Fl. yellow-cream, Oct to Nov. Species found in lateritic gravelly soils associated with the Scarp in Jarrah/Marri open woodland on the Darling Scarp. Closest record 0.5 km west, however, historical record from 1901 with coordinates that are unreliable.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range.	NatureMap WAHERB
Proteaceae	<i>Banksia mimica</i>	T	V	Prostrate, lignotuberous shrub, 0.15-0.4 m high. Fl. yellow brown, Dec or Jan to Feb. Grows in white or grey sand over laterite, and sandy loam. Closest record is 8.06 km north associated with Kingia and Byblis.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB PMST
Proteaceae	<i>Conospermum undulatum</i>	T	VU	Erect, compact shrub, 0.6-2 m high. Fl. white-other, May to Oct. Grey or yellow-orange clayey sand. Closest record is 6.1 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap WAHERB TPFL PMST
Proteaceae	<i>Grevillea curviloba</i> subsp. <i>incurva</i>	T	E	Prostrate to erect shrub, 0.1-2.5 m high. Flowers white-cream, Aug to Sep. Sand, sandy loam. Winter-wet heaths. No recent records within the study area.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap PMST
Proteaceae	<i>Grevillea pimeleoides</i>	P4		Non-lignotuberous shrub, 0.4-2.4 m high. Fl. yellow-orange, May to Nov. Gravelly soils over granite. Rocky hillsides. Closest record is 6.8 km north east.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	WAHERB

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
Proteaceae	<i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696)	T	CE	Dense, clumped shrub 25-65 cm tall, to 20-80 cm wide. Flowers yellow, flowering between Sep to Nov. Occurs on grey, clayey sand with lateritic pebbles in low woodland areas near winter-wet flats. This species is known from five subpopulations south of Perth from Serpentine to Dardanup. It occurs on road verges, rail reserves, private property and a nature reserve. Closest record >10 km south of the survey area.	Unlikely. Some suitable habitat occurs in the survey area (VT01). Targeted search effort did not record the taxon. The survey was undertaken during the flowering period and this species is not cryptic. Specimens of synaheas were collected and identifications confirmed at the WA Herbarium.	NatureMap PMST
Proteaceae	<i>Synaphea</i> sp. Pinjarra Plain (A.S. George 17182)	T	E	Erect, clumped shrub (sub-shrub), to 0.8 m high. Flowers yellow, Sep to Nov. Occurs predominantly on flat terrain on grey-brown sandy loams. It is also recorded in heavier brown clay-sand overlain by laterite pebbles. Recorded from the boundaries of seasonal wetlands. Grows in open woodland of <i>Corymbia calophylla</i> , <i>Xanthorrhoea preissii</i> over Open Shrubland of <i>Pericalymma ellipticum</i> , <i>Kunzea micrantha</i> , <i>Hakea varia</i> , <i>Adenanthos meisneri</i> , <i>Stirlingia latifolia</i> S. <i>petiolaris</i> and <i>S. gracillima</i> over Sedgeland of <i>Mesomelaena tetragona</i> and <i>Tetraria octandra</i> . Recorded in a linear band from north of Mundijong to West Coolup. Closest record 2.5 km south.	Unlikely. Some suitable habitat occurs in the survey area (VT01). Targeted search effort did not record the taxon. The survey was undertaken during the flowering period and this species is not cryptic. Specimens of synaheas were collected and identifications confirmed at the WA Herbarium.	NatureMap WAHERB TPFL PMST

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
Proteaceae	<i>Synaphea</i> sp. Serpentine (G.R. Brand 103)	T	CE	<p>Perennial, erect, clumped shrub to 60 cm high by 50 cm wide. Flowers yellow, Aug-Nov.</p> <p>Grows predominantly on grey brown sandy loams or clay in seasonally wet areas. Associated species include <i>Adenanthos meisneri</i>, <i>Corymbia calophylla</i>, <i>Kingia australis</i>, <i>Kunzea micrantha</i>, <i>Mesomelaena tetragona</i>, <i>Pericalymma ellipticum</i>, <i>Tetraria octandra</i>, <i>Tricoryne elatior</i> and <i>Xanthorrhoea preissii</i>.</p> <p>Occurs over a narrow geographic range from west of Byford to south of Serpentine with an extent of occurrence of about 60 km<sup>2</sup> (DPaW 2017).</p> <p>Closest record is within the survey area at Lambert Lane Nature Reserve.</p>	<p>Unlikely. A previous record <i>Synaphea</i> sp. Serpentine (G.R. Brand 103) from plot Lamb01 (located in Lambert Lane Nature Reserve) is present within the survey area. This DBCA WAHERB record is from 1995, but is not contained in the DBCA TPFL database, nor the Interim Recovery Plan for <i>Synaphea</i> sp. Serpentine (G.R. Brand 103) (DPaW 2017). A review of the specimen label details, indicates the record is from Lambkin Nature Reserve in Serpentine, which is approximately 12.5 km south of the project. The locality aligns with population information provided in the Interim Recovery Plan for <i>Synaphea</i> sp. Serpentine (G.R. Brand 103) (DPaW 2017). Furthermore, a review of the Lamb01 plot species list (available from NatureMap) confirms no <i>Synaphea</i> sp. Serpentine (G.R. Brand 103) listed. GHD completed targeted searches (traverses) for <i>Synaphea</i> species across the survey area. The searches were completed during the reported flowering period of <i>Synaphea</i> sp. Serpentine (G.R. Brand 103) as well as other <i>Synaphea</i> species. Multiple collections of <i>Synaphea</i> spp. were made from Lambert Lane Nature</p>	NatureMap WAHERB PMST

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post- survey)	Source
					Reserve, Fletcher Park and across the rail corridor through targeted searching (traverses) and quadrat and opportunistic sampling. Of these collections <i>Synaphea gracillima</i> , <i>S. petiolaris</i> subsp. <i>petiolaris</i> and <i>S. acutiloba</i> were identified through the identification services at the WA Herbarium. No individuals of <i>Synaphea</i> sp. Serpentine (G.R. Brand 103) were recorded from this survey, despite adequate survey effort. Based on the above information regarding the likely error of the <i>Synaphea</i> sp. Serpentine (G.R. Brand 103) record within Lambert Lane Nature Reserve and the adequate survey effort undertaken, it is concluded that <i>Synaphea</i> sp. Serpentine (G.R. Brand 103) is unlikely to occur in the survey area.	
Rhamnaceae	<i>Stenanthemum sublineare</i>	P2		Erect shrub, to 0.1 m high. Fl. green, Oct to Dec. Littered white sand. Coastal plain. Closet record 7.4 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	WAHERB
Rutaceae	<i>Boronia tenuis</i>	P4		Procumbent or erect & slender shrub, 0.1-0.5 m high. Fl. blue/pink-white, Aug to Nov. Plant grows amongst laterite, stony soils and granite of the Darling Scarp. Closest record is 6.2 km north.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range.	NatureMap WAHERB

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post-survey)	Source
Scrophulariaceae	<i>Eremophila glabra</i> subsp. <i>chlorella</i>	T	EN	Prostrate & spreading or sprawling shrub, 0.2-1 m high. Fl. green-yellow, Jul to Nov. Sandy clay. Winter-wet depressions. No recent records within the study area.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	PMST
Solanaceae	<i>Anthocercis gracilis</i>	T	VU	Erect, spindly shrub, to 0.6(-1) m high. Flowers yellow-green, Sep to Oct. Sandy or loamy soils. Granite outcrops. No recent records within the study area.	Unlikely. Suitable habitat does not occur in the survey area. Species associated with Darling Range.	NatureMap PMST
Stylidiaceae	<i>Levenhookia pulcherrima</i>	P3		Annual (ephemeral), herb, 0.03-0.7 m high. Fl. pink-red, Oct to Nov. Sand. No recent records within the study area.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap
Stylidiaceae	<i>Stylidium aceratum</i>	P3		Fibrous rooted annual, herb, 0.05-0.09 m high, leaves spatulate. Flowers pink/white, Oct to Nov. Sandy soils. Swamp heathland. No recent records within the study area.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap PMST
Stylidiaceae	<i>Stylidium longitubum</i>	P4		Erect annual (ephemeral), herb, 0.05-0.12 m high. Fl. pink, Oct to Dec. Sandy clay, clay. Seasonal wetlands. Closest record is 5.3 km north west.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken during reported flowering period for the taxon.	NatureMap
Thymelaeaceae	<i>Pimelea rara</i>	P4		Shrub, 0.2-0.35 m high. Fl. white, Dec or Jan. Species grows in the Northern Jarrah Forest, lateritic soils.	Unlikely. Suitable habitat does not occur in the survey area. Targeted search effort did not record the taxon and the survey undertaken	WAHERB

Family	Taxon	BC Act/ DBCA	EPBC Act	Description and closest record information (if available) (WA Herbarium 2020), (DAWE 2020)	Likelihood of occurrence (post- survey)	Source
				Closest record is 9.3 km north east.	during reported flowering period for the taxon.	



## References

Brown A, Dixon, K, French, C and Brockman G 2013, Field Guide to the Orchids of Western Australia, Perth, Simon Nevill Publications.

Department of Environment and Conservation 2008, Glossy-leafed Hammer Orchid (*Drakaea elastica*) Interim Recovery Plan 2008-2013. Interim Recovery Plan No. 256. Department of Environment and Conservation, Western Australia.

Department of the Environment, Water, Heritage and the Arts 2008, *Approved Conservation Advice for Tetraria australiensis (Southern Tetraria)*. Canberra: Department of the Environment, Water, Heritage and the Arts.

Department of the Environment, Water, Heritage and the Arts 2009, *Approved Conservation Advice for Synaphea sp. Fairbridge Farm (D. Papenfus 696) (Selena's Synaphea)*. Canberra, ACT: Department of the Environment, Water, Heritage and the Arts.

Department of Parks and Wildlife 2017, Serpentine Synaphea (*Synaphea sp. Serpentine (G.R. Brand 103)*) Interim Recovery Plan 2017–2022. Interim Recovery Plan No. 380. Department of Parks and Wildlife, Western Australia.

Threatened Species Scientific Committee 2018, Conservation Advice *Synaphea sp. Pinjarra Plain (A.S. George 17182)*. Canberra: Department of the Environment and Energy.

GHD

Level 10  
999 Hay Street

T: 61 8 6222 8222 F: 61 8 9463 6012 E: permail@ghd.com



© GHD 2021

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

12532927-59869-

76/[https://projectsportal.ghd.com/sites/pp18\\_01/byfordrailextensione2/ProjectDocs/12532927-REP\\_BRE Flora and Vegetation Survey.docx](https://projectsportal.ghd.com/sites/pp18_01/byfordrailextensione2/ProjectDocs/12532927-REP_BRE Flora and Vegetation Survey.docx)

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	J Collins, N Barratt	J Tindiglia		J Tindiglia		22/02/2021
1	J Tindiglia	D Farrar		D Farrar		12/03/2021

[www.ghd.com](http://www.ghd.com)

