

National River Health Program

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MONITORING RIVER HEALTH INITIATIVE TECHNICAL REPORT
REPORT NUMBER 9

Support and Completion of Australia-Wide Assessment of River Health Models: Australian Capital Territory, Victoria and Tasmania (Phase I Final Report)

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National River Health Program
**Support and Completion of Australia Wide Assessment of
River Health Models- Phase I**

FINAL REPORT

April 2000

CRC for Freshwater Ecology

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Project Details

Project Title:

Support and Completion of Australia Wide Assessment of River Health Models Phase 1

Project Staff:

Leader: A/Prof. Richard Norris

Research Assistants: Julie Coysh and Sue Nichols

Project Duration:

1 August 1999 to 31 May 2000.

The project research agreement was not signed until September 1999, therefore project commencement was delayed by one month.

Milestones:

Milestone 1:

Project Commencement

Milestone 2:

Completion of all alpha level models for three states/territories from Victoria, ACT, WA, Tasmania and NSW, and two models for Queensland, following review by steering committee. The three states/territories will be determined by supply of data.

Mount final alpha level models on WWW site and software platform, with supporting documentation.

Provide assistance and training in statistical analysis as required by lead agencies.

Progress report to be lodged with EA

Milestone 3:

Final Report to be lodged with EA within 30 days of project completion

The due date for Milestones was extended by 3 months, therefore, the revised due dates for milestones are

Milestone 2: 1 April 2000

Milestone 3: 1 May 2000

Project Objectives:

- 1) To complete the second iteration of the AUSRIVAS models for all states and territories, taking into account:
 - a) requirements for replacement or removal of poor quality biological and environmental data
 - b) further additions and/or removals of reference sites, in consultation with the lead agencies
 - c) further considerations with regard to site classification such as the numbers of groups selected
- 2) All models are to be revised and approved at an alpha level
- 3) To mount all revised alpha level models on the AUSRIVAS WWW site at the University of Canberra, with all necessary supporting documentation including taxonomic codes

- 4) To provide statistical advice to National River Health Program lead agencies on matters associated with data entry, site classification, discriminant function analysis and model construction.

Introduction

Experience had led to a much better knowledge of the effects of data quality on the AUSRIVAS models. This project was designed to enable a second iteration of all the state/territory AUSRIVAS models to allow the incorporation of improvements in data quality and reference site selection. In addition, state and territory agencies have now had an opportunity to review existing reference sites and sample new reference sites, requiring the construction of new models. All states and territories were contacted when the project commenced and advised that they had the opportunity to have their models recreated. The first states/territories to supply the Cooperative Research Centre for Freshwater Ecology (CRC FE) a complete set of six data sets were the Australian Capital Territory, Victoria and Tasmania, therefore these states and territories were included in Phase 1 of this project.

Data formatting

Agencies requiring the CRC FE to complete all components of the analysis were requested to provide all relevant physical/chemical data and biological data for reference sites to be included in the model in Excel spreadsheet format.

Habitat data for combined season models were averaged for two sampling seasons in a year. If a site was not sampled in both seasons it was unsuitable for inclusion in the dataset for a combined season model. Invertebrate data for two sampling seasons per year are summed, increasing the taxon list for a site and generally providing more robust model predictions. Sites sampled in consecutive years were treated as separate sites to incorporate the year to year variation in the models. Invertebrate and habitat data files were checked for missing data and inappropriate variables (eg. larvae and adult entries for the one taxon). Invertebrate data were then transformed to presence/absence data before analysis because the models only use presence/absence data.

States/Territories checking their own data and performing parts of the analysis did so according to the guidelines provided (Appendix A). The ACT had all data checking and analysis performed by the CRCFE, Tasmania analysed data up to the classification stage and Victoria completed analysis up to the discriminant function analysis stage. Thus, while each state/territory performed parts of their own analyses, the methods were standardized to the following procedures.

Analyses

Rare Taxa

Rare taxa were removed from invertebrate data sets before analysis. For AUSRIVAS, rare taxa are considered those that occur at less than 10% of sites for data sets of 100 sites or less, or taxa that occur at less than 10 sites for data sets of more than 100 sites.

Classification

The first step in the model building process was to classify reference sites that had similar invertebrate compositions, based on family level presence/absence data, using the PATN multivariate analysis package (Belbin 1994). The Bray-Curtis association measure was used on the recommendation of Faith *et al.* (1987) as a robust measure of association for cluster analysis and ordination. Groups were selected based on the dissimilarity level of the clusters, the tightness of the reference site clusters and how well agency staff thought the groups represented a 'type' of reference site. A number of classification methods can be used to form the reference site groupings. The agglomerative clustering technique, flexible Unweighted Pair-Group arithmetic Averaging (UPGMA) recommended by Belbin and McDonald (1993) was the most commonly used technique. The classifications were viewed as dendrograms allowing the fusion level, which divides sites into groups, to be selected. Based on the recommendations of Wright *et al.* (1993) groups should contain not less than 5 sites. Small classification groups were either deleted from further analysis or these sites were amalgamated with another group of appropriate reference sites. The list of sites used in all the invertebrate classifications and their final group membership for these sites are listed in Appendix B.

Discriminant Function Analysis

The AUSRIVAS models use habitat features (predictor variables) from a site to predict which taxa should occur at that site in the absence of environmental damage. Habitat variables that are commonly affected by human induced impacts should not be used as predictor variables. Variables such as turbidity, dissolved oxygen and phosphorus concentrations are often affected by human impacts and might provide spurious predictions if used to predict the membership of test sites to the reference site groups. In contrast, habitat features such as altitude, distance from source, latitude and longitude often make good predictor variables because they are rarely affected by human impacts.

The reference site groups from the UPGMA classification were entered as a variable into the reference habitat data set and a Stepwise Multiple Discriminant Function Analysis (MDFA) performed to select the predictor variables used in an AUSRIVAS model. The Stepwise MDFA was performed in the SAS statistical package version 6.12 (SAS Institute 1995). This procedure selected a subset of habitat variables that best discriminated among the groups of sites formed from the faunal classifications. The stepwise procedure included habitat variables one at a time, selecting at each step the variables that gave the best group discrimination. At each step of the analysis the significance of variables already included were checked and variables that were no longer significant were removed. The significance levels for variables to enter and be retained by the Stepwise MDFA both were set at 0.05.

The subsets of habitat variables from the Stepwise MDFA were then tested in a MDFA to predict the probabilities of group membership for a reference site.

Biased discriminations were avoided by using the cross-validation option that predicts group membership of each site separately. A subset of habitat variables that produced the lowest error in predicting the group membership of reference sites was obtained from this procedure. However, the actual value of the misclassification error is not critical because AUSRIVAS uses all the probabilities of a site belonging to each group for site predictions, rather than the allocation to a single group as performed by the cross-validation procedure. Thus, sites with an affinity for two or more groups can be misclassified but still provide adequate predictions for a model.

The subsets of habitat variables obtained from the stepwise MDFA were used as predictor variables for the AUSRIVAS model under construction. The predictor variables and the reference site invertebrate-classification form the foundation of AUSRIVAS, allowing predictions of the taxa expected at new “test” sites. The list of predictor variables, their descriptions and the misclassification errors for each the agency models constructed under this contract are provided in Tables 1 and 2.

Table 1 Predictor variables and misclassification errors for state and territory models.

| Model | No. of Classification groups | Misclass. Error | Predictor variables | | | | | | | | | | | | |
|---------------------|------------------------------|-----------------|---------------------|-------------|-------------|-------------|-----------|-------------|-------------|-------------|-----------|-----------|-------------|------------|----------|
| ACT Autumn Edge | 3 | 0.1395 | ALKALINITY | ALTITUDE | DEPTH | DFS | HABAREA | LATITUDE | LONGITUDE | RIPWIDTH | STORDER | TREES>10M | | | |
| ACT Autumn Riffle | 5 | 0.1973 | ALKALINITY | ALTITUDE | BOULDER | CATCHAREA | COBBLE | DFS | GFS | LONGITUDE | PEBBLE | RIPWIDTH | SHRUB/VINE | STORDER | |
| ACT Spring Edge | 4 | 0.3432 | ALTITUDE | CATCHAREA | DEPTH | DFS | EBANKVEG | LONGITUDE | MACROCAT | PEBBLE | SHADING | STORDER | STREAMWIDTH | TREES >10M | VELOCITY |
| ACT Spring Riffle | 3 | 0.2784 | ALTITUDE | CATCHAREA | DFS | HABAREA | LONGITUDE | | STORDER | | | | | | |
| ACT Combined Edge | 3 | 0.237 | ALKALINITY | BANKWIDTH | CATCHAREA | DFS | EBANKVEG | HABAREA | LATITUDE | LONGITUDE | REBOULDER | VELOCITY | | | |
| ACT Combined Riffle | 3 | 0.1566 | ALKALINITY | ALTITUDE | BANKWIDTH | LONGITUDE | REBOULDER | RECOBBLE | REGRAVEL | TREES>10 | VEGCOVER | | | | |
| TAS Autumn Edge | 8 | 0.3741 | BOULDER | COND | DEPTHCM | LATITUDE | LONGITUDE | | | | | | | | |
| TAS Autumn Riffle | 5 | 0.4102 | ALTITUDE | CATCHAREA | COBBLE | COND | DFS | LATITUDE | LONGITUDE | RIFFAREA | STORDER | | | | |
| TAS Spring Edge | 5 | 0.4024 | LATITUDE | EBANKVEG | LONGITUDE | STREAMSLOPE | DFS | STREAMWIDTH | | | | | | | |
| TAS Spring Riffle | 4 | 0.4502 | LATITUDE | LONGITUDE | STREAMSLOPE | STREAMWIDTH | BOULDER | DEPTHCM | | | | | | | |
| TAS Combined Edge | 4 | 0.4187 | COBBLE | COND | DEPTHCM | LATITUDE | LONGITUDE | RIPVEG | SHADING | STORDER | | | | | |
| TAS Combined Riffle | 4 | 0.4596 | ALTITUDE | DFS | LONGITUDE | PEBBLE | STORDER | STREAMSLOPE | STREAMWIDTH | | | | | | |
| VIC Autumn Edge | 10 | 0.4904 | LATITUDE | LONGITUDE | REACHPHI | SHADING | MACROTAXA | LOGALTITUDE | LOGCATAREA | LOGALK | | | | | |
| VIC Autumn Riffle | 9 | 0.4990 | LOGALTITUDE | LONGITUDE | LOGCATAREA | LOGBEDROCK | SUBHETERO | LOGALK | | | | | | | |
| VIC Spring Edge | 13 | 0.4753 | LATITUDE | LONGITUDE | VEGCAT | SHADING | LOGALK | LOGALTITUDE | LOGGRAVEL | | | | | | |
| VIC Spring Riffle | 8 | 0.4696 | LOGDFS | LOGALTITUDE | LONGITUDE | LOGSTWIDTH | REBEDROCK | REBOULDER | REACHPHI | SHADING | LOGALK | | | | |
| VIC Combined Edge | 9 | 0.4433 | LATITUDE | LONGITUDE | REACHPHI | VEGCAT | SHADING | LOGALTITUDE | LOGCATAREA | LOGMACROCAT | LOGALK | | | | |
| VIC Combined Riffle | 10 | 0.4018 | LATITUDE | LONGITUDE | DEPTHCM | SUBHETERO | SHADING | LOGALTITUDE | RECOBBLE | REPEBBLE | LOGALK | | | | |

Table 2: AUSRIVAS codes, description and units of predictor variables used for new models created under this contract.

| AUSRIVAS Code | Description and units |
|----------------------|--|
| ALKALINITY | Total carbonates (mg/l) |
| ALTITUDE | Height above sea level (m) |
| BANKWIDTH | Distance between the banks (m) |
| BOULDER | Percent boulder (>256mm) in habitat |
| CATCHAREA | Catchment area upstream of the sampled site (KM2) |
| COBBLE | Percent cobble (64-256mm) in habitat |
| COND | Conductivity |
| DEPTH | Mean water depth of habitat (m) |
| DEPTHCM | Mean water depth of habitat (cm) |
| DFS | Distance from source (km) |
| EBANKVEG | Trailing bank vegetation category |
| HABAREA | Percent habitat in reach |
| LATITUDE | LATITUDE |
| LOGALK | Log 10 - Total carbonates (mg/l) |
| LOGALTITUDE | Log 10 - Altitude (m) |
| LOGBEDROCK | Log 10 - Percentage bedrock in reach |
| LOGCATAREA | Log 10 - Catchment area upstream of site |
| LOGDFS | Log 10 - Distance from source (km) |
| LOGGRAVEL | Log 10 - Percentage gravel in reach |
| LOGMACROCAT | Log 10 - Reach Macrophyte category |
| LOGSTWIDTH | Log 10 - Mean width of water (m) |
| LONGITUDE | LONGITUDE |
| MACROCAT | Macrophyte category |
| MACROTAXA | Macrophyte diversity (No. of macrophyte sp.) |
| PEBBLE | Percent pebble (16-64mm) in habitat |
| REACHPHI | Mean substratum of reach (phi units) |
| REBEDROCK | Reach Bedrock |
| REBOULDER | Reach Boulder |
| RECOBBLE | Reach Cobble |
| REGRAVEL | Reach Gravel |
| REPEBBLE | Reach Pebble |
| RIFFAREA | Percent riffle habitat in reach |
| RIPVEG | riparian vegetation |
| RIPWIDTH | Width of the riparian zone; mean from both banks (m) |
| SHADING | Percentage of the river shaded at midday (category) |
| STORDER | Stream order |
| STREAMSLOPE | Slope of reach (m/km) |
| STREAMWIDTH | Mean width of water (m) |
| SUBHETERO | Substrate heterogeneity for reach (category) |
| TREES>10 | Percent cover of trees greater than 10m |
| VEGCAT | Vegetation type (category) |
| VEGCOVER | Streamside cover score |
| VELOCITY | Mean water velocity in habitat (m/s) |

Validating reference sites

The full reference invertebrate and habitat data set, minus sites deleted at the classification stage, were used to create the first version of the model. The same reference data set was then entered into the model as if they were test sites to validate reference site condition. Reference sites with observed to expected taxa ratios (O/E ratios) below 0.75 were reviewed by state/territory agencies and deleted from the model if found to be unsuitable as reference sites. Appendix C lists the sites rejected as reference sites for model development and the rationale for excluding them. The models were then reconstructed with the failed reference sites removed. The reduced reference site data sets were then run through the revised model. The sites actually used in the final AUSRIVAS models are listed in Appendix B. The O/E ratio output at this stage is considered to represent the distribution of ecological health for the population of reference sites.

O/E Taxa Bands Representing Biological Health

To simplify interpretation, AUSRIVAS presents the O/E taxa ratios as bands that represent different levels of biological condition. The widths of the bands are based on the distribution of the O/E taxa values for the reference sites of each particular model. Test sites that fall between the 10th and 90th percentiles are considered equivalent to reference condition (band A). Impaired test sites will fall into a band equivalent to the severity of impact that the site is experiencing. The next two bands (B and C), which represent increasing levels of impairment, are the same width as band A. Band D will vary in width depending on the variability of the reference O/E taxa values used to create the model. Test sites with biological condition richer than reference condition (i.e. > 90th percentile) are placed in Band X. The bands used for each of the new or revised AUSRIVAS models are listed in Table 3.

Table 3 O/E taxa bands for the new AUSRIVAS models created under this contract.

| MODEL | O/E Taxa Bands | | | | |
|---------------------|----------------|------------|------------|------------|---------|
| | X | A | B | C | D |
| ACT Autumn Edge | >1.17 | 0.83- 1.17 | 0.49- 0.82 | 0.15- 0.48 | 0- 0.14 |
| ACT Autumn Riffle | >1.12 | 0.88- 1.12 | 0.64- 0.87 | 0.40- 0.63 | 0- 0.39 |
| ACT Spring Edge | >1.13 | 0.87- 1.13 | 0.61- 0.86 | 0.35- 0.60 | 0- 0.34 |
| ACT Spring Riffle | >1.14 | 0.86- 1.14 | 0.57- 0.85 | 0.28- 0.56 | 0- 0.27 |
| ACT Combined Edge | >1.11 | 0.89- 1.11 | 0.67- 0.88 | 0.45- 0.66 | 0- 0.44 |
| ACT Combined Riffle | >1.12 | 0.88- 1.12 | 0.65- 0.87 | 0.42- 0.64 | 0- 0.41 |
| TAS Autumn Edge | >1.19 | 0.82- 1.19 | 0.45- 0.81 | 0.08- 0.44 | 0- 0.07 |
| TAS Autumn Riffle | >1.14 | 0.86- 1.14 | 0.58- 0.85 | 0.30- 0.57 | 0- 0.29 |
| TAS Spring Edge | >1.18 | 0.83- 1.18 | 0.48- 0.82 | 0.13- 0.47 | 0- 0.12 |
| TAS Spring Riffle | >1.15 | 0.86- 1.15 | 0.57- 0.85 | 0.28- 0.56 | 0- 0.27 |
| TAS Combined Edge | >1.15 | 0.85- 1.15 | 0.55- 0.84 | 0.25- 0.54 | 0- 0.24 |
| TAS Combined Riffle | >1.13 | 0.88- 1.13 | 0.63- 0.87 | 0.38- 0.62 | 0- 0.37 |
| VIC Autumn Edge | >1.16 | 0.84- 1.16 | 0.52- 0.83 | 0.20- 0.51 | 0- 0.19 |
| VIC Autumn Riffle | >1.15 | 0.86- 1.15 | 0.57- 0.85 | 0.28- 0.56 | 0- 0.27 |
| VIC Spring Edge | >1.15 | 0.86- 1.15 | 0.57- 0.85 | 0.28- 0.56 | 0- 0.27 |
| VIC Spring Riffle | >1.17 | 0.83- 1.17 | 0.49- 0.82 | 0.15- 0.48 | 0- 0.14 |
| VIC Combined Edge | >1.14 | 0.85- 1.14 | 0.56- 0.84 | 0.27- 0.55 | 0- 0.26 |
| VIC Combined Riffle | >1.16 | 0.83- 1.16 | 0.50- 0.82 | 0.17- 0.49 | 0- 0.16 |

Achievement of Objectives

1 To complete the second iteration of the AUSRIVAS models for all States and Territories, taking into account;

- **Requirements for replacement or removal of poor quality biological and environmental data**
- **Further additions and/or removals of reference site samples, in consultation with the lead agencies**
- **Further considerations with regard to site classification such as the numbers of groups selected**

Australian Capital Territory

Before the ACT models were constructed, the data sets were refined and problems found in the habitat data were corrected. A few habitat category variables were found to have mismatches where a change in category had been added to the field sheet but no subsequent change in category had been made where data are entered (e.g. 0-4 changing to 1-5). This was rectified by checking all suspect categories against the original data sheets and making corrections where necessary.

Habitat variables measured at a site were checked for consistency between habitats and seasons and large inconsistencies were corrected by revisiting the original data sheets.

Reference sites were reviewed and no reference sites were removed, however, the addition of extra 'drought affected' reference sites sampled between 1997-1999 to the existing reference set of one model was investigated. 13 reference sites were added to the Autumn-edge data set and a new trial model was created. The new model reduced the width of the bands from 0.34 to 0.28, with a resultant 18 out of 80 reference sites changing band. Fifty percent of these sites moved up a band (e.g. from A to X) and 50% moved down a band (e.g. from X to A or from A to B). Sites changing up or down a band totalled just over 20% of all sites, which is the amount of sites that would be expected to fall outside reference condition by chance alone. When Observed/Expected taxa ratios were compared from both models, no significant difference was found (Paired T = 1.01; d.f.= 79; p > 0.05). Therefore, addition of extra reference sites to this model had no effect on Observed/Expected ratios and some effect on banding. Based on these findings it was concluded that there was no pressing reason at this stage to justify the addition of extra drought affected reference sites to all the models.

Tasmania

The previous beta models for Tasmania were regional models, therefore the Tasmanian alpha models are the first statewide models. Little regional separation based on the biota was evident in the preliminary classifications, thus Tasmania decided to sample a number of additional reference sites to increase the coverage of the models to the whole state. Department of Primary Industries, Water and Environment (DPIWE) staff screened existing

reference sites and removed some suspect reference sites, as well as adding newly sampled reference sites to the dataset.

Victoria

Victoria added a number of new sites to the existing reference data set and reviewed all existing reference sites in use in the models, some of which were subsequently removed. Air temperature variables had to be removed as possible predictor variables because of the lack of coverage of meteorological stations. The rationale used to select the number of classification groups is discussed under objective 4.

Queensland

A substantial amount of analysis has already been completed for Queensland because they were initially one of the first states to supply data. However, only two of the required data sets were supplied before other states supplied complete sets of data, thus other states were put before Queensland (as decided by the steering committee on 10 December). Classifications and Discriminant Function Analysis have been completed for the two data sets supplied. However, there have been many problems in the analysis of Queensland data, with too few classification groups, poor group structure and high misclassification errors. A number of alternative classification approaches were tried (eg. ALOC), but little improvement in the classifications was found. Therefore, Queensland are now considering the option of transformation of predictor variables, which may reduce the misclassification error. Further work and completion of Queensland's models will now be postponed to the second phase of this project. However, all analysis completed so far will be redundant as Queensland have decided to include additional variables, requiring rebuilding of all the new Queensland models in Phase 2 of this project.

2 *All models are to be revised and approved at an alpha level*

For this objective, the CRCFE saw the role of the states to revise their models firstly by providing the CRCFE with new revised data sets and secondly by providing test data and reviewing the results of the new models. Thus, the approval of models at an alpha level by the CRCFE was in conjunction with state and territory agencies.

Reference data for all models was run through its own model by the CRCFE before placement of the models on the AUSRIVAS website. It was at this stage in the modelling process that reference sites with low O/E values considered unsuitable as reference sites could be reviewed again and removed if necessary. All states and territories were given an opportunity to review the reference sites in each model. After placement of the models on the website, the CRCFE again ran each set of reference sites through their own model and the outputs were checked for consistency with the earlier model. Test data are usually run in the model before placement on the website if available and the outputs reviewed by lead agency staff. Test site data can be useful in identifying potential problems with the model, e.g. inconsistent use of units of measurement for predictor variables. The only

state/territory to supply test data was the ACT. Both Victoria and Tasmania declined our offer of running test site data through their models for them, opting instead to run their own test data after the models were on the website. After running test site data through their Autumn-Edge model, Tasmania discovered that conductivity was unsuitable as a predictor variable in this model. A large number of saline sites (13 out of 18 saline sites) were outside the experience of this model and no reliable assessment could be produced for these sites. DPIWE then required a second Autumn-Edge model to be constructed without conductivity as a predictor variable, which CRCFE supplied outside of this contract. Test site data provided before the placement of the model on the web may have avoided this problem.

3 *To mount all revised alpha level models on the AUSRIVAS WWW site at the University of Canberra, with all necessary supporting documentation, including taxonomic codes.*

All new models, after being approved at an alpha level by lead agency staff and the CRCFE, were mounted on the AUSRIVAS website in order of completion. Where required, extra AUSRIVAS codes and taxonomic codes were added to the software.

General information in the AUSRIVAS manual has been updated where required and further additions to the manual are expected to be made in Phase II of this project and in conjunction with the AUSRIVAS Software Enhancement Project. As well as general information, a sampling manual for the ACT, Tasmania and Victoria has been included with descriptions specific to each state on aspects of habitat and macroinvertebrate sampling and processing relevant to the use of the models has been included in the supporting documentation. As agreed in the steering committee meeting for this project, (see Appendix D), the version of the AUSRIVAS predictive modelling manual available on the web is partially completed, with further additions to be made on completion of; Phase 2 of this project; the software enhancement project and the AUSRIVAS mapping project.

Australian Capital Territory

A description of all habitat and water quality variables measured and instructions for their collection has been provided and mounted on the AUSRIVAS WWW site. A description of macroinvertebrate habitats sampled, how to sample them, photos of typical habitats sampled and the habitat assessment sheet used in the ACT have all been included in the web manual.

Tasmania

A description of sampling protocols, typical macroinvertebrate habitats sampled and photos of typical habitats sampled in Tasmania have been included in the web manual. The habitat assessment sheet used in Tasmania, as well as a description of water sample collection and many of the habitat variables has been included in the manual.

Victoria

A description of macroinvertebrate habitats sampled, methods for sample collection, photos of typical habitats sampled and the habitat assessment sheet used in Victoria have been mounted on the www site. Some description of habitat variables measured and their collection methods have also been provided.

4 To provide statistical advice to National River Health Program lead agencies on matters associated with data entry, site classification, discriminant function analysis and model construction.

All state and territory agencies have been supplied with a checklist of data requirements, to aid them in formatting their data correctly for the construction of models. State and Territory agencies involved in Phase 1 of this project contacted the CRCFE as information was required regarding aspects of analysis and model construction, as detailed below. In instances where the CRCFE considered it to be appropriate, advice/assistance was offered e.g. when Victoria were selecting predictor variables. All state and territory agencies have also been provided with a list of things to consider when reviewing reference sites with observed to expected values < 0.75 and additional assistance was provided with this where required.

Australian Capital Territory

All analysis and model construction for the Australian Capital territory was completed by the CRCFE. In constructing the models, predictor variables used were considered carefully and those variables that were considered to have high measurement error associated with them, or were possibly influenced by human impact were not used as predictor variables. For example, % silt was a variable used in a number of existing ACT models which was excluded as a predictor variable from the alpha level models. All models were built with the aim of achieving a misclassification error as low as possible (less than 30%). However, this was not possible for the ACT Spring-Edge model, because no sensible further reduction to the number of groups was possible (Table 1). Misclassification error was not only optimized by the reduction of number of groups, but also in some cases more groups were able to be retained by the addition or removal of predictor variables from the model. Reference sites that had low O/E values were reviewed in consultation with the staff who sampled the sites. The field sampling sheets were also reviewed for additional information regarding the habitat condition at the time of sampling.

Tasmania

Tasmania completed analysis up to the classification stage. The CRCFE advised DPIWE on selection of number of groups. Tasmania aimed to optimize the compromise between low misclassification error and maximization of the number of groups (Table 1). Predictor variables were selected by the CRCFE in consultation with DPIWE. There were certain predictor variables that Tasmanian staff advised against, such as alkalinity and other variables the CRCFE advised against, such as percentage silt

cover, algal cover, etc. The CRCFE guided DPIWE staff through the criteria for removal of reference sites with low O/E values, however, DPIWE staff made the final decisions on which reference sites to remove.

Victoria

Victoria completed analysis up to the DFA stage. All DFA results were checked against results obtained at the CRCFE. In a few instances these results did not match and these results were investigated until the problem was found. This cross checking was found to be very useful for isolating problems before they were incorporated into the model, for example, an error in the percentage substrate values in the combined riffle data set was detected because of non-matching DFA results. Predictor variables selected were screened and we advised the Victorian EPA to remove silt and sand as predictor variables from 2 models because of the high measurement error associated with these variables and the potential for them to be influenced by human impact. The study presented by Natasha Waddell of the NSW EPA at the joint ASL/NZLS conference at Wairakei, New Zealand in December last year clearly demonstrated the negative effect of unreliable predictor variables such as % silt cover on AUSRIVAS model predictions.

Victoria preferred to have the maximum number of classification groups, therefore model misclassification errors were frequently high (Table 1). We discussed this issue with Victoria in some detail, as previous AUSRIVAS models have been built to the guideline that a misclassification error over 30% is unacceptable, which would make all Victorian models unacceptable. This was negotiated to less than 50% in the case of Victorian models. One model had a misclassification error greater than 50%, so the analysis for this model was redone by Victoria to reduce this error to less than 50%. As the Victorian EPA considered the classification groups formed in each case relevant to the biota, it was recommended that reduction of groups to obtain lower model errors would not necessarily make better models. As AUSRIVAS models use the probability of a site belonging to all the classification groups the misclassification error is not critical for good predictions.

Summary of work completed

| Date | Achieved |
|----------------------|---|
| 1/8/1999 | Project commencement date |
| September | All state agencies were contacted |
| 1/9/1999 | Receipt of ACT data sets and supporting documentation |
| 3/9/1999 | Receipt of funding and signed copy of contract |
| September-October | Addition of information to AUSRIVAS manual |
| September - November | Construction of ACT alpha models, construction of a trial 'drought model' and compilation of supporting documentation for ACT. Transfer of models to AUSRIVAS web platform. |
| 9/11/1999 | Supporting documentation material received from Tasmania |
| 10/11 - 31/11/1999 | Compilation of supporting documentation information for Tasmania |
| 23/11/1999 | 6 complete data sets received from Tasmania |
| 10/12/1999 | Steering Committee Meeting held in Canberra (for meeting Minutes see Appendix D). |
| 14/12/1999 | Receipt of 6 data sets and supporting documentation from Victoria |
| 1/1/2000 | Progress report submitted to Environment Australia |
| 1/1 - 31/1/2000 | Tasmanian models built and transferred to AUSRIVAS web platform |
| 10/1 - 11/2/2000 | Victorian models built and transferred to AUSRIVAS web platform |
| 1/2- 3/2/2000 | NRHP workshop and presentation addressing progress and problems encountered in the project |
| 7/2/ - 14/2/2000 | A seventh model for Tasmania was built and transferred to the AUSRIVAS web platform |
| 21/2 - 23/3/2000 | Additions made to the main body of the AUSRIVAS manual and final additions made to state/territory sampling manuals |
| 24/3/2000 | AUSRIVAS manual updated on the AUSRIVAS web page partially complete, with supporting documentation for ACT, Tasmania and Victoria. |

Problems and delays

- 1) *Late arrival of contract*- The contract was not signed until 9 August 1999 and we did not receive a signed copy of the contract until after 1 September 1999. Therefore, commencement of the project was delayed at least one month.

- 2) *Late data*- 6 complete data sets were not received from Tasmania until 23/11/99. A complete set of 6 data sets was not received from Victoria until 14/12/99.
- 3) *Supporting documentation*- Supporting documentation material was not received from Tasmania until 9/11/99. Supporting documentation material was received from Victoria on the 14/12/99. Supply of this material was delayed by the need to obtain copyright permission from the Victorian EPA.
- 4) *Missing data*- Although this was not envisaged as a potential problem in the construction of alpha level models, especially considering both Victoria and Tasmania completed at least up to the classification stage, missing phys/chem data was found in the Tasmanian Autumn-Riffle model. This delayed construction of the Autumn-Riffle model until the missing data was found.
- 5) *Addition of Larvae and adult taxa to AUSRIVAS*- Tasmania requested that certain Coleopteran taxa collected be divided into larvae and adult for their alpha level models. Model building was delayed awaiting a decision on this from Peter Davies. It was decided that Tasmania could have separate larvae and adult codes, therefore, minor changes to the taxonomic coding used in AUSRIVAS also had to be made to accommodate larvae and adults.

Communication

There was significant phone and email interaction between CRCFE staff and lead agency staff throughout the duration of the model building process. The NRHP Bioassessment Workshop in February 2000 also provided CRCFE staff with a good opportunity to interact with the state agencies and discuss their problems and concerns. The CRCFE presentation at the workshop addressed progress on the project, supporting documentation, discussed data and modelling issues and presented a checklist of data requirements to all state and territory agencies.

All project staff attended the joint ASL/NZLS conference in New Zealand in December 1999, where a number of state agencies presented AUSRIVAS data and discussed issues relevant to this project.

Both the AUSRIVAS models and supporting documentation information are available on the AUSRIVAS www site (<http://ausrivas.canberra.edu.au/ausrivas>). The models, manual and website are used in many other CRCFE projects and get significant publicity in this way.

Acknowledgments

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APPENDIX A

DATA REQUIREMENT CHECKLIST FOR THE CONSTRUCTION OF AUSRIVAS MODELS.

**JULIE COYSH AND SUE NICHOLS.
CRC FOR FRESHWATER ECOLOGY, CANBERRA**

All agencies should check data for the following before sending it to the CRC for early model development stages AND if agencies are developing classifications/DFA themselves.

- All sites must have an entry for each variable (NO MISSING VALUES)
- Check that all data are entered in the same units for a variable
- Site numbers in the bug file should match exactly the site numbers in the chem file ie. THERE SHOULD BE THE SAME SITES AND THE SAME NUMBER OF SITES IN BOTH FILES.
- Check for duplicate sites and remove/change code of duplicates (there can only be one entry per site code)
- The format of site codes must be numeric at present, if you have alpha numeric site codes please also give each a numeric site code.
- Files should be saved as Excell spreadsheets, with sites as rows and bugs/habitat variables as columns
- Macroinvertebrate data should be entered with their Victorian EPA taxacodes, with only one column of entry per code ie. Larvae and Adults are to be combined in one total column (NOT SEPARATE)
- The rules that should be used for combining seasonal data into one dataset are as follows:
 - both data sets (chem and bugs) need to have been sampled in both seasons. If not, delete that site for that year.
 - Measurements over seasons for all chem/habitat variables should be averaged to combine datasets
 - All bugs collected over seasons should be summed to combine datasets

When sending us the results of the classification, we require:

- Bug data file
- Chem data file
- A copy of the dendrogram (preferably saved in word) with the dissimilarity level at which groups were separated marked on the dendrogram
- Group membership for each site entered as a column in the chem file.
- Rare taxa to be removed according to AUSRIVAS protocols prior to classification, that is:
taxa occurring at less 10% of sites if there are less than 100 sites are considered rare, alternatively, if there are more than 100 sites, taxa occurring at less than 10 sites are considered rare.
- Data should be transformed to presence/absence data prior to classification and the Bray Curtis dissimilarity measure should be used. Classification groups should be formed using flexible UPGMA.
- Classification groups of less than 5 sites can result from poor representation of a particular type of reference site in the initial sampling or degradation of sites in some manner resulting in loss of taxa indicative of reference conditions. Therefore small classification groups with less than 5 sites should be deleted from further analysis if warranted, or amalgamated with another group of appropriate reference sites.
- A file listing the bugs used in the classification. To construct this file transpose the column labels from the bug file and put a 1 next to those taxa used in the classification and a 0 next to those taxa not used in the classification.

When sending us the results of the discriminant function analysis we require:

- Bug data file
- A file of bugs used in the classification. Transpose the column labels from the bug file and put a 1 next to those taxa used in the classification and a 0 next to those taxa not used in the classification.
- The chem file, including a labelled column which containing the reference site group membership of sites
- The chem file which includes only the predictor variables used may be sent, or alternatively the complete chem file may be sent along with a list of predictor variables you would like us to use to create the model.
- For predictor variables used, we require the units used and the scale/habitat at which they were measured.

After constructing a preliminary model and running the reference site data through it we will identify those sites that have a low O/E taxa ratio (<0.75) and will ask you to review these sites.

To review reference sites with observed/expected values less than 0.75 the following should be considered:

- the sampler and sampling effort (inclement weather conditions on the day of sampling of untrained samplers can affect sampling effort).
- Flood or drought conditions near the time of sampling
- Potential sources of impacts

APPENDIX B

Sites used in the model creation and their group membership as determined by the invertebrate classifications.

Australian Capital Territory**ACT AUTUMN EDGE MODEL**

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 3519 | 14857 | 133 | 3 | 3527 | 14843 |
| 2 | 1 | 3519 | 14857 | 134 | 3 | 3526 | 14844 |
| 3 | 1 | 3521 | 14853 | 135 | 3 | 3524 | 14845 |
| 5 | 1 | 3525 | 14850 | 136 | 3 | 3524 | 14845 |
| 6 | 1 | 3825 | 14850 | 137 | 3 | 3524 | 14845 |
| 7 | 1 | 3521 | 14855 | 138 | 2 | 3521 | 14840 |
| 8 | 1 | 3519 | 14851 | 139 | 2 | 3517 | 14837 |
| 9 | 2 | 3522 | 14850 | 140 | 2 | 3525 | 14834 |
| 10 | 1 | 3523 | 14856 | 141 | 2 | 3524 | 14832 |
| 12 | 1 | 3525 | 14857 | 142 | 3 | 3542 | 14911 |
| 15 | 1 | 3526 | 14856 | 145 | 3 | 3542 | 14914 |
| 16 | 2 | 3529 | 14854 | 146 | 3 | 3545 | 14908 |
| 18 | 1 | 3830 | 14855 | 149 | 3 | 3558 | 14914 |
| 19 | 1 | 3532 | 14905 | 150 | 3 | 3553 | 14915 |
| 20 | 1 | 3535 | 14904 | 154 | 3 | 3608 | 14919 |
| 23 | 1 | 3550 | 14903 | 155 | 3 | 3611 | 14919 |
| 24 | 1 | 3553 | 14900 | 157 | 3 | 3615 | 14921 |
| 26 | 1 | 3937 | 14904 | 158 | 3 | 3610 | 14924 |
| 28 | 1 | 3542 | 14900 | 159 | 2 | 3608 | 14929 |
| 33 | 1 | 3540 | 14858 | 160 | 3 | 3605 | 14931 |
| 34 | 1 | 3538 | 14856 | 161 | 3 | 3606 | 14932 |
| 37 | 2 | 3546 | 14856 | 162 | 3 | 3624 | 14927 |
| 41 | 1 | 3532 | 14904 | 163 | 3 | 3624 | 14927 |
| 44 | 1 | 3528 | 14904 | 164 | 3 | 3627 | 14922 |
| 94 | 1 | 3546 | 14923 | 165 | 3 | 3622 | 14925 |
| 97 | 1 | 3537 | 14913 | 166 | 3 | 3622 | 14910 |
| 99 | 1 | 3540 | 14925 | 169 | 3 | 3612 | 14904 |
| 102 | 2 | 3520 | 14854 | 170 | 3 | 3600 | 14857 |
| 103 | 1 | 3543 | 14905 | 171 | 3 | 3659 | 14854 |
| 104 | 1 | 3547 | 14904 | 172 | 3 | 3658 | 14850 |
| 106 | 1 | 3543 | 14924 | 173 | 3 | 3650 | 14848 |
| 107 | 1 | 3535 | 14921 | 174 | 2 | 3657 | 14844 |
| 108 | 1 | 3530 | 14910 | 175 | 3 | 3653 | 14837 |
| 110 | 2 | 3535 | 14854 | 176 | 2 | 3647 | 14841 |
| 124 | 3 | 3506 | 14853 | 177 | 2 | 3642 | 14845 |
| 126 | 3 | 3505 | 14854 | 178 | 2 | 3639 | 14845 |
| 127 | 3 | 3502 | 14850 | 179 | 2 | 3647 | 14834 |
| 129 | 3 | 3510 | 14841 | 181 | 2 | 3643 | 14833 |
| 130 | 3 | 3512 | 14841 | 184 | 2 | 3636 | 14837 |
| 131 | 3 | 3515 | 14843 | 185 | 2 | 3635 | 14838 |
| 132 | 3 | 3515 | 14844 | 186 | 2 | 3637 | 14841 |

ACT AUTUMN RIFFLE MODEL

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 3519 | 14857 | 127 | 4 | 3502 | 14850 |
| 2 | 1 | 3519 | 14857 | 129 | 4 | 3510 | 14841 |
| 3 | 1 | 3521 | 14853 | 130 | 4 | 3512 | 14841 |
| 5 | 2 | 3525 | 14850 | 131 | 2 | 3515 | 14843 |
| 6 | 2 | 3825 | 14850 | 132 | 4 | 3515 | 14844 |
| 7 | 1 | 3521 | 14855 | 133 | 2 | 3527 | 14843 |
| 8 | 2 | 3519 | 14851 | 134 | 4 | 3526 | 14844 |
| 9 | 2 | 3522 | 14850 | 135 | 2 | 3524 | 14845 |
| 10 | 1 | 3523 | 14856 | 136 | 4 | 3524 | 14845 |
| 12 | 1 | 3525 | 14857 | 137 | 4 | 3524 | 14845 |
| 15 | 1 | 3526 | 14856 | 138 | 3 | 3521 | 14840 |
| 16 | 2 | 3529 | 14854 | 139 | 3 | 3517 | 14837 |
| 17 | 2 | 3527 | 14858 | 140 | 2 | 3525 | 14834 |
| 18 | 2 | 3830 | 14855 | 141 | 2 | 3524 | 14832 |
| 19 | 1 | 3532 | 14905 | 142 | 4 | 3542 | 14911 |
| 20 | 1 | 3535 | 14904 | 145 | 4 | 3542 | 14914 |
| 21 | 1 | 3940 | 14905 | 146 | 4 | 3545 | 14908 |
| 23 | 1 | 3550 | 14903 | 149 | 4 | 3558 | 14914 |
| 24 | 1 | 3553 | 14900 | 150 | 4 | 3553 | 14915 |
| 26 | 1 | 3937 | 14904 | 154 | 4 | 3608 | 14919 |
| 28 | 1 | 3542 | 14900 | 157 | 4 | 3615 | 14921 |
| 29 | 2 | 3545 | 14900 | 158 | 4 | 3610 | 14924 |
| 30 | 1 | 3536 | 14902 | 159 | 4 | 3608 | 14929 |
| 33 | 1 | 3540 | 14858 | 160 | 3 | 3605 | 14931 |
| 35 | 2 | 3542 | 14859 | 161 | 4 | 3606 | 14932 |
| 37 | 3 | 3546 | 14856 | 162 | 4 | 3624 | 14927 |
| 38 | 2 | 3544 | 14859 | 163 | 4 | 3624 | 14927 |
| 41 | 5 | 3532 | 14904 | 165 | 4 | 3622 | 14925 |
| 44 | 5 | 3528 | 14904 | 166 | 4 | 3622 | 14910 |
| 45 | 5 | 3527 | 14905 | 169 | 4 | 3612 | 14904 |
| 48 | 5 | 3519 | 14857 | 171 | 4 | 3659 | 14854 |
| 83 | 1 | 3538 | 14926 | 172 | 4 | 3658 | 14850 |
| 96 | 1 | 3533 | 14914 | 173 | 4 | 3650 | 14848 |
| 97 | 1 | 3537 | 14913 | 174 | 4 | 3657 | 14844 |
| 98 | 1 | 3535 | 14921 | 175 | 3 | 3653 | 14837 |
| 99 | 2 | 3540 | 14925 | 176 | 3 | 3647 | 14841 |
| 101 | 5 | 3532 | 14904 | 177 | 3 | 3642 | 14845 |
| 102 | 2 | 3520 | 14854 | 178 | 3 | 3639 | 14845 |
| 103 | 1 | 3543 | 14905 | 179 | 3 | 3647 | 14834 |
| 106 | 1 | 3543 | 14924 | 180 | 3 | 3646 | 14834 |
| 108 | 4 | 3530 | 14910 | 181 | 2 | 3643 | 14833 |
| 110 | 2 | 3535 | 14854 | 182 | 3 | 3638 | 14834 |
| 123 | 4 | 3505 | 14855 | 183 | 3 | 3637 | 14834 |
| 124 | 4 | 3506 | 14853 | 185 | 2 | 3635 | 14838 |
| 126 | 4 | 3505 | 14854 | | | | |

ACT SPRING EDGE MODEL

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 3519 | 14857 | 116 | 1 | 3504 | 14917 |
| 2 | 2 | 3519 | 14857 | 123 | 1 | 3505 | 14855 |
| 3 | 1 | 3521 | 14853 | 126 | 1 | 3505 | 14854 |
| 5 | 2 | 3525 | 14850 | 129 | 1 | 3510 | 14841 |
| 6 | 3 | 3825 | 14850 | 130 | 2 | 3512 | 14841 |
| 7 | 2 | 3521 | 14855 | 131 | 2 | 3515 | 14843 |
| 8 | 4 | 3519 | 14851 | 132 | 4 | 3515 | 14844 |
| 9 | 4 | 3522 | 14850 | 133 | 4 | 3527 | 14843 |
| 10 | 2 | 3523 | 14856 | 134 | 4 | 3526 | 14844 |
| 12 | 2 | 3525 | 14857 | 135 | 2 | 3524 | 14845 |
| 15 | 2 | 3526 | 14856 | 136 | 2 | 3524 | 14845 |
| 16 | 4 | 3529 | 14854 | 137 | 4 | 3524 | 14845 |
| 17 | 2 | 3527 | 14858 | 138 | 4 | 3521 | 14840 |
| 18 | 4 | 3830 | 14855 | 139 | 4 | 3517 | 14837 |
| 19 | 2 | 3532 | 14905 | 140 | 3 | 3525 | 14834 |
| 20 | 2 | 3535 | 14904 | 141 | 3 | 3524 | 14832 |
| 21 | 2 | 3940 | 14905 | 144 | 1 | 3542 | 14912 |
| 23 | 2 | 3550 | 14903 | 145 | 1 | 3542 | 14914 |
| 24 | 2 | 3553 | 14900 | 146 | 1 | 3545 | 14908 |
| 25 | 2 | 3551 | 14857 | 150 | 3 | 3553 | 14915 |
| 26 | 2 | 3937 | 14904 | 154 | 1 | 3608 | 14914 |
| 28 | 2 | 3542 | 14900 | 156 | 1 | 3613 | 14919 |
| 29 | 2 | 3545 | 14900 | 157 | 1 | 3615 | 14921 |
| 30 | 2 | 3536 | 14902 | 158 | 1 | 3610 | 14924 |
| 31 | 3 | 3535 | 14857 | 159 | 1 | 3608 | 14929 |
| 33 | 2 | 3540 | 14858 | 160 | 1 | 3605 | 14931 |
| 35 | 4 | 3542 | 14859 | 161 | 3 | 3606 | 14932 |
| 37 | 2 | 3546 | 14856 | 162 | 1 | 3624 | 14927 |
| 38 | 2 | 3544 | 14859 | 163 | 1 | 3624 | 14927 |
| 41 | 1 | 3532 | 14904 | 164 | 1 | 3627 | 14922 |
| 44 | 1 | 3528 | 14904 | 165 | 1 | 3622 | 14925 |
| 48 | 1 | 3519 | 14857 | 166 | 1 | 3622 | 14910 |
| 83 | 2 | 3538 | 14926 | 169 | 2 | 3612 | 14904 |
| 89 | 1 | 3529 | 14911 | 170 | 1 | 3600 | 14857 |
| 94 | 2 | 3546 | 14923 | 171 | 1 | 3659 | 14854 |
| 96 | 1 | 3533 | 14914 | 172 | 1 | 3658 | 14850 |
| 97 | 2 | 3537 | 14913 | 173 | 1 | 3650 | 14848 |
| 98 | 2 | 3535 | 14921 | 174 | 3 | 3657 | 14844 |
| 99 | 2 | 3540 | 14925 | 176 | 3 | 3647 | 14841 |
| 101 | 1 | 3532 | 14904 | 177 | 3 | 3642 | 14845 |
| 102 | 2 | 3520 | 14854 | 179 | 3 | 3647 | 14834 |
| 103 | 2 | 3543 | 14905 | 180 | 3 | 3646 | 14834 |
| 104 | 1 | 3547 | 14904 | 181 | 2 | 3643 | 14833 |
| 106 | 2 | 3543 | 14924 | 182 | 4 | 3638 | 14834 |
| 107 | 1 | 3535 | 14921 | 183 | 1 | 3637 | 14834 |
| 108 | 1 | 3530 | 14910 | 184 | 2 | 3636 | 14837 |
| 110 | 4 | 3535 | 14854 | 185 | 3 | 3635 | 14838 |

ACT SPRING RIFFLE MODEL

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 3519 | 14857 | 108 | 3 | 3530 | 14910 |
| 2 | 1 | 3519 | 14857 | 110 | 2 | 3535 | 14854 |
| 3 | 1 | 3521 | 14853 | 116 | 3 | 3504 | 14917 |
| 5 | 1 | 3525 | 14850 | 123 | 3 | 3505 | 14855 |
| 6 | 1 | 3825 | 14850 | 126 | 3 | 3505 | 14854 |
| 7 | 1 | 3521 | 14855 | 129 | 1 | 3510 | 14841 |
| 8 | 1 | 3519 | 14851 | 130 | 1 | 3512 | 14841 |
| 9 | 2 | 3522 | 14850 | 131 | 1 | 3515 | 14843 |
| 10 | 1 | 3523 | 14856 | 132 | 1 | 3515 | 14844 |
| 12 | 1 | 3525 | 14857 | 133 | 1 | 3527 | 14843 |
| 15 | 1 | 3526 | 14856 | 134 | 2 | 3526 | 14844 |
| 16 | 2 | 3529 | 14854 | 135 | 2 | 3524 | 14845 |
| 17 | 1 | 3527 | 14858 | 136 | 1 | 3524 | 14845 |
| 18 | 1 | 3830 | 14855 | 137 | 2 | 3524 | 14845 |
| 19 | 1 | 3532 | 14905 | 138 | 1 | 3521 | 14840 |
| 20 | 1 | 3535 | 14904 | 139 | 2 | 3517 | 14837 |
| 21 | 1 | 3940 | 14905 | 140 | 2 | 3525 | 14834 |
| 23 | 1 | 3550 | 14903 | 141 | 1 | 3524 | 14832 |
| 24 | 1 | 3553 | 14900 | 144 | 3 | 3542 | 14912 |
| 25 | 3 | 3551 | 14857 | 146 | 3 | 3545 | 14908 |
| 26 | 3 | 3937 | 14904 | 150 | 1 | 3553 | 14915 |
| 28 | 1 | 3542 | 14900 | 153 | 3 | 3606 | 14911 |
| 29 | 1 | 3545 | 14900 | 154 | 3 | 3608 | 14914 |
| 30 | 1 | 3536 | 14902 | 157 | 1 | 3615 | 14921 |
| 31 | 2 | 3535 | 14857 | 158 | 3 | 3610 | 14924 |
| 35 | 2 | 3542 | 14859 | 159 | 3 | 3608 | 14929 |
| 37 | 1 | 3546 | 14856 | 160 | 3 | 3605 | 14931 |
| 38 | 2 | 3544 | 14859 | 162 | 3 | 3624 | 14927 |
| 41 | 3 | 3532 | 14904 | 163 | 3 | 3624 | 14927 |
| 44 | 3 | 3528 | 14904 | 164 | 3 | 3627 | 14922 |
| 45 | 3 | 3527 | 14905 | 165 | 3 | 3622 | 14925 |
| 48 | 3 | 3519 | 14857 | 166 | 3 | 3622 | 14910 |
| 83 | 2 | 3538 | 14926 | 169 | 1 | 3612 | 14904 |
| 89 | 3 | 3529 | 14911 | 170 | 3 | 3600 | 14857 |
| 94 | 3 | 3546 | 14923 | 172 | 1 | 3658 | 14850 |
| 96 | 3 | 3533 | 14914 | 173 | 2 | 3650 | 14848 |
| 97 | 1 | 3537 | 14913 | 174 | 2 | 3657 | 14844 |
| 98 | 1 | 3535 | 14921 | 176 | 2 | 3647 | 14841 |
| 99 | 1 | 3540 | 14925 | 179 | 2 | 3647 | 14834 |
| 101 | 1 | 3532 | 14904 | 180 | 2 | 3646 | 14834 |
| 102 | 1 | 3520 | 14854 | 181 | 2 | 3643 | 14833 |
| 103 | 1 | 3543 | 14905 | 182 | 2 | 3638 | 14834 |
| 104 | 1 | 3547 | 14904 | 185 | 2 | 3635 | 14838 |
| 106 | 3 | 3543 | 14924 | | | | |

ACT COMBINED EDGE MODEL

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 3519 | 14857 | 130 | 2 | 3512 | 14841 |
| 2 | 1 | 3519 | 14857 | 131 | 3 | 3515 | 14843 |
| 3 | 1 | 3521 | 14853 | 132 | 3 | 3515 | 14844 |
| 5 | 1 | 3525 | 14850 | 133 | 3 | 3527 | 14843 |
| 6 | 3 | 3825 | 14850 | 134 | 3 | 3526 | 14844 |
| 7 | 1 | 3521 | 14855 | 135 | 3 | 3524 | 14845 |
| 8 | 3 | 3519 | 14851 | 136 | 3 | 3524 | 14845 |
| 9 | 3 | 3522 | 14850 | 137 | 3 | 3524 | 14845 |
| 10 | 1 | 3523 | 14856 | 138 | 3 | 3521 | 14840 |
| 12 | 1 | 3525 | 14857 | 139 | 3 | 3517 | 14837 |
| 15 | 1 | 3526 | 14856 | 140 | 3 | 3525 | 14834 |
| 16 | 3 | 3529 | 14854 | 141 | 1 | 3524 | 14832 |
| 18 | 3 | 3830 | 14855 | 145 | 2 | 3542 | 14914 |
| 19 | 1 | 3532 | 14905 | 146 | 1 | 3545 | 14908 |
| 20 | 1 | 3535 | 14904 | 154 | 2 | 3608 | 14919 |
| 23 | 1 | 3550 | 14903 | 157 | 2 | 3615 | 14921 |
| 24 | 1 | 3553 | 14900 | 158 | 2 | 3610 | 14924 |
| 26 | 1 | 3937 | 14904 | 159 | 1 | 3608 | 14929 |
| 28 | 1 | 3542 | 14900 | 160 | 2 | 3605 | 14931 |
| 33 | 1 | 3540 | 14858 | 161 | 2 | 3606 | 14932 |
| 37 | 3 | 3546 | 14856 | 162 | 2 | 3624 | 14927 |
| 41 | 1 | 3532 | 14904 | 163 | 2 | 3624 | 14927 |
| 44 | 2 | 3528 | 14904 | 164 | 2 | 3627 | 14922 |
| 83 | 1 | 3538 | 14926 | 165 | 2 | 3622 | 14925 |
| 94 | 1 | 3546 | 14923 | 166 | 2 | 3622 | 14910 |
| 97 | 1 | 3537 | 14913 | 169 | 3 | 3612 | 14904 |
| 98 | 1 | 3535 | 14921 | 170 | 2 | 3600 | 14857 |
| 99 | 1 | 3540 | 14925 | 171 | 2 | 3659 | 14854 |
| 102 | 3 | 3520 | 14854 | 172 | 2 | 3658 | 14850 |
| 103 | 1 | 3543 | 14905 | 173 | 2 | 3650 | 14848 |
| 104 | 1 | 3547 | 14904 | 174 | 3 | 3657 | 14844 |
| 106 | 1 | 3543 | 14924 | 176 | 2 | 3647 | 14841 |
| 107 | 1 | 3535 | 14921 | 177 | 3 | 3642 | 14845 |
| 110 | 3 | 3535 | 14854 | 179 | 3 | 3647 | 14834 |
| 126 | 2 | 3505 | 14854 | 181 | 3 | 3643 | 14833 |
| 127 | 2 | 3502 | 14850 | 184 | 2 | 3636 | 14837 |
| 129 | 2 | 3510 | 14841 | 185 | 3 | 3635 | 14838 |

ACT COMBINED RIFFLE MODEL

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 3519 | 14857 | 110 | 3 | 3535 | 14854 |
| 2 | 1 | 3519 | 14857 | 126 | 2 | 3505 | 14854 |
| 3 | 1 | 3521 | 14853 | 127 | 2 | 3502 | 14850 |
| 5 | 3 | 3525 | 14850 | 129 | 1 | 3510 | 14841 |
| 6 | 3 | 3825 | 14850 | 130 | 1 | 3512 | 14841 |
| 7 | 1 | 3521 | 14855 | 131 | 3 | 3515 | 14843 |
| 8 | 3 | 3519 | 14851 | 132 | 3 | 3515 | 14844 |
| 9 | 3 | 3522 | 14850 | 133 | 3 | 3527 | 14843 |
| 10 | 1 | 3523 | 14856 | 134 | 3 | 3526 | 14844 |
| 12 | 1 | 3525 | 14857 | 135 | 3 | 3524 | 14845 |
| 15 | 1 | 3526 | 14856 | 136 | 1 | 3524 | 14845 |
| 16 | 3 | 3529 | 14854 | 137 | 3 | 3524 | 14845 |
| 17 | 1 | 3527 | 14858 | 138 | 3 | 3521 | 14840 |
| 18 | 3 | 3830 | 14855 | 139 | 3 | 3517 | 14837 |
| 19 | 1 | 3532 | 14905 | 140 | 3 | 3525 | 14834 |
| 20 | 1 | 3535 | 14904 | 141 | 3 | 3524 | 14832 |
| 21 | 1 | 3940 | 14905 | 146 | 2 | 3545 | 14908 |
| 23 | 3 | 3550 | 14903 | 150 | 2 | 3553 | 14915 |
| 24 | 1 | 3553 | 14900 | 154 | 2 | 3608 | 14919 |
| 26 | 1 | 3937 | 14904 | 157 | 2 | 3615 | 14921 |
| 28 | 3 | 3542 | 14900 | 158 | 2 | 3610 | 14924 |
| 29 | 3 | 3545 | 14900 | 159 | 2 | 3608 | 14929 |
| 30 | 1 | 3536 | 14902 | 160 | 2 | 3605 | 14931 |
| 33 | 1 | 3540 | 14858 | 162 | 1 | 3624 | 14927 |
| 35 | 3 | 3542 | 14859 | 163 | 2 | 3624 | 14927 |
| 37 | 1 | 3546 | 14856 | 165 | 2 | 3622 | 14925 |
| 38 | 1 | 3544 | 14859 | 166 | 2 | 3622 | 14910 |
| 83 | 3 | 3538 | 14926 | 169 | 2 | 3612 | 14904 |
| 94 | 1 | 3546 | 14923 | 172 | 1 | 3658 | 14850 |
| 96 | 1 | 3533 | 14914 | 173 | 1 | 3650 | 14848 |
| 97 | 1 | 3537 | 14913 | 174 | 3 | 3657 | 14844 |
| 98 | 1 | 3535 | 14921 | 176 | 2 | 3647 | 14841 |
| 99 | 3 | 3540 | 14925 | 179 | 3 | 3647 | 14834 |
| 101 | 1 | 3532 | 14904 | 180 | 3 | 3646 | 14834 |
| 102 | 3 | 3520 | 14854 | 181 | 3 | 3643 | 14833 |
| 103 | 1 | 3543 | 14905 | 182 | 3 | 3638 | 14834 |
| 106 | 1 | 3543 | 14924 | 185 | 3 | 3635 | 14838 |
| 108 | 1 | 3530 | 14910 | | | | |

Tasmania
TASMANIAN AUTUMN EDGE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 5342300 | 380400 | 82 | 3 | 5364800 | 602800 |
| 2 | 1 | 5335300 | 377500 | 85 | 3 | 5382400 | 594700 |
| 3 | 1 | 5334100 | 377300 | 86 | 1 | 5382400 | 591800 |
| 4 | 1 | 5337700 | 395100 | 87 | 3 | 5367800 | 590700 |
| 5 | 2 | 5347000 | 391700 | 89 | 3 | 5357700 | 588600 |
| 6 | 2 | 5347900 | 393300 | 90 | 3 | 5320600 | 582600 |
| 7 | 1 | 5330400 | 393300 | 92 | 3 | 5335600 | 548100 |
| 8 | 2 | 5347100 | 376500 | 93 | 2 | 5440300 | 594800 |
| 9 | 2 | 5342600 | 379200 | 95 | 2 | 5408800 | 595800 |
| 10 | 2 | 5342300 | 359000 | 96 | 1 | 5434800 | 584800 |
| 11 | 2 | 5349600 | 373400 | 97 | 1 | 5450600 | 589300 |
| 12 | 1 | 5351700 | 372400 | 98 | 2 | 5442200 | 590000 |
| 13 | 1 | 5342600 | 362000 | 99 | 1 | 5450600 | 587800 |
| 14 | 1 | 5355500 | 370600 | 100 | 1 | 5434800 | 587300 |
| 15 | 2 | 5362700 | 364800 | 101 | 2 | 5416400 | 591500 |
| 16 | 2 | 5382100 | 364700 | 102 | 3 | 5306400 | 552300 |
| 17 | 2 | 5381500 | 357700 | 103 | 3 | 5310500 | 558500 |
| 18 | 1 | 5408200 | 365800 | 104 | 3 | 5345000 | 573000 |
| 19 | 1 | 5410800 | 361700 | 105 | 3 | 5296800 | 570200 |
| 20 | 2 | 5370300 | 368300 | 106 | 3 | 5339700 | 581000 |
| 21 | 2 | 5370600 | 379000 | 107 | 3 | 5381800 | 568500 |
| 24 | 2 | 5402100 | 376800 | 108 | 3 | 5291800 | 564200 |
| 25 | 1 | 5442200 | 340400 | 109 | 1 | 5277500 | 573700 |
| 27 | 1 | 5452500 | 333200 | 110 | 3 | 5244300 | 570700 |
| 28 | 1 | 5418300 | 389200 | 111 | 1 | 5356100 | 572600 |
| 29 | 2 | 5432500 | 334500 | 112 | 3 | 5352900 | 569100 |
| 30 | 1 | 5452700 | 348400 | 113 | 3 | 5360600 | 579100 |
| 31 | 2 | 5438800 | 369000 | 114 | 3 | 5223700 | 559200 |
| 32 | 2 | 5458000 | 342000 | 115 | 3 | 5225500 | 562200 |
| 33 | 1 | 5466700 | 357600 | 116 | 3 | 5226000 | 573600 |
| 34 | 1 | 5460300 | 365600 | 118 | 3 | 5331700 | 528500 |
| 35 | 1 | 5466700 | 359200 | 119 | 3 | 5338600 | 569000 |
| 36 | 2 | 5464500 | 372800 | 120 | 3 | 5330800 | 562300 |
| 37 | 1 | 5447600 | 382000 | 121 | 1 | 5254000 | 502200 |
| 38 | 1 | 5447200 | 382300 | 122 | 1 | 5384300 | 434500 |
| 39 | 1 | 5446800 | 375900 | 123 | 2 | 5385900 | 425800 |
| 40 | 2 | 5434400 | 410300 | 124 | 2 | 5393000 | 427500 |
| 41 | 1 | 5410700 | 403200 | 125 | 1 | 5385200 | 438600 |
| 42 | 2 | 5414400 | 414300 | 126 | 1 | 5367700 | 431600 |
| 43 | 2 | 5424200 | 415800 | 127 | 1 | 5335000 | 444900 |
| 44 | 1 | 5416500 | 409700 | 128 | 2 | 5348500 | 425500 |
| 45 | 1 | 5410400 | 404600 | 129 | 1 | 5341100 | 456000 |
| 46 | 2 | 5414200 | 417600 | 130 | 3 | 5342400 | 456800 |
| 47 | 1 | 5408900 | 444500 | 131 | 1 | 5300800 | 459200 |
| 48 | 1 | 5413200 | 452200 | 132 | 1 | 5336500 | 459700 |
| 49 | 1 | 5392000 | 452500 | 133 | 2 | 5267900 | 467400 |
| 51 | 3 | 5430600 | 468100 | 134 | 1 | 5254100 | 488200 |
| 52 | 3 | 5421800 | 430000 | 135 | 1 | 5259700 | 494600 |
| 54 | 1 | 5395500 | 469200 | 136 | 1 | 5249800 | 489700 |
| 55 | 2 | 5382300 | 436900 | 137 | 1 | 5293300 | 469200 |

TASMANIA AUTUMN EDGE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 56 | 3 | 5408000 | 486200 | 138 | 1 | 5259300 | 468500 |
| 57 | 2 | 5385300 | 481700 | 140 | 1 | 5267700 | 484600 |
| 58 | 1 | 5393500 | 479400 | 141 | 1 | 5259300 | 468500 |
| 59 | 1 | 5386500 | 470300 | 142 | 1 | 5266200 | 465900 |
| 60 | 3 | 5403100 | 440300 | 143 | 1 | 5284900 | 454400 |
| 61 | 1 | 5407900 | 456000 | 144 | 1 | 5215700 | 514600 |
| 62 | 2 | 5412200 | 436800 | 145 | 3 | 5225900 | 512500 |
| 63 | 1 | 5419800 | 449100 | 146 | 1 | 5233500 | 508900 |
| 64 | 1 | 5442100 | 561800 | 147 | 1 | 5247100 | 503700 |
| 65 | 2 | 5430500 | 559000 | 148 | 1 | 5245900 | 510900 |
| 66 | 2 | 5427500 | 580000 | 149 | 1 | 5221300 | 484200 |
| 67 | 1 | 5414300 | 560000 | 150 | 1 | 5197600 | 491000 |
| 68 | 1 | 5408900 | 569700 | 151 | 2 | 5236000 | 472800 |
| 69 | 2 | 5392100 | 572300 | 153 | 1 | 5218200 | 490000 |
| 70 | 3 | 5369000 | 580900 | 154 | 2 | 5193400 | 487900 |
| 71 | 1 | 5397200 | 538200 | 155 | 1 | 5203800 | 491000 |
| 72 | 1 | 5415600 | 544200 | 156 | 1 | 5227000 | 476900 |
| 73 | 1 | 5428300 | 534600 | 157 | 1 | 5213500 | 474100 |
| 74 | 2 | 5407900 | 528000 | 158 | 1 | 5240800 | 494700 |
| 75 | 1 | 5427800 | 517700 | 159 | 1 | 5242600 | 482400 |
| 77 | 2 | 5439900 | 529900 | 160 | 1 | 5245700 | 482400 |
| 78 | 2 | 5447000 | 529300 | 161 | 1 | 5247900 | 511200 |
| 79 | 2 | 5437900 | 546800 | 162 | 1 | 5218300 | 490300 |
| 80 | 2 | 5444800 | 574400 | 163 | 1 | 5222200 | 483100 |
| 81 | 1 | 5427900 | 556800 | 164 | 1 | 5194400 | 488600 |

TASMANIA AUTUMN RIFFLE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 5342300 | 380400 | 113 | 5 | 5259300 | 468500 |
| 2 | 5 | 5335300 | 377500 | 114 | 5 | 5254600 | 488200 |
| 3 | 5 | 5334100 | 377300 | 115 | 5 | 5267700 | 484600 |
| 4 | 5 | 5337700 | 395100 | 116 | 5 | 5259300 | 468500 |
| 5 | 2 | 5347000 | 391700 | 117 | 5 | 5266200 | 465900 |
| 6 | 5 | 5347900 | 393300 | 118 | 2 | 5269400 | 453100 |
| 7 | 2 | 5330400 | 393300 | 119 | 5 | 5284900 | 454400 |
| 8 | 1 | 5347100 | 376500 | 120 | 1 | 5369000 | 462100 |
| 9 | 1 | 5342600 | 379200 | 121 | 2 | 5271200 | 454300 |
| 10 | 5 | 5342300 | 359000 | 122 | 5 | 5268100 | 484400 |
| 11 | 5 | 5349600 | 373400 | 123 | 5 | 5215700 | 514600 |
| 12 | 5 | 5351700 | 372400 | 124 | 5 | 5225900 | 512500 |
| 13 | 1 | 5342600 | 362000 | 125 | 5 | 5247100 | 503700 |
| 14 | 2 | 5355500 | 370600 | 126 | 5 | 5245900 | 510900 |
| 15 | 4 | 5382100 | 364700 | 127 | 5 | 5244100 | 516800 |
| 16 | 4 | 5381500 | 357700 | 128 | 5 | 5221300 | 484200 |
| 17 | 5 | 5408200 | 365800 | 129 | 2 | 5218000 | 470700 |
| 18 | 5 | 5410800 | 361700 | 130 | 2 | 5197600 | 491000 |
| 20 | 2 | 5370600 | 379000 | 131 | 2 | 5236000 | 472800 |
| 21 | 4 | 5367300 | 355100 | 132 | 5 | 5210900 | 486800 |
| 22 | 5 | 5393200 | 375900 | 134 | 2 | 5213200 | 473200 |
| 23 | 5 | 5402100 | 376800 | 135 | 2 | 5236500 | 472000 |
| 24 | 5 | 5442200 | 340400 | 136 | 5 | 5218200 | 490000 |
| 25 | 5 | 5446300 | 330500 | 137 | 2 | 5228800 | 473300 |
| 26 | 5 | 5452500 | 333200 | 138 | 1 | 5193400 | 487900 |
| 27 | 5 | 5418300 | 389200 | 139 | 5 | 5203800 | 491000 |
| 28 | 1 | 5432500 | 334500 | 140 | 5 | 5227000 | 476900 |
| 29 | 5 | 5452700 | 348400 | 141 | 4 | 5213500 | 474100 |
| 30 | 5 | 5438800 | 369000 | 142 | 2 | 5228900 | 473000 |
| 31 | 1 | 5458000 | 342000 | 143 | 2 | 5231200 | 474900 |
| 32 | 5 | 5466700 | 357600 | 144 | 5 | 5240800 | 494700 |
| 33 | 5 | 5460300 | 365600 | 145 | 5 | 5242600 | 482400 |
| 34 | 5 | 5466700 | 359200 | 146 | 2 | 5250100 | 477900 |
| 35 | 5 | 5464500 | 372800 | 147 | 5 | 5245700 | 482400 |
| 36 | 5 | 5447600 | 382000 | 148 | 5 | 5247900 | 511200 |
| 37 | 5 | 5447200 | 382300 | 149 | 5 | 5218300 | 490300 |
| 38 | 5 | 5446800 | 375900 | 150 | 5 | 5222200 | 483100 |
| 39 | 5 | 5434400 | 410300 | 151 | 5 | 5194400 | 488600 |
| 40 | 5 | 5410700 | 403200 | 152 | 5 | 5329700 | 508100 |
| 41 | 5 | 5414400 | 414300 | 153 | 5 | 5353100 | 466500 |
| 42 | 5 | 5424200 | 415800 | 155 | 4 | 5227700 | 475700 |
| 43 | 5 | 5416500 | 409700 | 156 | 4 | 5239900 | 491200 |
| 44 | 2 | 5410400 | 404600 | 157 | 4 | 5233200 | 480700 |
| 45 | 2 | 5414200 | 417600 | 158 | 4 | 5284600 | 396800 |
| 46 | 5 | 5408900 | 444500 | 159 | 4 | 5229400 | 455700 |
| 47 | 5 | 5413200 | 452200 | 160 | 4 | 5282900 | 417400 |
| 48 | 5 | 5392000 | 452500 | 161 | 4 | 5222200 | 457400 |
| 49 | 5 | 5421800 | 430000 | 162 | 4 | 5296800 | 398000 |
| 50 | 5 | 5430100 | 435600 | 163 | 4 | 5272700 | 407200 |
| 51 | 5 | 5395500 | 469200 | 164 | 4 | 5300400 | 408100 |
| 52 | 5 | 5382300 | 436900 | 166 | 5 | 5227000 | 459800 |

TASMANIA AUTUMN RIFFLE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 53 | 5 | 5408000 | 486200 | 167 | 5 | 5291300 | 398500 |
| 54 | 5 | 5385300 | 481700 | 168 | 4 | 5368800 | 462300 |
| 55 | 5 | 5393500 | 479400 | 169 | 5 | 5331500 | 411300 |
| 56 | 5 | 5386500 | 470300 | 170 | 2 | 5335400 | 403400 |
| 57 | 5 | 5403100 | 440300 | 171 | 2 | 5440300 | 480200 |
| 58 | 5 | 5407900 | 456000 | 172 | 3 | 5323500 | 477900 |
| 59 | 5 | 5412200 | 436800 | 173 | 1 | 5449900 | 562800 |
| 60 | 5 | 5419800 | 449100 | 174 | 4 | 5331900 | 362700 |
| 61 | 5 | 5442100 | 561800 | 175 | 1 | 5435300 | 472100 |
| 62 | 5 | 5430500 | 559000 | 176 | 1 | 5435500 | 474300 |
| 63 | 5 | 5427500 | 580000 | 178 | 1 | 5438900 | 472300 |
| 64 | 5 | 5414300 | 560000 | 179 | 4 | 5279500 | 558600 |
| 65 | 5 | 5408900 | 569700 | 181 | 5 | 5378400 | 552000 |
| 66 | 5 | 5392100 | 572300 | 182 | 3 | 5177700 | 489700 |
| 67 | 5 | 5369000 | 580900 | 183 | 2 | 5421300 | 528300 |
| 68 | 5 | 5397200 | 538200 | 184 | 2 | 5211800 | 463700 |
| 69 | 5 | 5415600 | 544200 | 185 | 1 | 5427400 | 309500 |
| 70 | 5 | 5428300 | 534600 | 188 | 1 | 5405700 | 341800 |
| 71 | 5 | 5407900 | 528000 | 189 | 5 | 5389000 | 583000 |
| 72 | 5 | 5427800 | 517700 | 192 | 4 | 5439000 | 321800 |
| 73 | 5 | 5447200 | 507900 | 193 | 1 | 5302000 | 437300 |
| 74 | 5 | 5439900 | 529900 | 194 | 2 | 5363700 | 397500 |
| 75 | 5 | 5447000 | 529300 | 195 | 5 | 5342500 | 552900 |
| 76 | 5 | 5437900 | 546800 | 197 | 5 | 5401800 | 387600 |
| 77 | 5 | 5444800 | 574400 | 198 | 5 | 5429800 | 383800 |
| 78 | 5 | 5427900 | 556800 | 199 | 3 | 5355200 | 488900 |
| 79 | 5 | 5364800 | 602800 | 200 | 1 | 5396700 | 328400 |
| 80 | 5 | 5373700 | 604400 | 201 | 5 | 5400900 | 415900 |
| 81 | 1 | 5382400 | 594700 | 202 | 1 | 5406400 | 319800 |
| 82 | 5 | 5357700 | 588600 | 203 | 3 | 5365500 | 391400 |
| 83 | 1 | 5440300 | 594800 | 204 | 3 | 5352600 | 488200 |
| 84 | 5 | 5434800 | 584800 | 205 | 3 | 5372400 | 473100 |
| 85 | 5 | 5442200 | 590000 | 206 | 3 | 5421800 | 335300 |
| 86 | 5 | 5450600 | 587800 | 207 | 1 | 5362900 | 365500 |
| 87 | 5 | 5434800 | 587300 | 208 | 2 | 5422800 | 330900 |
| 88 | 5 | 5416400 | 591500 | 209 | 1 | 5442000 | 350900 |
| 89 | 5 | 5277500 | 573700 | 210 | 4 | 5185400 | 447300 |
| 90 | 5 | 5356100 | 572600 | 211 | 5 | 5184400 | 452400 |
| 91 | 5 | 5360600 | 579100 | 212 | 5 | 5390600 | 396800 |
| 92 | 1 | 5225500 | 562200 | 213 | 5 | 5416100 | 558900 |
| 93 | 5 | 5331700 | 528500 | 214 | 5 | 5224100 | 475000 |
| 94 | 5 | 5254000 | 502200 | 215 | 5 | 5411900 | 536300 |
| 95 | 5 | 5384300 | 434500 | 216 | 5 | 5412200 | 536300 |
| 96 | 3 | 5375200 | 435300 | 217 | 1 | 5444200 | 305900 |
| 97 | 5 | 5385900 | 425800 | 218 | 5 | 5438000 | 317200 |
| 98 | 5 | 5393000 | 427500 | 219 | 5 | 5397900 | 540100 |
| 99 | 5 | 5385200 | 438600 | 220 | 2 | 5218600 | 490000 |
| 100 | 5 | 5367700 | 431600 | 221 | 3 | 5394500 | 410400 |
| 101 | 5 | 5335000 | 444900 | 223 | 3 | 5375600 | 389800 |
| 102 | 4 | 5348500 | 425500 | 225 | 2 | 5398300 | 395000 |
| 103 | 5 | 5341100 | 456000 | 226 | 5 | 5369200 | 572200 |

TASMANIA AUTUMN RIFFLE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 104 | 5 | 5342400 | 456800 | 227 | 5 | 5398300 | 482900 |
| 105 | 5 | 5300800 | 459200 | 228 | 5 | 5416800 | 560900 |
| 106 | 5 | 5336500 | 459700 | 229 | 1 | 5422400 | 315200 |
| 107 | 3 | 5267900 | 467400 | 230 | 5 | 5401900 | 565000 |
| 108 | 2 | 5254100 | 488200 | 231 | 1 | 5457800 | 560500 |
| 109 | 5 | 5259700 | 494600 | 232 | 5 | 5419900 | 381300 |
| 110 | 2 | 5252600 | 486200 | 233 | 5 | 5410000 | 532300 |
| 111 | 5 | 5249800 | 489700 | 234 | 4 | 5245500 | 464600 |
| 112 | 5 | 5293300 | 469200 | | | | |

TASMANIA SPRING EDGE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 5342300 | 380400 | 91 | 5 | 5335600 | 548100 |
| 2 | 1 | 5335300 | 377500 | 92 | 5 | 5440300 | 594800 |
| 3 | 4 | 5334100 | 377300 | 93 | 5 | 5408500 | 590400 |
| 4 | 4 | 5337700 | 395100 | 95 | 2 | 5434800 | 584800 |
| 5 | 2 | 5347000 | 391700 | 96 | 5 | 5450600 | 589300 |
| 6 | 3 | 5347900 | 393300 | 97 | 5 | 5442200 | 590000 |
| 7 | 1 | 5330400 | 393300 | 98 | 5 | 5450600 | 587800 |
| 8 | 4 | 5347100 | 376500 | 99 | 2 | 5434800 | 587300 |
| 9 | 4 | 5342600 | 379200 | 100 | 4 | 5416400 | 591500 |
| 10 | 1 | 5342300 | 359000 | 101 | 5 | 5306400 | 552300 |
| 11 | 1 | 5349600 | 373400 | 102 | 5 | 5310500 | 558500 |
| 12 | 4 | 5351700 | 372400 | 103 | 5 | 5345000 | 573000 |
| 13 | 2 | 5342600 | 362000 | 105 | 5 | 5339700 | 581000 |
| 14 | 4 | 5355500 | 370600 | 106 | 5 | 5381800 | 568500 |
| 15 | 3 | 5362700 | 364800 | 107 | 5 | 5340900 | 580000 |
| 16 | 2 | 5382100 | 364700 | 108 | 5 | 5291800 | 564200 |
| 17 | 1 | 5381500 | 357700 | 109 | 5 | 5279500 | 558600 |
| 18 | 4 | 5408200 | 365800 | 110 | 5 | 5277500 | 573700 |
| 19 | 4 | 5410800 | 361700 | 111 | 3 | 5244300 | 570700 |
| 20 | 4 | 5370300 | 368300 | 112 | 2 | 5356100 | 572600 |
| 21 | 4 | 5370600 | 379000 | 113 | 5 | 5352900 | 569100 |
| 22 | 1 | 5367300 | 355100 | 114 | 5 | 5360600 | 579100 |
| 23 | 4 | 5393200 | 375900 | 115 | 3 | 5223700 | 559200 |
| 24 | 4 | 5402100 | 376800 | 116 | 3 | 5225500 | 562200 |
| 25 | 2 | 5442200 | 340400 | 117 | 4 | 5226000 | 573600 |
| 26 | 2 | 5446300 | 330500 | 118 | 5 | 5296600 | 570200 |
| 27 | 4 | 5452500 | 333200 | 119 | 5 | 5310500 | 558500 |
| 28 | 4 | 5418300 | 389200 | 120 | 5 | 5331700 | 528500 |
| 29 | 2 | 5432500 | 334500 | 121 | 5 | 5300500 | 538300 |
| 30 | 2 | 5452700 | 348400 | 122 | 5 | 5302500 | 534300 |
| 31 | 4 | 5438800 | 369000 | 123 | 3 | 5302700 | 511400 |
| 32 | 2 | 5458000 | 342000 | 124 | 4 | 5338600 | 569000 |
| 33 | 2 | 5466700 | 357600 | 125 | 5 | 5330800 | 562300 |
| 34 | 2 | 5460300 | 365600 | 126 | 5 | 5384200 | 534000 |
| 35 | 2 | 5466700 | 359200 | 127 | 5 | 5254000 | 502200 |
| 37 | 4 | 5464500 | 372800 | 128 | 4 | 5384300 | 434500 |
| 38 | 4 | 5447600 | 382000 | 129 | 5 | 5385900 | 425800 |
| 39 | 4 | 5447200 | 382300 | 130 | 4 | 5393000 | 427500 |
| 40 | 4 | 5446800 | 375900 | 131 | 4 | 5385200 | 438600 |
| 41 | 2 | 5434400 | 410300 | 132 | 4 | 5367700 | 431600 |
| 42 | 4 | 5410700 | 403200 | 133 | 3 | 5335000 | 444900 |
| 43 | 4 | 5414400 | 414300 | 134 | 5 | 5348500 | 425500 |
| 44 | 4 | 5424200 | 415800 | 135 | 5 | 5341100 | 456000 |
| 45 | 4 | 5416500 | 409700 | 136 | 5 | 5342400 | 456800 |
| 46 | 1 | 5410400 | 404600 | 137 | 3 | 5300800 | 459200 |
| 49 | 3 | 5413200 | 452200 | 138 | 5 | 5336500 | 459700 |
| 50 | 4 | 5392000 | 452500 | 139 | 4 | 5267900 | 467400 |
| 51 | 1 | 5431400 | 472700 | 140 | 3 | 5254100 | 488200 |
| 53 | 4 | 5421800 | 430000 | 141 | 3 | 5259700 | 494600 |
| 54 | 5 | 5430100 | 435600 | 142 | 3 | 5249800 | 489700 |
| 55 | 4 | 5395500 | 469200 | 143 | 3 | 5293300 | 469200 |

TASMANIA SPRING EDGE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 56 | 4 | 5382300 | 436900 | 144 | 4 | 5259300 | 468500 |
| 57 | 5 | 5408000 | 486200 | 145 | 2 | 5254600 | 488200 |
| 58 | 4 | 5385300 | 481700 | 146 | 3 | 5267700 | 484600 |
| 59 | 4 | 5393500 | 479400 | 147 | 1 | 5259300 | 468500 |
| 60 | 4 | 5386500 | 470300 | 148 | 4 | 5266200 | 465900 |
| 61 | 5 | 5403100 | 440300 | 149 | 4 | 5269400 | 453100 |
| 62 | 4 | 5407900 | 456000 | 150 | 3 | 5284900 | 454400 |
| 63 | 4 | 5412200 | 436800 | 151 | 4 | 5271200 | 454300 |
| 64 | 4 | 5419800 | 449100 | 152 | 3 | 5268100 | 484400 |
| 65 | 4 | 5442100 | 561800 | 153 | 3 | 5215700 | 514600 |
| 66 | 4 | 5430500 | 559000 | 154 | 2 | 5225900 | 512500 |
| 67 | 4 | 5427500 | 580000 | 155 | 5 | 5233500 | 508900 |
| 69 | 4 | 5408900 | 569700 | 156 | 4 | 5247100 | 503700 |
| 70 | 4 | 5392100 | 572300 | 157 | 4 | 5245900 | 510900 |
| 71 | 5 | 5369000 | 580900 | 158 | 4 | 5221300 | 484200 |
| 72 | 4 | 5397200 | 538200 | 159 | 3 | 5197600 | 491000 |
| 73 | 4 | 5415600 | 544200 | 160 | 4 | 5236000 | 472800 |
| 74 | 4 | 5428300 | 534600 | 161 | 4 | 5210900 | 486800 |
| 76 | 4 | 5427800 | 517700 | 162 | 3 | 5236500 | 472000 |
| 77 | 5 | 5447200 | 507900 | 163 | 1 | 5218200 | 490000 |
| 78 | 4 | 5439900 | 529900 | 164 | 2 | 5193400 | 487900 |
| 79 | 4 | 5447000 | 529300 | 165 | 4 | 5203800 | 491000 |
| 80 | 4 | 5437900 | 546800 | 166 | 4 | 5227000 | 476900 |
| 81 | 4 | 5444800 | 574400 | 167 | 4 | 5213500 | 474100 |
| 82 | 4 | 5427900 | 556800 | 168 | 4 | 5240800 | 494700 |
| 83 | 5 | 5364800 | 602800 | 169 | 3 | 5242600 | 482400 |
| 84 | 4 | 5375800 | 594900 | 170 | 4 | 5250100 | 477900 |
| 85 | 5 | 5373700 | 604400 | 171 | 3 | 5245700 | 482400 |
| 86 | 5 | 5367800 | 590700 | 172 | 1 | 5247900 | 511200 |
| 87 | 5 | 5386300 | 606700 | 173 | 4 | 5218300 | 490300 |
| 88 | 5 | 5357700 | 588600 | 174 | 4 | 5222200 | 483100 |
| 89 | 5 | 5320600 | 582600 | 175 | 4 | 5194400 | 488600 |
| 90 | 5 | 5332500 | 588300 | | | | |

TASMANIA SPRING RIFFLE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 5342300 | 380400 | 91 | 3 | 5434800 | 584800 |
| 2 | 1 | 5335300 | 377500 | 92 | 3 | 5450600 | 589300 |
| 3 | 2 | 5334100 | 377300 | 93 | 3 | 5442200 | 590000 |
| 4 | 1 | 5337700 | 395100 | 94 | 3 | 5450600 | 587800 |
| 5 | 1 | 5347000 | 391700 | 95 | 3 | 5434800 | 587300 |
| 8 | 1 | 5347100 | 376500 | 96 | 3 | 5416400 | 591500 |
| 9 | 1 | 5342600 | 379200 | 97 | 4 | 5310500 | 558500 |
| 10 | 1 | 5342300 | 359000 | 98 | 3 | 5345000 | 573000 |
| 11 | 2 | 5349600 | 373400 | 99 | 3 | 5339700 | 581000 |
| 12 | 1 | 5351700 | 372400 | 101 | 3 | 5291800 | 564200 |
| 13 | 1 | 5342600 | 362000 | 102 | 3 | 5277500 | 573700 |
| 14 | 1 | 5355500 | 370600 | 103 | 1 | 5356100 | 572600 |
| 15 | 3 | 5382100 | 364700 | 104 | 4 | 5352900 | 569100 |
| 16 | 4 | 5381500 | 357700 | 105 | 3 | 5360600 | 579100 |
| 17 | 1 | 5408200 | 365800 | 106 | 3 | 5225500 | 562200 |
| 18 | 1 | 5410800 | 361700 | 107 | 1 | 5226000 | 573600 |
| 19 | 1 | 5370300 | 368300 | 108 | 3 | 5331700 | 528500 |
| 20 | 1 | 5370600 | 379000 | 109 | 3 | 5302500 | 534300 |
| 22 | 2 | 5393200 | 375900 | 110 | 4 | 5302700 | 511400 |
| 23 | 2 | 5402100 | 376800 | 111 | 3 | 5338600 | 569000 |
| 24 | 1 | 5442200 | 340400 | 112 | 3 | 5330800 | 562300 |
| 25 | 1 | 5446300 | 330500 | 113 | 1 | 5254000 | 502200 |
| 26 | 1 | 5452500 | 333200 | 115 | 1 | 5384300 | 434500 |
| 27 | 3 | 5418300 | 389200 | 116 | 3 | 5375200 | 435300 |
| 28 | 1 | 5432500 | 334500 | 117 | 3 | 5385900 | 425800 |
| 29 | 1 | 5452700 | 348400 | 118 | 1 | 5393000 | 427500 |
| 30 | 3 | 5438800 | 369000 | 119 | 1 | 5385200 | 438600 |
| 31 | 1 | 5458000 | 342000 | 120 | 1 | 5367700 | 431600 |
| 32 | 2 | 5466700 | 357600 | 121 | 3 | 5335000 | 444900 |
| 33 | 1 | 5460300 | 365600 | 122 | 3 | 5341100 | 456000 |
| 34 | 2 | 5466700 | 359200 | 123 | 3 | 5342400 | 456800 |
| 35 | 3 | 5464500 | 372800 | 124 | 3 | 5300800 | 459200 |
| 36 | 2 | 5447600 | 382000 | 125 | 3 | 5336500 | 459700 |
| 37 | 2 | 5447200 | 382300 | 126 | 3 | 5254100 | 488200 |
| 38 | 3 | 5446800 | 375900 | 127 | 3 | 5259700 | 494600 |
| 39 | 2 | 5460100 | 382100 | 128 | 1 | 5252600 | 486200 |
| 40 | 2 | 5434400 | 410300 | 129 | 3 | 5249800 | 489700 |
| 41 | 3 | 5410700 | 403200 | 130 | 3 | 5293300 | 469200 |
| 42 | 2 | 5414400 | 414300 | 131 | 3 | 5259300 | 468500 |
| 43 | 2 | 5424200 | 415800 | 132 | 1 | 5254600 | 488200 |
| 44 | 2 | 5416500 | 409700 | 133 | 3 | 5267700 | 484600 |
| 46 | 1 | 5414200 | 417600 | 134 | 2 | 5259300 | 468500 |
| 47 | 2 | 5408900 | 444500 | 135 | 3 | 5266200 | 465900 |
| 48 | 3 | 5413200 | 452200 | 136 | 1 | 5269400 | 453100 |
| 49 | 4 | 5392000 | 452500 | 137 | 4 | 5284900 | 454400 |
| 50 | 4 | 5431400 | 472700 | 138 | 1 | 5271200 | 454300 |
| 51 | 3 | 5430600 | 468100 | 139 | 3 | 5268100 | 484400 |
| 52 | 2 | 5421800 | 430000 | 140 | 3 | 5215700 | 514600 |
| 53 | 2 | 5430100 | 435600 | 141 | 3 | 5225900 | 512500 |
| 54 | 2 | 5395500 | 469200 | 142 | 1 | 5233500 | 508900 |
| 55 | 2 | 5382300 | 436900 | 143 | 3 | 5247100 | 503700 |

TASMANIA SPRING RIFFLE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 56 | 1 | 5408000 | 486200 | 144 | 2 | 5245900 | 510900 |
| 57 | 2 | 5385300 | 481700 | 145 | 1 | 5244100 | 516800 |
| 59 | 2 | 5386500 | 470300 | 146 | 1 | 5221300 | 484200 |
| 60 | 2 | 5403100 | 440300 | 147 | 2 | 5218000 | 470700 |
| 61 | 2 | 5407900 | 456000 | 148 | 1 | 5197600 | 491000 |
| 62 | 2 | 5412200 | 436800 | 149 | 1 | 5236000 | 472800 |
| 63 | 1 | 5419800 | 449100 | 150 | 3 | 5210900 | 486800 |
| 64 | 2 | 5442100 | 561800 | 151 | 1 | 5210200 | 487800 |
| 65 | 2 | 5430500 | 559000 | 152 | 1 | 5213200 | 473200 |
| 66 | 1 | 5427500 | 580000 | 153 | 1 | 5236500 | 472000 |
| 67 | 2 | 5414300 | 560000 | 154 | 1 | 5218200 | 490000 |
| 68 | 2 | 5408900 | 569700 | 155 | 1 | 5228800 | 473300 |
| 69 | 2 | 5392100 | 572300 | 156 | 3 | 5193400 | 487900 |
| 70 | 3 | 5369000 | 580900 | 157 | 1 | 5203800 | 491000 |
| 71 | 2 | 5397200 | 538200 | 158 | 1 | 5227000 | 476900 |
| 72 | 2 | 5415600 | 544200 | 160 | 1 | 5228900 | 473000 |
| 73 | 2 | 5428300 | 534600 | 161 | 1 | 5231200 | 474900 |
| 74 | 2 | 5407900 | 528000 | 162 | 3 | 5240800 | 494700 |
| 75 | 3 | 5427800 | 517700 | 163 | 3 | 5242600 | 482400 |
| 76 | 1 | 5439900 | 529900 | 164 | 1 | 5250100 | 477900 |
| 77 | 2 | 5447000 | 529300 | 165 | 3 | 5245700 | 482400 |
| 78 | 3 | 5437900 | 546800 | 166 | 1 | 5247900 | 511200 |
| 79 | 2 | 5444800 | 574400 | 167 | 3 | 5218300 | 490300 |
| 80 | 2 | 5427900 | 556800 | 168 | 1 | 5222200 | 483100 |
| 81 | 3 | 5364800 | 602800 | 169 | 4 | 5194400 | 488600 |
| 82 | 3 | 5375800 | 594900 | 170 | 1 | 5276500 | 447600 |
| 83 | 4 | 5373700 | 604400 | 172 | 4 | 5278100 | 449200 |
| 85 | 3 | 5367800 | 590700 | 173 | 3 | 5275700 | 408900 |
| 86 | 4 | 5386300 | 606700 | 174 | 1 | 5271300 | 403200 |
| 87 | 3 | 5357700 | 588600 | 175 | 4 | 5276300 | 398200 |
| 88 | 4 | 5440300 | 594800 | 176 | 1 | 5280500 | 396800 |
| 89 | 4 | 5408500 | 590400 | 177 | 1 | 5271700 | 399900 |
| 90 | 3 | 5408800 | 595800 | 179 | 1 | 5273700 | 401700 |

TASMANIA COMBINED EDGE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 5342300 | 380400 | 81 | 2 | 5427900 | 556800 |
| 2 | 2 | 5335300 | 377500 | 82 | 4 | 5364800 | 602800 |
| 3 | 2 | 5334100 | 377300 | 83 | 3 | 5375800 | 594900 |
| 4 | 2 | 5337700 | 395100 | 84 | 4 | 5373700 | 604400 |
| 5 | 1 | 5347000 | 391700 | 85 | 4 | 5367800 | 590700 |
| 6 | 2 | 5347900 | 393300 | 86 | 4 | 5386300 | 606700 |
| 7 | 2 | 5330400 | 393300 | 87 | 4 | 5357700 | 588600 |
| 8 | 1 | 5347100 | 376500 | 88 | 4 | 5320600 | 582600 |
| 9 | 1 | 5342600 | 379200 | 89 | 4 | 5332500 | 588300 |
| 10 | 2 | 5342300 | 359000 | 90 | 4 | 5335600 | 548100 |
| 11 | 2 | 5349600 | 373400 | 91 | 3 | 5440300 | 594800 |
| 12 | 1 | 5351700 | 372400 | 92 | 4 | 5408500 | 590400 |
| 13 | 1 | 5342600 | 362000 | 93 | 4 | 5408800 | 595800 |
| 14 | 2 | 5355500 | 370600 | 94 | 3 | 5434800 | 584800 |
| 15 | 2 | 5362700 | 364800 | 95 | 3 | 5450600 | 589300 |
| 16 | 1 | 5382100 | 364700 | 96 | 2 | 5442200 | 590000 |
| 17 | 2 | 5381500 | 357700 | 97 | 3 | 5450600 | 587800 |
| 18 | 2 | 5408200 | 365800 | 98 | 1 | 5434800 | 587300 |
| 19 | 2 | 5410800 | 361700 | 99 | 3 | 5416400 | 591500 |
| 20 | 2 | 5370300 | 368300 | 100 | 4 | 5306400 | 552300 |
| 21 | 2 | 5370600 | 379000 | 101 | 4 | 5310500 | 558500 |
| 22 | 1 | 5367300 | 355100 | 103 | 4 | 5296800 | 570200 |
| 23 | 2 | 5393200 | 375900 | 104 | 4 | 5339700 | 581000 |
| 24 | 2 | 5402100 | 376800 | 105 | 4 | 5381800 | 568500 |
| 25 | 2 | 5442200 | 340400 | 106 | 4 | 5291800 | 564200 |
| 26 | 1 | 5446300 | 330500 | 107 | 4 | 5277500 | 573700 |
| 27 | 2 | 5452500 | 333200 | 108 | 3 | 5244300 | 570700 |
| 28 | 2 | 5418300 | 389200 | 109 | 3 | 5356100 | 572600 |
| 29 | 2 | 5432500 | 334500 | 110 | 4 | 5352900 | 569100 |
| 30 | 2 | 5452700 | 348400 | 111 | 4 | 5360600 | 579100 |
| 31 | 2 | 5438800 | 369000 | 113 | 3 | 5225500 | 562200 |
| 32 | 3 | 5458000 | 342000 | 114 | 2 | 5226000 | 573600 |
| 33 | 3 | 5466700 | 357600 | 115 | 4 | 5296600 | 570200 |
| 34 | 2 | 5460300 | 365600 | 116 | 4 | 5331700 | 528500 |
| 35 | 3 | 5466700 | 359200 | 117 | 4 | 5338600 | 569000 |
| 36 | 2 | 5464500 | 372800 | 118 | 4 | 5330800 | 562300 |
| 37 | 3 | 5447600 | 382000 | 119 | 3 | 5254000 | 502200 |
| 38 | 3 | 5447200 | 382300 | 120 | 3 | 5384300 | 434500 |
| 39 | 2 | 5446800 | 375900 | 121 | 2 | 5385900 | 425800 |
| 40 | 3 | 5434400 | 410300 | 122 | 2 | 5393000 | 427500 |
| 41 | 2 | 5410700 | 403200 | 123 | 3 | 5385200 | 438600 |
| 42 | 2 | 5414400 | 414300 | 124 | 2 | 5367700 | 431600 |
| 43 | 3 | 5424200 | 415800 | 125 | 2 | 5335000 | 444900 |
| 44 | 2 | 5416500 | 409700 | 126 | 4 | 5348500 | 425500 |
| 45 | 1 | 5410400 | 404600 | 127 | 2 | 5341100 | 456000 |
| 46 | 1 | 5414200 | 417600 | 129 | 2 | 5300800 | 459200 |
| 47 | 3 | 5408900 | 444500 | 130 | 3 | 5336500 | 459700 |
| 48 | 2 | 5413200 | 452200 | 131 | 1 | 5267900 | 467400 |
| 49 | 3 | 5392000 | 452500 | 132 | 2 | 5254100 | 488200 |
| 50 | 1 | 5431400 | 472700 | 133 | 3 | 5259700 | 494600 |
| 51 | 4 | 5430600 | 468100 | 134 | 2 | 5249800 | 489700 |

TASMANIA COMBINED EDGE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 52 | 2 | 5421800 | 430000 | 135 | 3 | 5293300 | 469200 |
| 53 | 4 | 5430100 | 435600 | 136 | 2 | 5259300 | 468500 |
| 54 | 3 | 5395500 | 469200 | 137 | 2 | 5254600 | 488200 |
| 55 | 3 | 5382300 | 436900 | 138 | 2 | 5267700 | 484600 |
| 56 | 4 | 5408000 | 486200 | 139 | 2 | 5259300 | 468500 |
| 57 | 3 | 5385300 | 481700 | 140 | 2 | 5266200 | 465900 |
| 58 | 2 | 5393500 | 479400 | 141 | 3 | 5284900 | 454400 |
| 59 | 3 | 5386500 | 470300 | 142 | 3 | 5215700 | 514600 |
| 60 | 4 | 5403100 | 440300 | 143 | 3 | 5225900 | 512500 |
| 61 | 4 | 5407900 | 456000 | 144 | 3 | 5233500 | 508900 |
| 62 | 2 | 5412200 | 436800 | 145 | 2 | 5247100 | 503700 |
| 63 | 1 | 5419800 | 449100 | 146 | 3 | 5245900 | 510900 |
| 64 | 3 | 5442100 | 561800 | 147 | 2 | 5221300 | 484200 |
| 65 | 2 | 5430500 | 559000 | 148 | 2 | 5197600 | 491000 |
| 66 | 3 | 5427500 | 580000 | 149 | 2 | 5236000 | 472800 |
| 67 | 2 | 5414300 | 560000 | 150 | 2 | 5236500 | 472000 |
| 68 | 3 | 5408900 | 569700 | 151 | 2 | 5218200 | 490000 |
| 69 | 3 | 5392100 | 572300 | 152 | 1 | 5193400 | 487900 |
| 70 | 4 | 5369000 | 580900 | 153 | 2 | 5203800 | 491000 |
| 71 | 2 | 5397200 | 538200 | 154 | 2 | 5227000 | 476900 |
| 72 | 2 | 5415600 | 544200 | 155 | 1 | 5213500 | 474100 |
| 73 | 2 | 5428300 | 534600 | 156 | 3 | 5240800 | 494700 |
| 74 | 3 | 5407900 | 528000 | 157 | 2 | 5242600 | 482400 |
| 75 | 3 | 5427800 | 517700 | 158 | 3 | 5245700 | 482400 |
| 77 | 3 | 5439900 | 529900 | 159 | 2 | 5247900 | 511200 |
| 78 | 3 | 5447000 | 529300 | 160 | 2 | 5218300 | 490300 |
| 79 | 2 | 5437900 | 546800 | 161 | 2 | 5222200 | 483100 |
| 80 | 3 | 5444800 | 574400 | 162 | 2 | 5194400 | 488600 |

TASMANIA COMBINED RIFFLE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 5342300 | 380400 | 77 | 1 | 5444800 | 574400 |
| 2 | 1 | 5335300 | 377500 | 78 | 2 | 5427900 | 556800 |
| 3 | 1 | 5334100 | 377300 | 79 | 3 | 5364800 | 602800 |
| 4 | 1 | 5337700 | 395100 | 80 | 3 | 5373700 | 604400 |
| 5 | 2 | 5347000 | 391700 | 81 | 3 | 5382400 | 594700 |
| 6 | 2 | 5347900 | 393300 | 82 | 1 | 5357700 | 588600 |
| 7 | 1 | 5330400 | 393300 | 83 | 1 | 5440300 | 594800 |
| 8 | 4 | 5347100 | 376500 | 84 | 3 | 5434800 | 584800 |
| 9 | 1 | 5342600 | 379200 | 85 | 3 | 5442200 | 590000 |
| 10 | 1 | 5342300 | 359000 | 86 | 3 | 5450600 | 587800 |
| 11 | 2 | 5349600 | 373400 | 87 | 2 | 5434800 | 587300 |
| 12 | 2 | 5351700 | 372400 | 88 | 3 | 5416400 | 591500 |
| 13 | 1 | 5342600 | 362000 | 89 | 1 | 5277500 | 573700 |
| 14 | 2 | 5355500 | 370600 | 90 | 4 | 5356100 | 572600 |
| 15 | 2 | 5382100 | 364700 | 91 | 1 | 5360600 | 579100 |
| 17 | 2 | 5408200 | 365800 | 92 | 1 | 5225500 | 562200 |
| 18 | 2 | 5410800 | 361700 | 93 | 3 | 5331700 | 528500 |
| 19 | 4 | 5370300 | 368300 | 94 | 3 | 5254000 | 502200 |
| 20 | 4 | 5370600 | 379000 | 95 | 2 | 5384300 | 434500 |
| 22 | 2 | 5393200 | 375900 | 96 | 2 | 5375200 | 435300 |
| 23 | 2 | 5402100 | 376800 | 97 | 2 | 5385900 | 425800 |
| 24 | 1 | 5442200 | 340400 | 98 | 2 | 5393000 | 427500 |
| 25 | 1 | 5446300 | 330500 | 99 | 2 | 5385200 | 438600 |
| 26 | 1 | 5452500 | 333200 | 100 | 2 | 5367700 | 431600 |
| 27 | 3 | 5418300 | 389200 | 101 | 3 | 5335000 | 444900 |
| 28 | 1 | 5432500 | 334500 | 102 | 3 | 5341100 | 456000 |
| 29 | 2 | 5452700 | 348400 | 103 | 3 | 5342400 | 456800 |
| 30 | 2 | 5438800 | 369000 | 104 | 3 | 5300800 | 459200 |
| 31 | 3 | 5458000 | 342000 | 105 | 3 | 5336500 | 459700 |
| 32 | 2 | 5466700 | 357600 | 107 | 3 | 5254100 | 488200 |
| 33 | 1 | 5460300 | 365600 | 108 | 3 | 5259700 | 494600 |
| 34 | 3 | 5466700 | 359200 | 109 | 4 | 5252600 | 486200 |
| 35 | 1 | 5464500 | 372800 | 110 | 3 | 5249800 | 489700 |
| 36 | 3 | 5447600 | 382000 | 111 | 3 | 5293300 | 469200 |
| 37 | 2 | 5447200 | 382300 | 112 | 3 | 5259300 | 468500 |
| 38 | 2 | 5446800 | 375900 | 113 | 3 | 5254600 | 488200 |
| 39 | 3 | 5434400 | 410300 | 114 | 3 | 5267700 | 484600 |
| 40 | 3 | 5410700 | 403200 | 115 | 3 | 5259300 | 468500 |
| 41 | 3 | 5414400 | 414300 | 116 | 3 | 5266200 | 465900 |
| 42 | 3 | 5424200 | 415800 | 117 | 4 | 5269400 | 453100 |
| 43 | 3 | 5416500 | 409700 | 118 | 3 | 5284900 | 454400 |
| 44 | 4 | 5410400 | 404600 | 119 | 1 | 5369000 | 462100 |
| 45 | 4 | 5414200 | 417600 | 120 | 4 | 5271200 | 454300 |
| 46 | 2 | 5408900 | 444500 | 121 | 3 | 5268100 | 484400 |
| 47 | 3 | 5413200 | 452200 | 122 | 3 | 5215700 | 514600 |
| 48 | 1 | 5392000 | 452500 | 123 | 3 | 5225900 | 512500 |
| 49 | 3 | 5421800 | 430000 | 124 | 3 | 5247100 | 503700 |
| 50 | 3 | 5430100 | 435600 | 125 | 3 | 5245900 | 510900 |
| 51 | 3 | 5395500 | 469200 | 126 | 1 | 5244100 | 516800 |
| 52 | 2 | 5382300 | 436900 | 127 | 3 | 5221300 | 484200 |
| 53 | 1 | 5408000 | 486200 | 128 | 4 | 5218000 | 470700 |

TASMANIA COMBINED RIFFLE continued

| | | | | | | | |
|----|---|---------|--------|-----|---|---------|--------|
| 54 | 2 | 5385300 | 481700 | 129 | 3 | 5197600 | 491000 |
| 55 | 3 | 5393500 | 479400 | 130 | 4 | 5236000 | 472800 |
| 56 | 3 | 5386500 | 470300 | 131 | 2 | 5210900 | 486800 |
| 57 | 3 | 5403100 | 440300 | 132 | 4 | 5210200 | 487800 |
| 58 | 3 | 5407900 | 456000 | 133 | 4 | 5213200 | 473200 |
| 59 | 1 | 5412200 | 436800 | 134 | 4 | 5236500 | 472000 |
| 60 | 1 | 5419800 | 449100 | 135 | 2 | 5218200 | 490000 |
| 61 | 3 | 5442100 | 561800 | 136 | 4 | 5228800 | 473300 |
| 62 | 2 | 5430500 | 559000 | 137 | 3 | 5193400 | 487900 |
| 63 | 2 | 5427500 | 580000 | 138 | 2 | 5203800 | 491000 |
| 64 | 2 | 5414300 | 560000 | 139 | 2 | 5227000 | 476900 |
| 65 | 3 | 5408900 | 569700 | 141 | 4 | 5228900 | 473000 |
| 66 | 3 | 5392100 | 572300 | 142 | 4 | 5231200 | 474900 |
| 67 | 1 | 5369000 | 580900 | 143 | 3 | 5240800 | 494700 |
| 68 | 1 | 5397200 | 538200 | 144 | 2 | 5242600 | 482400 |
| 69 | 3 | 5415600 | 544200 | 145 | 4 | 5250100 | 477900 |
| 70 | 2 | 5428300 | 534600 | 146 | 3 | 5245700 | 482400 |
| 71 | 3 | 5407900 | 528000 | 147 | 3 | 5247900 | 511200 |
| 72 | 3 | 5427800 | 517700 | 148 | 3 | 5218300 | 490300 |
| 74 | 1 | 5439900 | 529900 | 149 | 2 | 5222200 | 483100 |
| 75 | 1 | 5447000 | 529300 | 150 | 3 | 5194400 | 488600 |
| 76 | 3 | 5437900 | 546800 | | | | |

Victoria
VICTORIA AUTUMN EGDE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 36.5582 | 147.41 | 177 | 1 | 38.5253 | 143.4839 |
| 2 | 3 | 36.5582 | 147.41 | 178 | 2 | 38.5253 | 143.4839 |
| 3 | 1 | 36.8946 | 147.461 | 179 | 6 | 38.45 | 142.9885 |
| 4 | 1 | 36.8946 | 147.461 | 180 | 6 | 38.45 | 142.9885 |
| 5 | 3 | 36.9464 | 147.6058 | 181 | 6 | 38.47 | 142.93 |
| 6 | 3 | 36.9464 | 147.6058 | 182 | 6 | 38.47 | 142.93 |
| 7 | 1 | 36.0211 | 147.4545 | 183 | 8 | 38.1486 | 143.9932 |
| 8 | 4 | 36.0211 | 147.4545 | 184 | 6 | 38.1486 | 143.9932 |
| 9 | 6 | 35.9295 | 147.7098 | 185 | 6 | 38.326 | 143.8313 |
| 10 | 7 | 35.9295 | 147.7098 | 186 | 6 | 38.326 | 143.8313 |
| 11 | 9 | 36.3614 | 148.0404 | 187 | 6 | 38.53 | 143.73 |
| 12 | 1 | 36.3614 | 148.0404 | 188 | 2 | 38.53 | 143.73 |
| 13 | 6 | 36.0903 | 147.9795 | 189 | 3 | 38.53 | 143.73 |
| 14 | 9 | 36.7115 | 147.7523 | 190 | 6 | 37.89 | 144.12 |
| 15 | 9 | 36.7115 | 147.7523 | 191 | 4 | 37.89 | 144.12 |
| 16 | 1 | 36.8792 | 148.0335 | 192 | 6 | 37.7207 | 144.3712 |
| 17 | 1 | 36.8792 | 148.0335 | 193 | 6 | 37.7207 | 144.3712 |
| 18 | 5 | 37.0954 | 147.3972 | 194 | 7 | 37.68 | 144.37 |
| 19 | 5 | 37.0954 | 147.3972 | 195 | 7 | 37.68 | 144.37 |
| 20 | 1 | 36.4434 | 147.8316 | 196 | 1 | 37.51 | 144.17 |
| 21 | 3 | 36.4434 | 147.8316 | 197 | 3 | 37.5 | 144.36 |
| 22 | 10 | 36.933 | 147.3043 | 198 | 3 | 37.5 | 144.36 |
| 23 | 10 | 36.933 | 147.3043 | 199 | 6 | 37.37 | 144.8 |
| 24 | 3 | 36.5622 | 147.0045 | 200 | 6 | 37.37 | 144.8 |
| 25 | 3 | 36.5622 | 147.0045 | 201 | 8 | 37.39 | 144.89 |
| 26 | 7 | 36.2313 | 146.9504 | 202 | 6 | 37.39 | 144.89 |
| 27 | 3 | 36.2313 | 146.9504 | 203 | 9 | 37.4 | 144.62 |
| 28 | 5 | 36.639 | 147.1158 | 204 | 9 | 37.4 | 144.62 |
| 29 | 10 | 36.9043 | 147.2488 | 205 | 6 | 37.46 | 144.74 |
| 30 | 10 | 36.9043 | 147.2488 | 206 | 6 | 37.46 | 144.74 |
| 31 | 2 | 36.2558 | 147.0194 | 207 | 2 | 37.6774 | 145.4885 |
| 33 | 2 | 36.8731 | 147.3175 | 208 | 2 | 37.7689 | 145.5353 |
| 34 | 1 | 36.79 | 147.1564 | 209 | 9 | 37.7562 | 145.8483 |
| 35 | 1 | 36.79 | 147.1564 | 210 | 9 | 37.7562 | 145.8483 |
| 37 | 4 | 36.5699 | 146.7162 | 211 | 9 | 37.6389 | 145.8671 |
| 38 | 4 | 36.7258 | 146.9572 | 212 | 9 | 37.6389 | 145.8671 |
| 39 | 4 | 36.7258 | 146.9572 | 213 | 9 | 37.6604 | 145.8293 |
| 40 | 4 | 36.6207 | 146.2433 | 214 | 9 | 37.6604 | 145.8293 |
| 41 | 4 | 36.6207 | 146.2433 | 215 | 9 | 37.7192 | 145.9402 |
| 42 | 4 | 36.83 | 146.58 | 216 | 9 | 37.7192 | 145.9402 |
| 43 | 4 | 36.83 | 146.58 | 217 | 9 | 37.7409 | 145.9013 |
| 44 | 4 | 36.518 | 146.3913 | 218 | 9 | 37.7409 | 145.9013 |
| 45 | 7 | 36.518 | 146.3913 | 219 | 9 | 37.7355 | 146.0408 |
| 46 | 2 | 36.53 | 146.67 | 220 | 9 | 37.7355 | 146.0408 |
| 47 | 2 | 36.53 | 146.67 | 221 | 1 | 37.7073 | 145.818 |
| 48 | 1 | 36.9 | 147.055 | 222 | 4 | 37.7073 | 145.818 |
| 49 | 1 | 36.9 | 147.055 | 223 | 1 | 37.7816 | 145.6185 |
| 50 | 4 | 36.94 | 146.4417 | 224 | 1 | 37.8625 | 145.7443 |
| 51 | 4 | 36.94 | 146.4417 | 225 | 9 | 37.8625 | 145.7443 |
| 52 | 1 | 36.7682 | 146.7796 | 226 | 5 | 37.7146 | 145.7041 |

VICTORIA AUTUMN EGDE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 53 | 1 | 36.7682 | 146.7793 | 227 | 9 | 37.7146 | 145.7041 |
| 54 | 1 | 36.7224 | 146.8047 | 228 | 9 | 37.6178 | 145.6023 |
| 55 | 1 | 36.7232 | 146.804 | 229 | 9 | 37.6178 | 145.6023 |
| 56 | 7 | 36.9769 | 146.1068 | 230 | 3 | 37.8135 | 145.5077 |
| 57 | 5 | 36.9769 | 146.1068 | 232 | 9 | 37.6035 | 145.8179 |
| 58 | 4 | 36.83 | 146.14 | 233 | 9 | 38.023 | 145.845 |
| 59 | 3 | 36.83 | 146.14 | 235 | 2 | 37.952 | 145.905 |
| 60 | 1 | 36.86 | 146.19 | 236 | 9 | 37.9579 | 145.9121 |
| 61 | 7 | 36.46 | 145.86 | 237 | 6 | 38.6432 | 146.37 |
| 62 | 7 | 36.46 | 145.86 | 238 | 1 | 38.4631 | 146.5471 |
| 63 | 6 | 36.1 | 145.68 | 239 | 1 | 38.4631 | 146.5471 |
| 64 | 3 | 36.8 | 145.95 | 241 | 2 | 38.3315 | 147.1055 |
| 65 | 4 | 37.38 | 146.21 | 242 | 4 | 38.3315 | 147.1055 |
| 66 | 4 | 37.38 | 146.21 | 243 | 9 | 39.1167 | 146.395 |
| 67 | 9 | 37.503 | 146.2076 | 244 | 9 | 39.072 | 146.373 |
| 68 | 9 | 37.52 | 146.0114 | 245 | 9 | 38.914 | 146.365 |
| 69 | 1 | 37.52 | 146.0114 | 246 | 1 | 38.331 | 146.008 |
| 70 | 4 | 37.19 | 146.37 | 247 | 1 | 37.8465 | 145.8691 |
| 71 | 4 | 37.14 | 146.17 | 248 | 9 | 37.8112 | 145.9929 |
| 72 | 2 | 37.14 | 146.17 | 249 | 9 | 37.7996 | 146.1981 |
| 73 | 2 | 37.3221 | 145.71 | 250 | 3 | 38.4064 | 146.3873 |
| 74 | 2 | 36.9704 | 145.7833 | 251 | 3 | 37.9804 | 146.0833 |
| 75 | 2 | 36.9704 | 145.7833 | 252 | 1 | 38.3304 | 146.5263 |
| 76 | 3 | 37.3889 | 145.5529 | 253 | 1 | 37.9135 | 146.2537 |
| 77 | 9 | 37.3889 | 145.5529 | 254 | 9 | 37.9634 | 146.3356 |
| 78 | 2 | 37.33 | 145.28 | 255 | 9 | 37.845 | 146.253 |
| 79 | 4 | 37.33 | 145.28 | 256 | 10 | 37.841 | 146.264 |
| 80 | 7 | 36.8783 | 145.661 | 257 | 9 | 37.84 | 146.249 |
| 81 | 7 | 36.8783 | 145.661 | 258 | 4 | 37.71 | 146.39 |
| 82 | 7 | 37.08 | 145.03 | 259 | 1 | 37.71 | 146.39 |
| 83 | 7 | 37.08 | 145.03 | 260 | 4 | 37.86 | 146.43 |
| 84 | 6 | 37.13 | 145.06 | 261 | 4 | 37.86 | 146.43 |
| 85 | 7 | 36.9488 | 145.2727 | 262 | 1 | 37.69 | 146.22 |
| 86 | 3 | 37.3397 | 146.1324 | 263 | 3 | 37.69 | 146.22 |
| 87 | 4 | 37.238 | 146.2273 | 264 | 8 | 38.0139 | 146.8804 |
| 88 | 1 | 37.1046 | 146.2564 | 265 | 4 | 37.52 | 146.57 |
| 89 | 7 | 37.0975 | 145.6106 | 266 | 4 | 37.52 | 146.57 |
| 90 | 9 | 37.5133 | 145.7503 | 267 | 4 | 37.63 | 146.62 |
| 91 | 6 | 36.85 | 144.53 | 268 | 4 | 37.63 | 146.62 |
| 92 | 6 | 36.3604 | 144.7031 | 269 | 7 | 37.77 | 146.67 |
| 93 | 6 | 36.7753 | 144.4268 | 270 | 7 | 37.77 | 146.67 |
| 94 | 6 | 36.7753 | 144.4268 | 271 | 2 | 37.56 | 146.56 |
| 95 | 6 | 36.7753 | 144.4268 | 272 | 4 | 37.56 | 146.56 |
| 96 | 6 | 36.9631 | 144.4899 | 273 | 10 | 37.3802 | 146.756 |
| 97 | 6 | 36.9631 | 144.4899 | 275 | 4 | 37.51 | 146.64 |
| 98 | 1 | 36.9631 | 144.4899 | 276 | 4 | 37.51 | 146.64 |
| 99 | 6 | 37.0171 | 144.5393 | 277 | 4 | 37.72 | 146.88 |
| 100 | 6 | 37.0171 | 144.5393 | 278 | 4 | 37.72 | 146.88 |
| 101 | 6 | 37.0171 | 144.5393 | 279 | 4 | 37.81 | 146.88 |
| 102 | 6 | 36.95 | 144.67 | 280 | 4 | 37.81 | 146.88 |
| 103 | 6 | 36.95 | 144.67 | 281 | 4 | 37.73 | 146.98 |

VICTORIA AUTUMN EGDE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 104 | 6 | 37.38 | 144.45 | 282 | 4 | 37.73 | 146.98 |
| 105 | 7 | 37.38 | 144.45 | 283 | 4 | 37.81 | 147.09 |
| 106 | 6 | 37.23 | 144.42 | 284 | 4 | 37.81 | 147.09 |
| 107 | 8 | 37.23 | 144.42 | 285 | 8 | 37.8 | 147.51 |
| 108 | 6 | 37.23 | 144.42 | 286 | 4 | 37.35 | 146.93 |
| 109 | 4 | 37.16 | 144.21 | 287 | 4 | 37.35 | 146.93 |
| 110 | 6 | 37.16 | 144.21 | 288 | 4 | 37.4 | 147.08 |
| 111 | 7 | 37.2143 | 144.0993 | 289 | 4 | 37.4 | 147.08 |
| 112 | 6 | 37.2143 | 144.0993 | 290 | 4 | 37.37 | 147.1 |
| 113 | 6 | 36.99 | 143.64 | 291 | 4 | 37.37 | 147.1 |
| 114 | 6 | 36.99 | 143.64 | 292 | 4 | 37.38 | 147.28 |
| 115 | 6 | 37.18 | 143.39 | 293 | 4 | 37.38 | 147.28 |
| 116 | 6 | 37.18 | 143.39 | 294 | 3 | 37.4 | 147.41 |
| 117 | 1 | 37.2536 | 142.5342 | 295 | 4 | 37.4 | 147.41 |
| 118 | 6 | 36.6966 | 142.2363 | 296 | 4 | 37.59 | 147.3511 |
| 119 | 6 | 36.6966 | 142.2363 | 297 | 2 | 37.59 | 147.3511 |
| 120 | 7 | 36.9514 | 142.5092 | 298 | 1 | 36.95 | 147.92 |
| 121 | 6 | 36.9514 | 142.5092 | 299 | 1 | 36.95 | 147.92 |
| 122 | 4 | 37.0911 | 142.3802 | 300 | 4 | 37.26 | 147.72 |
| 123 | 3 | 37.0911 | 142.3802 | 301 | 4 | 37.26 | 147.72 |
| 124 | 7 | 36.7798 | 142.1758 | 302 | 4 | 37.55 | 147.86 |
| 125 | 7 | 36.7798 | 142.1758 | 303 | 4 | 37.55 | 147.86 |
| 126 | 7 | 36.8934 | 142.6262 | 304 | 4 | 37.62 | 147.92 |
| 127 | 7 | 36.8934 | 142.6262 | 305 | 8 | 37.62 | 147.92 |
| 128 | 6 | 36.4446 | 142.0064 | 306 | 9 | 37.14 | 147.98 |
| 129 | 7 | 37.1742 | 143.1362 | 307 | 1 | 37.14 | 147.98 |
| 130 | 6 | 37.1742 | 143.1362 | 308 | 4 | 37.44 | 148.06 |
| 131 | 7 | 36.6422 | 142.9779 | 309 | 4 | 37.44 | 148.06 |
| 132 | 7 | 36.7358 | 142.7433 | 310 | 4 | 37.44 | 147.74 |
| 133 | 6 | 37.0593 | 142.8302 | 311 | 4 | 37.44 | 147.74 |
| 134 | 3 | 37.1118 | 142.4118 | 312 | 4 | 37.59 | 147.69 |
| 135 | 6 | 37.6462 | 141.5049 | 313 | 3 | 37.59 | 147.69 |
| 136 | 6 | 37.6462 | 141.5049 | 314 | 4 | 37.72 | 148.45 |
| 137 | 6 | 37.6705 | 141.8423 | 315 | 8 | 37.72 | 148.45 |
| 138 | 6 | 37.6705 | 141.8423 | 316 | 2 | 37.5045 | 148.53 |
| 139 | 6 | 37.6686 | 141.3136 | 317 | 4 | 37.5045 | 148.53 |
| 140 | 6 | 37.6686 | 141.3136 | 318 | 2 | 37.4973 | 148.1723 |
| 143 | 6 | 37.929 | 141.2779 | 319 | 4 | 37.4973 | 148.1723 |
| 144 | 6 | 37.929 | 141.2779 | 320 | 8 | 37.4801 | 148.27 |
| 145 | 6 | 37.3668 | 141.2412 | 321 | 4 | 37.0864 | 148.4132 |
| 146 | 6 | 37.3668 | 141.2412 | 322 | 8 | 37.0864 | 148.4132 |
| 147 | 1 | 37.3467 | 142.325 | 323 | 4 | 37.0854 | 148.4216 |
| 148 | 1 | 37.3467 | 142.325 | 325 | 2 | 36.95 | 148.3266 |
| 149 | 6 | 37.1503 | 141.8471 | 326 | 4 | 36.95 | 148.3266 |
| 150 | 6 | 37.1503 | 141.8471 | 327 | 4 | 37.4104 | 148.3607 |
| 151 | 1 | 37.3731 | 142.5063 | 328 | 4 | 37.4104 | 148.3607 |
| 152 | 1 | 37.3731 | 142.5063 | 329 | 2 | 37.6909 | 148.5753 |
| 153 | 6 | 37.6324 | 142.3364 | 330 | 4 | 37.6909 | 148.5753 |
| 154 | 6 | 38.0907 | 141.4606 | 332 | 6 | 37.473 | 149.5904 |
| 155 | 6 | 38.078 | 141.4275 | 333 | 6 | 37.473 | 149.5904 |
| 156 | 1 | 38.078 | 141.4275 | 334 | 3 | 37.3719 | 148.9051 |

VICTORIA AUTUMN EGDE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 157 | 6 | 38.0252 | 143.6276 | 335 | 3 | 37.3719 | 148.9051 |
| 158 | 6 | 38.0252 | 143.6276 | 336 | 4 | 37.6898 | 149.4914 |
| 159 | 7 | 38.3472 | 143.365 | 338 | 3 | 37.5772 | 148.9033 |
| 160 | 8 | 37.8087 | 143.585 | 339 | 3 | 37.5772 | 148.9033 |
| 161 | 6 | 37.8087 | 143.585 | 340 | 3 | 37.4362 | 148.9834 |
| 162 | 6 | 37.8342 | 143.1043 | 341 | 3 | 37.4362 | 148.9834 |
| 163 | 6 | 37.8582 | 142.6483 | 342 | 4 | 37.3421 | 149.2073 |
| 164 | 2 | 38.5653 | 143.6553 | 343 | 4 | 37.3421 | 149.2073 |
| 165 | 2 | 38.5653 | 143.6553 | 344 | 4 | 37.562 | 149.1501 |
| 166 | 2 | 38.5653 | 143.6553 | 345 | 7 | 37.562 | 149.1501 |
| 167 | 1 | 38.67 | 143.53 | 346 | 4 | 37.1847 | 149.3218 |
| 168 | 1 | 38.67 | 143.53 | 347 | 7 | 37.1847 | 149.3218 |
| 169 | 9 | 38.6429 | 143.4439 | 348 | 3 | 37.5694 | 149.2579 |
| 170 | 1 | 38.6429 | 143.4439 | 349 | 3 | 37.5694 | 149.2579 |
| 171 | 6 | 38.5937 | 143.2534 | 350 | 3 | 37.5953 | 149.6375 |
| 172 | 2 | 38.5748 | 143.9472 | 351 | 3 | 37.5953 | 149.6375 |
| 173 | 2 | 38.7009 | 143.2489 | 352 | 1 | 37.6491 | 149.6898 |
| 174 | 2 | 38.7009 | 143.2489 | 353 | 3 | 37.6491 | 149.6898 |
| 175 | 2 | 38.5253 | 143.4839 | 354 | 3 | 37.5314 | 149.585 |
| 176 | 2 | 38.5253 | 143.4839 | | | | |

VICTORIA AUTUMN RIFFLE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 36.5582 | 147.41 | 125 | 3 | 37.7689 | 145.5353 |
| 2 | 1 | 36.5582 | 147.41 | 126 | 7 | 37.7562 | 145.8483 |
| 3 | 2 | 36.8946 | 147.461 | 127 | 2 | 37.7562 | 145.8483 |
| 4 | 2 | 36.8946 | 147.461 | 128 | 2 | 37.6389 | 145.8671 |
| 5 | 2 | 36.9464 | 147.6058 | 129 | 2 | 37.6604 | 145.8293 |
| 6 | 3 | 36.9464 | 147.6058 | 130 | 2 | 37.6604 | 145.8293 |
| 7 | 1 | 36.0211 | 147.4545 | 131 | 2 | 37.7192 | 145.9402 |
| 8 | 4 | 36.0211 | 147.4545 | 132 | 2 | 37.7192 | 145.9402 |
| 9 | 5 | 35.9295 | 147.7098 | 133 | 7 | 37.7409 | 145.9013 |
| 10 | 5 | 35.9295 | 147.7098 | 134 | 2 | 37.7355 | 146.0408 |
| 11 | 1 | 36.3614 | 148.0404 | 135 | 1 | 37.7073 | 145.818 |
| 12 | 5 | 36.0903 | 147.9795 | 136 | 1 | 37.7073 | 145.818 |
| 13 | 1 | 36.7115 | 147.7523 | 137 | 7 | 37.7146 | 145.7041 |
| 14 | 1 | 36.7115 | 147.7523 | 138 | 7 | 37.7146 | 145.7041 |
| 15 | 3 | 36.8792 | 148.0335 | 139 | 2 | 37.6178 | 145.6023 |
| 16 | 3 | 36.8792 | 148.0335 | 140 | 2 | 37.5829 | 145.8259 |
| 17 | 1 | 37.0954 | 147.3972 | 141 | 2 | 37.6035 | 145.8179 |
| 18 | 1 | 37.0954 | 147.3972 | 142 | 7 | 38.0228 | 145.8454 |
| 19 | 1 | 36.4434 | 147.8316 | 143 | 9 | 37.9579 | 145.9121 |
| 20 | 1 | 36.4434 | 147.8316 | 144 | 3 | 38.5514 | 146.6816 |
| 21 | 6 | 36.933 | 147.3043 | 145 | 3 | 38.4631 | 146.5471 |
| 22 | 6 | 36.933 | 147.3043 | 146 | 8 | 38.6541 | 146.2959 |
| 23 | 8 | 36.5622 | 147.0045 | 147 | 9 | 38.3315 | 147.1055 |
| 24 | 3 | 36.639 | 147.1158 | 148 | 2 | 39.1167 | 146.395 |
| 25 | 5 | 36.14 | 146.9543 | 149 | 2 | 39.072 | 146.373 |
| 26 | 5 | 36.2558 | 147.0194 | 150 | 3 | 38.914 | 146.365 |
| 27 | 6 | 36.8731 | 147.3175 | 151 | 3 | 38.331 | 146.008 |
| 28 | 6 | 36.8731 | 147.3175 | 152 | 2 | 37.8465 | 145.8691 |
| 29 | 2 | 36.79 | 147.1564 | 153 | 2 | 37.8112 | 145.9929 |
| 30 | 2 | 36.79 | 147.1564 | 154 | 2 | 37.7996 | 146.1981 |
| 31 | 4 | 36.5699 | 146.7162 | 155 | 2 | 38.4064 | 146.3873 |
| 32 | 9 | 36.7258 | 146.9572 | 156 | 3 | 37.9804 | 146.0833 |
| 33 | 4 | 36.7258 | 146.9572 | 157 | 2 | 38.3304 | 146.5263 |
| 34 | 4 | 36.6207 | 146.2433 | 158 | 2 | 37.9135 | 146.2537 |
| 35 | 4 | 36.6207 | 146.2433 | 159 | 2 | 37.9634 | 146.3356 |
| 36 | 4 | 36.83 | 146.58 | 160 | 7 | 37.845 | 146.253 |
| 37 | 1 | 36.83 | 146.58 | 161 | 6 | 37.841 | 146.264 |
| 38 | 9 | 36.53 | 146.67 | 162 | 7 | 37.84 | 146.249 |
| 39 | 4 | 36.53 | 146.67 | 163 | 2 | 37.71 | 146.39 |
| 40 | 1 | 36.9 | 147.055 | 164 | 1 | 37.71 | 146.39 |
| 41 | 3 | 36.9 | 147.055 | 165 | 1 | 37.86 | 146.43 |
| 42 | 3 | 36.94 | 146.4417 | 166 | 4 | 37.86 | 146.43 |
| 43 | 4 | 36.94 | 146.4417 | 167 | 1 | 37.69 | 146.22 |
| 45 | 3 | 36.7224 | 146.8047 | 168 | 6 | 37.23 | 146.69 |
| 46 | 3 | 36.7232 | 146.804 | 170 | 1 | 37.52 | 146.57 |
| 47 | 4 | 36.83 | 146.14 | 171 | 1 | 37.52 | 146.57 |
| 48 | 9 | 36.83 | 146.14 | 172 | 1 | 37.63 | 146.62 |
| 49 | 9 | 36.86 | 146.19 | 173 | 4 | 37.63 | 146.62 |
| 50 | 2 | 36.8 | 145.95 | 174 | 5 | 37.77 | 146.67 |
| 51 | 7 | 36.8 | 145.95 | 175 | 4 | 37.77 | 146.67 |
| 52 | 9 | 37.38 | 146.21 | 176 | 1 | 37.56 | 146.56 |

VICTORIA AUTUMN RIFFLE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 53 | 1 | 37.38 | 146.21 | 177 | 1 | 37.56 | 146.56 |
| 54 | 2 | 37.503 | 146.2076 | 178 | 2 | 37.3802 | 146.756 |
| 55 | 3 | 37.527 | 146.0114 | 179 | 6 | 37.3802 | 146.756 |
| 56 | 1 | 37.527 | 146.0114 | 180 | 1 | 37.51 | 146.64 |
| 57 | 1 | 37.19 | 146.37 | 181 | 1 | 37.51 | 146.64 |
| 58 | 2 | 37.3221 | 145.71 | 182 | 4 | 37.72 | 146.88 |
| 59 | 5 | 36.9704 | 146.7833 | 183 | 4 | 37.72 | 146.88 |
| 60 | 4 | 37.33 | 145.28 | 184 | 4 | 37.81 | 146.88 |
| 61 | 5 | 36.8783 | 145.661 | 185 | 4 | 37.81 | 146.88 |
| 62 | 8 | 37.13 | 145.06 | 186 | 4 | 37.73 | 146.98 |
| 63 | 8 | 37.13 | 145.06 | 187 | 4 | 37.73 | 146.98 |
| 64 | 2 | 37.3889 | 145.5529 | 188 | 4 | 37.81 | 147.09 |
| 65 | 1 | 37.3397 | 146.1324 | 189 | 4 | 37.81 | 147.09 |
| 66 | 1 | 37.238 | 146.2273 | 190 | 1 | 37.35 | 146.93 |
| 67 | 2 | 37.1046 | 146.2564 | 191 | 1 | 37.35 | 146.93 |
| 68 | 8 | 37.0975 | 145.6106 | 192 | 1 | 37.4 | 147.08 |
| 69 | 2 | 37.5133 | 145.7503 | 193 | 1 | 37.4 | 147.08 |
| 70 | 8 | 36.9631 | 144.4899 | 194 | 1 | 37.37 | 147.1 |
| 71 | 8 | 36.9631 | 144.4899 | 195 | 1 | 37.37 | 147.1 |
| 72 | 8 | 36.9631 | 144.4899 | 196 | 1 | 37.38 | 147.28 |
| 73 | 8 | 37.0171 | 144.5393 | 197 | 2 | 37.38 | 147.28 |
| 74 | 8 | 37.0171 | 144.5393 | 198 | 1 | 37.4 | 147.41 |
| 75 | 8 | 37.0171 | 144.5393 | 199 | 1 | 37.4 | 147.41 |
| 76 | 8 | 36.95 | 144.67 | 200 | 4 | 37.59 | 147.3511 |
| 78 | 9 | 37.23 | 144.42 | 201 | 3 | 37.59 | 147.3511 |
| 79 | 3 | 37.16 | 144.21 | 202 | 3 | 36.95 | 147.92 |
| 80 | 8 | 37.2143 | 144.0993 | 203 | 4 | 37.26 | 147.72 |
| 81 | 8 | 37.2143 | 144.0993 | 204 | 4 | 37.26 | 147.72 |
| 82 | 8 | 36.99 | 143.64 | 205 | 4 | 37.55 | 147.86 |
| 83 | 8 | 37.18 | 143.39 | 206 | 4 | 37.55 | 147.86 |
| 84 | 3 | 37.2536 | 142.5342 | 207 | 4 | 37.62 | 147.92 |
| 85 | 3 | 37.0911 | 142.3802 | 208 | 4 | 37.62 | 147.92 |
| 86 | 8 | 37.1742 | 143.1362 | 209 | 2 | 37.14 | 147.98 |
| 87 | 3 | 38.0543 | 141.271 | 210 | 4 | 37.44 | 148.06 |
| 88 | 3 | 37.3467 | 142.325 | 211 | 4 | 37.44 | 148.06 |
| 89 | 6 | 37.3467 | 142.325 | 212 | 1 | 37.44 | 147.74 |
| 90 | 3 | 37.3731 | 142.5063 | 213 | 1 | 37.44 | 147.74 |
| 91 | 3 | 37.3731 | 142.5063 | 214 | 4 | 37.59 | 147.69 |
| 92 | 9 | 38.0907 | 141.4606 | 215 | 4 | 37.59 | 147.69 |
| 93 | 8 | 37.8342 | 143.1043 | 216 | 4 | 37.5045 | 148.53 |
| 94 | 3 | 38.5653 | 143.6553 | 217 | 4 | 37.4973 | 148.1723 |
| 95 | 8 | 38.67 | 143.53 | 218 | 4 | 37.4801 | 148.27 |
| 96 | 8 | 38.67 | 143.53 | 219 | 4 | 37.4801 | 148.27 |
| 97 | 2 | 38.6429 | 143.4439 | 220 | 3 | 37.0864 | 148.4132 |
| 98 | 2 | 38.6429 | 143.4439 | 221 | 4 | 37.0864 | 148.4132 |
| 99 | 2 | 38.6429 | 143.4439 | 222 | 4 | 37.0854 | 148.4216 |
| 100 | 3 | 38.6703 | 143.5805 | 223 | 3 | 36.95 | 148.3266 |
| 101 | 3 | 38.5748 | 143.9472 | 224 | 4 | 36.95 | 148.3266 |
| 102 | 2 | 38.5748 | 143.9472 | 225 | 4 | 37.4104 | 148.3607 |
| 103 | 3 | 38.5253 | 143.4839 | 226 | 4 | 37.4104 | 148.3607 |
| 104 | 3 | 38.5253 | 143.4839 | 227 | 1 | 37.2993 | 148.4667 |

VICTORIA AUTUMN RIFFLE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 105 | 3 | 38.5253 | 143.4839 | 228 | 4 | 37.473 | 149.5904 |
| 106 | 3 | 38.5253 | 143.4839 | 229 | 2 | 37.3719 | 148.9051 |
| 107 | 8 | 38.1486 | 143.9932 | 230 | 2 | 37.3719 | 148.9051 |
| 108 | 8 | 38.1486 | 143.9932 | 231 | 3 | 37.6898 | 149.4914 |
| 109 | 8 | 38.1486 | 143.9932 | 233 | 3 | 37.5772 | 148.9033 |
| 110 | 8 | 38.326 | 143.8313 | 234 | 3 | 37.5772 | 148.9033 |
| 111 | 5 | 38.326 | 143.8313 | 235 | 1 | 37.4362 | 148.9834 |
| 112 | 3 | 38.53 | 143.73 | 236 | 1 | 37.4362 | 148.9834 |
| 113 | 8 | 37.89 | 144.12 | 237 | 4 | 37.3421 | 149.2073 |
| 114 | 8 | 37.89 | 144.12 | 238 | 4 | 37.3421 | 149.2073 |
| 115 | 8 | 37.68 | 144.37 | 239 | 5 | 37.562 | 149.1501 |
| 116 | 9 | 37.51 | 144.17 | 240 | 5 | 37.562 | 149.1501 |
| 117 | 9 | 37.5 | 144.36 | 241 | 4 | 37.1847 | 149.3218 |
| 119 | 8 | 37.37 | 144.8 | 242 | 4 | 37.1847 | 149.3218 |
| 120 | 8 | 37.39 | 144.89 | 243 | 3 | 37.5694 | 149.2579 |
| 121 | 8 | 37.39 | 144.89 | 244 | 3 | 37.5953 | 149.6375 |
| 122 | 2 | 37.4 | 144.62 | 245 | 3 | 37.5953 | 149.6375 |
| 123 | 2 | 37.4 | 144.62 | 246 | 3 | 37.6491 | 149.6898 |
| 124 | 8 | 37.46 | 144.74 | 247 | 3 | 37.5314 | 149.585 |

VICTORIA SPRING EDGE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 36.55824 | 147.41 | 175 | 9 | 38.7009 | 143.2489 |
| 2 | 1 | 36.55824 | 147.41 | 176 | 9 | 38.7009 | 143.2489 |
| 3 | 1 | 36.8946 | 147.461 | 177 | 9 | 38.5253 | 143.4839 |
| 4 | 1 | 36.8946 | 147.461 | 178 | 9 | 38.5253 | 143.4839 |
| 5 | 1 | 36.94642 | 147.6058 | 179 | 9 | 38.5253 | 143.4839 |
| 6 | 4 | 36.94642 | 147.6058 | 180 | 9 | 38.5253 | 143.4839 |
| 7 | 8 | 36.02112 | 147.4545 | 181 | 10 | 38.45 | 142.9885 |
| 8 | 1 | 36.36141 | 148.0404 | 182 | 9 | 38.47 | 142.93 |
| 9 | 1 | 36.71148 | 147.7523 | 183 | 9 | 38.47 | 142.93 |
| 10 | 2 | 36.71148 | 147.7523 | 184 | 4 | 38.1486 | 143.9932 |
| 11 | 4 | 36.87925 | 148.0335 | 185 | 10 | 38.1486 | 143.9932 |
| 12 | 3 | 36.87925 | 148.0335 | 186 | 10 | 38.32604 | 143.8313 |
| 13 | 1 | 37.09542 | 147.3972 | 187 | 8 | 38.53 | 143.73 |
| 14 | 5 | 37.09542 | 147.3972 | 188 | 5 | 38.53 | 143.73 |
| 15 | 1 | 36.44337 | 147.8316 | 189 | 7 | 37.89 | 144.12 |
| 16 | 1 | 36.44337 | 147.8316 | 190 | 11 | 37.89 | 144.12 |
| 18 | 2 | 36.93302 | 147.3043 | 191 | 10 | 37.7207 | 144.3712 |
| 19 | 6 | 36.5622 | 147.0045 | 192 | 10 | 37.7207 | 144.3712 |
| 20 | 6 | 36.23131 | 146.9504 | 193 | 4 | 37.68 | 144.37 |
| 21 | 4 | 36.23131 | 146.9504 | 194 | 3 | 37.51 | 144.17 |
| 22 | 9 | 36.63901 | 147.1158 | 195 | 3 | 37.51 | 144.17 |
| 23 | 13 | 36.90427 | 147.2488 | 196 | 8 | 37.5 | 144.36 |
| 24 | 13 | 36.90427 | 147.2488 | 197 | 4 | 37.5 | 144.36 |
| 25 | 4 | 36.14002 | 146.9543 | 198 | 10 | 37.37 | 144.8 |
| 27 | 13 | 36.87314 | 147.3175 | 199 | 7 | 37.37 | 144.8 |
| 28 | 1 | 36.78998 | 147.1564 | 200 | 7 | 37.39 | 144.89 |
| 29 | 1 | 36.78998 | 147.1564 | 201 | 10 | 37.39 | 144.89 |
| 30 | 6 | 36.5699 | 146.7162 | 202 | 2 | 37.4 | 144.62 |
| 31 | 6 | 36.5699 | 146.7162 | 203 | 2 | 37.4 | 144.62 |
| 32 | 6 | 36.7258 | 146.9572 | 204 | 10 | 37.46 | 144.74 |
| 33 | 6 | 36.7258 | 146.9572 | 205 | 10 | 37.46 | 144.74 |
| 34 | 7 | 36.6207 | 146.2433 | 206 | 6 | 37.6774 | 145.4885 |
| 35 | 7 | 36.6207 | 146.2433 | 207 | 6 | 37.6774 | 145.4885 |
| 36 | 5 | 36.83 | 146.58 | 208 | 1 | 37.76891 | 145.5353 |
| 37 | 5 | 36.83 | 146.58 | 209 | 6 | 37.76891 | 145.5353 |
| 38 | 6 | 36.518 | 146.3913 | 210 | 2 | 37.75616 | 145.8483 |
| 39 | 6 | 36.518 | 146.3913 | 211 | 2 | 37.75616 | 145.8483 |
| 40 | 7 | 36.53 | 146.67 | 212 | 2 | 37.6389 | 145.8671 |
| 41 | 7 | 36.53 | 146.67 | 213 | 2 | 37.6389 | 145.8671 |
| 42 | 1 | 36.9 | 147.055 | 215 | 2 | 37.66037 | 145.8293 |
| 43 | 1 | 36.9 | 147.055 | 216 | 2 | 37.7192 | 145.9402 |
| 44 | 6 | 36.94001 | 146.4417 | 217 | 2 | 37.7192 | 145.9402 |
| 45 | 6 | 36.94001 | 146.4417 | 218 | 2 | 37.74092 | 145.9013 |
| 46 | 10 | 36.9769 | 146.1068 | 219 | 2 | 37.74092 | 145.9013 |
| 47 | 12 | 36.9769 | 146.1068 | 220 | 3 | 37.7355 | 146.0408 |
| 48 | 5 | 36.83 | 146.14 | 221 | 2 | 37.7355 | 146.0408 |
| 49 | 5 | 36.83 | 146.14 | 222 | 8 | 37.70734 | 145.818 |
| 50 | 1 | 36.86 | 146.19 | 223 | 5 | 37.70734 | 145.818 |
| 51 | 1 | 36.86 | 146.19 | 224 | 1 | 37.78163 | 145.6185 |
| 52 | 12 | 36.46 | 145.86 | 225 | 2 | 37.8625 | 145.7443 |
| 53 | 12 | 36.46 | 145.86 | 228 | 2 | 37.6178 | 145.6023 |

VICTORIA SPRING EDGE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 54 | 12 | 36.1 | 145.68 | 229 | 9 | 37.81353 | 145.5077 |
| 55 | 12 | 36.1 | 145.68 | 230 | 4 | 37.81353 | 145.5077 |
| 56 | 1 | 36.8 | 145.95 | 231 | 9 | 38.5514 | 146.6816 |
| 57 | 1 | 36.8 | 145.95 | 232 | 10 | 38.6432 | 146.37 |
| 58 | 5 | 37.38 | 146.21 | 233 | 9 | 38.4631 | 146.5471 |
| 59 | 1 | 37.38 | 146.21 | 234 | 11 | 38.3946 | 145.9555 |
| 60 | 1 | 37.503 | 146.2076 | 235 | 9 | 38.6541 | 146.2959 |
| 61 | 2 | 37.52 | 146.0114 | 236 | 5 | 38.3315 | 147.1055 |
| 62 | 1 | 37.19 | 146.37 | 237 | 6 | 38.331 | 146.008 |
| 63 | 1 | 37.19 | 146.37 | 238 | 3 | 37.84649 | 145.8691 |
| 64 | 6 | 37.14 | 146.17 | 239 | 2 | 37.8112 | 145.9929 |
| 65 | 6 | 37.14 | 146.17 | 240 | 6 | 38.4064 | 146.3873 |
| 66 | 1 | 37.3221 | 145.71 | 241 | 6 | 37.98036 | 146.0833 |
| 67 | 5 | 36.97045 | 145.7833 | 242 | 6 | 38.33044 | 146.5263 |
| 68 | 6 | 36.97045 | 145.7833 | 243 | 3 | 37.91355 | 146.2537 |
| 69 | 2 | 37.3889 | 145.5529 | 244 | 2 | 37.96344 | 146.3356 |
| 70 | 1 | 37.33 | 145.28 | 245 | 8 | 37.71 | 146.39 |
| 71 | 4 | 36.8783 | 145.661 | 246 | 5 | 37.71 | 146.39 |
| 72 | 5 | 36.8783 | 145.661 | 247 | 5 | 37.86 | 146.43 |
| 73 | 11 | 37.08 | 145.03 | 248 | 5 | 37.86 | 146.43 |
| 74 | 11 | 37.13 | 145.06 | 249 | 2 | 37.69 | 146.22 |
| 75 | 10 | 37.13 | 145.06 | 250 | 2 | 37.69 | 146.22 |
| 76 | 4 | 36.94879 | 145.2727 | 251 | 4 | 38.0139 | 146.8804 |
| 77 | 10 | 36.94879 | 145.2727 | 252 | 4 | 38.0139 | 146.8804 |
| 78 | 8 | 37.33972 | 146.1324 | 253 | 13 | 37.23 | 146.69 |
| 79 | 1 | 37.10456 | 146.2564 | 254 | 13 | 37.23 | 146.69 |
| 80 | 10 | 37.0975 | 145.6106 | 255 | 7 | 37.52 | 146.57 |
| 81 | 2 | 37.51325 | 145.7503 | 256 | 5 | 37.52 | 146.57 |
| 82 | 10 | 36.3604 | 144.7031 | 257 | 7 | 37.63 | 146.62 |
| 84 | 10 | 36.77531 | 144.4268 | 258 | 5 | 37.63 | 146.62 |
| 85 | 10 | 36.77531 | 144.4268 | 259 | 7 | 37.77 | 146.67 |
| 86 | 10 | 36.9631 | 144.4899 | 260 | 5 | 37.77 | 146.67 |
| 87 | 10 | 36.9631 | 144.4899 | 261 | 5 | 37.56 | 146.56 |
| 88 | 10 | 37.0171 | 144.5393 | 262 | 5 | 37.56 | 146.56 |
| 89 | 10 | 37.0171 | 144.5393 | 263 | 3 | 37.3802 | 146.756 |
| 90 | 10 | 36.95 | 144.67 | 264 | 3 | 37.3802 | 146.756 |
| 91 | 10 | 36.95 | 144.67 | 265 | 5 | 37.51 | 146.64 |
| 93 | 10 | 37.38 | 144.45 | 266 | 5 | 37.51 | 146.64 |
| 94 | 10 | 37.23 | 144.42 | 267 | 5 | 37.72 | 146.88 |
| 95 | 10 | 37.23 | 144.42 | 268 | 5 | 37.72 | 146.88 |
| 96 | 4 | 37.13 | 144.08 | 269 | 7 | 37.81 | 146.88 |
| 97 | 4 | 37.13 | 144.08 | 270 | 7 | 37.81 | 146.88 |
| 98 | 8 | 37.16 | 144.21 | 271 | 7 | 37.73 | 146.98 |
| 99 | 7 | 37.16 | 144.21 | 272 | 7 | 37.73 | 146.98 |
| 100 | 4 | 37.21428 | 144.0993 | 273 | 7 | 37.81 | 147.09 |
| 101 | 7 | 37.21428 | 144.0993 | 275 | 10 | 37.8 | 147.51 |
| 102 | 11 | 36.99 | 143.64 | 276 | 10 | 37.8 | 147.51 |
| 103 | 11 | 36.99 | 143.64 | 277 | 5 | 37.35 | 146.93 |
| 104 | 10 | 37.18 | 143.39 | 278 | 5 | 37.35 | 146.93 |
| 105 | 11 | 37.18 | 143.39 | 279 | 5 | 37.4 | 147.08 |
| 106 | 8 | 37.25362 | 142.5342 | 280 | 7 | 37.4 | 147.08 |

VICTORIA SPRING EDGE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 107 | 8 | 37.25362 | 142.5342 | 281 | 6 | 37.37 | 147.1 |
| 108 | 10 | 36.69662 | 142.2363 | 282 | 5 | 37.37 | 147.1 |
| 109 | 11 | 36.69662 | 142.2363 | 283 | 6 | 37.38 | 147.28 |
| 110 | 10 | 36.95135 | 142.5092 | 284 | 5 | 37.38 | 147.28 |
| 111 | 10 | 36.95135 | 142.5092 | 285 | 5 | 37.4 | 147.41 |
| 112 | 8 | 37.0911 | 142.3802 | 286 | 5 | 37.4 | 147.41 |
| 113 | 8 | 37.0911 | 142.3802 | 287 | 10 | 37.59 | 147.3511 |
| 114 | 12 | 36.77977 | 142.1758 | 288 | 6 | 37.59 | 147.3511 |
| 115 | 12 | 36.77977 | 142.1758 | 289 | 8 | 36.95 | 147.92 |
| 116 | 4 | 36.89344 | 142.6262 | 290 | 6 | 36.95 | 147.92 |
| 117 | 11 | 36.89344 | 142.6262 | 291 | 7 | 37.26 | 147.72 |
| 118 | 12 | 36.44465 | 142.0064 | 292 | 10 | 37.26 | 147.72 |
| 119 | 11 | 36.44465 | 142.0064 | 293 | 7 | 37.55 | 147.86 |
| 120 | 11 | 37.17421 | 143.1362 | 294 | 7 | 37.55 | 147.86 |
| 121 | 11 | 37.17421 | 143.1362 | 295 | 5 | 37.62 | 147.92 |
| 122 | 10 | 36.64219 | 142.9779 | 296 | 7 | 37.62 | 147.92 |
| 123 | 10 | 36.73584 | 142.7433 | 297 | 2 | 37.14 | 147.98 |
| 124 | 10 | 36.73584 | 142.7433 | 298 | 2 | 37.14 | 147.98 |
| 125 | 10 | 37.05932 | 142.8302 | 299 | 7 | 37.44 | 148.06 |
| 126 | 7 | 37.11178 | 142.4118 | 300 | 5 | 37.44 | 148.06 |
| 127 | 11 | 37.64624 | 141.5049 | 301 | 7 | 37.44 | 147.74 |
| 128 | 4 | 37.64624 | 141.5049 | 302 | 5 | 37.44 | 147.74 |
| 129 | 11 | 37.67045 | 141.8423 | 303 | 7 | 37.59 | 147.69 |
| 130 | 4 | 37.67045 | 141.8423 | 304 | 7 | 37.59 | 147.69 |
| 131 | 11 | 37.66864 | 141.3136 | 305 | 7 | 37.72 | 148.45 |
| 132 | 4 | 37.66864 | 141.3136 | 306 | 7 | 37.72 | 148.45 |
| 133 | 9 | 38.05426 | 141.271 | 307 | 1 | 37.5045 | 148.53 |
| 134 | 8 | 38.05426 | 141.271 | 308 | 1 | 37.5045 | 148.53 |
| 135 | 11 | 37.92901 | 141.2779 | 309 | 6 | 37.4973 | 148.1723 |
| 136 | 4 | 37.92901 | 141.2779 | 310 | 7 | 37.4973 | 148.1723 |
| 137 | 10 | 37.36684 | 141.2412 | 311 | 7 | 37.4801 | 148.27 |
| 138 | 10 | 37.36684 | 141.2412 | 312 | 7 | 37.4801 | 148.27 |
| 139 | 8 | 37.34674 | 142.325 | 313 | 7 | 37.0864 | 148.4132 |
| 140 | 1 | 37.34674 | 142.325 | 314 | 7 | 37.0864 | 148.4132 |
| 141 | 10 | 37.1503 | 141.8471 | 315 | 7 | 37.08535 | 148.4216 |
| 142 | 10 | 37.1503 | 141.8471 | 316 | 7 | 37.08535 | 148.4216 |
| 143 | 8 | 37.37313 | 142.5063 | 317 | 5 | 36.95 | 148.3266 |
| 144 | 8 | 37.37313 | 142.5063 | 318 | 1 | 36.95 | 148.3266 |
| 145 | 11 | 37.6324 | 142.3364 | 319 | 5 | 37.4104 | 148.3607 |
| 146 | 10 | 37.6324 | 142.3364 | 320 | 1 | 37.4104 | 148.3607 |
| 147 | 10 | 38.2 | 141.613 | 321 | 6 | 37.6909 | 148.5753 |
| 149 | 10 | 38.07798 | 141.4275 | 322 | 6 | 37.6909 | 148.5753 |
| 150 | 10 | 38.0252 | 143.6276 | 323 | 3 | 37.2993 | 148.4667 |
| 151 | 10 | 37.80867 | 143.585 | 324 | 1 | 37.2993 | 148.4667 |
| 152 | 10 | 37.8342 | 143.1043 | 325 | 7 | 37.47305 | 149.5904 |
| 153 | 4 | 37.8342 | 143.1043 | 326 | 5 | 37.47305 | 149.5904 |
| 154 | 1 | 37.30051 | 143.2887 | 327 | 1 | 37.3719 | 148.9051 |
| 155 | 10 | 37.89129 | 142.8007 | 328 | 1 | 37.3719 | 148.9051 |
| 156 | 10 | 37.40622 | 142.8614 | 329 | 9 | 37.68981 | 149.4914 |
| 157 | 10 | 37.40622 | 142.8614 | 330 | 9 | 37.68981 | 149.4914 |
| 158 | 10 | 37.85823 | 142.6483 | 331 | 8 | 37.57722 | 148.9033 |

VICTORIA SPRING EDGE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 159 | 9 | 38.5653 | 143.6553 | 332 | 1 | 37.57722 | 148.9033 |
| 160 | 6 | 38.5653 | 143.6553 | 333 | 5 | 37.43622 | 148.9834 |
| 161 | 6 | 38.5653 | 143.6553 | 334 | 5 | 37.43622 | 148.9834 |
| 162 | 6 | 38.5653 | 143.6553 | 335 | 7 | 37.34209 | 149.2073 |
| 163 | 3 | 38.67 | 143.53 | 336 | 7 | 37.34209 | 149.2073 |
| 164 | 3 | 38.6429 | 143.4439 | 337 | 7 | 37.56197 | 149.1501 |
| 165 | 3 | 38.6429 | 143.4439 | 338 | 4 | 37.56197 | 149.1501 |
| 166 | 3 | 38.6429 | 143.4439 | 339 | 7 | 37.18474 | 149.3218 |
| 167 | 3 | 38.6429 | 143.4439 | 340 | 7 | 37.18474 | 149.3218 |
| 168 | 3 | 38.6703 | 143.5805 | 341 | 9 | 37.5694 | 149.2579 |
| 169 | 3 | 38.6703 | 143.5805 | 342 | 9 | 37.5694 | 149.2579 |
| 170 | 9 | 38.5937 | 143.2534 | 343 | 9 | 37.59534 | 149.6375 |
| 171 | 9 | 38.5937 | 143.2534 | 344 | 9 | 37.64909 | 149.6898 |
| 172 | 5 | 38.5748 | 143.9472 | 345 | 9 | 37.64909 | 149.6898 |
| 173 | 9 | 38.7009 | 143.2489 | 346 | 4 | 37.53142 | 149.585 |
| 174 | 9 | 38.7009 | 143.2489 | 347 | 9 | 37.53142 | 149.585 |

VICTORIA SPRING RIFFLE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 36.5582 | 147.41 | 133 | 8 | 37.68 | 144.37 |
| 2 | 1 | 36.5582 | 147.41 | 135 | 3 | 37.5 | 144.36 |
| 3 | 1 | 36.8946 | 147.461 | 136 | 2 | 37.5 | 144.36 |
| 4 | 1 | 36.8946 | 147.461 | 137 | 8 | 37.37 | 144.8 |
| 5 | 3 | 36.9464 | 147.6058 | 138 | 8 | 37.39 | 144.89 |
| 6 | 1 | 36.9464 | 147.6058 | 140 | 6 | 37.4 | 144.62 |
| 7 | 3 | 36.0211 | 147.4545 | 141 | 8 | 37.46 | 144.74 |
| 8 | 1 | 36.3614 | 148.0404 | 142 | 6 | 37.7689 | 145.5353 |
| 9 | 5 | 36.0903 | 147.9795 | 143 | 6 | 37.7689 | 145.5353 |
| 10 | 1 | 36.7115 | 147.7523 | 144 | 7 | 37.7562 | 145.8483 |
| 11 | 1 | 36.7115 | 147.7523 | 145 | 7 | 37.7562 | 145.8483 |
| 12 | 1 | 36.8792 | 148.0335 | 146 | 7 | 37.6389 | 145.8671 |
| 13 | 1 | 36.8792 | 148.0335 | 147 | 7 | 37.6604 | 145.8293 |
| 14 | 1 | 37.0954 | 147.3972 | 148 | 7 | 37.6604 | 145.8293 |
| 15 | 1 | 37.0954 | 147.3972 | 149 | 7 | 37.7192 | 145.9402 |
| 16 | 3 | 36.4434 | 147.8316 | 150 | 7 | 37.7192 | 145.9402 |
| 17 | 1 | 36.4434 | 147.8316 | 151 | 7 | 37.7409 | 145.9013 |
| 19 | 6 | 36.933 | 147.3043 | 152 | 7 | 37.7409 | 145.9013 |
| 20 | 4 | 36.5622 | 147.0045 | 153 | 7 | 37.7355 | 146.0408 |
| 21 | 8 | 36.2313 | 146.9504 | 154 | 7 | 37.7355 | 146.0408 |
| 22 | 4 | 36.639 | 147.1158 | 155 | 1 | 37.7073 | 145.818 |
| 23 | 1 | 36.9043 | 147.2488 | 156 | 3 | 37.7073 | 145.818 |
| 25 | 4 | 36.14 | 146.9543 | 158 | 7 | 37.7146 | 145.7041 |
| 26 | 4 | 36.2558 | 147.0194 | 159 | 7 | 37.6178 | 145.6023 |
| 27 | 2 | 36.8731 | 147.3175 | 160 | 1 | 37.6178 | 145.6023 |
| 28 | 6 | 36.8731 | 147.3175 | 161 | 7 | 37.5829 | 145.8259 |
| 29 | 1 | 36.79 | 147.1564 | 162 | 7 | 37.6035 | 145.8179 |
| 30 | 1 | 36.79 | 147.1564 | 164 | 2 | 38.4631 | 146.5471 |
| 31 | 4 | 36.5699 | 146.7162 | 165 | 2 | 38.4631 | 146.5471 |
| 32 | 4 | 36.5699 | 146.7162 | 166 | 2 | 38.6541 | 146.2959 |
| 33 | 4 | 36.7258 | 146.9572 | 167 | 6 | 39.1167 | 146.395 |
| 34 | 1 | 36.7258 | 146.9572 | 168 | 6 | 39.072 | 146.373 |
| 35 | 4 | 36.6207 | 146.2433 | 169 | 1 | 38.914 | 146.365 |
| 36 | 4 | 36.6207 | 146.2433 | 170 | 1 | 38.331 | 146.008 |
| 37 | 4 | 36.83 | 146.58 | 171 | 1 | 37.8465 | 145.8691 |
| 38 | 3 | 36.83 | 146.58 | 172 | 1 | 37.8112 | 145.9929 |
| 39 | 4 | 36.53 | 146.67 | 173 | 3 | 38.4064 | 146.3873 |
| 40 | 4 | 36.53 | 146.67 | 174 | 1 | 37.9804 | 146.0833 |
| 41 | 1 | 36.9 | 147.055 | 175 | 1 | 38.3304 | 146.5263 |
| 42 | 1 | 36.9 | 147.055 | 176 | 7 | 37.9135 | 146.2537 |
| 43 | 4 | 36.94 | 146.4417 | 177 | 7 | 37.9634 | 146.3356 |
| 44 | 3 | 36.94 | 146.4417 | 178 | 7 | 37.845 | 146.253 |
| 45 | 6 | 36.76817 | 146.7796 | 179 | 6 | 37.841 | 146.264 |
| 46 | 6 | 36.72239 | 146.8047 | 180 | 7 | 37.84 | 146.249 |
| 47 | 6 | 36.9769 | 146.1068 | 181 | 1 | 37.71 | 146.39 |
| 48 | 8 | 36.9769 | 146.1068 | 182 | 1 | 37.71 | 146.39 |
| 49 | 3 | 36.83 | 146.14 | 183 | 5 | 37.86 | 146.43 |
| 50 | 3 | 36.83 | 146.14 | 184 | 5 | 37.86 | 146.43 |
| 51 | 1 | 36.86 | 146.19 | 185 | 1 | 37.69 | 146.22 |
| 52 | 1 | 36.86 | 146.19 | 186 | 7 | 37.69 | 146.22 |
| 53 | 1 | 36.8 | 145.95 | 187 | 6 | 37.23 | 146.69 |

VICTORIA SPRING RIFFLE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 54 | 1 | 36.8 | 145.95 | 189 | 3 | 37.52 | 146.57 |
| 55 | 4 | 37.38 | 146.21 | 190 | 1 | 37.52 | 146.57 |
| 56 | 5 | 37.38 | 146.21 | 191 | 4 | 37.63 | 146.62 |
| 57 | 7 | 37.503 | 146.2076 | 192 | 4 | 37.63 | 146.62 |
| 58 | 1 | 37.52 | 146.0114 | 193 | 4 | 37.77 | 146.67 |
| 59 | 4 | 37.19 | 146.37 | 194 | 3 | 37.56 | 146.56 |
| 60 | 1 | 37.19 | 146.37 | 195 | 3 | 37.56 | 146.56 |
| 61 | 1 | 37.3221 | 145.71 | 196 | 6 | 37.3802 | 146.756 |
| 62 | 4 | 36.9704 | 146.7833 | 197 | 6 | 37.3802 | 146.756 |
| 63 | 7 | 37.3889 | 145.5529 | 198 | 3 | 37.51 | 146.64 |
| 64 | 4 | 37.33 | 145.28 | 199 | 3 | 37.51 | 146.64 |
| 65 | 1 | 37.33 | 145.28 | 200 | 3 | 37.72 | 146.88 |
| 66 | 2 | 36.8783 | 145.661 | 201 | 5 | 37.72 | 146.88 |
| 67 | 8 | 36.8783 | 145.6166 | 202 | 3 | 37.81 | 146.88 |
| 69 | 8 | 37.13 | 145.06 | 203 | 3 | 37.81 | 146.88 |
| 70 | 8 | 37.13 | 145.06 | 204 | 3 | 37.73 | 146.98 |
| 71 | 4 | 37.33972 | 146.1324 | 205 | 3 | 37.73 | 146.98 |
| 72 | 4 | 37.23803 | 146.2273 | 206 | 4 | 37.81 | 147.09 |
| 73 | 1 | 37.10456 | 146.2564 | 207 | 3 | 37.81 | 147.09 |
| 74 | 8 | 37.0975 | 145.6106 | 208 | 3 | 37.35 | 146.93 |
| 75 | 4 | 37.51325 | 145.7503 | 209 | 3 | 37.35 | 146.93 |
| 76 | 8 | 36.9631 | 144.4899 | 210 | 1 | 37.4 | 147.08 |
| 77 | 8 | 36.9631 | 144.4899 | 211 | 3 | 37.4 | 147.08 |
| 78 | 8 | 36.9631 | 144.4899 | 212 | 1 | 37.37 | 147.1 |
| 79 | 8 | 37.0171 | 144.5393 | 213 | 4 | 37.37 | 147.1 |
| 80 | 8 | 37.0171 | 144.5393 | 214 | 1 | 37.38 | 147.28 |
| 81 | 8 | 37.0171 | 144.5393 | 215 | 1 | 37.38 | 147.28 |
| 82 | 8 | 36.9468 | 144.67 | 216 | 1 | 37.4 | 147.41 |
| 83 | 8 | 36.9468 | 144.67 | 217 | 3 | 37.4 | 147.41 |
| 84 | 8 | 36.95 | 144.67 | 218 | 4 | 37.59 | 147.3511 |
| 85 | 8 | 36.9468 | 144.67 | 219 | 4 | 37.59 | 147.3511 |
| 86 | 6 | 37.38 | 144.45 | 220 | 1 | 36.95 | 147.92 |
| 87 | 8 | 37.38 | 144.45 | 221 | 4 | 37.26 | 147.72 |
| 88 | 8 | 37.23 | 144.42 | 222 | 3 | 37.26 | 147.72 |
| 89 | 8 | 37.23 | 144.42 | 223 | 4 | 37.55 | 147.86 |
| 90 | 8 | 37.13 | 144.08 | 224 | 4 | 37.55 | 147.86 |
| 92 | 2 | 37.16 | 144.21 | 225 | 4 | 37.62 | 147.92 |
| 93 | 2 | 37.2143 | 144.0993 | 226 | 4 | 37.62 | 147.92 |
| 94 | 8 | 37.2143 | 144.0993 | 227 | 2 | 37.14 | 147.98 |
| 95 | 8 | 36.99 | 143.64 | 228 | 2 | 37.14 | 147.98 |
| 96 | 8 | 37.18 | 143.39 | 229 | 4 | 37.44 | 148.06 |
| 97 | 2 | 37.2536 | 142.5342 | 230 | 3 | 37.44 | 148.06 |
| 98 | 6 | 37.2536 | 142.5342 | 231 | 1 | 37.44 | 147.74 |
| 99 | 2 | 37.0911 | 142.3802 | 232 | 1 | 37.44 | 147.74 |
| 100 | 2 | 37.0911 | 142.3802 | 233 | 4 | 37.59 | 147.69 |
| 101 | 8 | 36.8934 | 142.6262 | 234 | 4 | 37.59 | 147.69 |
| 102 | 8 | 37.1742 | 143.1362 | 235 | 4 | 37.5045 | 148.53 |
| 103 | 8 | 37.6462 | 141.5049 | 236 | 4 | 37.5045 | 148.53 |
| 104 | 8 | 37.6705 | 141.8423 | 237 | 4 | 37.4973 | 148.1723 |
| 105 | 8 | 37.6705 | 141.8423 | 238 | 4 | 37.4973 | 148.1723 |
| 106 | 2 | 38.0543 | 141.271 | 239 | 4 | 37.4801 | 148.27 |

VICTORIA SPRING RIFFLE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 107 | 8 | 37.3668 | 141.2412 | 240 | 4 | 37.4801 | 148.27 |
| 108 | 8 | 37.3668 | 141.2412 | 241 | 3 | 37.0864 | 148.4132 |
| 109 | 2 | 37.3467 | 142.325 | 242 | 4 | 37.0864 | 148.4132 |
| 110 | 2 | 37.3467 | 142.325 | 243 | 8 | 37.0854 | 148.4216 |
| 111 | 6 | 37.3731 | 142.5063 | 244 | 4 | 37.0854 | 148.4216 |
| 112 | 6 | 37.3731 | 142.5063 | 245 | 4 | 36.95 | 148.3266 |
| 113 | 8 | 37.8342 | 143.1043 | 246 | 4 | 36.95 | 148.3266 |
| 114 | 6 | 37.3005 | 143.2887 | 247 | 5 | 37.4104 | 148.3607 |
| 115 | 1 | 38.5653 | 143.6553 | 248 | 4 | 37.4104 | 148.3607 |
| 116 | 2 | 38.6429 | 143.4439 | 249 | 1 | 37.2993 | 148.4667 |
| 117 | 2 | 38.6429 | 143.4439 | 250 | 1 | 37.2993 | 148.4667 |
| 118 | 2 | 38.6429 | 143.4439 | 253 | 1 | 37.3719 | 148.9051 |
| 119 | 2 | 38.6703 | 143.5805 | 254 | 7 | 37.3719 | 148.9051 |
| 120 | 2 | 38.5748 | 143.9472 | 255 | 1 | 37.6898 | 149.4914 |
| 121 | 2 | 38.5253 | 143.4839 | 256 | 1 | 37.6898 | 149.4914 |
| 122 | 2 | 38.5253 | 143.4839 | 257 | 1 | 37.5772 | 148.9033 |
| 123 | 2 | 38.5253 | 143.4839 | 258 | 1 | 37.5772 | 148.9033 |
| 124 | 2 | 38.5253 | 143.4839 | 259 | 1 | 37.4362 | 148.9834 |
| 125 | 8 | 37.8126 | 143.917 | 260 | 1 | 37.4362 | 148.9834 |
| 126 | 8 | 37.8126 | 143.917 | 261 | 4 | 37.3421 | 149.2073 |
| 127 | 8 | 38.326 | 143.8313 | 262 | 3 | 37.3421 | 149.2073 |
| 128 | 2 | 38.53 | 143.73 | 263 | 8 | 37.562 | 149.1501 |
| 129 | 2 | 38.53 | 143.73 | 264 | 3 | 37.1847 | 149.3218 |
| 130 | 8 | 38.53 | 143.73 | 265 | 3 | 37.1847 | 149.3218 |
| 131 | 8 | 37.89 | 144.12 | 266 | 8 | 37.5694 | 149.2579 |
| 132 | 8 | 37.89 | 144.12 | 267 | 2 | 37.5953 | 149.6375 |

VICTORIA COMBINED EDGE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 36.5582 | 147.41 | 205 | 8 | 38.7009 | 143.2489 |
| 2 | 1 | 36.5582 | 147.41 | 206 | 8 | 38.7009 | 143.2489 |
| 3 | 1 | 36.5582 | 147.41 | 207 | 4 | 38.7009 | 143.2489 |
| 4 | 7 | 36.8946 | 147.461 | 208 | 8 | 38.5253 | 143.4839 |
| 5 | 7 | 36.8946 | 147.461 | 209 | 8 | 38.5253 | 143.4839 |
| 6 | 7 | 36.8946 | 147.461 | 210 | 8 | 38.5253 | 143.4839 |
| 7 | 1 | 36.9464 | 147.6058 | 211 | 4 | 38.5253 | 143.4839 |
| 8 | 1 | 36.9464 | 147.6058 | 212 | 8 | 38.45 | 142.9885 |
| 9 | 1 | 36.9464 | 147.6058 | 213 | 4 | 38.45 | 142.9885 |
| 10 | 8 | 36.0211 | 147.4545 | 214 | 5 | 38.47 | 142.93 |
| 11 | 3 | 36.0211 | 147.4545 | 215 | 5 | 38.47 | 142.93 |
| 12 | 3 | 36.0211 | 147.4545 | 216 | 6 | 38.1486 | 143.9932 |
| 13 | 5 | 35.9295 | 147.7098 | 217 | 6 | 38.1486 | 143.9932 |
| 14 | 5 | 35.9295 | 147.7098 | 218 | 5 | 38.1486 | 143.9932 |
| 15 | 1 | 36.3614 | 148.0404 | 219 | 4 | 38.326 | 143.8313 |
| 16 | 1 | 36.3614 | 148.0404 | 220 | 4 | 38.326 | 143.8313 |
| 17 | 5 | 36.0903 | 147.9795 | 221 | 3 | 38.326 | 143.8313 |
| 20 | 7 | 36.7115 | 147.7523 | 222 | 3 | 38.53 | 143.73 |
| 21 | 7 | 36.7115 | 147.7523 | 223 | 4 | 38.53 | 143.73 |
| 22 | 1 | 36.8792 | 148.0335 | 224 | 3 | 38.53 | 143.73 |
| 23 | 1 | 36.8792 | 148.0335 | 225 | 3 | 37.89 | 144.12 |
| 24 | 1 | 36.8792 | 148.0335 | 226 | 3 | 37.89 | 144.12 |
| 25 | 1 | 37.0954 | 147.3972 | 227 | 5 | 37.73 | 144.34 |
| 26 | 1 | 37.0954 | 147.3972 | 228 | 5 | 37.7207 | 144.3712 |
| 27 | 1 | 37.0954 | 147.3972 | 229 | 3 | 37.68 | 144.37 |
| 28 | 1 | 36.4434 | 147.8316 | 230 | 2 | 37.68 | 144.37 |
| 29 | 1 | 36.4434 | 147.8316 | 231 | 8 | 37.51 | 144.17 |
| 30 | 1 | 36.4434 | 147.8316 | 232 | 6 | 37.51 | 144.17 |
| 31 | 9 | 36.933 | 147.3043 | 233 | 3 | 37.5 | 144.36 |
| 32 | 9 | 36.933 | 147.3043 | 234 | 2 | 37.5 | 144.36 |
| 33 | 4 | 36.5622 | 147.0045 | 235 | 3 | 37.37 | 144.8 |
| 34 | 1 | 36.5622 | 147.0045 | 236 | 3 | 37.37 | 144.8 |
| 35 | 4 | 36.2313 | 146.9504 | 237 | 6 | 37.39 | 144.89 |
| 36 | 2 | 36.2313 | 146.9504 | 238 | 3 | 37.39 | 144.89 |
| 37 | 4 | 36.639 | 147.1158 | 239 | 7 | 37.4 | 144.62 |
| 38 | 9 | 36.9043 | 147.2488 | 240 | 7 | 37.4 | 144.62 |
| 39 | 9 | 36.9043 | 147.2488 | 241 | 3 | 37.46 | 144.74 |
| 40 | 2 | 36.14 | 146.9543 | 242 | 3 | 37.46 | 144.74 |
| 41 | 2 | 36.14 | 146.9543 | 243 | 4 | 37.6774 | 145.4885 |
| 42 | 2 | 36.2558 | 147.0194 | 244 | 1 | 37.6774 | 145.4885 |
| 43 | 9 | 36.8731 | 147.3175 | 245 | 8 | 37.7689 | 145.5353 |
| 44 | 9 | 36.8731 | 147.3175 | 246 | 1 | 37.7689 | 145.5353 |
| 45 | 7 | 36.79 | 147.1564 | 247 | 7 | 37.7562 | 145.8483 |
| 46 | 7 | 36.79 | 147.1564 | 248 | 7 | 37.7562 | 145.8483 |
| 47 | 4 | 36.5699 | 146.7162 | 249 | 7 | 37.6389 | 145.8671 |
| 48 | 4 | 36.5699 | 146.7162 | 250 | 7 | 37.6389 | 145.8671 |
| 49 | 7 | 36.7258 | 146.9572 | 251 | 7 | 37.6604 | 145.8293 |
| 50 | 4 | 36.7258 | 146.9572 | 252 | 7 | 37.6604 | 145.8293 |
| 51 | 4 | 36.6207 | 146.2433 | 253 | 7 | 37.7192 | 145.9402 |
| 52 | 4 | 36.6207 | 146.2433 | 254 | 7 | 37.7192 | 145.9402 |
| 53 | 1 | 36.83 | 146.58 | 255 | 7 | 37.7409 | 145.9013 |

VICTORIA COMBINED EDGE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 54 | 1 | 36.83 | 146.58 | 256 | 7 | 37.7409 | 145.9013 |
| 55 | 4 | 36.518 | 146.3913 | 257 | 7 | 37.7355 | 146.0408 |
| 56 | 4 | 36.518 | 146.3913 | 258 | 7 | 37.7355 | 146.0408 |
| 57 | 4 | 36.53 | 146.67 | 259 | 1 | 37.7073 | 145.818 |
| 58 | 4 | 36.53 | 146.67 | 260 | 1 | 37.7073 | 145.818 |
| 59 | 7 | 36.9 | 147.055 | 261 | 1 | 37.7816 | 145.6185 |
| 60 | 1 | 36.9 | 147.055 | 262 | 1 | 37.7816 | 145.6185 |
| 61 | 7 | 36.94 | 146.4417 | 263 | 7 | 37.8625 | 145.7443 |
| 62 | 1 | 36.94 | 146.4417 | 264 | 7 | 37.8625 | 145.7443 |
| 63 | 8 | 36.7682 | 146.7796 | 265 | 7 | 37.7146 | 145.7041 |
| 64 | 8 | 36.7682 | 146.7794 | 266 | 7 | 37.7146 | 145.7041 |
| 65 | 8 | 36.7224 | 146.8047 | 267 | 7 | 37.6178 | 145.6023 |
| 66 | 8 | 36.7228 | 146.8044 | 268 | 7 | 37.6178 | 145.6023 |
| 67 | 5 | 36.9769 | 146.1068 | 269 | 2 | 37.8135 | 145.5077 |
| 68 | 5 | 36.9769 | 146.1068 | 270 | 2 | 37.8135 | 145.5077 |
| 69 | 1 | 36.83 | 146.14 | 271 | 7 | 37.5829 | 145.8259 |
| 70 | 3 | 36.83 | 146.14 | 272 | 7 | 37.6035 | 145.8179 |
| 71 | 7 | 36.86 | 146.19 | 273 | 7 | 38.023 | 145.845 |
| 72 | 5 | 36.46 | 145.86 | 274 | 7 | 38.0228 | 145.8454 |
| 73 | 5 | 36.46 | 145.86 | 275 | 7 | 38.0229 | 145.8452 |
| 74 | 6 | 36.1 | 145.68 | 276 | 7 | 37.952 | 145.905 |
| 76 | 7 | 36.8 | 145.95 | 277 | 7 | 37.9579 | 145.9121 |
| 77 | 7 | 36.8 | 145.95 | 278 | 7 | 37.955 | 145.9085 |
| 78 | 1 | 37.38 | 146.21 | 279 | 8 | 38.5514 | 146.6816 |
| 79 | 1 | 37.38 | 146.21 | 280 | 8 | 38.5514 | 146.6816 |
| 80 | 7 | 37.503 | 146.2076 | 281 | 3 | 38.6432 | 146.37 |
| 81 | 8 | 37.52 | 146.0114 | 282 | 8 | 38.4631 | 146.5471 |
| 82 | 1 | 37.19 | 146.37 | 283 | 8 | 38.4631 | 146.5471 |
| 83 | 1 | 37.19 | 146.37 | 284 | 5 | 38.3946 | 145.9555 |
| 84 | 4 | 37.14 | 146.17 | 285 | 6 | 38.3946 | 145.9555 |
| 85 | 4 | 37.14 | 146.17 | 286 | 5 | 38.6541 | 146.2959 |
| 86 | 8 | 37.3221 | 145.71 | 287 | 5 | 38.6541 | 146.2959 |
| 87 | 4 | 36.9704 | 145.7833 | 288 | 4 | 38.3315 | 147.1055 |
| 88 | 4 | 36.9704 | 145.7833 | 289 | 4 | 38.3315 | 147.1055 |
| 89 | 7 | 37.3889 | 145.5529 | 290 | 8 | 39.1167 | 146.395 |
| 90 | 7 | 37.3889 | 145.5529 | 291 | 8 | 39.072 | 146.373 |
| 91 | 7 | 37.33 | 145.28 | 292 | 8 | 38.914 | 146.365 |
| 92 | 8 | 37.33 | 145.28 | 293 | 8 | 38.331 | 146.008 |
| 93 | 5 | 36.8783 | 145.661 | 294 | 7 | 37.8465 | 145.8691 |
| 94 | 4 | 36.8783 | 145.661 | 295 | 7 | 37.8112 | 145.9929 |
| 95 | 5 | 37.08 | 145.03 | 296 | 7 | 37.7996 | 146.1981 |
| 96 | 3 | 37.13 | 145.06 | 297 | 2 | 38.4064 | 146.3873 |
| 97 | 5 | 37.13 | 145.06 | 298 | 8 | 37.9804 | 146.0833 |
| 98 | 5 | 36.9488 | 145.2727 | 299 | 8 | 38.3304 | 146.5263 |
| 99 | 4 | 36.9488 | 145.2727 | 300 | 7 | 37.9135 | 146.2537 |
| 100 | 8 | 37.3397 | 146.1324 | 301 | 7 | 37.9634 | 146.3356 |
| 101 | 1 | 37.238 | 146.2273 | 302 | 7 | 37.845 | 146.253 |
| 102 | 1 | 37.1046 | 146.2564 | 303 | 9 | 37.841 | 146.264 |
| 103 | 3 | 37.0975 | 145.6106 | 305 | 1 | 37.71 | 146.39 |
| 104 | 7 | 37.5133 | 145.7503 | 306 | 1 | 37.71 | 146.39 |
| 105 | 6 | 36.3604 | 144.7031 | 307 | 1 | 37.86 | 146.43 |

VICTORIA COMBINED EDGE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 106 | 6 | 36.3604 | 144.7031 | 308 | 1 | 37.86 | 146.43 |
| 107 | 5 | 36.7753 | 144.4268 | 309 | 7 | 37.69 | 146.22 |
| 108 | 5 | 36.7753 | 144.4268 | 310 | 1 | 37.69 | 146.22 |
| 109 | 5 | 36.7753 | 144.4268 | 311 | 4 | 38.0139 | 146.8804 |
| 110 | 5 | 36.9631 | 144.4899 | 312 | 4 | 38.0139 | 146.8804 |
| 111 | 3 | 36.9631 | 144.4899 | 314 | 1 | 37.52 | 146.57 |
| 112 | 3 | 36.9631 | 144.4899 | 315 | 1 | 37.52 | 146.57 |
| 113 | 5 | 37.0171 | 144.5393 | 316 | 1 | 37.63 | 146.62 |
| 114 | 6 | 37.0171 | 144.5393 | 317 | 1 | 37.63 | 146.62 |
| 115 | 5 | 37.0171 | 144.5393 | 318 | 3 | 37.77 | 146.67 |
| 116 | 5 | 36.95 | 144.67 | 319 | 3 | 37.77 | 146.67 |
| 117 | 6 | 36.95 | 144.67 | 320 | 1 | 37.56 | 146.56 |
| 118 | 5 | 36.95 | 144.67 | 321 | 1 | 37.56 | 146.56 |
| 119 | 6 | 37.38 | 144.45 | 322 | 7 | 37.3802 | 146.756 |
| 120 | 6 | 37.38 | 144.45 | 323 | 3 | 37.51 | 146.64 |
| 121 | 6 | 37.23 | 144.42 | 324 | 1 | 37.51 | 146.64 |
| 122 | 6 | 37.23 | 144.42 | 325 | 1 | 37.72 | 146.88 |
| 123 | 6 | 37.23 | 144.42 | 326 | 1 | 37.72 | 146.88 |
| 124 | 3 | 37.13 | 144.08 | 327 | 3 | 37.81 | 146.88 |
| 125 | 3 | 37.13 | 144.08 | 328 | 3 | 37.81 | 146.88 |
| 126 | 4 | 37.16 | 144.21 | 329 | 3 | 37.73 | 146.98 |
| 127 | 3 | 37.16 | 144.21 | 330 | 3 | 37.73 | 146.98 |
| 128 | 3 | 37.2143 | 144.0993 | 331 | 3 | 37.81 | 147.09 |
| 129 | 3 | 37.2143 | 144.0993 | 332 | 3 | 37.81 | 147.09 |
| 130 | 6 | 36.99 | 143.64 | 333 | 6 | 37.987 | 147.27 |
| 131 | 6 | 36.99 | 143.64 | 334 | 3 | 37.8 | 147.51 |
| 132 | 5 | 37.18 | 143.39 | 335 | 5 | 37.8 | 147.51 |
| 133 | 5 | 37.18 | 143.39 | 336 | 1 | 37.35 | 146.93 |
| 134 | 5 | 37.18 | 143.39 | 337 | 1 | 37.35 | 146.93 |
| 135 | 6 | 36.47 | 143.31 | 338 | 1 | 37.4 | 147.08 |
| 136 | 9 | 37.2536 | 142.5342 | 339 | 1 | 37.4 | 147.08 |
| 137 | 9 | 37.2536 | 142.5342 | 340 | 1 | 37.37 | 147.1 |
| 138 | 5 | 36.6966 | 142.2363 | 341 | 1 | 37.37 | 147.1 |
| 139 | 5 | 36.6966 | 142.2363 | 342 | 1 | 37.38 | 147.28 |
| 140 | 6 | 36.9514 | 142.5092 | 343 | 1 | 37.38 | 147.28 |
| 141 | 6 | 36.9514 | 142.5092 | 344 | 1 | 37.4 | 147.41 |
| 142 | 8 | 37.0911 | 142.3802 | 345 | 1 | 37.4 | 147.41 |
| 143 | 8 | 37.0911 | 142.3802 | 346 | 4 | 37.59 | 147.3511 |
| 144 | 6 | 36.7798 | 142.1758 | 347 | 4 | 37.59 | 147.3511 |
| 145 | 6 | 36.7798 | 142.1758 | 348 | 1 | 36.95 | 147.92 |
| 146 | 6 | 36.8934 | 142.6262 | 349 | 8 | 36.95 | 147.92 |
| 147 | 6 | 36.8934 | 142.6262 | 350 | 4 | 37.26 | 147.72 |
| 148 | 6 | 36.4446 | 142.0064 | 351 | 4 | 37.26 | 147.72 |
| 149 | 5 | 36.4446 | 142.0064 | 352 | 3 | 37.55 | 147.86 |
| 150 | 6 | 37.1742 | 143.1362 | 353 | 3 | 37.55 | 147.86 |
| 151 | 6 | 37.1742 | 143.1362 | 354 | 3 | 37.62 | 147.92 |
| 152 | 6 | 36.7358 | 142.7433 | 355 | 3 | 37.62 | 147.92 |
| 153 | 5 | 37.0593 | 142.8302 | 357 | 7 | 37.14 | 147.98 |
| 154 | 2 | 37.1118 | 142.4118 | 358 | 1 | 37.44 | 148.06 |
| 155 | 5 | 37.6462 | 141.5049 | 359 | 1 | 37.44 | 148.06 |
| 156 | 5 | 37.6462 | 141.5049 | 360 | 1 | 37.44 | 147.74 |

VICTORIA COMBINED EDGE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 157 | 5 | 37.6705 | 141.8423 | 361 | 1 | 37.44 | 147.74 |
| 158 | 5 | 37.6705 | 141.8423 | 362 | 2 | 37.59 | 147.69 |
| 159 | 5 | 37.6686 | 141.3136 | 363 | 3 | 37.59 | 147.69 |
| 160 | 5 | 37.6686 | 141.3136 | 364 | 4 | 37.72 | 148.45 |
| 162 | 8 | 38.0543 | 141.271 | 365 | 3 | 37.72 | 148.45 |
| 163 | 5 | 37.929 | 141.2779 | 367 | 4 | 37.5045 | 148.53 |
| 164 | 4 | 37.929 | 141.2779 | 368 | 4 | 37.4973 | 148.1723 |
| 165 | 5 | 37.3668 | 141.2412 | 369 | 3 | 37.4973 | 148.1723 |
| 166 | 5 | 37.3668 | 141.2412 | 370 | 3 | 37.4801 | 148.27 |
| 167 | 8 | 37.3467 | 142.325 | 371 | 3 | 37.4801 | 148.27 |
| 168 | 9 | 37.3467 | 142.325 | 372 | 4 | 37.0864 | 148.4132 |
| 169 | 5 | 37.1503 | 141.8471 | 373 | 3 | 37.0864 | 148.4132 |
| 170 | 5 | 37.1503 | 141.8471 | 374 | 4 | 37.0854 | 148.4216 |
| 171 | 8 | 37.3731 | 142.5063 | 375 | 3 | 37.0854 | 148.4216 |
| 172 | 8 | 37.3731 | 142.5063 | 376 | 1 | 36.95 | 148.3266 |
| 173 | 2 | 37.6324 | 142.3364 | 377 | 1 | 36.95 | 148.3266 |
| 174 | 6 | 37.6324 | 142.3364 | 378 | 1 | 37.4104 | 148.3607 |
| 175 | 2 | 38.0907 | 141.4606 | 379 | 1 | 37.4104 | 148.3607 |
| 176 | 5 | 38.078 | 141.4275 | 380 | 4 | 37.6909 | 148.5753 |
| 177 | 6 | 38.0252 | 143.6276 | 381 | 4 | 37.6909 | 148.5753 |
| 178 | 6 | 38.3472 | 143.365 | 383 | 7 | 37.2993 | 148.4667 |
| 179 | 3 | 37.8087 | 143.585 | 384 | 4 | 37.473 | 149.5904 |
| 180 | 6 | 37.8342 | 143.1043 | 385 | 4 | 37.473 | 149.5904 |
| 181 | 5 | 37.8342 | 143.1043 | 386 | 2 | 37.3719 | 148.9051 |
| 182 | 9 | 37.3005 | 143.2887 | 387 | 2 | 37.3719 | 148.9051 |
| 184 | 5 | 37.4062 | 142.8614 | 388 | 5 | 37.6898 | 149.4914 |
| 185 | 6 | 38.3351 | 142.6189 | 389 | 5 | 37.6898 | 149.4914 |
| 186 | 6 | 37.8582 | 142.6483 | 390 | 1 | 37.5772 | 148.9033 |
| 187 | 6 | 37.8582 | 142.6483 | 391 | 1 | 37.5772 | 148.9033 |
| 188 | 8 | 38.5653 | 143.6553 | 392 | 1 | 37.4362 | 148.9834 |
| 189 | 8 | 38.5653 | 143.6553 | 393 | 1 | 37.4362 | 148.9834 |
| 190 | 8 | 38.5653 | 143.6553 | 394 | 1 | 37.3421 | 149.2073 |
| 191 | 8 | 38.5653 | 143.6553 | 395 | 1 | 37.3421 | 149.2073 |
| 192 | 8 | 38.67 | 143.53 | 396 | 4 | 37.562 | 149.1501 |
| 193 | 8 | 38.67 | 143.53 | 397 | 4 | 37.562 | 149.1501 |
| 194 | 7 | 38.6429 | 143.4439 | 398 | 3 | 37.1847 | 149.3218 |
| 195 | 7 | 38.6429 | 143.4439 | 399 | 3 | 37.1847 | 149.3218 |
| 196 | 7 | 38.6429 | 143.4439 | 400 | 1 | 37.5694 | 149.2579 |
| 197 | 7 | 38.6429 | 143.4439 | 401 | 1 | 37.5694 | 149.2579 |
| 198 | 8 | 38.6703 | 143.5805 | 402 | 2 | 37.5953 | 149.6375 |
| 199 | 8 | 38.6703 | 143.5805 | 403 | 2 | 37.5953 | 149.6375 |
| 201 | 8 | 38.5937 | 143.2534 | 404 | 2 | 37.6491 | 149.6898 |
| 202 | 8 | 38.5748 | 143.9472 | 405 | 2 | 37.6491 | 149.6898 |
| 203 | 8 | 38.5748 | 143.9472 | 406 | 2 | 37.5314 | 149.585 |
| 204 | 8 | 38.7009 | 143.2489 | 407 | 2 | 37.5314 | 149.585 |

VICTORIA COMBINED RIFFLE

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 1 | 1 | 36.5582 | 147.41 | 138 | 7 | 37.5 | 144.36 |
| 2 | 1 | 36.5582 | 147.41 | 139 | 10 | 37.37 | 144.8 |
| 3 | 1 | 36.5582 | 147.41 | 140 | 10 | 37.39 | 144.89 |
| 4 | 1 | 36.8946 | 147.461 | 141 | 6 | 37.4 | 144.62 |
| 5 | 1 | 36.8946 | 147.461 | 142 | 6 | 37.4 | 144.62 |
| 6 | 1 | 36.8946 | 147.461 | 143 | 10 | 37.46 | 144.74 |
| 7 | 3 | 36.9464 | 147.6058 | 144 | 7 | 37.7689 | 145.5353 |
| 8 | 3 | 36.9464 | 147.6058 | 145 | 9 | 37.7562 | 145.8483 |
| 9 | 3 | 36.9464 | 147.6058 | 146 | 9 | 37.7562 | 145.8483 |
| 10 | 3 | 36.0211 | 147.4545 | 147 | 6 | 37.6389 | 145.8671 |
| 11 | 3 | 36.0211 | 147.4545 | 148 | 9 | 37.6604 | 145.8293 |
| 12 | 3 | 36.0211 | 147.4545 | 149 | 9 | 37.6604 | 145.8293 |
| 13 | 4 | 35.9295 | 147.7098 | 150 | 9 | 37.7192 | 145.9402 |
| 14 | 1 | 36.3614 | 148.0404 | 151 | 9 | 37.7192 | 145.9402 |
| 15 | 1 | 36.3614 | 148.0404 | 152 | 9 | 37.7409 | 145.9013 |
| 16 | 5 | 36.0903 | 147.9795 | 153 | 9 | 37.7409 | 145.9013 |
| 17 | 5 | 36.0903 | 147.9795 | 154 | 9 | 37.7355 | 146.0408 |
| 18 | 2 | 36.7115 | 147.7523 | 155 | 9 | 37.7355 | 146.0408 |
| 19 | 1 | 36.7115 | 147.7523 | 156 | 3 | 37.7073 | 145.818 |
| 20 | 2 | 36.7115 | 147.7523 | 157 | 2 | 37.7073 | 145.818 |
| 21 | 6 | 36.8792 | 148.0335 | 158 | 9 | 37.7146 | 145.7041 |
| 22 | 6 | 36.8792 | 148.0335 | 159 | 9 | 37.7146 | 145.7041 |
| 23 | 6 | 36.8792 | 148.0335 | 160 | 9 | 37.6178 | 145.6023 |
| 24 | 2 | 37.0954 | 147.3972 | 161 | 9 | 37.6178 | 145.6023 |
| 25 | 2 | 37.0954 | 147.3972 | 162 | 9 | 37.5829 | 145.8259 |
| 26 | 2 | 37.0954 | 147.3972 | 163 | 9 | 37.6035 | 145.8179 |
| 27 | 2 | 36.4434 | 147.8316 | 164 | 7 | 37.9579 | 145.9121 |
| 28 | 2 | 36.4434 | 147.8316 | 165 | 7 | 38.5514 | 146.6816 |
| 29 | 2 | 36.4434 | 147.8316 | 166 | 6 | 38.4631 | 146.5471 |
| 30 | 8 | 36.933 | 147.3043 | 167 | 6 | 38.4631 | 146.5471 |
| 31 | 8 | 36.933 | 147.3043 | 168 | 10 | 38.6541 | 146.2959 |
| 32 | 2 | 36.5622 | 147.0045 | 169 | 10 | 38.3315 | 147.1055 |
| 33 | 4 | 36.2313 | 146.9504 | 170 | 6 | 39.1167 | 146.395 |
| 34 | 8 | 36.9043 | 147.2488 | 171 | 6 | 39.072 | 146.373 |
| 35 | 4 | 36.14 | 146.9543 | 172 | 6 | 38.914 | 146.365 |
| 36 | 4 | 36.2558 | 147.0194 | 173 | 6 | 38.331 | 146.008 |
| 37 | 8 | 36.8731 | 147.3175 | 174 | 9 | 37.8465 | 145.8691 |
| 38 | 8 | 36.8731 | 147.3175 | 175 | 9 | 37.8112 | 145.9929 |
| 39 | 9 | 36.79 | 147.1564 | 176 | 6 | 38.4064 | 146.3873 |
| 40 | 9 | 36.79 | 147.1564 | 177 | 1 | 37.9804 | 146.0833 |
| 41 | 5 | 36.5699 | 146.7162 | 178 | 6 | 38.3304 | 146.5263 |
| 42 | 5 | 36.5699 | 146.7162 | 179 | 2 | 37.9135 | 146.2537 |
| 43 | 8 | 36.7258 | 146.9572 | 180 | 9 | 37.9634 | 146.3356 |
| 44 | 2 | 36.7258 | 146.9572 | 181 | 9 | 37.845 | 146.253 |
| 45 | 5 | 36.6207 | 146.2433 | 182 | 8 | 37.841 | 146.264 |
| 46 | 5 | 36.6207 | 146.2433 | 183 | 9 | 37.84 | 146.249 |
| 47 | 5 | 36.83 | 146.58 | 184 | 2 | 37.71 | 146.39 |
| 48 | 2 | 36.83 | 146.58 | 185 | 2 | 37.71 | 146.39 |
| 49 | 5 | 36.53 | 146.67 | 186 | 3 | 37.86 | 146.43 |
| 50 | 5 | 36.53 | 146.67 | 187 | 3 | 37.86 | 146.43 |
| 51 | 2 | 36.9 | 147.055 | 188 | 9 | 37.69 | 146.22 |

VICTORIA COMBINED RIFFLE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 52 | 2 | 36.9 | 147.055 | 189 | 4 | 37.23 | 146.69 |
| 54 | 3 | 36.94 | 146.4417 | 190 | 2 | 37.52 | 146.57 |
| 55 | 8 | 36.7682 | 146.7796 | 191 | 2 | 37.52 | 146.57 |
| 56 | 8 | 36.7224 | 146.8047 | 192 | 8 | 37.63 | 146.62 |
| 57 | 8 | 36.7232 | 146.8044 | 193 | 3 | 37.63 | 146.62 |
| 58 | 3 | 36.83 | 146.14 | 194 | 5 | 37.77 | 146.67 |
| 59 | 3 | 36.83 | 146.14 | 195 | 5 | 37.77 | 146.67 |
| 60 | 6 | 36.86 | 146.19 | 196 | 2 | 37.56 | 146.56 |
| 61 | 6 | 36.8 | 145.95 | 197 | 2 | 37.56 | 146.56 |
| 62 | 6 | 36.8 | 145.95 | 198 | 8 | 37.3802 | 146.756 |
| 63 | 3 | 37.38 | 146.21 | 199 | 2 | 37.51 | 146.64 |
| 64 | 5 | 37.38 | 146.21 | 200 | 3 | 37.51 | 146.64 |
| 65 | 9 | 37.503 | 146.2076 | 201 | 3 | 37.72 | 146.88 |
| 66 | 2 | 37.52 | 146.0114 | 202 | 3 | 37.72 | 146.88 |
| 67 | 2 | 37.19 | 146.37 | 203 | 3 | 37.81 | 146.88 |
| 68 | 3 | 37.19 | 146.37 | 204 | 3 | 37.81 | 146.88 |
| 69 | 1 | 37.3221 | 145.71 | 205 | 3 | 37.73 | 146.98 |
| 70 | 4 | 36.9705 | 145.7833 | 206 | 3 | 37.73 | 146.98 |
| 71 | 9 | 37.3889 | 145.5529 | 207 | 3 | 37.81 | 147.09 |
| 72 | 1 | 37.33 | 145.28 | 208 | 3 | 37.81 | 147.09 |
| 73 | 3 | 37.33 | 145.28 | 209 | 3 | 37.35 | 146.93 |
| 74 | 4 | 36.8783 | 145.661 | 210 | 2 | 37.35 | 146.93 |
| 76 | 10 | 37.13 | 145.06 | 211 | 3 | 37.4 | 147.08 |
| 77 | 10 | 37.13 | 145.06 | 212 | 2 | 37.4 | 147.08 |
| 78 | 5 | 37.3397 | 146.1324 | 213 | 3 | 37.37 | 147.1 |
| 79 | 3 | 37.238 | 146.2273 | 214 | 3 | 37.37 | 147.1 |
| 80 | 1 | 37.1046 | 146.2564 | 215 | 2 | 37.38 | 147.28 |
| 81 | 4 | 37.0975 | 145.6106 | 216 | 6 | 37.38 | 147.28 |
| 82 | 9 | 37.5133 | 145.7503 | 217 | 2 | 37.4 | 147.41 |
| 83 | 10 | 36.9631 | 144.4899 | 218 | 2 | 37.4 | 147.41 |
| 84 | 10 | 36.9631 | 144.4899 | 219 | 5 | 37.59 | 147.3511 |
| 85 | 10 | 36.9631 | 144.4899 | 220 | 5 | 37.59 | 147.3511 |
| 86 | 10 | 37.0171 | 144.5393 | 221 | 6 | 36.95 | 147.92 |
| 87 | 10 | 37.0171 | 144.5393 | 222 | 5 | 37.26 | 147.72 |
| 88 | 10 | 37.0171 | 144.5393 | 223 | 5 | 37.26 | 147.72 |
| 89 | 10 | 36.95 | 144.67 | 224 | 5 | 37.55 | 147.86 |
| 92 | 10 | 37.23 | 144.42 | 225 | 5 | 37.55 | 147.86 |
| 93 | 10 | 37.13 | 144.08 | 226 | 5 | 37.62 | 147.92 |
| 94 | 10 | 37.16 | 144.21 | 227 | 5 | 37.62 | 147.92 |
| 95 | 10 | 37.2143 | 144.0993 | 228 | 8 | 37.14 | 147.98 |
| 96 | 10 | 37.2143 | 144.0993 | 229 | 5 | 37.44 | 148.06 |
| 97 | 10 | 36.99 | 143.64 | 230 | 3 | 37.44 | 148.06 |
| 98 | 10 | 37.18 | 143.39 | 231 | 2 | 37.44 | 147.74 |
| 99 | 6 | 37.2536 | 142.5342 | 232 | 2 | 37.44 | 147.74 |
| 100 | 7 | 37.0911 | 142.3802 | 233 | 3 | 37.59 | 147.69 |
| 101 | 7 | 37.0911 | 142.3802 | 234 | 5 | 37.59 | 147.69 |
| 103 | 10 | 37.1742 | 143.1362 | 235 | 5 | 37.5045 | 148.53 |
| 104 | 10 | 37.6705 | 141.8423 | 236 | 2 | 37.5045 | 148.53 |
| 105 | 7 | 38.0543 | 141.271 | 237 | 5 | 37.4973 | 148.1723 |
| 106 | 8 | 37.3467 | 142.325 | 238 | 5 | 37.4973 | 148.1723 |
| 107 | 8 | 37.3467 | 142.325 | 239 | 5 | 37.4801 | 148.27 |

VICTORIA COMBINED RIFFLE continued

| Site | Group | Latitude | Longitude | Site | Group | Latitude | Longitude |
|------|-------|----------|-----------|------|-------|----------|-----------|
| 108 | 6 | 37.3731 | 142.5063 | 240 | 5 | 37.4801 | 148.27 |
| 109 | 6 | 37.3731 | 142.5063 | 241 | 3 | 37.0864 | 148.4132 |
| 110 | 10 | 37.8342 | 143.1043 | 242 | 5 | 37.0864 | 148.4132 |
| 111 | 10 | 37.8342 | 143.1043 | 243 | 7 | 37.0854 | 148.4216 |
| 112 | 7 | 38.5653 | 143.6553 | 244 | 5 | 37.0854 | 148.4216 |
| 114 | 6 | 38.6429 | 143.4439 | 245 | 5 | 36.95 | 148.3266 |
| 115 | 6 | 38.6429 | 143.4439 | 246 | 3 | 36.95 | 148.3266 |
| 116 | 6 | 38.6429 | 143.4439 | 247 | 5 | 37.4104 | 148.3607 |
| 117 | 7 | 38.6703 | 143.5805 | 248 | 3 | 37.4104 | 148.3607 |
| 118 | 7 | 38.6703 | 143.5805 | 249 | 1 | 37.2993 | 148.4667 |
| 119 | 7 | 38.5748 | 143.9472 | 250 | 2 | 37.2993 | 148.4667 |
| 120 | 6 | 38.5748 | 143.9472 | 251 | 4 | 37.473 | 149.5904 |
| 121 | 7 | 38.5253 | 143.4839 | 252 | 2 | 37.3719 | 148.9051 |
| 122 | 7 | 38.5253 | 143.4839 | 253 | 2 | 37.3719 | 148.9051 |
| 123 | 7 | 38.5253 | 143.4839 | 254 | 7 | 37.6898 | 149.4914 |
| 124 | 7 | 38.5253 | 143.4839 | 255 | 7 | 37.6898 | 149.4914 |
| 125 | 10 | 37.8126 | 143.917 | 256 | 1 | 37.5772 | 148.9033 |
| 126 | 10 | 38.1468 | 144.1861 | 257 | 1 | 37.5772 | 148.9033 |
| 127 | 10 | 38.1468 | 144.1861 | 258 | 2 | 37.4362 | 148.9834 |
| 128 | 10 | 38.1486 | 143.9932 | 259 | 2 | 37.4362 | 148.9834 |
| 129 | 10 | 38.1486 | 143.9932 | 260 | 3 | 37.3421 | 149.2073 |
| 130 | 10 | 38.1486 | 143.9932 | 261 | 3 | 37.3421 | 149.2073 |
| 131 | 10 | 38.326 | 143.8313 | 262 | 4 | 37.562 | 149.1501 |
| 132 | 6 | 38.53 | 143.73 | 263 | 4 | 37.562 | 149.1501 |
| 133 | 6 | 38.53 | 143.73 | 264 | 3 | 37.1847 | 149.3218 |
| 134 | 10 | 37.89 | 144.12 | 265 | 3 | 37.1847 | 149.3218 |
| 135 | 10 | 37.89 | 144.12 | 266 | 6 | 37.5694 | 149.2579 |
| 136 | 10 | 37.68 | 144.37 | 267 | 7 | 37.5953 | 149.6375 |
| 137 | 7 | 37.51 | 144.17 | 268 | 7 | 37.5953 | 149.6375 |

APPENDIX C

Sites rejected as reference sites for model development and the rationale for excluding them.

Australian Capital Territory**ACT AUTUMN EDGE****Reference sites removed from original data set of 85 sites**

| Site | Justification for removal |
|-------------|--|
| 83 | Very different from other reference sites in classification. |
| 98 | Very different from other reference sites in classification. |
| 96 | Low O/E taxa |

ACT AUTUMN RIFFLE**Reference sites removed from original data set of 93 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 94 | Low O/E taxa |
| 107 | Low O/E taxa |
| 128 | Low O/E taxa |
| 156 | Low O/E taxa |

ACT SPRING EDGE**Reference sites removed from original data set of 96 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 45 | Low O/E taxa |
| 127 | Low O/E taxa |

ACT SPRING RIFFLE**Reference sites removed from original data set of 89 sites**

| Site | Justification for removal |
|-------------|--|
| 33 | Very different from other reference sites in classification. |
| 127 | Low O/E taxa |

ACT COMBINED EDGE**Reference sites removed from original data set of 76 sites**

| Site | Justification for removal |
|-------------|--|
| 96 | Very different from other reference sites in classification. |
| 108 | Very different from other reference sites in classification. |

ACT COMBINED RIFFLE**Reference sites removed from original data set of 76 sites**

| Site | Justification for removal |
|------|--|
| 41 | Very different from other reference sites in classification. |
| 45 | Very different from other reference sites in classification. |
| 48 | Very different from other reference sites in classification. |
| 44 | Very different from other reference sites in classification. |
| 123 | Potential grazing impact with some missing taxa |

Tasmania**TASMANIA AUTUMN EDGE****Reference sites removed from original data set of 163 sites**

| Site | Justification for removal |
|------|--|
| 22 | Tasmania advised that these sites were either subject to some form of human impact or had poor/insufficient edgewater habitat. |
| 23 | |
| 26 | |
| 50 | |
| 53 | |
| 76 | |
| 83 | |
| 84 | |
| 88 | |
| 91 | |
| 94 | |
| 117 | |
| 139 | |
| 152 | |

TASMANIA AUTUMN RIFFLE**Reference sites removed from original data set of 234 sites**

| Site | Justification for removal |
|------|---------------------------|
| 186 | Missing Data |
| 190 | Missing Data |
| 19 | Low O/E taxa |
| 133 | Low O/E taxa |
| 154 | Low O/E taxa |
| 165 | Low O/E taxa |
| 177 | Low O/E taxa |
| 180 | Low O/E taxa |
| 187 | Low O/E taxa |
| 191 | Low O/E taxa |
| 196 | Low O/E taxa |
| 222 | Low O/E taxa |
| 224 | Low O/E taxa |

TASMANIA SPRING EDGE**Reference sites removed from original data set of 175 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 36 | Low O/E taxa |
| 47 | Low O/E taxa |
| 48 | Low O/E taxa |
| 52 | Low O/E taxa |
| 68 | Low O/E taxa |
| 75 | Low O/E taxa |
| 94 | Low O/E taxa |
| 104 | Low O/E taxa |

TASMANIA SPRING RIFFLE**Reference sites removed from original data set of 179 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 6 | Low O/E taxa |
| 7 | Low O/E taxa |
| 21 | Low O/E taxa |
| 45 | Low O/E taxa |
| 58 | Low O/E taxa |
| 84 | Low O/E taxa |
| 100 | Low O/E taxa |
| 114 | Low O/E taxa |
| 159 | Low O/E taxa |
| 171 | Low O/E taxa |
| 178 | Low O/E taxa |

TASMANIA COMBINED EDGE**Reference sites removed from original data set of 162 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 76 | Low O/E taxa |
| 102 | Low O/E taxa |
| 112 | Low O/E taxa |
| 128 | Low O/E taxa |

TASMANIA COMBINED RIFFLE**Reference sites removed from original data set of 150 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 16 | Low O/E taxa |
| 21 | Low O/E taxa |
| 73 | Low O/E taxa |
| 106 | Low O/E taxa |
| 140 | Low O/E taxa |

Victoria**VICTORIA AUTUMN EDGE****Reference sites removed from original data set of 354 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 32 | Low O/E taxa |
| 36 | Low O/E taxa |
| 141 | Low O/E taxa |
| 142 | Low O/E taxa |
| 231 | Low O/E taxa |
| 234 | Low O/E taxa |
| 240 | Low O/E taxa |
| 274 | Low O/E taxa |
| 324 | Low O/E taxa |
| 331 | Low O/E taxa |
| 337 | Low O/E taxa |

VICTORIA AUTUMN RIFFLE**Reference sites removed from original data set of 247 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 44 | Low O/E taxa |
| 77 | Low O/E taxa |
| 118 | Low O/E taxa |
| 169 | Low O/E taxa |
| 232 | Low O/E taxa |

VICTORIA SPRING EDGE**Reference sites removed from original data set of 343 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 83 | Low O/E taxa |
| 92 | Low O/E taxa |
| 148 | Low O/E taxa |
| 214 | Low O/E taxa |
| 274 | Low O/E taxa |

VICTORIA SPRING RIFFLE**Reference sites removed from original data set of 267 sites**

| Site | Justification for removal |
|-------------|---|
| 18 | Low O/E taxa |
| 24 | Low O/E taxa |
| 68 | Low O/E taxa |
| 91 | marginal ref sample, another from another spring, other sites in vicinity |
| 134 | intermittent site, very low score |
| 139 | other data for site available |
| 157 | Low O/E taxa |
| 163 | very different from other reference sites |
| 188 | very different from other reference sites |
| 251 | Low O/E taxa, very sandy |
| 252 | Low O/E taxa, very sandy |

VICTORIA COMBINED EDGE**Reference sites removed from original data set of 407 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 18 | Low O/E taxa |
| 19 | Low O/E taxa |
| 75 | Low O/E taxa |
| 161 | Low O/E taxa |
| 183 | Low O/E taxa |
| 200 | Low O/E taxa |
| 304 | Low O/E taxa |
| 313 | Low O/E taxa |
| 356 | Low O/E taxa |
| 366 | Low O/E taxa |
| 382 | Low O/E taxa |

VICTORIA COMBINED RIFFLE**Reference sites removed from original data set of 268 sites**

| Site | Justification for removal |
|-------------|----------------------------------|
| 53 | Low O/E taxa/Poor habitat |
| 75 | Low O/E taxa/Poor habitat |
| 90 | Low O/E taxa/Poor habitat |
| 91 | Low O/E taxa/Poor habitat |
| 102 | Low O/E taxa/Poor habitat |
| 113 | Low O/E taxa/Poor habitat |

APPENDIX D

Steering Committee Meeting Minutes December 1999

The steering committee meeting for this project was held on Friday 10 December 1999. In attendance were:

| Attendees | Participant role |
|---|--|
| Richard Norris, CRCFE, UC | Project Manager (chair) |
| Ken Thomas, Environment Australia technical officer | Environment Australia representative |
| Paula Svarcas, Environment Australia financial administrator | Environment Australia representative |
| John Anderson, Environment Australia | Environment Australia representative |
| Nikki Fitzgerald, Environment Australia | Environment Australia representative |
| Chris Derrick, Environment Australia | Environment Australia representative |
| Leon Metzeling, CRCFE, EPA Vic | State/Territory Agency representative |
| Eren Turak, EPA, NSW | State/Territory Agency representative |
| Richard Marchant, Museum of Victoria | Independent science representative |
| Sue Nichols, CRCFE, UC | Project group member |

Apologies:

Peter Komidar, Natural Heritage Trust Program Manager
Bruce Gray Environment Australia project officer
Peter Davies NRHP Program Coordinator

The main issues discussed and outcomes were as follows:

- a) Should the model be updated on the web in stages or all at once? The support and completion of AUSRIVAS contract requires completion of supporting documentation by 1/2/2000. However, supporting documentation for the software enhancement project will not be completed until at least December 2000.
- b) The software enhancement contract requires the AUSRIVAS program and all its components, including the manual, to be contained on the one server. Currently AUSRIVAS and the AUSRIVAS manual are run from the Enterprise server. Completion of the AUSRIVAS manual on the Enterprise server would mean the manual would have to be compatible with both the current format and the destination server to which the AUSRIVAS manual is to be moved to. The AUSRIVAS server is the logical destination for the updated manual as this is where all the mapping requests will be served

and is the programming machine for software enhancements to AUSRIVAS.

Therefore, should manual improvement continue using the current format and then be changed at a later date, or be set up in the format required for the destination server. While most file formats should be transferable, the video clips to be incorporated into the manual present a problem, as the format the files are compressed to may be dependent on which server they will run from.

Steering committee accepted partial completion of the supporting documentation by the completion of phase 2 of the Support and Completion of AUSRIVAS Models contract. This component of the project will be completed as far as possible. The level of completion is contingent on the completion of some components of the AUSRIVAS Software Enhancement contract (ase439). For example some AUSRIVAS software enhancements (completion date Feb 2001) may not be completed by the end of phase 2 and; the format of video clips for the inclusion in the sampling manual need to be compatible with any new (not the current) AUSRIVAS platform format. A decision on which server will be used for the AUSRIVAS manual will be made at the technical meeting in February.

- c) Currently, only ACT and Tasmania have supplied the 6 data sets from which alpha models can be created. Queensland have supplied 2 of the 4 data sets required and Victoria has supplied 4 of the 6 data sets required. Therefore, instead of the completion of all 6 alpha models for 3 states/territories as stated in the contract, we proposed amendment of this to the completion of 18 models from the first states/territories to supply the CRCFE with data. The remaining models to be completed in phase 2 of the project.

This proposal was rejected by the steering committee. The Steering Committee decided that models should be created for the first 3 states/territories that supply the full compliment of data sets for models required. All models for the remaining states/territories are to be completed in phase 2.

Complete data sets have now been received from ACT, Tasmania and Victoria. Thus, models for these states/territories will be completed in Phase 1 of the project.

- d) A decision is required regarding the SIGNAL scores used. Should the SIGNAL scores used be upgraded to the revised signal scores provided by Chessman, including the use of SIGNAL MET scores, or remain unchanged?

This issue will be resolved at the technical advisory committee meeting planned for early February 2000.

- e) An updated version of the River Bioassessment Manual (Davies 1994) should be included as part of the new AUSRIVAS Manual web page. This is a very important document, which should be made more accessible to users. Does Peter Davies have a new electronic copy of this? Are there any copyright problems with including this on the AUSRIVAS web page?

Peter Davies was unable to attend the steering committee meeting but the issues will be brought to his attention for comment.