APPENDIX

Table A1. Table describing the descriptive (explanatory, independent) variables

Environmental Variables	Brief Description	Pixel Resolution
ThorPot07	Radiometric Data – Ratio of the radioelement count of Thorium and the radioelement count of Potassium. Sourced from Various Australian State Agencies	50 m resampled to 30 m
ThorInvPot07	Radiometric Data – Ratio of the inverse radioelement count of Thorium and the radioelement count of Potassium. Sourced from Various Australian State Agencies	50 m resampled to 30 m
B1_89_05	Band 1 (Blue-green reflectance 0.45-0.52 micrometers) Landsat 7 TM Median value years 1989 – 2005	30 m
B2_89_05	Band 2 (Green reflectance 0.52-0.60 micrometers) Landsat 7 TM Median value years 1989 – 2005	30 m
B3_89_05	Band 3 (Red reflectance 0.63-0.69 micrometers) Landsat 7 TM Median value years 1989 – 2005	30 m
B4_89_05	Band 4 (Near-infrared reflectance 0.76-0.90 micrometers) Landsat 7 TM Median value years 1989 – 2005	30 m
B5_89_05	Band 5 (Mid-infrared reflectance 1.55-1.75 micrometers) Landsat 7 TM Median value years 1989 – 2005	30 m
B7_89_05	Band 7 (Mid-infrared reflectance 2.08-2.35 micrometers) Landsat 7 TM Median value years 1989 – 2005	30 m
Ndvi_89_05	Mean Normalised Difference Vegetation Index derived from LANDSAT 7 TM of years 1989 – 2005	30 m
Ndwi_89_05_Mean	Mean Normalised Difference Wetness Index derived from LANDSAT 7 TM of years 1989 – 2005	30 m
Ndwi_89_05_StdError	Standard Error of Normalised Difference Wetness Index derived from LANDSAT 7 TM of years 1989 – 2005	30 m
B3_98_05_10ha_Mean	Mean value across a 10 hectare neighbourhood of cells calculated from the surface - Mean value for Band 3 (Blue-green reflectance 0.45-0.52 micrometers) Landsat 7 TM years 1998 – 2005	30 m
B4_98_05_10ha_Mean	Mean value across a 10 hectare neighbourhood of cells calculated from the surface - Mean value for Band 4 (Near-infrared reflectance 0.76-0.90 micrometers) Landsat 7 TM years 1998 – 2005	30 m
B5_98_05_10ha_Mean	Mean value across a 10 hectare neighbourhood of cells calculated from the surface - Mean value for Band 5 (Mid-infrared reflectance 1.55-1.75 micrometers) Landsat 7 TM years 1998 – 2005	30 m
B6_98_05_10ha_Mean	Mean value across a 10 hectare neighbourhood of cells calculated from the surface - Mean value for Band 7 (Mid-infrared reflectance 2.08-2.35 micrometers) Landsat 7 TM years 1998 – 2005	30 m
Nvdi_98_05_10haMean	Mean Normalised Difference Vegetation Index derived from LANDSAT 7 TM of years 1998 – 2005	30 m
B3_98_05_10ha_StdDev	Standard Deviation across a 10 hectare neighbourhood of cells calculated from the surface - Mean value for Band 3 (Blue-green reflectance 0.45-0.52 micrometers) Landsat 7 TM years 1998 – 2005	30 m
B4_98_05_10ha_StdDev	Standard Deviation across a 10 hectare neighbourhood of cells calculated from the surface - Mean value for Band 4 (Near-infrared reflectance 0.76-0.90 micrometers) Landsat 7 TM years 1998 – 2005	30 m
B5_98_05_10ha_StdDev	Standard Deviation across a 10 hectare neighbourhood of cells calculated from the surface - Mean value for Band 5 (Mid-infrared reflectance 1.55-1.75 micrometers) Landsat 7 TM years 1998 – 2005	30 m
B6_98_05_10ha_StdDev	Standard Deviation across a 10 hectare neighbourhood of cells calculated from the surface - Mean value for Band 7 (Mid-infrared reflectance 2.08-2.35 micrometers) Landsat 7 TM years 1998 – 2005	30 m
RoadDensity5K	Density of Roads in a 5 kilometre radius - line count	30 m
TempRange	Annual range in temperature (ºC) between minimum temperature of coldest period of the year and the maximum temperature of the warmest period of the year. Developed using ANUCLIM (Houlder et al. 2000)	100m resampled to 30m
MaxTempWarmestP	The highest temperature (ºC) of any weekly maximum temperature.	100m resampled to 30m

Table A1 (ctd.). Table describing the descriptive (explanatory, independent) variables

Environmental Variables	Brief Description	Pixel Resolution
AnnualRain	Mean Annual Rainfall Surface (mm) developed using ANUCLIM (Houlder et al. 2000)	100m resampled to 30m
NetRainfall	Mean Annual Rainfall (mm) (from ANUCLIM model) less Mean Annual Evaporation (mm) (from ANUCLIM model)	100m resampled to 30m
NetRainfallStdev	The Standard Deviation of Monthly Net Mean Rainfall (Monthly Net mean Rainfall is the mean Monthly Rainfall (mm) less the Mean Monthly Evaporation). Monthly means were developed using ANUCLIM (Houlder et al. 2000)	100m resampled to 30m
TWIx1000	Topographic Wetness Index a compound terrain attribute (*sensu* Bevan and Kirby 1979) implemented using the Shuttle Radar Topography Mission (SRTM) Digital Elevation Model and TOPOCROP Version 2.1 (Schmidt 2002)	100m resampled to 30m
Rad_Direct	Direct Solar Radiation (Watts m2 per year). Derived from Shuttle Radar Topography Mission (SRTM) Digital Elevation Model using The Solar Analyst 1.0 (Fu and Rich 2000)	100m resampled to 30m
LandCover	Categorical variable 10 Landcover classes derived from K-means clustering of median satellite imagery captured between 1989 and 2005	30 m
NativeTreeProb	An Artificial Neural Network Model of the probability of a lack of tree cover for Victoria trained using Landsat 7 TM chronosequence and Spot 4 panchromatic imagery.	30 m
TreeProb1Ha_RegionMean	The mean result for a 1 hectare neighbourhood for the probability of a lack of tree cover for Victoria (see NativeTreeProb). Trained using Landsat 7 TM chronosequence and Spot 4 panchromatic imagery.	30 m
TreeProb10ha_RegionMean	The mean result for a 10 hectare neighbourhood for the probability of a lack of tree cover for Victoria (see NativeTreeProb). Trained using Landsat 7 TM chronosequence and Spot 4 panchromatic imagery.	30 m
TreeProb1Ha_RegionStdDev	The standard deviation across a 1 hectare neighbourhood for the probability of a lack of tree cover for Victoria (see NativeTreeProb). Trained using Landsat 7 TM chronosequence and Spot 4 panchromatic imagery.	30 m
TreeProb10ha_RegionStdDev	The standard deviation across a 10 hectare neighbourhood for the probability of a lack of tree cover for Victoria (see NativeTreeProb). Trained using Landsat 7 TM chronosequence and Spot 4 panchromatic imagery.	30 m
Pre1750TreeDensity	An Artificial Neural Network model of the density of tree cover across south eastern-Australia prior to European invasion in the easly 19th century. The model was trained and validated using tree cover sampling along roads and other parts of the landscape in which the tree cover has been relatively undisturbed by subsequent land use.	100m resampled to 30m
NativeGrassProb	An Artificial Neural Network Model of the probability of native grassland cover for Victoria trained using Landsat 7 TM chronosequence and Spot 4 panchromatic imagery.	30 m
GrassProb1Ha_RegionMean	The mean result for a 1 hectare neighbourhood for the probability of native grassland cover for Victoria (see NativeGrassProb). Trained using Landsat 7 TM chronosequence and Spot 4 panchromatic imagery.	30 m
GrassProb1Ha_RegionStdDev	The standard deviation across a 1 hectare neighbourhood for the probability of native grassland cover for Victoria (see NativeGrassProb). Trained using Landsat 7 TM chronosequence and Spot 4 panchromatic imagery.	30 m
GrassProb10ha_RegionMean	The mean result for a 1 hectare neighbourhood for the probability of native grassland cover for Victoria (see NativeGrassProb). Trained using Landsat 7 TM chronosequence and Spot 4 panchromatic imagery.	30 m
GrassProb10ha_RegionStdDev	The standard deviation across a 10 hectare neighbourhood for the probability of native grassland cover for Victoria (see NativeGrassProb). Trained using Landsat 7 TM chronosequence and Spot 4 panchromatic imagery.	30 m

Table A2. Basic statistics for the habitat hectares site score field data.

	Minimum	Maximum	Mean value	Standard Deviation
Large Tree Score	0	10	2.82	3.36
Tree Canopy Score	0	5	2.46	2.23
Understorey Score	0	25	8.50	7.16
Litter Score	0	5	3.00	2.04
Logs Score	0	5	1.88	2.08
Weeds Score	0	15	6.97	6.14
Recruitment Score	0	10	3.33	3.26

Table 3A. Ranking of the algorithms by the RMSE for the Friedman test. Outcome of Freidman test is that with p-value less than 0.01 the difference in the performance is statistically significant.

Target	**LR**	**MTRT**	**RT**	**BagMTRT**	**Bag RT**	**RF MTRT**	**RF RT**
Large Tree Score	6	5	7	1.5	3.5	3.5	1.5
Tree Canopy Score	6	5	7	4	2	2	2
Understorey Score	7	5	6	2.5	2.5	4	1
Litter Score	6.5	5	6.5	4	2	2	2
Logs Score	6	5	7	2	4	2	2
Weeds Score	6	5	7	1.5	3.5	3.5	1.5
Recruitment Score	6	5	7	2.5	2.5	2.5	2.5
Average Ranks	6.21	5.00	6.79	2.57	2.86	2.79	1.79

Table 4A. Ranking of the algorithms by the Correlation Coefficient for the Friedman test. Outcome of Freidman test is that with p-value less than 0.01 the difference in the performance is statistically significant.

Target	**LR**	**MTRT**	**RT**	**BagMTRT**	**Bag RT**	**RF MTRT**	**RF RT**
Large Tree Score	6	5	7	2.5	2.5	2.5	2.5
Tree Canopy Score	5.5	5.5	7	4	2	2	2
Understorey Score	6.5	5	6.5	2.5	2.5	2.5	2.5
Litter Score	6.5	5	6.5	4	2	2	2
Logs Score	6.5	5	6.5	2.5	2.5	2.5	2.5
Weeds Score	7	5.5	5.5	2.5	2.5	2.5	2.5
Recruitment Score	6.5	5	6.5	3	3	3	1
Average Ranks	6.36	5.14	6.50	3.00	2.43	2.43	2.14

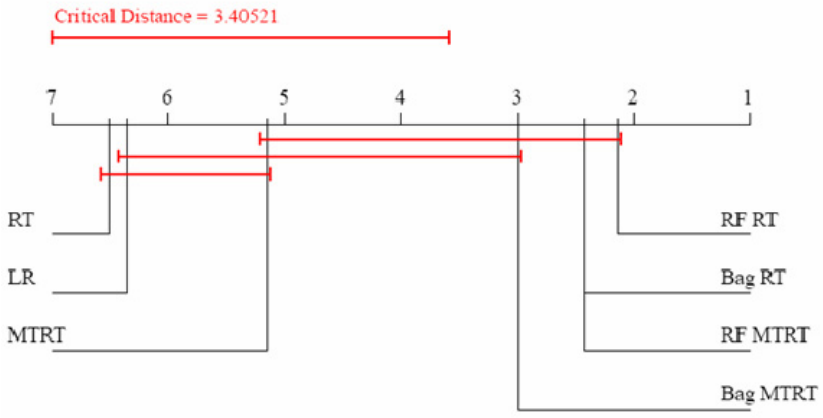

Figure A1. Average ranks diagram for the applied algorithms (comparing by correlation coefficient). Algorithms that do not differ significantly ($p-value = 0.05$) are connected with a line.