

**Actions for the Pallinup**

**Supplement 3 - APPENDICES**

**Middle Pallinup Floodway Condition Survey**

**November 2017**



*"My old people used to tell me that the Pallinup was a special river"*

*Aden Eades, Stories of the Pallinup River and Beaufort Inlet 2002.*

**Report prepared by Steve & Geraldine Janicke**

*for the*

**North Stirling Pallinup Natural Resource Inc**



**natural resource  
management program**



*Supported by Royalties for Regions*



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natural resource  
management program



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## CONTENTS

|                                                                                         |    |
|-----------------------------------------------------------------------------------------|----|
| Appendix 1 - Photo Point locations 2017 .....                                           | 2  |
| Comments on the relocation of the 2001 Photo Points .....                               | 5  |
| Appendix 2 – Observed Plant and Animal activity .....                                   | 6  |
| Plants .....                                                                            | 6  |
| Animals .....                                                                           | 7  |
| Appendix 3 - WEEDS .....                                                                | 8  |
| Appendix 4 - Pen-Scott Foreshore Condition Rating.....                                  | 10 |
| Appendix 5 - Field survey proforma: Morphological description .....                     | 13 |
| Appendix 6 – Field Survey Proforma: Photo Point Record and Vegetation Description ..... | 15 |
| Appendix 7 - Tributary confluences with the Pallinup main trunk.....                    | 17 |
| Appendix 8 - artifacts and other interesting features .....                             | 24 |
| Rubbish observed along the survey area.....                                             | 26 |
| Appendix 10 - Water quality data at confluences .....                                   | 27 |



Steve & Geraldine Janicke.

## Actions for the Pallinup: Middle Pallinup Foreshore Condition Assessment

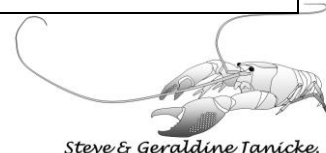
### APPENDIX 1 - PHOTO POINT LOCATIONS 2017

Note all coordinates are in Zone 50 and the datum is WGS84 equivalent to GDA95.

| Photo Point | Easting | Northing | Date       | Bearing<br>(Compass) | Comment         |
|-------------|---------|----------|------------|----------------------|-----------------|
| PALL018     | 584986  | 6238404  | 29/08/2017 | 160                  |                 |
| PALL019     | 585096  | 6238346  | 29/08/2017 |                      |                 |
| PALL020     | 585343  | 6238300  | 29/08/2017 | 90                   |                 |
| PALL021     | 585440  | 6238089  | 29/08/2017 | 180                  |                 |
| PALL022     | 585637  | 6238102  | 29/08/2017 | 136                  |                 |
| PALL023     | 585900  | 6238327  | 29/08/2017 | 120                  |                 |
| PALL024     | 586069  | 6238185  | 29/08/2017 | 50                   |                 |
| PALL024A    | 586069  | 6238185  | 29/08/2017 |                      |                 |
| PALL025     | 586265  | 6238098  | 29/08/2017 | 173                  |                 |
| PALL026     | 586399  | 6237852  | 29/08/2017 | 115                  |                 |
| PALL027     | 586715  | 6237735  | 29/08/2017 | 75                   |                 |
| PALL028     | 586956  | 6237770  | 29/08/2017 | 160                  |                 |
| PALL028A    | 587045  | 6237599  | 30/08/2017 | 134                  |                 |
| PALL029     | 587237  | 6237346  | 30/08/2017 | 160                  |                 |
| PALL030     | 587433  | 6236987  | 30/08/2017 | 200                  |                 |
| PALL031     | 587363  | 6236929  | 30/08/2017 | 217                  |                 |
| PALL032     | 587363  | 6236929  | 30/08/2017 | 250                  |                 |
| PALL033     | 587291  | 6236568  | 30/08/2017 | 125                  |                 |
| PALL034     | 587499  | 6236436  | 30/08/2017 | 140                  |                 |
| PALL035     | 587700  | 6236409  | 30/08/2017 | 128                  |                 |
| PALL036D    | 588041  | 6236029  | 30/08/2017 | 150                  |                 |
| PALL036U    | 588039  | 6236032  | 30/08/2017 | 328                  |                 |
| PALL037     | 588243  | 6235915  | 30/08/2017 | 64                   |                 |
| PALL038     |         |          |            |                      | Omitted in 2001 |
| PALL039     | 588277  | 6236061  | 30/08/2017 | 78                   |                 |
| PALL040     | 588683  | 6236259  | 30/08/2017 | 103                  |                 |
| PALL041     | 588905  | 6236243  | 30/08/2017 | 80                   |                 |
| PALL042     | 589217  | 6236329  | 30/08/2017 | 77                   |                 |
| PALL043     | 589435  | 6236381  | 30/08/2017 | 115                  |                 |
| PALL044     | 589561  | 6236374  | 31/08/2017 | 100                  |                 |
| PALL045     | 589647  | 6236368  | 31/08/2017 | 110                  |                 |
| PALL046     | 589835  | 6236362  | 31/08/2017 | 120                  |                 |
| PALL047     | 589832  | 6236154  | 31/08/2017 | 190                  |                 |
| PALL048     | 589920  | 6236083  | 31/08/2017 | 90                   |                 |
| PALL049D    | 590128  | 6236274  | 31/08/2017 | 75                   |                 |
| PALL049U    | 590128  | 6236274  | 31/08/2017 | 265                  |                 |
| PALL050     | 590240  | 6236309  | 31/08/2017 | 105                  |                 |
| PALL051     | 590346  | 6236209  | 31/08/2017 | 150                  |                 |
| PALL052     | 590412  | 6236107  | 31/08/2017 | 145                  |                 |
| PALL053     | 590526  | 6235955  | 31/08/2017 | 145                  |                 |
| PALL054     | 590651  | 6235820  | 31/08/2017 | 136                  |                 |
| PALL055     | 590774  | 6235575  | 31/08/2017 | 196                  |                 |
| PALL056     | 590794  | 6235409  | 31/08/2017 | 120                  |                 |
| PALL057     | 591164  | 6235230  | 31/08/2017 | 120                  |                 |
| PALL058     | 591452  | 6235131  | 31/08/2017 | 110                  |                 |
| PALL059     | 591765  | 6235174  | 31/08/2017 | 100                  |                 |
| PALL060     | 592016  | 6234912  | 31/08/2017 | 70                   |                 |
| PALL061     | 592065  | 6234899  | 31/08/2017 | 150                  |                 |
| PALL062     | 592022  | 6234666  | 31/08/2017 | 288                  |                 |

Supplement 3 – APPENDICES to Middle Pallinup Floodway Condition Survey - 2017

| Photo Point | Easting | Northing | Date       | Bearing<br>(Compass) | Comment |
|-------------|---------|----------|------------|----------------------|---------|
| PALL063     | 591935  | 6234720  | 31/08/2017 | 230                  |         |
| PALL063a    | 591928  | 6234718  | 31/08/2017 | 230                  |         |
| PALL064     | 591754  | 6234523  | 8/09/2017  | 160                  |         |
| PALL065     | 591789  | 6234349  | 8/09/2017  | 135                  |         |
| PALL066     | 591864  | 6234241  | 8/09/2017  | 140                  |         |
| PALL067     | 592123  | 6233859  | 8/09/2017  | 180                  |         |
| PALL068     | 592060  | 6233694  | 8/09/2017  | 145                  |         |
| PALL069     | 592086  | 6233625  | 8/09/2017  | 115                  |         |
| PALL070     | 592365  | 6233565  | 8/09/2017  | 110                  |         |
| PALL071     | 592503  | 6233555  | 8/09/2017  | 95                   |         |
| PALL072     | 592727  | 6233476  | 8/09/2017  | 130                  |         |
| PALL073     | 592774  | 6233446  | 8/09/2017  | 115                  |         |
| PALL074     | 593202  | 6233392  | 8/09/2017  | 180                  |         |
| PALL075     | 593338  | 6233154  | 8/09/2017  | 145                  |         |
| PALL076     | 593477  | 6233038  | 8/09/2017  | 105                  |         |
| PALL077     | 593784  | 6232888  | 8/09/2017  | 130                  |         |
| PALL077.1   | 593845  | 6232785  | 8/09/2017  | 285                  |         |
| PALL078     | 594092  | 6232839  | 8/09/2017  | 85                   |         |
| PALL079     | 594403  | 6232966  | 8/09/2017  | 110                  |         |
| PALL080     | 594485  | 6232890  | 8/09/2017  | 105                  |         |
| PALL081     | 594654  | 6232892  | 8/09/2017  | 120                  |         |
| PALL082     | 594782  | 6232850  | 7/09/2017  | 70                   |         |
| PALL083     | 594907  | 6232786  | 7/09/2017  | 190                  |         |
| PALL084     | 595063  | 6232601  | 7/09/2017  | 140                  |         |
| PALL085     | 595133  | 6232393  | 7/09/2017  | 145                  |         |
| PALL086     | 595107  | 6232303  | 7/09/2017  | 145                  |         |
| PALL087     | 595289  | 6232196  | 7/09/2017  | 5                    |         |
| PALL088     | 595302  | 6232175  | 7/09/2017  | 135                  |         |
| PALL089     | 595394  | 6232046  | 7/09/2017  | 150                  |         |
| PALL090     | 595433  | 6232011  | 7/09/2017  | 150                  |         |
| PALL091     | 595730  | 6231517  | 7/09/2017  | 98                   |         |
| PALL091U    | 595730  | 6231517  | 7/09/2017  | 30                   |         |
| PALL092 pan | 595903  | 6231494  | 7/09/2017  | 70                   |         |
| PALL093     | 595970  | 6231573  | 7/09/2017  | 105                  |         |
| PALL094     | 596175  | 6231608  | 7/09/2017  | 100                  |         |
| PALL095     | 596550  | 6231667  | 7/09/2017  | 175                  |         |
| PALL096     | 596942  | 6231649  | 7/09/2017  | 170                  |         |
| PALL097     | 597201  | 6231647  | 7/09/2017  | 190                  |         |
| PALL098     | 597432  | 6231598  | 7/09/2017  | 150                  |         |
| PALL099     | 597760  | 6231378  | 9/09/2017  | 75                   |         |
| PALL100     | 597894  | 6231381  | 9/09/2017  | 85                   |         |
| PALL101     | 598514  | 6231320  | 9/09/2017  | 125                  |         |
| PALL102     | 598664  | 6231247  | 9/09/2017  | 150                  |         |
| PALL103     | 598723  | 6231104  | 9/09/2017  | 140                  |         |
| PALL104     | 598870  | 6230985  | 9/09/2017  | 145                  |         |
| PALL105     | 599156  | 6230409  | 9/09/2017  |                      |         |
| PALL106     | 600231  | 6230454  | 9/09/2017  | 105                  |         |
| PALL107     | 600464  | 6230309  | 12/09/2017 | 145                  |         |
| PALL108     | 600515  | 6230188  | 12/09/2017 | 130                  |         |
| PALL109     | 600691  | 6230016  | 12/09/2017 | 80                   |         |
| PALL110     | 600963  | 6229929  | 12/09/2017 | 130                  |         |
| PALL110a    | 600965  | 6229926  | 12/09/2017 | 65                   |         |
| PALL111     | 601266  | 6230016  | 12/09/2017 | 55                   |         |



Actions for the Pallinup: Middle Pallinup Floodway Condition Survey - 2017

| Photo Point | Easting | Northing | Date       | Bearing<br>(Compass) | Comment              |
|-------------|---------|----------|------------|----------------------|----------------------|
| PALL112     | 601706  | 6229970  | 12/09/2017 | 250                  |                      |
| PALL113     | 601830  | 6230005  | 12/09/2017 | 50                   |                      |
| PALL114     | 602423  | 6230496  | 12/09/2017 | 30                   |                      |
| PALL115     | 602800  | 6230514  | 12/09/2017 | 140                  |                      |
| PALL116     | 602856  | 6230298  | 12/09/2017 | 120                  |                      |
| PALL117     | 602907  | 6230221  | 12/09/2017 | 100                  |                      |
| PALL117.1   | 603020  | 6230262  | 12/09/2017 | 180                  |                      |
| PALL118     | 603188  | 6230212  | 12/09/2017 | 60                   |                      |
| PALL119     | 603321  | 6230193  | 12/09/2017 | 155                  |                      |
| PALL120     | 603583  | 6229872  | 12/09/2017 | 100                  |                      |
| PALL121     | 603884  | 6229785  | 12/09/2017 | 60                   |                      |
| PALL122     | 604121  | 6229716  | 12/09/2017 | 140                  |                      |
| PALL123     | 604112  | 6229363  | 13/09/2017 | 160                  |                      |
| PALL124     | 604208  | 6229279  | 13/09/2017 | 60                   |                      |
| PALL125     | 604410  | 6229196  | 13/09/2017 | 160                  |                      |
| PALL126     | 604608  | 6229061  | 13/09/2017 | 115                  |                      |
| PALL127     | 604927  | 6229166  | 13/09/2017 | 90                   |                      |
| PALL128     | 605534  | 6228965  | 13/09/2017 | 95                   |                      |
| PALL129     | 605585  | 6228878  | 13/09/2017 | 80                   |                      |
| PALL130D    | 606087  | 6228814  | 13/09/2017 | 80                   |                      |
| PALL130U    | 606085  | 6228813  | 13/09/2017 | 320                  |                      |
| PALL131     | 606606  | 6228824  | 13/09/2017 | 65                   |                      |
| PALL132     | 606803  | 6228774  | 2001       |                      | Not repeated in 2017 |
| PALL133     | 607301  | 6229026  | 13/09/2017 | 90                   |                      |
| PALL134     | 607526  | 6228976  | 13/09/2017 | 110                  |                      |
| PALL135     | 607747  | 6228984  | 13/09/2017 | 100                  |                      |
| PALL136     | 608005  | 6229024  | 13/09/2017 | 160                  |                      |
| PALL136.1   | 608059  | 6228910  | 13/09/2017 | 78                   |                      |
| PALL137     | 607992  | 6228673  | 14/09/2017 | 140                  |                      |
| PALL138     | 608233  | 6228347  | 14/09/2017 | 110                  |                      |
| PALL139     | 608424  | 6228154  | 14/09/2017 | 140                  |                      |
| PALL140     | 608777  | 6227886  | 14/09/2017 | 190                  |                      |
| PALL140.1   | 608742  | 6227827  | 14/09/2017 | 170                  |                      |
| PALL141     | 608563  | 6227468  | 14/09/2017 | 210                  |                      |
| PALL142     | 608671  | 6227144  | 14/09/2017 | 160                  |                      |
| PALL143     | 608732  | 6226765  | 14/09/2017 | 125                  |                      |
| PALL144     | 608855  | 6226662  | 14/09/2017 | 145                  |                      |
| PALL145     | 609157  | 6226362  | 14/09/2017 | 125                  |                      |
| PALL146     | 609219  | 6226188  | 14/09/2017 | 157                  |                      |
| PALL147     | 609240  | 6226047  | 14/09/2017 | 150                  |                      |
| PALL148     | 609610  | 6225810  | 14/09/2017 | 30                   |                      |
| PALL149     | 609614  | 6225816  | 14/09/2017 | 180                  |                      |
| PALL150     | 609751  | 6225530  | 14/09/2017 | 130                  |                      |
| PALL151     | 610001  | 6225084  | 18/09/2017 | 260                  |                      |
| PALL152     | 609927  | 6224855  | 18/09/2017 | 180                  |                      |
| PALL153     | 609903  | 6224769  | 18/09/2017 | 175                  |                      |
| PALL154     | 609972  | 6224528  | 18/09/2017 | 135                  |                      |
| PALL154.1   | 610371  | 6224271  | 18/09/2017 | 240                  |                      |
| PALL155     | 610397  | 6224101  | 18/09/2017 | 125                  |                      |
| PALL156     | 610898  | 6223767  | 18/09/2017 | 210                  |                      |
| PALL157     | 610843  | 6223162  | 18/09/2017 | 150                  |                      |
| PALL158     | 610852  | 6223017  | 18/09/2017 | 170                  |                      |
| PALL159     | 610743  | 6222656  | 19/09/2017 | 165                  |                      |

| Photo Point | Easting | Northing | Date       | Bearing<br>(Compass) | Comment |
|-------------|---------|----------|------------|----------------------|---------|
| PALL160     | 610730  | 6222327  | 19/09/2017 | 155                  |         |
| PALL160.1   | 610778  | 6222192  | 19/09/2017 | 170                  |         |
| PALL161     | 610790  | 6221806  | 19/09/2017 | 151                  |         |
| PALL161.1   | 611315  | 6221381  | 19/09/2017 | 103                  |         |
| PALL162     | 611773  | 6221255  | 19/09/2017 | 115                  |         |
| PALL163     | 611860  | 6221067  | 19/09/2017 | 120                  |         |
| PALL164     | 612029  | 6220918  | 19/09/2017 | 140                  |         |
| PALL165     | 612127  | 6220765  | 19/09/2017 | 160                  |         |
| PALL166     | 612271  | 6220122  | 20/09/2017 | 165                  |         |
| PALL167     | 612299  | 6219722  | 20/09/2017 | 156                  |         |
| PALL168     | 612455  | 6219458  | 20/09/2017 | 150                  |         |
| PALL169     | 612709  | 6219424  | 20/09/2017 | 225                  |         |
| PALL170     | 612918  | 6219502  | 20/09/2017 | 45                   |         |
| PALL171     | 613156  | 6219568  | 20/09/2017 | 100                  |         |
| PALL171U    | 613156  | 6219568  | 20/09/2017 | 260                  |         |
| PALL172     | 613574  | 6219497  | 20/09/2017 | 95                   |         |
| PALL172U    | 613570  | 6219493  | 20/09/2017 | 250                  |         |
| PALL173     | 613834  | 6219472  | 20/09/2017 | 115                  |         |

### Comments on the relocation of the 2001 Photo Points

The position error of the GPS coordinates varied, but was generally found to agree within 10 meters. The locations were confirmed by observing features apparent in both the 2001 and 2017 images. This worked well at the majority of sites. Nevertheless, accessing the exact location of the photographer required some deliberation and in some cases some slight compromises had to be made. A GPS reading was made for each of the 2017 Photo Points for comparing with the 2001 readings. It had been noted that several of the 2001 coordinates had transcription errors, but these were easily corrected.

A number of techniques were confirmed when undertaking the 2017 Photo Point Audit;

- Avoid setting up-mid stream even if the bed is dry, it may not be the same next time.
- Determine the subject matter carefully.
- Where possible include a 'durable' landmark in the field of view.
- Place a photo-board no further than 10 meters away where possible.
- Include a panoramic view at the site (this was not available in 2001).
- Include both an upstream and downstream view at each Photo Point.
- Carry a print or upload earlier site images to a digital device (this proved very useful).
- Use a high image resolution for your camera and constant zoom setting.
- Note down the compass bearing of the view (nearest 10 degrees).
- Consider the background as well as the foreground view.



## APPENDIX 2 – OBSERVED PLANT AND ANIMAL ACTIVITY

### Plants

| Family            | Species                                        | Common name (Comments)                                  |
|-------------------|------------------------------------------------|---------------------------------------------------------|
| Aizoaceae         | <i>Carpobrotus modestus</i>                    | Inland Pigface                                          |
| Amaranthaceae     | <i>Ptilotus polystachyus</i>                   | Green Ptilotus, Prince of Wales Feather                 |
| Caryophyllaceae   | <i>Spergularia marina</i>                      | Saltmarsh sand spurry                                   |
| Caryophyllaceae   | <i>Spergularia marina</i>                      | Salt sand spurry, considered native but a global plant. |
| Casuarinaceae     | <i>Casuarina obesa</i>                         | Swamp sheoak, Kuli, Cooli                               |
| Chenopodiaceae    | <i>Atriplex semibaccata</i>                    | Creeping Saltbush (readily eaten by sheep)              |
| Chenopodiaceae    | <i>Enchylaena tomentosa</i>                    | Ruby saltbush, Barrier saltbush                         |
| Chenopodiaceae    | <i>Maireana brevifolia</i>                     | Small leaf Bluebush (readily eaten by sheep)            |
| Chenopodiaceae    | <i>Tecticornia</i> spp.                        | Samphires                                               |
| Convolvulaceae    | <i>Wilsonia humilis</i>                        | Silky Wilsonia (small prostrate plant on clay pan)      |
| Convolvulaceae    | <i>Wilsonia rotundifolia</i>                   | Round-leaf Wilsonia (small prostrate plant on clay pan) |
| Cyperaceae        | <i>Chorizandra enodis</i>                      | Black Bristlerush                                       |
| Fabaceae          | <i>Jacksonia furcellata</i>                    | Grey Stinkwood                                          |
| Fabaceae          | <i>Senna artemisioides</i>                     | Cassia                                                  |
| Hemerocallidaceae | <i>Dianella revoluta</i>                       | Bluebell lilly                                          |
| Hemerocallidaceae | <i>Stypantra glauca</i>                        | Stypantra, Blind Grass                                  |
| Juncaceae         | <i>Juncus krausii</i> sp. <i>australiensis</i> | Saltwater sedge                                         |
| Juncaceae         | <i>Juncus pallidus</i>                         | Sedge                                                   |
| Lomandraceae      | <i>Lomandra effusa</i>                         | grassy herb (readily eaten by sheep)                    |
| Mimosaceae        | <i>Acacia acuminata</i>                        | Jam (Seedlings readily eaten by sheep)                  |
| Mimosaceae        | <i>Acacia saligna</i>                          | (Seedlings readily eaten by sheep)                      |
| Mimosaceae        | <i>Acacia declinata</i>                        | Pallinup Gold (acacia used in replanting)               |
| Mimosaceae        | <i>Acacia redolens</i>                         | Vanilla wattle (prostrate plant)                        |
| Myrtaceae         | <i>Eucalyptus loxophleba</i>                   | York Gum                                                |
| Myrtaceae         | <i>Eucalyptus occidentalis</i>                 | Flat-topped Yate                                        |
| Myrtaceae         | <i>Eucalyptus rudis</i>                        | Flooded Gum                                             |
| Myrtaceae         | <i>Eucalyptus longicornis</i>                  | Red Morrel / Poot                                       |
| Myrtaceae         | <i>Eucalyptus</i> spp.                         | Merrits/Marlocks                                        |
| Myrtaceae         | <i>Melaleuca cuticularis</i>                   | Swamp Paperbark                                         |
| Poaceae           | <i>Chloris truncata</i>                        | Windmill grass                                          |
| Poaceae           | <i>Neurachne alopecuroidea</i>                 | Foxtail Mulga grass                                     |
| Poaceae           | <i>Sporobolus virginicus</i>                   | Salt couch grass                                        |
| Proteaceae        | <i>Banksia attenuata</i>                       | Slender Banksia                                         |
| Proteaceae        | <i>Hakea preissii</i>                          | Needle bush                                             |
| Restionaceae      | <i>Baumea juncea</i>                           | Sedge                                                   |
| Restionaceae      | <i>Ficinia/Islolepis nodosus</i>               | Sedge                                                   |
| Restionaceae      | <i>Lepidobolus preissianus</i>                 | Sedge                                                   |
| Restionaceae      | <i>Lepidosperma</i> sp.                        | Sedge                                                   |
| Scrophulariaceae  | <i>Eremophila decipiens</i>                    | Red Emu Bush                                            |

|                  |                               |                |
|------------------|-------------------------------|----------------|
| Scrophulariaceae | <i>Eremophila lehmanniana</i> | White Emu bush |
|------------------|-------------------------------|----------------|

**Animals**

| Group      | Common name               | Number of observations | Family Species                                    |
|------------|---------------------------|------------------------|---------------------------------------------------|
| Bird       | Yellow-rumped thornbill   | Rare                   | Acanthizidae <i>Acanthiza chrysorrhoa</i>         |
| Bird       | Wedge-tail Eagle          | Rare                   | Accipitridae <i>Aquila audax</i>                  |
| Bird       | Magpies                   | occasional             | Artamidae <i>Cracticus tibicen</i>                |
| Bird       | Grey Currawong            | occasional             | Artamidae <i>Strepera versicolor</i>              |
| Bird       | Galah                     | occasional             | Cacatuidae <i>Eolophus roseicapillus</i>          |
| Bird       | Black-faced Cuckoo shrike | Rare                   | Campephagidae <i>Coracina novaehollandiae</i>     |
| Bird       | Crested Pigeon            | occasional             | Columbidae <i>Ocyphaps lophotes</i>               |
| Bird       | Bronzewing                | occasional             | Columbidae <i>Phaps chalcoptera</i>               |
| Bird       | Fan-tailed Cuckoo         | occasional             | Cuculidae <i>Cacomantis flabelliformis</i>        |
| Bird       | Falcon                    | Rare                   | Falconidae Unknown sp.                            |
| Bird       | Kookaburra                | Several                | Halcyonidae <i>Dacelo novaeguineae</i>            |
| Bird       | Red Wattle birds          | Rare                   | Meliphagidae <i>Anthochaera carunculata</i>       |
| Bird       | Restless flycatcher       | occasional             | Monarchidae <i>Myiagra inquieta</i>               |
| Bird       | Richards Pipit            | occasional             | Motacillidae <i>Anthus novaeseelandiae</i>        |
| Bird       | Grey Shrike-Thrush        | occasional             | Pachycephalidae <i>Colluricincla harmonica</i>    |
| Bird       | White browed Babbler      | Rare                   | Pomatostomidae <i>Pomatostomus superciliosus</i>  |
| Bird       | Ringneck, Parrot          | common                 | Psittacidae <i>Barnardius zonarius</i>            |
| Bird       | Grey Fantail              | Rare                   | Rhipiduridae <i>Rhipidura albiscapa</i>           |
| Bird       | Willy wag-tail            | common                 | Rhipiduridae <i>Rhipidura leucophrys</i>          |
| Bird       | Various song birds        | occasional             | Unknown various species                           |
| Duck       | Chestnut teal             | common                 | Anatidae <i>Anas castanea</i>                     |
| Duck       | Black duck                | occasional             | Anatidae <i>Anas superciliosa</i>                 |
| Duck       | Wood duck                 | occasional             | Anatidae <i>Chenonetta jubata</i>                 |
| Duck       | bluebill duck             | common                 | Anatidae <i>Oxyura australis</i>                  |
| Duck       | Shell duck                | occasional             | Anatidae <i>Tadorna tadornoides</i>               |
| Duck       | Unidentified ducks        | occasional             | Unknown species                                   |
| Water Bird | Dotterel/Black fronted    | Rare                   | Charadriidae <i>Elseya melanops</i>               |
| Water Bird | Hoary-headed Grebe        | Rare                   | Podicipedidae <i>Polioccephalus poliocephalus</i> |
| Water Bird | Little Pied cormorant     | Rare                   | Phalacrocoracidae <i>Microcarbo melanoleucos</i>  |
| Water Bird | White faced heron         | occasional             | Ardeidae <i>Egretta (Ardea) pacifica</i>          |
| Feral      | Cat & prints              | occasional             | Felidae <i>Felis catus</i>                        |
| Feral      | Fox (smell and tracks)    | common                 | Canidae. <i>Vulpes vulpes</i>                     |
| Feral Fish | Gambusia                  | common                 | Poeciliidae <i>Gambusia holbrooki</i>             |
| Fish       | Goby                      | occasional             | Gobiidae <i>Pseudogobius olorum</i>               |
| Fish       | Minnow, Common Jollytail  | occasional             | Galaxiidae <i>Galaxias maculatus</i>              |
| Frog       | Motorbike frog            | occasional             | Hylidae <i>Litoria moorei</i>                     |
| Frog       | Pobble Bonk frog          | occasional             | Myobatrachidae. <i>Limnodynastes dorsalis</i>     |
| Frog       | small tadpole in pool     | Rare                   | Unknown species                                   |
| Insects    | Brine flies               | occasional             | Ephydriidae Unknown species                       |
| Insects    | Diving beetle             | occasional             | Dytiscidae Unknown species                        |



|         |                       |            |                                                        |
|---------|-----------------------|------------|--------------------------------------------------------|
| Insects | Emerald Dragonfly,    | occasional | Corduliidae <i>Hemicordulia tau</i>                    |
| Insects | Meat Ants             | occasional | Iridomyrmex <i>Iridomyrmex</i> sp.                     |
| Insects | Mosquitoes            | occasional | Culicidae Unknown species                              |
| Mammal  | Echidna diggings      | Rare       | Tachyglossidae <i>Tachyglossus aculeatus acanthion</i> |
| Mammal  | Kangaroo tracks       | common     | Macropodidae <i>Macropus fuliginosus</i>               |
| Mammal  | Rabbit footprints     | Rare       | Leporidae <i>Oryctolagus cuniculus</i>                 |
| Mammal  | Rakali footprints     | occasional | Muridae <i>Hydromys chrysogaster</i>                   |
| Unknown | Small animal diggings | occasional | Unknown species                                        |
| Reptile | Bobtail lizard        | common     | Scincidae <i>Tiliqua rugosa</i>                        |

### APPENDIX 3 - WEEDS

Some of the weeds observed on the Pallinup floodway. Note: not all weeds were recorded and there were many more species present.

| Weed common name           | Family Genus species                |
|----------------------------|-------------------------------------|
| Bridal creeper DP WONS     | Asparagaceae Asparagus asparagoides |
| Capeweed                   | Asteraceae Arctotheca calendula     |
| Spear thistle              | Asteraceae Cirsium vulgare          |
| Fleabane                   | Asteraceae Conyza sp.               |
| Water buttons              | Asteraceae Cotula coronopifolia     |
| Ferny Cotula               | Asteraceae Cotula bipinnata         |
| Jersey cudweed             | Asteraceae Helichrysum` luteoalbum  |
| Flat weeds                 | Asteraceae Hypochoeris spp.         |
| Prickly Lettuce            | Asteraceae Lactuca serriola         |
| Stinking Roger             | Asteraceae Tripteris clandestina    |
| Ursinia                    | Asteraceae Ursinia anthemoides      |
| Canola                     | Brassicaceae Brassica napus         |
| Wild radish                | Brassicaceae Raphanus raphanistrum  |
| Prickly Pear DP            | Cactaceae Opuntia stricta           |
| Fathen                     | Chenopodiaceae Chenopodium album    |
| Prickly saltwort, Rolypoly | Chenopodiaceae Salsola australis    |
| Pie melons                 | Cucurbitaceae Citrullus lanatus     |
| Prickly paddy melon        | Cucurbitaceae Cucumis myriocarpus   |
| Burr Medic                 | Fabaceae Medicago polymorpha        |
| Purple vetch               | Fabaceae Vicia benghalensis         |
| White flower Fumitory      | Fumariaceae Fumaria caprolata       |
| Storksbill                 | Geraniaceae Erodium sp.             |
| Thread Iris                | Iridaceae Moraea setifolia          |
| Guilford grass             | Iridaceae Romulea rosea             |
| Marshmallow                | Malvaceae Malva parviflora          |
| Yellow Wood sorrel         | Oxalidaceae Oxalis corniculata      |
| Soursop                    | Oxalidaceae Oxalis pre-caprae       |
| Statice, Sea Lavender      | Plumbaginaceae Limonium sinuatum    |
| Wild Oats                  | Poaceae Avena barbata               |

Supplement 3 – APPENDICES to Middle Pallinup Floodway Condition Survey - 2017

|                       |                                  |
|-----------------------|----------------------------------|
| Soft Brome            | Poaceae Bromus hordeaceus        |
| Windmill grass        | Poaceae Chloris truncata         |
| Perennial veldt brass | Poaceae Ehrharta calycina        |
| Annual veldt grass    | Poaceae Ehrharta longiflora      |
| Barley grass          | Poaceae Hordeum glaucum          |
| Rye grass             | Poaceae Lolium rigidum           |
| coast barbgrass       | Poaceae Parapholis incurva       |
| Salt grass            | Poaceae Puccinellia ciliata      |
| Couch Grass           | Poaceae Sporobolus virginicus    |
| Doublegee DP          | Polygonaceae Emex australis      |
| Wire weed             | Polygonaceae Polygonum aviculare |
| African Boxthorn WONS | Solanaceae Lycium ferocissimum   |
| Nightshade            | Solanaceae Solanum nigrum        |

GPS Boxthorn locations on the Pallinup River. Note all coordinates are in Zone 50 and the datum is WGS84 equivalent to GDA95.

| Easting | Northing |
|---------|----------|
| 589568  | 6236301  |
| 589574  | 6236228  |
| 589591  | 6236217  |
| 589595  | 6236217  |
| 589526  | 6236221  |
| 589461  | 6236346  |
| 589385  | 6236458  |
| 589188  | 6236468  |
| 589130  | 6236472  |
| 589118  | 6236473  |
| 588487  | 6236289  |
| 589146  | 6236304  |
| 589219  | 6236337  |
| 589376  | 6236375  |
| 589417  | 6236380  |
| 589299  | 6236317  |
| 589174  | 6236278  |
| 589106  | 6236244  |
| 589036  | 6236231  |
| 589510  | 6236441  |

|        |         |
|--------|---------|
| 589594 | 6236381 |
| 589745 | 6236343 |
| 589756 | 6236343 |
| 589768 | 6236345 |
| 589776 | 6236344 |
| 589782 | 6236360 |
| 589796 | 6236358 |
| 589832 | 6236379 |
| 589845 | 6236311 |
| 589873 | 6236106 |
| 589922 | 6236102 |
| 589943 | 6236095 |
| 590042 | 6236134 |
| 589851 | 6236066 |
| 589855 | 6236231 |
| 589618 | 6236323 |
| 589608 | 6236318 |
| 589607 | 6236313 |
| 589614 | 6236335 |
| 589473 | 6236349 |



## APPENDIX 4 - PEN-SCOTT FORESHORE CONDITION RATING

The Pen-Scott rating can be applied to a specific vegetation patch or to a river reach.

### A Grade

*Foreshore has healthy native bush (ie. similar to that found in nature reserves, state forests and national parks).*

#### A1. Pristine

The river embankments and floodway are entirely vegetated with native species and there is no evidence of human presence or livestock damage.

#### A2. Near Pristine

Native vegetation dominates. Some introduced weeds may be present in the understorey but not as the dominant species. Otherwise, there is no evidence of human impact.

#### A3. Slightly Degraded

Native vegetation dominates, but there are some areas of human disturbance where soil may be exposed and weeds are relatively dense (ie. along tracks). Native vegetation would quickly recolonise if human disturbance declined.

### B Grade

*The foreshore vegetation had been invaded by weeds, mainly grasses and looks similar to typical roadside vegetation.*

#### B1. Degraded – weed infested

Weeds have become a significant component of the understorey vegetation. Native species are still dominant but a few have been replaced by weeds.

#### B2. Degraded – heavily weed infested

Understorey weeds are nearly as abundant as native species. The regeneration of trees and large shrubs may have declined.

#### B3. Degraded – weed dominant

Weeds dominate the understorey, but many native species remain. Some trees and large shrubs may have disappeared.

### C Grade

*The foreshore supports only trees over weeds or pasture. Bank erosion and subsidence may occur in localised areas.*

#### C1. Erosion prone

Trees remain with some large shrubs or tree grasses and the understorey consists entirely of weeds (ie. annual grasses). There is little or no evidence of regeneration of tree species. River embankment and floodway are vulnerable to erosion due to the shallow-rooted weedy understorey providing minimal soil stabilisation and support.

**C2. Soil exposed**

Older trees remain but the ground is virtually bare. Annual grasses and other weeds have been removed by livestock grazing and trampling or through humans use and activity. Low level soil erosion has begun.

**C3. Eroded**

Soil is washed away from between tree roots. Trees are being undermined and unsupported embankments are subsiding into the river valley.

**D Grade**

*The stream is little more than an eroding ditch or a weed infested drain.*

**D1. Ditch – eroding**

There is not enough fringing vegetation to control erosion. Remaining trees and shrubs act to impede erosion in some areas, but are doomed to be undermined eventually.

**D2. Ditch – freely eroding**

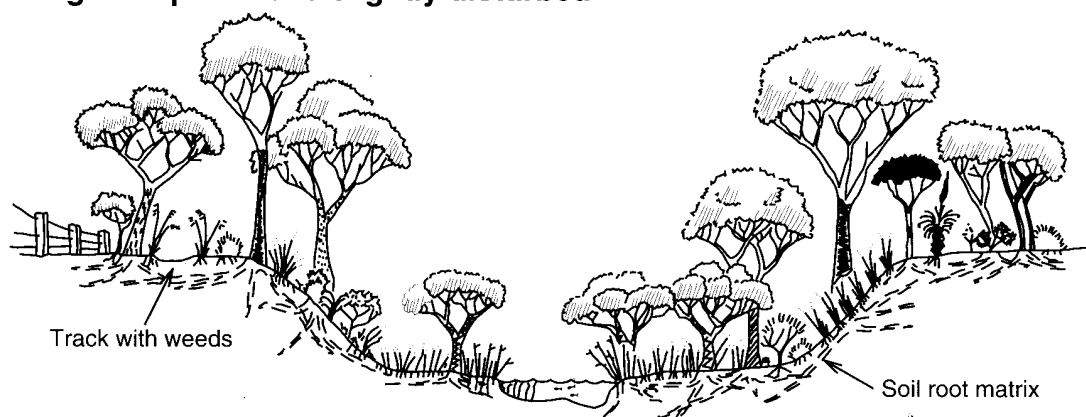
No significant fringing vegetation remains and erosion is out of control. Undermined and subsided embankments are common. Large sediment plumes are visible along the river channel.

**D3. Drain – weed dominant**

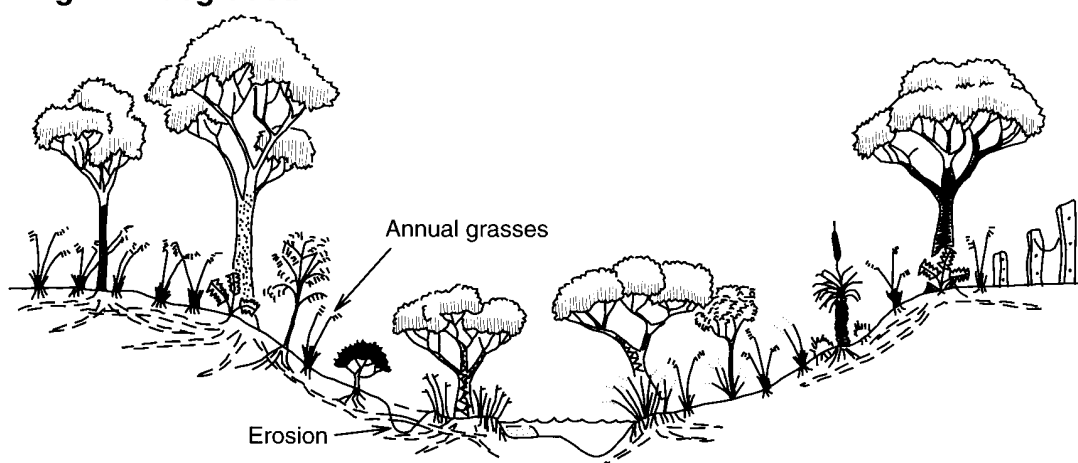
The highly eroded river valley has been fenced off, preventing control of weeds by stock. Perennial weeds have become established and the river has become a simple drain.



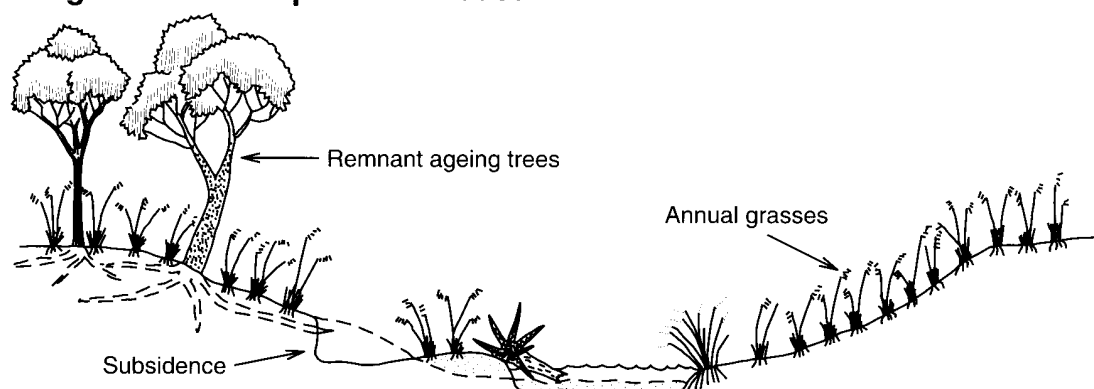
**A grade: pristine to slightly disturbed**



**B grade: degraded**

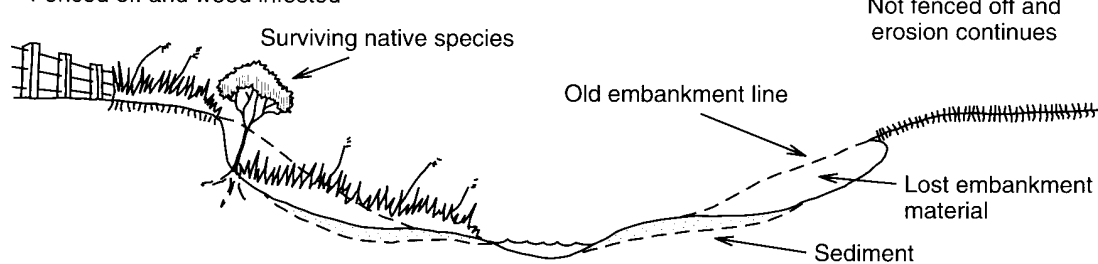


**C grade: erosion prone to eroded**



**D grade: ditch**

Fenced off and weed infested



**Foreshore riparian condition grading schematic**

**APPENDIX 5 - FIELD SURVEY PROFORMA: MORPHOLOGICAL DESCRIPTION**

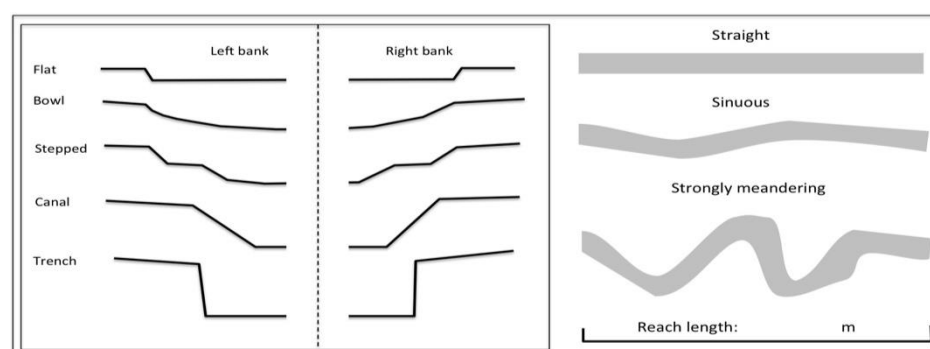
|                          |   |       |                         |            |
|--------------------------|---|-------|-------------------------|------------|
| Recorders name:          |   | Date: | Organisation: NSPNR Inc |            |
| Waterway: Pallinup River |   |       | Section ID              | Waypoint # |
| Upstream end             | E |       | N                       |            |
| Downstream end           | E |       | N                       |            |

GPS coordinates      Datum: WGS 84/ GDA94      Zone: 50

**Reach form**

| Code | Form                          | Comment |
|------|-------------------------------|---------|
| P    | Pool                          |         |
| IP   | Sediment in-filled pool       |         |
| BSC  | Broad Shallow Channel         |         |
| NIC  | Narrow Incised Channel        |         |
| MC   | Meandering Channel (dominant) |         |
| RB   | Rocky Bed                     |         |

Note: LEFT and RIGHT banks are defined looking DOWNSTREAM

**Active/ low flow channel & adjacent banks**

|                                                                                                                                              |   |   |                                  |         |         |          |            |
|----------------------------------------------------------------------------------------------------------------------------------------------|---|---|----------------------------------|---------|---------|----------|------------|
| Floodway Features<br>Confluences, adjacent wetlands, seepages, avulsions, secondary channels, cut-off meanders, meandering, bench formation. |   |   | Side L/R                         | Photo # | Easting | Northing | Waypoint # |
|                                                                                                                                              |   |   |                                  |         |         |          |            |
|                                                                                                                                              |   |   |                                  |         |         |          |            |
|                                                                                                                                              |   |   |                                  |         |         |          |            |
|                                                                                                                                              |   |   |                                  |         |         |          |            |
|                                                                                                                                              |   |   |                                  |         |         |          |            |
| Bank condition                                                                                                                               | L | R | Bed stability                    |         |         |          |            |
| Stable                                                                                                                                       |   |   | Stable                           |         |         |          |            |
| Limited erosion                                                                                                                              |   |   | Scoured bed                      |         |         |          |            |
| Moderate intermittent                                                                                                                        |   |   | Active bed deepening             |         |         |          |            |
| Extensive erosion                                                                                                                            |   |   | Intermittent sediment deposition |         |         |          |            |
| Extreme widening                                                                                                                             |   |   | Significant sediment deposition  |         |         |          |            |



**Water quality data**

| Wavpoint | Easting | Northing | Temperature | Salinity (unit) | pH | Turbidity |
|----------|---------|----------|-------------|-----------------|----|-----------|
|          |         |          |             |                 |    |           |
|          |         |          |             |                 |    |           |
|          |         |          |             |                 |    |           |

**Wildlife sighting or signs within the channel**

|                 | Type | Number |
|-----------------|------|--------|
| Water birds     |      |        |
| Other birds     |      |        |
| Other (specify) |      |        |

**In-stream habitat**

Submerged vegetation  
 Filamentous algae  
 Overhanging/ trailing veg  
 Small wood (<20cm)  
 Larger wood  
 Snag piles  
 Sandy bed  
 Cobbles & boulders  
 Bedrock outcrops

| None | Some | Common | Abundant |
|------|------|--------|----------|
|      |      |        |          |
|      |      |        |          |
|      |      |        |          |
|      |      |        |          |
|      |      |        |          |
|      |      |        |          |
|      |      |        |          |
|      |      |        |          |
|      |      |        |          |

**Channel shading:**      **Open**                      **Slight**                      **Moderate**                      **Fully**

Notes

**Appendix 6 – Field Survey Proforma: Photo Point Record and Vegetation Description**

|                               |                    |      |            |
|-------------------------------|--------------------|------|------------|
| Waterway Name: PALLINUP RIVER | Site / patch Code: |      | Left/Right |
| Recorders Name:               | Date               | Time |            |
| Landholder Names:             | Contacted:         | Y    | N          |

**GPS coordinates      Datum: WGS 84/ GDA94      Zone: 50**

| Photopoint name/Features | Photo numbers | Easting | Northing | Way Pt | Bearing |
|--------------------------|---------------|---------|----------|--------|---------|
|                          |               |         |          |        |         |
|                          |               |         |          |        |         |
|                          |               |         |          |        |         |
|                          |               |         |          |        |         |
|                          |               |         |          |        |         |
|                          |               |         |          |        |         |
|                          |               |         |          |        |         |
|                          |               |         |          |        |         |

**Riparian description**

|                                                  | Dominant vegetation |        |       | Secondary veg. patch |        |       |
|--------------------------------------------------|---------------------|--------|-------|----------------------|--------|-------|
|                                                  | Trees               | Shrubs | Herbs | Trees                | Shrubs | Herbs |
| Native Vegetation cover (0 none – 3 dense)       |                     |        |       |                      |        |       |
| Species diversity category (0 none – 3 high)     |                     |        |       |                      |        |       |
| Health of native vegetation (0 dead – 3 healthy) |                     |        |       |                      |        |       |
| Weed cover (0 none – 3 dense)                    |                     |        |       |                      |        |       |
| Recruitment abundance (0 none – 3 dense)         |                     |        |       |                      |        |       |
| Recruitment health (0 dead – 3 healthy)          |                     |        |       |                      |        |       |
| Recruitment type natural, planted, seeded        |                     |        |       |                      |        |       |

Cover: 0 = none, 1 = sparse(<10%), 2 = moderate(10-50%), 3 = dense(>50%)

Diversity: 0 = none, 1 = low (1-3 spp), 2 = moderate (4-10 spp), 3 high (>10 spp)

Health: 0 = majority dead, 1 = many sick/dying, 2 = some sick, 3 = healthy.

|          | Dominant Vegetation | Secondary vegetation patch | Penn/Scott category |
|----------|---------------------|----------------------------|---------------------|
| Height   |                     |                            |                     |
| Density  |                     |                            |                     |
| Category |                     |                            |                     |

Tall Trees >30m, Medium Trees 10-30m, Low Trees < 10m, Tall Shrubs > 2m, Shrubs 0.25 - 2 m, Low Shrubs < 0.25m

Closed Forest (70-100%), Forest (50-70%) Open Forest (30-50%) Woodland (10-30%),

Open woodland (<10%) Closed Scrub, Scrubland/ Heathland, Open Closed Sedgeland, Sedgeland, Open Sedgeland

|                      |  |  |
|----------------------|--|--|
| Native Species names |  |  |
|                      |  |  |
|                      |  |  |
|                      |  |  |
|                      |  |  |
| Weed species names   |  |  |
|                      |  |  |



| <b>Animals</b>                                   |  | <b>level of activity</b> |               |             |
|--------------------------------------------------|--|--------------------------|---------------|-------------|
| <b>Native wildlife (seen/ heard or signs of)</b> |  | <b>Low</b>               | <b>Medium</b> | <b>High</b> |
|                                                  |  |                          |               |             |
|                                                  |  |                          |               |             |
|                                                  |  |                          |               |             |
|                                                  |  |                          |               |             |
| <b>Feral animals (seen or signs of)</b>          |  | <b>Low</b>               | <b>Medium</b> | <b>High</b> |
|                                                  |  |                          |               |             |
|                                                  |  |                          |               |             |
|                                                  |  |                          |               |             |

### Fencing

| <b>Fence Category</b>                                                                                                                  | <b>Prop'n of patch</b> | <b>Fence condition</b>                     | <b>Prop'n of patch</b> |
|----------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------------------|------------------------|
|                                                                                                                                        |                        |                                            |                        |
|                                                                                                                                        |                        |                                            |                        |
|                                                                                                                                        |                        |                                            |                        |
| 0 = Unfenced, stock access,<br>1 = Fenced, inadequate to exclude stock,<br>2 = Unfenced, but protected,<br>3 = Fenced to exclude stock |                        | 0 = <u>poor</u> , 1 = reasonable, 2 = good |                        |

## APPENDIX 7 - TRIBUTARY CONFLUENCES WITH THE PALLINUP MAIN TRUNK.



Twolganup Creek confluence



Willemenup Creek - first confluence (old channel?)



Willemenup Creek - second confluence. The channel is choked with sediment and extensive deposition and unprotected banks appear to extend upstream at least as far as Camballup Road (1.2 Km)



Willemenup Gully at the Camballup Road crossing - view upstream to the re-vegetated fringes. Areas immediately upstream of road crossings tend to trap sediment. The Samphire has helped to trap sediment and increases the stability of the streambed. Aerial imagery shows that the riparian zone has been protected and rehabilitated upstream of Camballup Road, including minor branches upstream of the Gnowangerup-Tambellup Road.



Willemenup Gully at the Camballup Road crossing - view downstream. Areas from fifty to two hundred meters downstream of road crossings, depending on the size of the stream, tend to experience greater erosion scouring during flooding due to the turbulence created by the crossing.



Small un-named creek confluence. Active head-cutting can be seen.



Jackitup Creek confluence with the Pallinup main channel.



Jackitup Creek view upstream



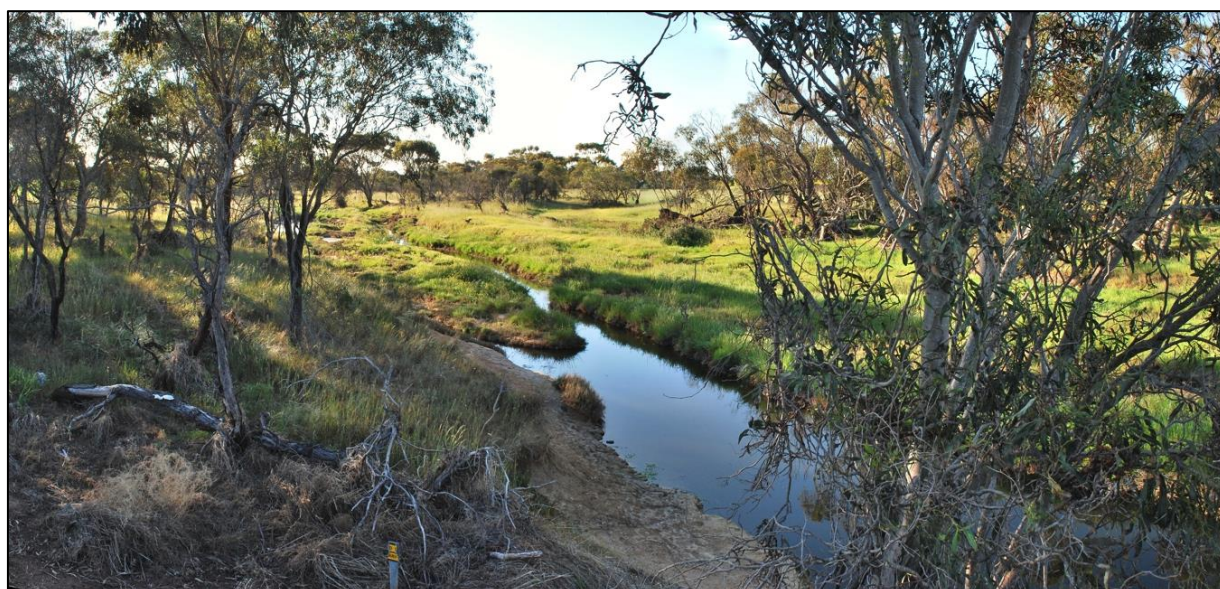
Jackitup Creek at Formby South Road crossing in March 2017 - looking downstream



Jackitup Creek at Formby South Road crossing in March 2017 - looking upstream.



Cadeleup Creek at Hinkley Road (Gnowangerup) - looking downstream. Cadeleup Creek is the north trending branch of Jackitup Creek and converges with it approximately 7 kilometers upstream of the trunk of the Pallinup.



Cadeleup Creek at the Jerramungup Road bridge (Gnowangerup) - looking upstream.



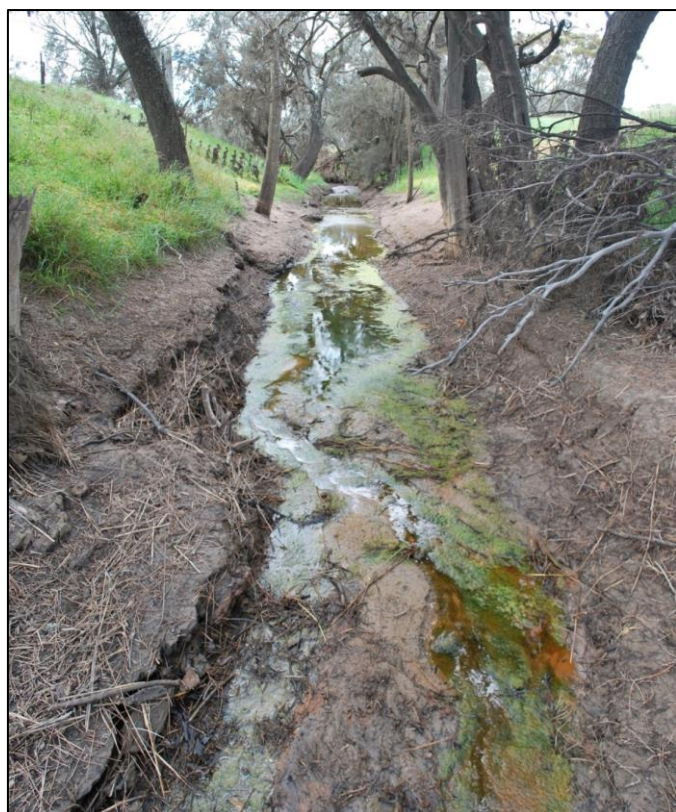
Cadeleup Creek at the Jerramungup Road bridge (Gnowangerup) - looking downstream. Healthy re-vegetation can be seen lining both banks.



Kebaringup Creek confluence



Kebaringup Creek confluence



Un-named Creek confluence



Martacup Creek confluence



Warperup Creek confluence



Warperup Creek downstream of the confluence



Gidgebatabup Creek confluence - looking upstream

## APPENDIX 8 - ARTIFACTS AND OTHER INTERESTING FEATURES

A number of one-off observations are included in the report. Although these are not directly relevant to the future health of the Pallinup River they do tell a story.



Grinding stone exposed by flood flow in the middle of a sandy firebreak on the floodway verge. The stone tool was left on location in accordance with heritage requirements.



One of a number of rock piles that are a remnant of work done by Italian prisoners of war in the 1940's.



The 1982 and 2017 Flood levels at the Tambellup - Gnowangerup Road bridge (marked by Michael Lance)



Kebaringup freshwater soak. The presence of a coarse sandstone outcrop nearby suggested that the soak is part of the Werrilup formation that was deposited by an ancient river system. This formation is often associated with freshwater aquifers.

A lump of coral and a cockle were found in the Pallinup floodway.



### Rubbish observed along the survey area



A water tank washed up by the February 2017 flood.

#### List of rubbish observed

- Fence wire & metal dumps (5 dumps observed)
- Bottles, jars & cans (25 items observed)
- Wood - old railway sleepers (4), fence-wire reel (1), frame (1)
- Galvanized water tanks (6)
- Plastic - 20 L drums (4), large pieces (2), tyres (2), poly-pipe (1)
- Sandal - (1 x right foot)

Overall rating - very good.

## Actions for the Pallinup: Middle Pallinup Foreshore Condition Assessment

### APPENDIX 10 - WATER QUALITY DATA AT CONFLUENCES

| Date      | Position      | Easting | Northing | EC(mS/cm) | pH  | Temp © | Flow    | Comments |
|-----------|---------------|---------|----------|-----------|-----|--------|---------|----------|
| 29-Aug-17 | Pallinup-us   | 585444  | 6238136  | 27.5      | 8.2 | 17.6   |         |          |
| 29-Aug-17 | Twolganup Ck  | 585341  | 6238180  | 31.1      | 8.2 | 16.8   | Low     |          |
| 29-Aug-17 | Pallinup-ds   | 585428  | 6238037  | 29.4      | 8.2 | 17.1   | na      |          |
| 29-Aug-17 | Pallinup-us   | 585755  | 6238256  | 31.0      | na  | na     | na      |          |
| 29-Aug-17 | Drain 1       | 585701  | 6238269  | 35.5      | 8.6 | 20     | Trickle |          |
| 29-Aug-17 | Pallinup-ds   | 586460  | 6237830  | 30.9      | na  | na     | na      |          |
| 30-Aug-17 | Pallinup-us   | 587203  | 6236828  | 30        | 8.4 | 16.2   | Low     |          |
| 30-Aug-17 | Drain 2       | 587143  | 6236848  | 38.5      | 8.1 | 17.8   | v low   |          |
| 30-Aug-17 | Pallinup-ds   | 587168  | 6236748  | 30.7      | 8.4 | 16.3   | Low     |          |
| 30-Aug-17 | Pallinup-us   | 587472  | 6236440  | 31.5      | 8.3 | 16.3   | Low     |          |
| 30-Aug-17 | Willemenup Ck | 587503  | 6236441  | 37.1      | 8.6 | 17.7   | v low   |          |
| 30-Aug-17 | Pallinup-us   | 588208  | 6235935  | 32.2      | 8.2 | 15.7   | Low     |          |
| 30-Aug-17 | Drain 3       | 588197  | 6235888  | 40.1      | 8.7 | 20.5   | Trickle |          |
| 30-Aug-17 | Pallinup-ds   | 588277  | 6236063  | 32.1      | 8.3 | 16.3   | Low     |          |
| 31-Aug-17 | Pallinup-us   | 590137  | 6236270  | 31.1      | 8.2 | 13.7   | Low     |          |
| 31-Aug-17 | Creek         | 590115  | 6236275  | 38.2      | 7.6 | 12.5   | Trickle |          |
| 31-Aug-17 | Pallinup-ds   | 590237  | 6236307  | 31.7      | 8.3 | 13.8   | Low     |          |
| 7-Sep-17  | Pallinup-us   | 595281  | 6232156  | 32.9      | 8.1 | 12.9   | Low     |          |

Actions for the Pallinup: Middle Pallinup Floodway Condition Survey - 2017

|             |                  |                |                 |                  |           |               |             |                 |
|-------------|------------------|----------------|-----------------|------------------|-----------|---------------|-------------|-----------------|
| 7-Sep-17    | Jackitup Ck      | 595310         | 6232211         | 32.5             | 8.4       | 14.9          | Low         |                 |
| 7-Sep-17    | Pallinup-ds      | 595352         | 6232093         | 32.9             | 8.3       | 14.7          | Low         | Similar flow    |
| 8-Sep-17    | Pallinup-us      | 592233         | 6233602         | 33.8             | 8.2       | 14.9          | Low         |                 |
| 8-Sep-17    | Creek            | 592267         | 6233568         | 58.3             | 8.3       | 22.3          | Trickle     |                 |
| 8-Sep-17    | Pallinup-ds      | 592314         | 6233576         | 34.2             | 8.2       | 14.9          | Low         |                 |
| 8-Sep-17    | Seep             | 593585         | 6232980         | 54.4             | na        | na            | na          |                 |
| <b>Date</b> | <b>Position</b>  | <b>Easting</b> | <b>Northing</b> | <b>EC(mS/cm)</b> | <b>pH</b> | <b>Temp ©</b> | <b>Flow</b> | <b>Comments</b> |
| 12-Sep-17   | Pallinup-us      | 601145         | 6230080         | 33.8             | 8.3       | 16.7          | Low         |                 |
| 12-Sep-17   | Creek            | 601241         | 6230130         | 50.6             | 8.3       | 16.5          | Trickle     |                 |
| 12-Sep-17   | Pallinup-ds      | 601337         | 6230081         | 31.4             | 8.3       | 19.6          | Low         |                 |
| 13-Sep-17   | Seep             | 604130         | 6229329         | 33               | 8.5       | 14.7          | Seep        |                 |
| 13-Sep-17   | Small Creek      | 604242         | 6229233         | 8.7              | na        | 14            | Seep        |                 |
| 13-Sep-17   | Kebaringup soak  | 604647         | 6229265         | 0.66             | 8.3       | na            | Pond        |                 |
| 13-Sep-17   | Pallinup channel | 605099         | 6229145         | 32.4             | 8.3       | 17.6          | na          |                 |
| 13-Sep-17   | Perched pond     | 605904         | 6228891         | 19.4             | na        | 14.7          | Shallow     |                 |
| 13-Sep-17   | Pallinup-us      | 607799         | 6229004         | 32               | 8.5       | 20.2          | Low         |                 |
| 13-Sep-17   | Kebaringup Ck    | 607801         | 6229066         | 54.1             | 8.3       | 19.6          | Trickle     |                 |
| 13-Sep-17   | Pallinup-ds      | 607867         | 6229038         | 31.5             | 8.3       | 20.4          | Low         |                 |
| 14-Sep-17   | Creek            | 608060         | 6228908         | 42.8             | 7.9       | 21.7          | Trickle     |                 |
| 14-Sep-17   | Pallinup-us      | 609385         | 6225904         | 32               | 8.25      | 21            | Low         |                 |
| 14-Sep-17   | Warperup Ck      | 609617         | 6225812         | 31.5             | 8.35      | 19.9          | Low         | Similar flow    |
| 14-Sep-17   | Pallinup-ds      | 609746         | 6225532         | 32               | 8.3       | 21.8          | Low         |                 |

Supplement 3 – APPENDICES to Middle Pallinup Floodway Condition Survey - 2017

|           |                  |        |         |      |     |      |              |                          |
|-----------|------------------|--------|---------|------|-----|------|--------------|--------------------------|
| 19-Sep-17 | Small Tributary  | 610718 | 6221987 | 37.8 | 8.1 | 20.7 | Bare trickle |                          |
| 19-Sep-17 | Pallinup channel | 611774 | 6221260 | 32.5 | na  | 25   | Low          |                          |
| 20-Sep-17 | Tributary        | 612514 | 6219366 | 45   | 8.6 | 18   | Bare trickle |                          |
| 20-Sep-17 | Pallinup-us      | 613956 | 6219418 | 32.6 | 8.5 | 20.2 | Low          |                          |
| 20-Sep-17 | Pallinup-ds      | 614781 | 6218889 | 30.5 | 8.5 | 20.2 | Low          | Riffle below Yardup Pool |
| 20-Sep-17 | Yardup Ck        | 615084 | 6219303 | 29.1 | 8.5 | 20.2 | Low          |                          |
| 20-Sep-17 | Yardup Soak      | 614845 | 6219001 | 0.37 | 8.5 | 19   | NA           |                          |

