Appendix 3. Matrix

Continuos characters:

*Dosinia concentrica*

2.214843848 1.937517892 1.872738827 1.835056102 2.076276255 2.187520721 0.424249672 0.709952153 0.680168 0.272817583 0.442965545 1.012149781 0.969346632 0.847721299 0.278753601 1.207948759 0.68588132 1.261994985 2.654766653 0.490412559 0.568878569 2.059732748 2.079349251 2.220108088 0.914559411

*Marcia opima*

2.28780173 1.919078092 1.913813852 1.662757832 2.029383778 2.209515015 0.286306739 0.519374333 1.21387982 0.979796614 0.842392147 1.169751081 0.935043108 0.864121277 0.531478917 1.304960289 0.752845385 2.2032 1.3464 1.2852 0.9792 1.4076 2.0808 2.206825876 0.840132153

*Ruditapes decussatus*

2.256878032 1.897627091 1.929418926 1.792391689 2.039697324 2.184691431 0.383907396 0.590691565 0.879390433 0.467970695 0.78122584 0.966829545 0.856142768 0.836267799 0.602059991 1.170261715 0.928528247 1.11392606 1.530347017 0.426831481 0.801610342 1.322136539 1.186799728 2.229596528 0.921801908

*Ruditapes philippinarum*

2.24468936 1.904895788 1.946124619 1.836745966 2.056904851 2.201397124 0.432701822 0.519763082 0.81686037 0.320072817 0.692002564 0.939721605 0.883850335 0.84245471 0.633468456 1.172405651 0.954361641 1.476215408 2.437471952 0.514958863 0.78960359 1.922513089 1.544876589 2.223582462 0.942545583

*Polititapes aureus*

2.273001272 1.908485019 2.015988105 1.769007871 2.066325925 2.200713734 0.395932225 0.448227688 0.84968196 0.462698788 0.547497148 0.732658855 0.889013894 0.826259028 0.662757832 1.104639092 0.779058988 1.432894737 2.060526316 0.580263158 0.793421053 2.25 1.196052632 2.19520755 0.870431597

*Polititapes virgineus*

2.28254659 1.917330426 1.925999266 1.817344971 2.019808393 2.17801718 0.332473171 0.516178275 0.744472702 0.287374071 0.622838765 1.035779041 0.820137006 0.841716959 0.62324929 1.077439763 0.967906158 1.27228145 2.29989339 0.440405117 0.636140725 1.516950959 1.614818763 2.222716471 0.831491848

*Neotapes undulata*

2.238046103 1.86332286 2.045322979 1.73239376 2.029383778 2.149219113 0.291484678 0.416287591 1.023481096 0.522878745 0.903089987 1.079181246 0.748943979 0.817340835 0.740362689 1.164192036 0.929418926 1.458361204 1.381605351 0.460535117 0.921070234 1.151337793 1.381605351 2.225309282 0.807203047

*Irus carditoides*

2.267171728 1.908485019 1.886490725 1.857332496 1.995635195 2.1430148 0.556302501 0.479073143 0.726998728 0.522878745 0.552841969 1.132625565 0.77619055 0.890436125 0.591064607 1.017728767 1 0.830769231 1.557692308 0.519230769 0.519230769 1.453846154 1.973076923 2.235528447 0.788193189

*Protapes gallus*

2.113943352 1.886490725 1.968482949 1.707570176 2.041392685 2.190331698 0.433937662 0.528142985 1.124938737 0.756961951 0.733732111 1.051152522 0.86973243 0.809094159 0.643452676 1.091770373 0.869666232 1.306097561 0.979573171 0.559756098 0.606402439 1.119512195 1.25945122 2.195899652 0.899099504

*Tapes literatus*

2.281790638 1.960629308 1.851258349 1.884606581 2.076761772 2.213074825 0.490002829 0.551710829 0.555547862 0.038918066 0.895264649 1 0.822179421 0.895093454 0.556302501 1.230448921 1 1.15 3.20 0.35 1.20 1.75 3.10 2.225309282 0.888850981

*Retrotapes antarcticus*

2.261659304 1.979244778 1.903993826 1.945304422 2.113386207 2.229169703 0.254181681 0.68795566 0.894615228 0.476844128 0.906846277 1.253723883 0.940501152 0.900634955 0.477121255 1.274641978 0.881173429 1.811583012 2.382625483 0.702316602 1.173710074 1.466093366 2.564619165 2.215725665 0.909088191

*Retrotapes robustus*

2.280464547 1.951823035 1.857332496 1.88536122 2.063708559 2.223755454 0.303013036 0.603295957 0.809185855 0.440557414 0.823084918 1.146707469 0.94407214 0.894198153 0.477121255 1.292427594 0.835184494 1.533851825 2.421147276 0.660312893 0.91618414 1.378403165 1.931415213 2.198657087 0.905578594

*Retrotapes newtoni*

2.260071388 1.979244778 1.931966115 1.949390007 2.034762106 2.219235134 0.334406873 0.578417115 0.706248694 0.291698072 0.882432586 1.28770975 0.873547651 0.871811292 0.556302501 1.280322532 0.861399917 1.283190578 2.566381156 0.49143469 0.955567452 1.255888651 2.42987152 2.214843848 0.910172007

*Retrotapes ninfasiensis*

2.26873394 1.986771734 1.823908741 2.022565828 2.124938737 2.253661021 0.276265365 0.67309142 0.819223621 0.596924592 0.791148938 1.137604084 0.953126997 0.905901493 0.51851394 1.256485658 0.82869216 1.641337386 2.482522796 0.984802432 0.707826748 1.138677812 1.538753799 2.203214259 0.990460013

*Eurhomalea rufa*

2.262633605 1.859184501 1.849844475 1.841744398 2.07806624 2.199502018 0.460310909 0.653123774 0.900110253 0.613417137 0.954802045 1.14206073 0.867052267 0.848088766 0.322219295 1.128472629 0.912890225 1.327228916 1.67746988 0.645180723 1.078373494 1.188975904 1.631385542 2.244277121 0.88974654

*Katelysia scalarina*

2.290034611 1.851258349 1.986771734 1.86332286 2.120573931 2.212187604 0.407742836 0.466255279 0.95169532 0.499397649 0.823908741 0.823908741 0.901229244 0.893801473 0.505149978 1.356981401 0.943884058 1.924290999 2.150678175 0.679161529 0.905548705 1.358323058 0.905548705 2.214843848 0.862453122

*Katelysia florentinoi*

2.24119771 1.900367129 1.932879458 1.842921121 2.083466785 2.201397124 0.397940009 0.447158031 1 0.464886798 0.819543936 1.146128036 0.899882799 0.875140412 0.477121255 1.264817823 0.944482672 1.776774194 1.850806452 0.444193548 0.983571429 1.311428571 1.639285714 2.218797998 1.001755761

*Frigichione permagna*

2.282259483 1.94610823 1.986637396 1.8831502 2.037546012 2.196286749 0.255272505 0.73239376 0.62324929 0.491361694 0.62324929 1.136720567 0.959041392 0.875061263 0.278753601 1.338456494 0.785329835 0.703340484 1.680983757 0.513438553 1.146444989 2.764128103 3.79100521 2.181843588 0.93702462

*Paleomarcia tatei*

2.259498314 1.860816964 1.967313918 1.828788748 2.042614885 2.21170775 0.146128036 0.643452676 ? ? 0.812913357 1.385606274 0.924279286 0.812913357 0.462397998 ? 0.86332286 ? ? ? 0.961980836 1.332219512 3.715181185 2.201397124 0.867206726

*Eumarcia fumigata*

2.263517716 1.923399466 2.088809166 1.889525797 2.043047743 2.154789029 0.361727836 0.431363764 0.812913357 0.826074803 ? ? 0.851258349 0.851258349 0.672097858 1.033423755 ? 0.998526316 1.53 1.030736842 ? ? ? 2.214843848 0.929774832

*Gomphina undulosa*

2.255272505 1.869525063 2.040206628 1.605951158 1.989894564 2.155062619 0.278753601 0.342422681 1 0.230448921 0.230448921 0.949390007 0.886490725 0.785329835 0.51851394 1.322219295 0.72427587 1.454639175 1.447628866 0.245360825 0.418865979 2.455360825 2.206494845 2.187520721 1.187726336

*Notopaphia elegans*

2.300812794 1.86266795 2.166282067 1.537693194 1.966986025 2.203522417 0.431363764 0.462397998 1.222716471 0.892094603 1.093421685 0.973127854 0.755874856 0.832508913 0.698970004 1.093421685 ? 2.09049505 1.249752475 0.977079208 1.431534653 1.158861386 1.090693069 2.238046103 0.800012251

*Atamarcia sulcifera*

2.302525733 1.927421695 1.936312634 1.795532443 2.048053173 2.214631945 0.342422681 0.556302501 0.939519253 0.633468456 ? ? 0.897627091 0.851258349 0.643452676 1.283301229 ? 1.796426546 2.056778219 0.893874078 ? ? ? 2.198657087 0.953787894

*Paphia rotundata*

2.228400359 1.86332286 2.041392685 1.814780146 1.975247941 2.184691431 0.380211242 0.591064607 1.11058971 0.447158031 0.792391689 1.004321374 0.716003344 0.86923172 0.69019608 1.385606274 0.857332496 1.405102041 1.086612245 0.309122449 1.03977551 1.676755102 1.695489796 2.209515015 0.550030991

*Venerupis corrugata*

2.260071388 1.919078092 2.007747778 1.883831713 2.046456142 2.176467485 0.414973348 0.672097858 1.012837225 1.06069784 0.740362689 1.100370545 0.832508913 0.86923172 0.579783597 1.041392685 0.919078092 1.004628633 0.971689989 1.119913886 0.780645856 1.426243272 1.795156082 2.238046103 0.713264192

*Marciachlys inflata*

2.274157849 2 2.008600172 1.830139387 2.015778756 2.159266331 0.361727836 0.62324929 0.939519253 0.716003344 1.021189299 0.897627091 0.903089987 0.819543936 0.633468456 1.113943352 0.949390007 1.599303136 1.839198606 0.959581882 1.599303136 1.519337979 1.199477352 2.217483944 1.005701979

*Adelfia austrolissa*

2.285557309 1.896746616 1.92251786 1.887504774 2.060168812 2.176756667 0.230448921 0.556302501 0.919078092 0.698970004 0.832508913 1.06069784 0.892094603 0.851258349 0.51851394 1.209515015 0.897627091 1.338973162 1.606767795 0.803383897 1.0996875 1.625625 1.8646875 2.212187604 0.939011759

Adelfia omega

2.247973266 1.897901874 2.012837225 1.829561056 2.051538391 2.230448921 0.230448921 0.579783597 0.944482672 0.579783597 ? 1.056904851 0.886490725 0.851258349 0.544068044 1.123851641 ? ? ? ? ? ? ? 2.209515015 0.831207915

Discrete characters:

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*Marcia opima*

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*Retrotapes ninfasiensis*

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*Eurhomalea rufa*

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*Katelysia scalarina*

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*Eumarcia fumigata*

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*Venerupis corrugata*

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*Marciachlys* *inflata*

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*Adelfia* *austrolissa*

1121100?31011012011003100100021020000200100210002000000

*Adelfia omega*

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