

**Supplementary Information****Searching for indicators of age, sex and population in European mouflon mandibles**

C. Azorit Casas, M. Jimnez Tenorio, A. Casinos Pardos, A.J. Lpez Montoya, M. Lpez-Fuster, O. Rocha Barbosa

Results of Regressing PARTIAL WARP SCORES on Log (CENTROID SIZE) for the indicated datasets using REGRESS8 (Sheets, 2014). Listing starts at highest numbered PWx, then PWy Last two rows are uniform terms, higher warp numbers are higher in bending energy or spatial localization of deformation. Data is the regression slope and intercept, the correlation coefficient r and Z-score is equal to  $0.5 * \ln \frac{1+r}{(n-3)^{0.5}} - r$  which is based on the regression coefficient r, assuming normally distributed residuals.

**Table S1:** Results of Regressing PARTIAL WARP SCORES on Log (CENTROID SIZE) for mandibular shape data of individuals from Andjar NP (99 specimens)

Warp	Slope	Intercept	Correlation	Z-score	p
PW27x	-0.015 392	0.084 482	-0.544 857	-5.986 920	0
PW27y	-0.029 904	0.164 725	-0.663 557	-7.829 961	0
PW26x	0.001 945	-0.009 763	0.081 178	0.797 133	0.212 687
PW26y	0.025 562	-0.139 662	0.514 679	5.575 761	0
PW25x	0.036 683	-0.201 807	0.720 723	8.907 797	0
PW25y	0.002 429	-0.013 812	0.092 771	0.911 590	0.180 992
PW24x	0.039 711	-0.218 895	0.828 330	11.588 934	0
PW24y	0.002 207	-0.009 669	0.077 418	0.760 063	0.223 608
PW23x	0.027 117	-0.149 685	0.681 642	8.153 611	0
PW23y	-0.032 892	0.181 763	-0.619 984	-7.103 313	0
PW22x	0.042 988	-0.236 920	0.775 537	10.131 799	0
PW22y	0.000 910	-0.002 374	0.036 543	0.358 210	0.360 093
PW21x	0.008 616	-0.047 476	0.484 017	5.175 448	0
PW21y	0.005 468	-0.029 196	0.309 120	3.131 151	0
PW20x	0.003 764	-0.021 128	0.329 625	3.354 896	0
PW20y	-0.010 895	0.060 652	-0.648 436	-7.569 852	0
PW19x	0.026 029	-0.144 216	0.682 031	8.160 729	0
PW19y	0.015 246	-0.081 476	0.577 562	6.454 860	0
PW18x	-0.047 939	0.264 028	-0.815 565	-11.203 269	0
PW18y	0.010 273	-0.057 384	0.409 168	4.258 305	0
PW17x	-0.037 305	0.206 013	-0.785 943	-10.392 981	0
PW17y	-0.010 129	0.055 384	-0.387 466	-4.005 555	0
PW16x	-0.006 689	0.036 230	-0.168 155	-1.663 378	0.048 118
PW16y	-0.002 381	0.013 427	-0.116 974	-1.151 375	0.124 789
PW15x	-0.008 362	0.046 076	-0.366 250	-3.763 249	0
PW15y	0.020 672	-0.115 864	0.566 404	6.292 370	0
PW14x	-0.049 384	0.271 002	-0.823 735	-11.447 206	0
PW14y	-0.023 159	0.126 153	-0.606 194	-6.886 814	0
PW13x	-0.016 857	0.092 322	-0.672 881	-7.995 022	0
PW13y	-0.013 292	0.073 003	-0.615 028	-7.024 832	0
PW12x	0.038 349	-0.211 650	0.758 744	9.731 816	0
PW12y	0.001 438	-0.007 790	0.069 793	0.684 938	0
PW11x	-0.041 316	0.228 290	-0.724 790	-8.991 219	0
PW11y	0.023 797	-0.130 149	0.652 522	7.639 260	0
PW10x	0.030 194	-0.165 058	0.647 188	7.548 794	0
PW10y	-0.033 463	0.186 765	-0.698 601	-8.470 947	0
PW9x	-0.012 778	0.070 620	-0.386 038	-3.989 105	0
PW9y	-0.025 626	0.141 352	-0.721 902	-8.931 880	0
PW8x	0.132 122	-0.725 587	0.842 552	12.050 555	0
PW8y	-0.024 531	0.136 215	-0.508 236	-5.490 266	0
PW7x	-0.003 289	0.016 841	-0.106 955	-1.051 960	0.146 409
PW7y	0.034 120	-0.188 758	0.684 517	8.206 422	0
PW6x	0.070 386	-0.388 241	0.760 066	9.762 408	0
PW6y	0.016 233	-0.092 201	0.381 585	3.937 926	0
PW5x	-0.001 617	0.008 605	-0.046 367	-0.454 625	0.324 69
PW5y	0.005 436	-0.030 513	0.161 328	1.594 620	0.055 399
PW4x	-0.068 379	0.379 434	-0.729 097	-9.080 717	0
PW4y	-0.015 576	0.083 694	-0.324 223	-3.295 633	0
PW3x	0.028 581	-0.154 768	0.567 670	6.310 650	0
PW3y	-0.045 517	0.250 613	-0.718 133	-8.855 193	0
PW2x	0.047 708	-0.259 218	0.593 743	6.696 189	0
PW2y	-0.143 303	0.784 616	-0.869 008	-13.021 614	0
PW1x	0.095 900	-0.525 737	0.776 251	10.149 393	0
PW1y	0.038 662	-0.210 520	0.463 551	4.916 861	0
PW0x	0.084 536	-0.465 150	0.819 084	11.307 128	0
PW0y	-0.061 025	0.351 605	-0.402 096	-4.175 371	0

## Supplementary Information

## Searching for indicators of age, sex and population in European mouflon mandibles

C. Azorit Casas, M. Jimnez Tenorio, A. Casinos Pardos, A.J. Lpez Montoya, M. Lpez-Fuster, O. Rocha Barbosa

**Table S2:** Results of Regressing PARTIAL WARP SCORES on Log (CENTROID SIZE) for mandibular shape data of individuals from Cazorla NP (79 specimens)

Warp	Slope	Intercept	Correlation	Z-score	p
PW27x	-0.019 631	0.110 124	-0.730 424	-8.104 370	0
PW27y	-0.048 652	0.272 780	-0.834 158	-10.475 777	0
PW26x	-0.009 386	0.053 443	-0.422 450	-3.928 854	0
PW26y	0.025 844	-0.143 692	0.706 082	7.665 803	0
PW25x	-0.015 680	0.088 189	-0.742 825	-8.340 776	0
PW25y	0.000 251	-0.002 430	0.015 309	0.133 471	0.446 91
PW24x	0.049 563	-0.277 532	0.852 056	11.015 878	0
PW24y	-0.008 002	0.044 463	-0.373 019	-3.416 722	0
PW23x	0.059 470	-0.332 538	0.900 829	12.872 686	0
PW23y	-0.023 745	0.133 324	-0.689 641	-7.386 332	0
PW22x	0.026 894	-0.149 645	0.808 879	9.796 881	0
PW22y	0.029 809	-0.165 601	0.796 318	9.489 025	0
PW21x	-0.007 641	0.042 309	-0.488 401	-4.654 936	0
PW21y	-0.004 144	0.024 456	-0.184 163	-1.624 026	0.052 185
PW20x	0.007 021	-0.039 598	0.510 265	4.908 890	0
PW20y	0.013 611	-0.076 083	0.773 927	8.979 740	0
PW19x	-0.028 147	0.157 241	-0.893 211	-12.532 596	0
PW19y	-0.016 445	0.092 278	-0.713 740	-7.800 389	0
PW18x	0.045 785	-0.256 485	0.859 413	11.255 495	0
PW18y	-0.016 723	0.094 663	-0.634 819	-6.533 525	0
PW17x	-0.059 636	0.332 819	-0.901 980	-12.926 205	0
PW17y	0.011 278	-0.063 693	0.520 141	5.026 099	0
PW16x	-0.001 014	0.003 640	-0.035 626	-0.310 716	0.378 008
PW16y	0.003 324	-0.019 272	0.165 538	1.456 528	0.072 623
PW15x	-0.026 189	0.145 249	-0.770 703	-8.910 089	0
PW15y	0.005 466	-0.029 431	0.324 098	2.931 089	0
PW14x	0.050 616	-0.283 686	0.883 636	12.136 185	0
PW14y	0.037 320	-0.206 746	0.790 513	9.352 438	0
PW13x	0.046 255	-0.257 578	0.897 665	12.728 546	0
PW13y	0.008 899	-0.049 111	0.462 787	4.366 332	0
PW12x	-0.052 528	0.293 180	-0.856 588	-11.162 167	0
PW12y	-0.001 631	0.009 216	-0.072 537	-0.633 475	0.263 211
PW11x	-0.050 436	0.280 240	-0.803 526	-9.663 541	0
PW11y	0.051 596	-0.286 628	0.852 200	11.020 485	0
PW10x	0.030 531	-0.169 477	0.722 631	7.960 476	0
PW10y	-0.029 890	0.167 136	-0.764 536	-8.779 187	0
PW9x	-0.017 675	0.098 876	-0.559 968	-5.516 508	0
PW9y	-0.030 987	0.175 156	-0.730 531	-8.106 382	0
PW8x	-0.201 221	1.126 832	-0.919 759	-13.839 147	0
PW8y	0.041 039	-0.230 994	0.754 194	8.566 196	0
PW7x	0.024 255	-0.136 682	0.603 605	6.091 989	0
PW7y	0.063 697	-0.358 543	0.830 023	10.358 572	0
PW6x	0.079 395	-0.443 667	0.871 542	11.677 123	0
PW6y	0.009 549	-0.054 020	0.297 057	2.670 161	0
PW5x	-0.012 070	0.069 412	-0.351 127	-3.197 066	0
PW5y	0.008 749	-0.049 229	0.253 289	2.257 247	0
PW4x	-0.088 577	0.494 458	-0.798 574	-9.543 059	0
PW4y	-0.046 344	0.259 413	-0.746 053	-8.403 897	0
PW3x	-0.048 994	0.272 449	-0.830 026	-10.358 660	0
PW3y	0.065 878	-0.370 086	0.817 665	10.023 122	0
PW2x	0.064 248	-0.355 527	0.759 312	8.670 627	0
PW2y	-0.171 589	0.957 883	-0.886 537	-12.252 958	0
PW1x	0.134 913	-0.752 746	0.895 593	12.636 420	0
PW1y	0.013 178	-0.070 948	0.212 677	1.882 817	0.029 863
PW0x	0.117 662	-0.658 867	0.873 718	11.756 650	0
PW0y	-0.083 427	0.476 783	-0.556 779	-5.476 106	0

**Supplementary Information**

**Searching for indicators of age, sex and population in European mouflon mandibles**

C. Azorit Casas, M. Jimnez Tenorio, A. Casinos Pardos, A.J. Lpez Montoya, M. Lpez-Fuster, O. Rocha Barbosa

**Table S3:** Results of Regressing PARTIAL WARP SCORES on Log (CENTROID SIZE) for mandibular shape data of all individuals in the sample (178 specimens)

Warp	Slope	Intercept	Correlation	Z-score	p
PW27x	-0.018 974	0.105 454	-0.690 460	-11.229 023	0
PW27y	-0.039 400	0.219 573	-0.756 075	-13.056 610	0
PW26x	-0.002 710	0.015 596	-0.123 366	-1.640 337	0.050 468
PW26y	0.025 665	-0.142 387	0.626 048	9.721 690	0
PW25x	-0.010 120	0.056 739	-0.479 261	-6.905 732	0
PW25y	-0.000 724	0.002 715	-0.033 492	-0.443 229	0.3288
PW24x	0.045 924	-0.254 583	0.810 525	14.929 396	0
PW24y	0.001 039	-0.005 651	0.047 488	0.628 681	0.264 779
PW23x	0.043 219	-0.239 608	0.813 699	15.052 748	0
PW23y	-0.030 318	0.169 370	-0.666 061	-10.631 020	0
PW22x	0.040 787	-0.225 754	0.821 438	15.361 544	0
PW22y	0.015 086	-0.081 658	0.537 309	7.942 086	0
PW21x	0.005 620	-0.031 108	0.409 089	5.748 118	$4.509 \times 10^{-9}$
PW21y	0.005 160	-0.027 943	0.314 830	4.311 219	$8 \times 10^{-6}$
PW20x	0.001 204	-0.006 658	0.110 316	1.465 300	0.071 42
PW20y	0.011 597	-0.064 177	0.709 112	11.712 692	0
PW19x	0.030 785	-0.171 527	0.750 655	12.890 820	0
PW19y	0.013 036	-0.069 975	0.570 539	8.576 496	0
PW18x	0.047 507	-0.263 265	0.847 741	16.510 410	0
PW18y	-0.012 444	0.069 771	-0.510 268	-7.449 012	0
PW17x	-0.042 027	0.232 113	-0.822 310	-15.397 064	0
PW17y	-0.001 576	0.006 889	-0.080 010	-1.060 698	0.144 414
PW16x	-0.001 875	0.008 057	-0.053 205	-0.704 501	0.240 56
PW16y	-0.004 543	0.026 156	-0.228 184	-3.072 681	0.001 06
PW15x	0.007 901	-0.044 802	0.369 950	5.137 586	$1.391 86 \times 10^{-7}$
PW15y	0.031 515	-0.175 995	0.699 427	11.458 455	0
PW14x	-0.053 317	0.294 390	-0.849 265	-16.582 394	0
PW14y	-0.018 520	0.101 006	-0.612 581	-9.432 660	0
PW13x	0.025 132	-0.138 528	0.748 702	12.831 820	0
PW13y	0.012 490	-0.068 184	0.596 809	9.103 711	0
PW12x	-0.038 178	0.210 679	-0.769 643	-13.486 060	0
PW12y	-0.002 206	0.012 629	-0.106 383	-1.412 657	0.078 878
PW11x	-0.041 493	0.228 843	-0.730 921	-12.312 029	0
PW11y	0.031 300	-0.171 980	0.713 638	11.833 890	0
PW10x	0.026 389	-0.143 771	0.644 618	10.133 681	0
PW10y	-0.029 465	0.164 193	-0.705 175	-11.608 504	0
PW9x	-0.013 065	0.072 318	-0.440 686	-6.258 277	0
PW9y	-0.027 530	0.152 712	-0.739 393	-12.555 922	0
PW8x	-0.150 660	0.833 750	-0.861 054	-17.163 053	0
PW8y	0.028 083	-0.156 382	0.595 958	9.086 250	0
PW7x	-0.000 379	0.002 234	-0.013 109	-0.173 430	0.431 156
PW7y	0.049 648	-0.278 285	0.776 894	13.724 661	0
PW6x	0.073 646	-0.408 473	0.797 678	14.448 381	0
PW6y	0.018 272	-0.103 860	0.476 763	6.862 896	0
PW5x	0.006 444	-0.038 684	0.193 456	2.591 840	0.004 773
PW5y	-0.004 809	0.028 902	-0.144 469	-1.924 614	0.027 139
PW4x	-0.073 292	0.406 244	-0.750 596	-12.889 022	0
PW4y	-0.028 552	0.157 966	-0.568 478	-8.536 143	0
PW3x	0.032 464	-0.177 249	0.639 128	10.010 179	0
PW3y	-0.047 614	0.264 253	-0.683 858	-11.063 559	0
PW2x	0.046 197	-0.251 970	0.611 659	9.413 157	0
PW2y	-0.144 435	0.795 351	-0.858 058	-17.011 294	0
PW1x	0.110 074	-0.607 730	0.839 766	16.144 107	0
PW1y	0.015 974	-0.084 389	0.224 537	3.021 833	0.001 256
PW0x	0.094 242	-0.521 604	0.829 649	15.702 641	0
PW0y	-0.070 796	0.405 177	-0.493 050	-7.144 604	0