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The global conservation movement is diverse but not divided

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Supplementary Information

Supplementary Notes

Sample characteristics

The 9,264 respondents retained after data cleaning represented a diverse group of conservation researchers and practitioners (Supplementary Table 1).

Slightly more than half of respondents were female (51.0% female; 47.4% male). The majority of respondents reported having a background in the biological sciences (56.2%), with just over a quarter coming from an interdisciplinary background (25.9%). However, the sample also included a small minority of respondents from the social sciences (9.0%), non-biological natural sciences (3.9%) and humanities (2.9%).

A wide range of ages were represented in the sample, with the largest group aged <29 years (34.3%), followed by those aged 30-39 years (29.3%), 40-49 years (17.8%) and 50+ years (17.0%). There were also a wide range of levels of professional seniority represented, with the largest single group reporting themselves to be in a “Neither senior nor junior position” (25.7%). In total, 29.6% of respondents reported themselves to be in either a “Very junior” or “Fairly junior” position, while 30.0% reported themselves to be in a “Fairly senior” or “Very senior” position. 14.8% of respondents were not currently working in conservation, but had some past experience. Amongst respondents who reported their age and were also currently working in conservation, there was a moderately positive, statistically significant correlation between age and professional seniority (Spearman’s $\rho = 0.639$, $p < 0.001$).

Responses came from 149 countries or territories across six continents (Supplementary Figure 1), but the majority were from Europe (38.1%) and North America (25.4%). South & Central America was next most common (10.1%), followed by Asia (7.8%), Oceania (5.9%) and Africa (4.7%). Countries in which English is the most-widely spoken language had the largest number of respondents: the United Kingdom (25.0%), the United States (18.8%), Canada (6.5%) and Australia (4.9%). Other countries with more than one hundred respondents were India (4.2%), Mexico (3.4%), South Africa (2.3%), Brazil (2.2%), Germany (1.8%), France (1.5%), Colombia (1.4%) and the Netherlands (1.4%). 8.0% of the respondents chose not to report their nationality.

Levels of polarization in responses to each Likert item

The level of polarization in the responses to each Likert item within our survey ranged from moderate - 0.418 (95%CI: 0.413, 0.427) for “It is acceptable for people to be displaced to make space for protected areas” - to very low polarization - 0.093 (95%CI: 0.090, 0.097) for “Maintaining biological diversity should be a goal of conservation” (Supplementary Figure 2).

Exploratory modelling

Velicer’s MAP criterion was minimised for four factors (1 factor = 0.015, 2 factors = 0.010, 3 factors = 0.007, 4 factors = 0.007, 5 factors = 0.007, 6 factors = 0.008) and examination of Scree plots for the first two subsets of the data suggested the existence of up to five distinct factors (Supplementary Figure 3).

We therefore conducted separate exploratory factor analyses assuming three, four or five factors were present in the data. Across all of these analyses, only three factors were clearly identified. In the case where three factors were assumed, the results were closely consistent across replicate analyses conducted on equally-sized, randomly sampled subsets of the data (Supplementary Figure 4).

When four factors were assumed, only two items had an absolute loading >0.4 onto the fourth factor and neither had an absolute loading >0.6 (Supplementary Table 2). In the five factor case the fourth factor again had only two items with an

absolute loading >0.4 and no strongly loading items. The fifth factor had five items with an absolute loading >0.4 but again no strongly loading items. We therefore proceeded with a three dimensional model for subsequent modelling.

Confirmatory modelling

Based on our exploratory results, we specified a confirmatory model for a subset of eighteen Likert items from the original data: seven items loading uniquely onto the first factor, seven items loading uniquely onto the second factor and five items loading uniquely onto the third factor (Main text, Table 1). No items loaded onto multiple factors. Small p-values obtained from goodness-of-fit tests based on the M^2 statistic suggested possible poor fit, but the χ^2 goodness-of-fit statistic, TLI (>0.90) and CFI values (>0.95) and values of RMSEA and SRMSR both meet commonly accepted standards (RMSEA < 0.05, SRMSR <0.08) indicating that the model provides an acceptably close approximation to the data for practical purposes (Supplementary Table 3) and there were no unacceptably large residual correlations or clustering of residuals (Supplementary Table 4).

Evidence about the existence of clustering within the views of respondents

Our cluster analysis revealed no evidence for the existence of distinct clusters within the views of our respondents, with the best-fitting models including only a single mixture component (Supplementary Figure 5). The eight ellipsoidal models with a single mixture component all fit equally well (ICL = -70,003.25), followed by the four diagonal models with a single component (ICL = -70,047.34) and the two spherical models with a single component (ICL = -70,066.83). All models with more than one component fit substantially less well.

Patterns of views within sub-groups

To explore whether there were differences in the patterns of views across the three axes within subsets of the respondents in our sample, defined by continent of nationality, age, gender, seniority and educational specialism, we plotted factor scores for each subgroup and calculated 95% confidence ellipses calculated under the assumption that the scores follow a multivariate normal distribution (Supplementary Figures 6A-6E; in each panel the points and confidence ellipse for the focal group are plotted in red while the non-focal groups are plotted in grey).

Supplementary Tables

Variable	Level	Data subset 1	Data subset 2	Data subset 3	Whole dataset
Gender	Male	1,466 (47.5%)	1,453 (47.1%)	1,468 (47.5%)	4,387 (47.4%)
	Female	1,577 (51.1%)	1,582 (51.2%)	1,564 (50.6%)	4,723 (51.0%)
	Other/Prefer not to say	45 (1.5%)	53 (1.7%)	56 (1.8%)	154 (1.7%)
Educational specialism	Biological Sciences	1,725 (55.9%)	1,724 (55.8%)	1,753 (56.8%)	5,202 (56.2%)
	Interdisciplinary	806 (26.1%)	823 (26.7%)	773 (25.0%)	2,402 (25.9%)
	Social Sciences	264 (8.5%)	260 (8.4%)	306 (9.9%)	830 (9.0%)
	Non-biological Natural Sciences	130 (4.2%)	123 (4.0%)	111 (3.6%)	364 (3.9%)
	Humanities	92 (3.0%)	92 (3.0%)	84 (2.7%)	268 (2.9%)
	Not Applicable	71 (2.3%)	66 (2.1%)	61 (2.0%)	198 (2.1%)
Age	<29	1,029 (33.3%)	1,065 (34.5%)	1,086 (35.2%)	3,180 (34.3%)
	30-39	946 (30.6%)	888 (28.8%)	880 (28.5%)	2,714 (29.3%)
	40-49	547 (17.7%)	553 (17.9%)	549 (17.8%)	1,649 (17.8%)
	50+	519 (16.8%)	535 (17.3%)	525 (17.0%)	1,579 (17.0%)
	Not reported	47 (1.5%)	47 (1.5%)	48 (1.6%)	142 (1.5%)
Seniority	Very junior position	345 (11.2%)	366 (11.9%)	375 (12.1%)	1,086 (11.7%)
	Fairly junior position	547 (17.7%)	550 (17.8%)	556 (18.0%)	1,653 (17.8%)
	Neither senior nor junior position	803 (26.0%)	815 (26.4%)	759 (24.6%)	2,377 (25.7%)
	Fairly senior position	727 (23.5%)	711 (23.0%)	700 (22.7%)	2,138 (23.1%)
	Very senior position	230 (7.4%)	197 (6.4%)	210 (6.8%)	637 (6.9%)
	I am not currently working in conservation	436 (14.1%)	449 (14.5%)	488 (15.8%)	1,373 (14.8%)
Nationality	Europe	1,177 (38.1%)	1,173 (38.0%)	1,175 (38.1%)	3,525 (38.1%)
	North America	782 (25.3%)	803 (26.0%)	768 (24.9%)	2,353 (25.4%)
	South & Central America	323 (10.5%)	289 (9.4%)	323 (10.5%)	935 (10.1%)
	Asia	243 (7.9%)	236 (7.6%)	248 (8.0%)	727 (7.8%)
	Oceania	178 (5.8%)	184 (6.0%)	187 (6.1%)	549 (5.9%)
	Africa	135 (4.4%)	161 (5.2%)	137 (4.4%)	433 (4.7%)
	Not reported	250 (8.1%)	242 (7.8%)	250 (8.1%)	742 (8.0%)

Supplementary Table 1 | Summary of respondent characteristics. Counts (percentages) are shown for the gender, educational specialism, age, professional seniority and continent of nationality of respondents within the three equally-sized, randomly-selected subsets of the Future of Conservation survey data that we used for exploratory (subsets 1 & 2) and confirmatory modelling (subset 3; in each case N = 3,088) and the whole dataset (N = 9,264). Within each variable, levels corresponding to “Not applicable”, “Not reported”, “Other” or the like are presented last. Where there is no natural ordering to the remaining levels of a variable, they are presented from most to least common within the data.

Item	Text	Three dimensions			Four dimensions			
		F1	F2	F3	F1	F2	F3	F4
1	Humans are separate from nature not part of it	0.40	0.05	0.02	0.35	0.06	0.10	-0.26
2	Conservation will only succeed if it provides benefits for people	-0.41	0.07	-0.35	-0.47	0.08	-0.26	-0.21
3	Conserving nature for nature's sake should be a goal of conservation	0.07	-0.57	0.26	0.11	-0.61	0.15	0.24
4	Conservation must benefit poor people because to do so is an ethical imperative	-0.66	0.01	0.02	-0.71	0.01	0.09	-0.15
5	To achieve conservation goals the environmental impact of the world's rich must be reduced	-0.35	-0.31	0.32	-0.37	-0.32	0.31	0.02
6	Conservation actions should primarily be informed by evidence from biological science	0.10	-0.55	-0.19	0.07	-0.54	-0.18	-0.09
7	It is acceptable for people to be displaced to make space for protected areas	0.46	-0.43	-0.10	0.42	-0.42	-0.10	-0.12
8	Pristine nature untouched by human influences does not exist	-0.21	0.10	0.15	-0.21	0.11	0.15	0.04
9	Strict protected areas are required to achieve most conservation goals	0.25	-0.53	-0.03	0.19	-0.55	0.01	-0.26
10	Conservation goals should be based on science	-0.04	-0.50	-0.20	-0.05	-0.48	-0.20	-0.02
11	Protecting nature for its own sake does not work	-0.15	0.27	-0.33	-0.24	0.30	-0.18	-0.41
12	There is no significant conservation value in highly modified landscapes	0.21	-0.12	0.05	0.12	-0.14	0.15	-0.35
13	Conservation will only be a durable success if it has broad public support	-0.37	-0.24	-0.15	-0.40	-0.23	-0.11	-0.10
14	Conservation should work with not against capitalism	0.03	-0.03	-0.71	0.04	-0.01	-0.69	-0.07
15	Working with corporations is not just pragmatic; they can be a positive force for conservation	-0.08	-0.16	-0.66	-0.03	-0.15	-0.73	0.12
16	To achieve conservation goals human population growth must be reduced	0.08	-0.46	-0.02	0.05	-0.46	-0.02	-0.07
17	Human affection for nature grows in line with income	0.16	-0.05	-0.28	0.08	-0.06	-0.19	-0.32
18	Advancing the wellbeing of all people should be a goal of conservation	-0.64	0.05	-0.16	-0.64	0.06	-0.13	-0.02
19	Conservation should seek to reduce the emotional separation of people from nature	-0.27	-0.23	0.08	-0.23	-0.22	0.02	0.19
20	Conservation goals should be based on ethical values	-0.41	-0.19	0.20	-0.42	-0.20	0.19	0.03
21	Maintaining ecosystem processes should be a goal of conservation	-0.27	-0.48	-0.11	-0.25	-0.49	-0.17	0.14
22	Economic arguments for conservation are risky because they can lead to unintended negative conservation outcomes	-0.05	-0.18	0.50	-0.10	-0.20	0.53	-0.09
23	There is a risk that economic rationales for conservation will displace other motivations for conservation	-0.08	-0.27	0.43	-0.12	-0.28	0.44	-0.06
24	Giving a voice to those affected by conservation actions improves conservation outcomes	-0.64	-0.02	-0.06	-0.62	-0.02	-0.08	0.12
25	To achieve its goals conservation should seek to reform global trade	-0.32	-0.26	0.20	-0.35	-0.27	0.21	-0.05
26	Non-native species offer little conservation value	0.15	-0.20	0.02	0.09	-0.22	0.09	-0.23
27	Human impact on nature grows in line with incomes	-0.16	-0.20	0.18	-0.21	-0.20	0.22	-0.12
28	Conservation will only be a durable success if it has the support of corporations	-0.08	-0.18	-0.54	-0.12	-0.17	-0.50	-0.19
29	Conservation should seek to do no harm to poor people	-0.64	0.04	0.04	-0.63	0.04	0.04	0.08
30	Giving a voice to those affected by conservation action is an ethical imperative	-0.73	0.01	0.03	-0.71	0.01	0.03	0.12
31	The best way for conservation to contribute to human wellbeing is by promoting economic growth	0.00	0.07	-0.57	-0.07	0.07	-0.46	-0.37
32	When communities manage their own resources their efforts are more effective than top-down approaches	-0.43	0.03	-0.04	-0.45	0.03	0.00	-0.08
33	Win-win outcomes for people and nature are rarely possible	0.26	-0.01	0.14	0.17	-0.01	0.25	-0.38
34	Having multiple rationales for conservation weakens the conservation movement	0.25	-0.02	0.02	0.16	-0.04	0.16	-0.44
35	Conservation messages that emphasise the value of nature for nature's own sake are more effective than those that promote the benefits of nature to humans	0.19	-0.20	0.34	0.19	-0.23	0.31	0.02
36	Conservation communications are more effective when they use negative 'doom and gloom' messages rather than positive messages	0.21	-0.12	0.09	0.23	-0.13	0.09	-0.09
37	Maintaining biological diversity should be a goal of conservation	-0.18	-0.55	0.12	-0.20	-0.57	0.07	0.06
38	Nature often recovers from even severe perturbations	-0.13	0.06	-0.05	-0.12	0.06	-0.06	0.04

Supplementary Table 2 | Comparison of factor loadings from exploratory item factor analyses assuming either three or four factors. Items which load moderately to strongly onto the factor in question ($|\text{loading}| < 0.4$) are indicated in bold.

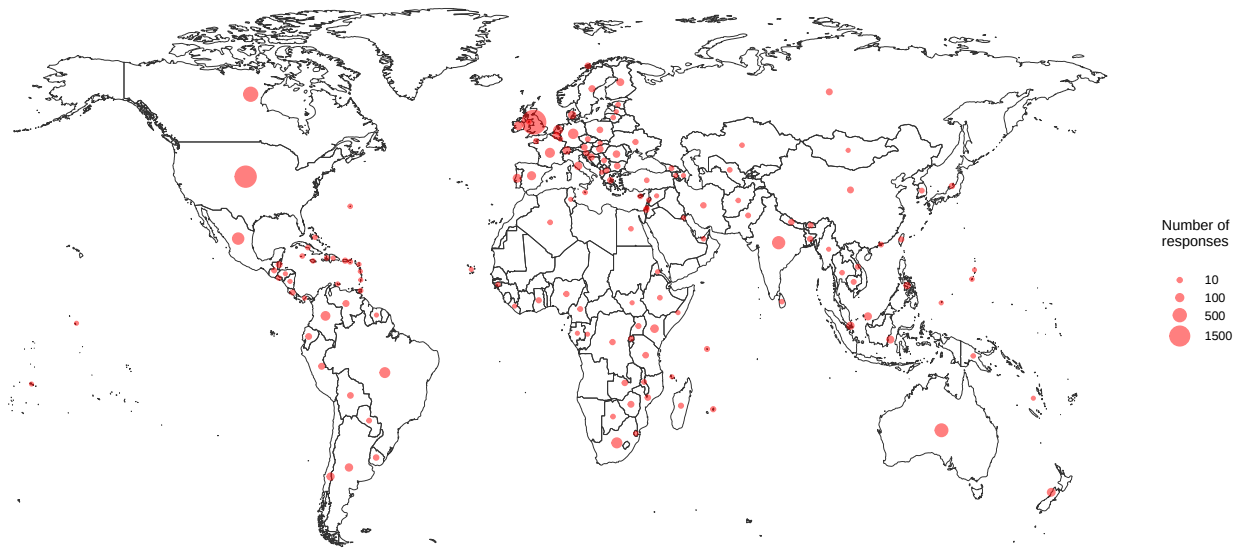
χ^2			M2			RMSEA			SRMSR	TLI	CFI
Statistic	df	p	Statistic	df	p	Statistic	CI (5%)	CI (95%)	Value	Value	Value
72.23	55	0.06	269.89	54	<0.01	0.04	0.03	0.04	0.07	0.93	0.95

Supplementary Table 3 | Goodness-of-fit measures for a confirmatory three dimensional item factor analysis. RMSEA = root mean squared error of approximation, SRMSR = standardized root mean squared residual, TLI = TuckerLewis Index, and CFI = Comparative Fit Index.

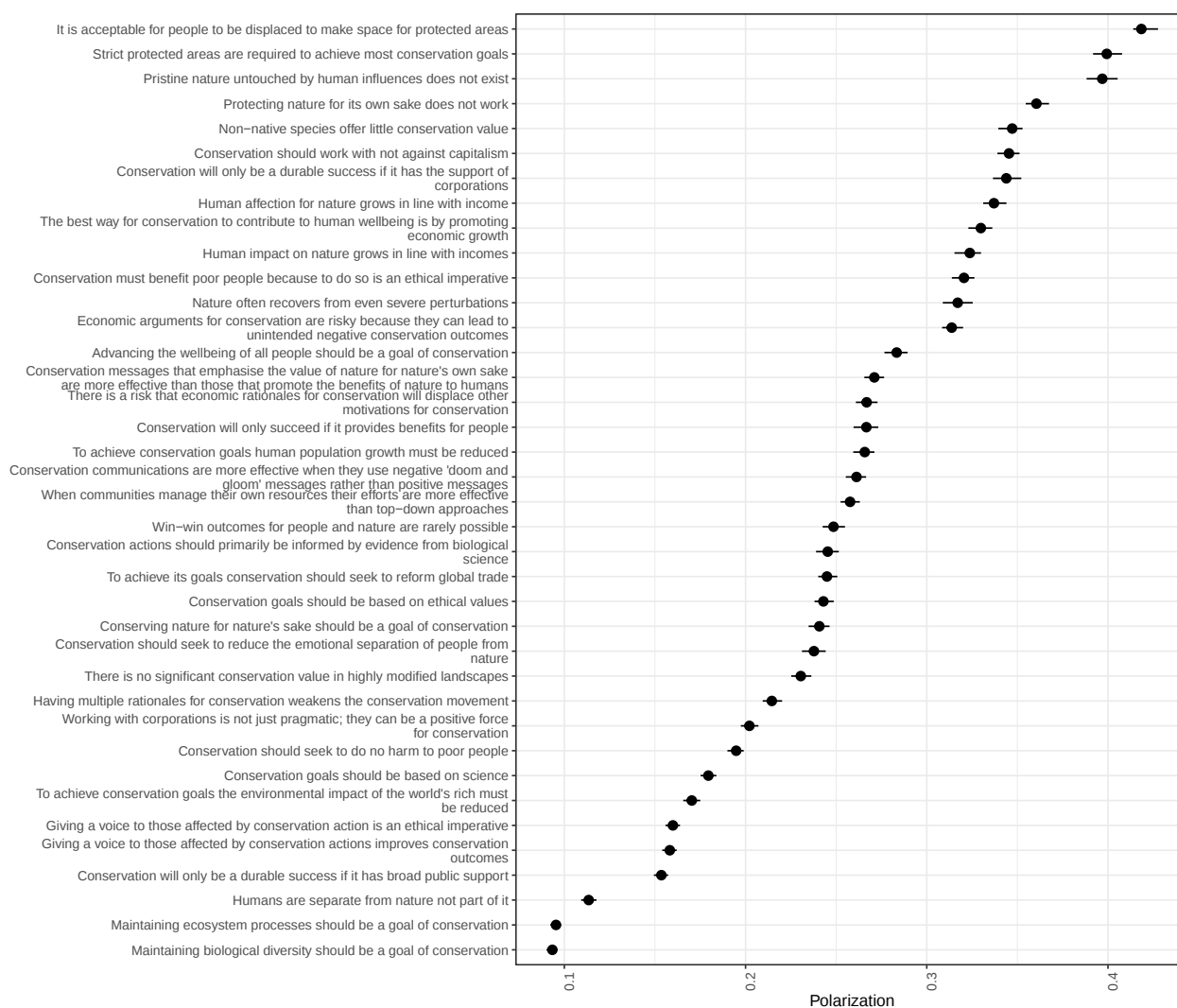
		F1							F2							F3				
		Item	30	4	29	24	18	20	32	6	10	37	3	21	16	9	15	14	28	31
F1	30		-0.12	-0.03	0.11	-0.07	-0.01	-0.08	-0.10	0.04	0.07	-0.03	0.10	-0.04	-0.10	0.02	0.02	0.03	0.06	0.02
	4	-0.06		0.01	-0.08	0.06	0.04	-0.03	-0.08	-0.01	-0.01	-0.08	0.06	-0.09	-0.09	-0.03	-0.03	0.06	0.13	-0.02
	29	-0.08	0.09		-0.06	-0.01	-0.01	-0.08	-0.08	0.02	0.08	-0.09	0.08	-0.11	-0.10	-0.03	-0.03	0.00	0.08	0.00
	24	0.11	-0.09	-0.09		-0.06	-0.07	0.09	-0.07	0.01	0.07	-0.08	0.11	-0.05	-0.11	0.06	0.06	0.09	0.06	-0.01
	18	-0.07	0.09	-0.09	-0.07		-0.09	-0.08	-0.07	-0.02	0.06	-0.10	0.09	-0.17	-0.09	0.08	0.09	0.10	0.12	-0.10
	20	-0.08	0.08	-0.07	-0.08	-0.03		-0.06	-0.07	0.02	0.08	0.10	0.08	-0.01	0.07	-0.09	-0.08	-0.09	-0.10	0.09
	32	-0.03	-0.07	-0.03	0.05	-0.01	-0.05		-0.07	-0.07	0.06	-0.11	0.09	-0.06	-0.09	0.03	0.03	0.06	0.10	0.00
F2	6	-0.06	-0.09	-0.07	-0.06	-0.08	-0.03	-0.05		0.11	-0.10	-0.08	-0.09	-0.04	-0.07	0.08	0.07	0.09	0.07	0.01
	10	0.13	-0.07	0.09	0.09	-0.07	0.08	-0.08	0.16		-0.06	-0.08	-0.07	-0.05	-0.08	0.07	0.06	0.07	-0.06	-0.06
	37	0.06	0.06	0.04	0.05	0.03	0.08	0.03	-0.07	-0.08		0.08	0.13	-0.01	-0.06	0.08	0.00	0.03	-0.04	0.05
	3	-0.07	-0.08	-0.05	-0.05	-0.16	0.10	-0.08	-0.07	-0.08	0.08		0.00	0.05	0.09	-0.06	-0.11	-0.03	-0.11	0.17
	21	0.09	0.07	0.09	0.11	0.12	0.08	0.08	-0.07	-0.04	0.11	0.07		-0.02	-0.07	0.08	0.01	0.07	-0.07	0.07
	16	-0.08	-0.08	-0.08	-0.07	-0.09	-0.07	-0.06	-0.06	-0.02	-0.06	0.06	-0.06		0.09	0.04	-0.06	0.10	-0.07	0.09
	9	-0.16	-0.10	-0.15	-0.17	-0.14	0.01	-0.13	0.01	-0.08	-0.02	0.06	-0.05	0.07		-0.01	-0.04	0.06	-0.01	0.08
F3	15	0.10	-0.07	0.08	0.10	0.09	-0.09	0.09	0.07	0.07	0.07	-0.08	0.07	0.06	-0.07		0.00	0.11	-0.09	0.10
	14	0.08	-0.09	-0.08	0.09	0.10	-0.10	0.09	0.07	0.05	-0.06	-0.09	0.06	-0.08	-0.08	-0.08		-0.10	0.09	0.09
	28	0.09	0.08	0.07	0.04	0.11	-0.04	0.10	0.08	0.09	0.07	-0.07	0.04	0.09	0.10	0.05	-0.04		-0.09	0.09
	31	0.04	0.10	0.05	0.07	0.17	-0.02	0.09	0.07	0.01	-0.07	-0.17	-0.04	-0.10	-0.08	-0.06	0.03	-0.02		-0.02
	22	0.08	0.08	0.08	-0.09	-0.11	0.07	0.07	0.07	-0.01	0.06	0.12	0.02	0.09	0.08	0.02	0.00	0.10	-0.10	

Supplementary Table 4 | Residual correlations between Likert items. The upper triangle shows the local dependence matrix calculated from the χ^2 statistic. The lower triangle shows the residual correlation matrix used in the calculation of the standardized root mean squared residual (SRMSR) index. Absolute values greater than 0.15 are highlighted in bold. Items are grouped within their factors and presented in order from most strongly positive loading to most strongly negative loading. In the main text, factor F1 is labelled as “People-centred conservation”, F2 as “Science-led ecocentrism”, and F3 as “Conservation through capitalism”.

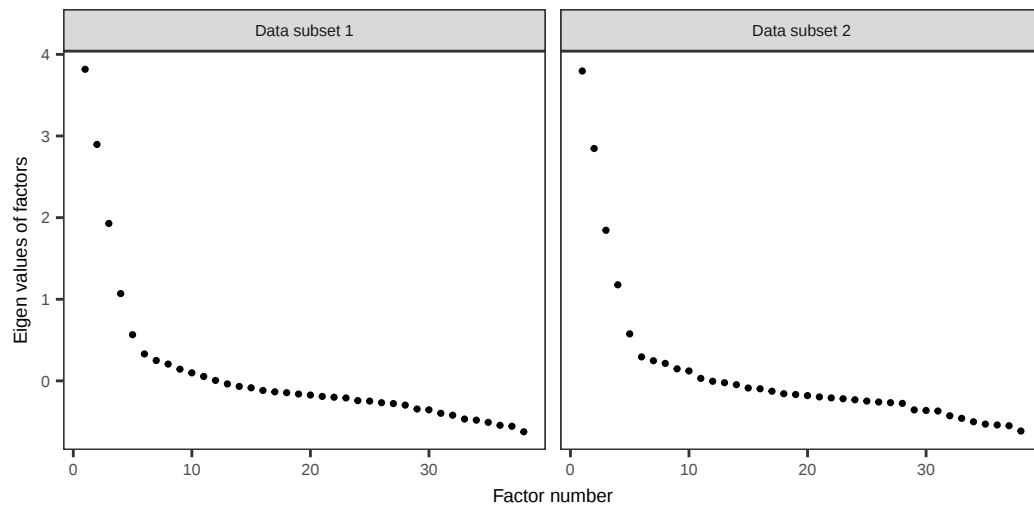
Supplementary Figures



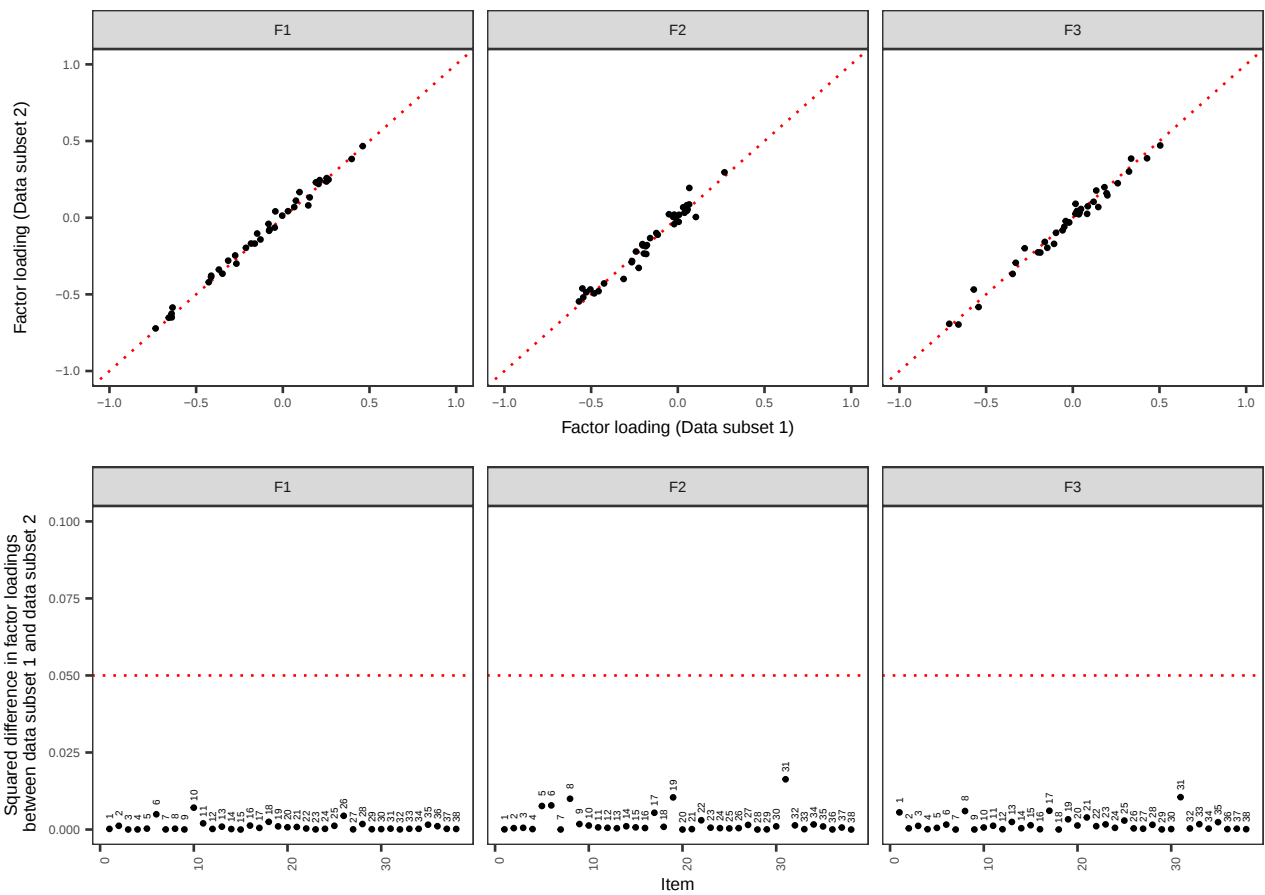
Supplementary Figure 1 | Distribution of respondent nationalities. The number of respondents from each nation or territory represented within the cleaned Future of Conservation survey data ($N = 9,264$) is indicated by the size of the red circle. Circles are placed close to the centroid of each nation or territory.



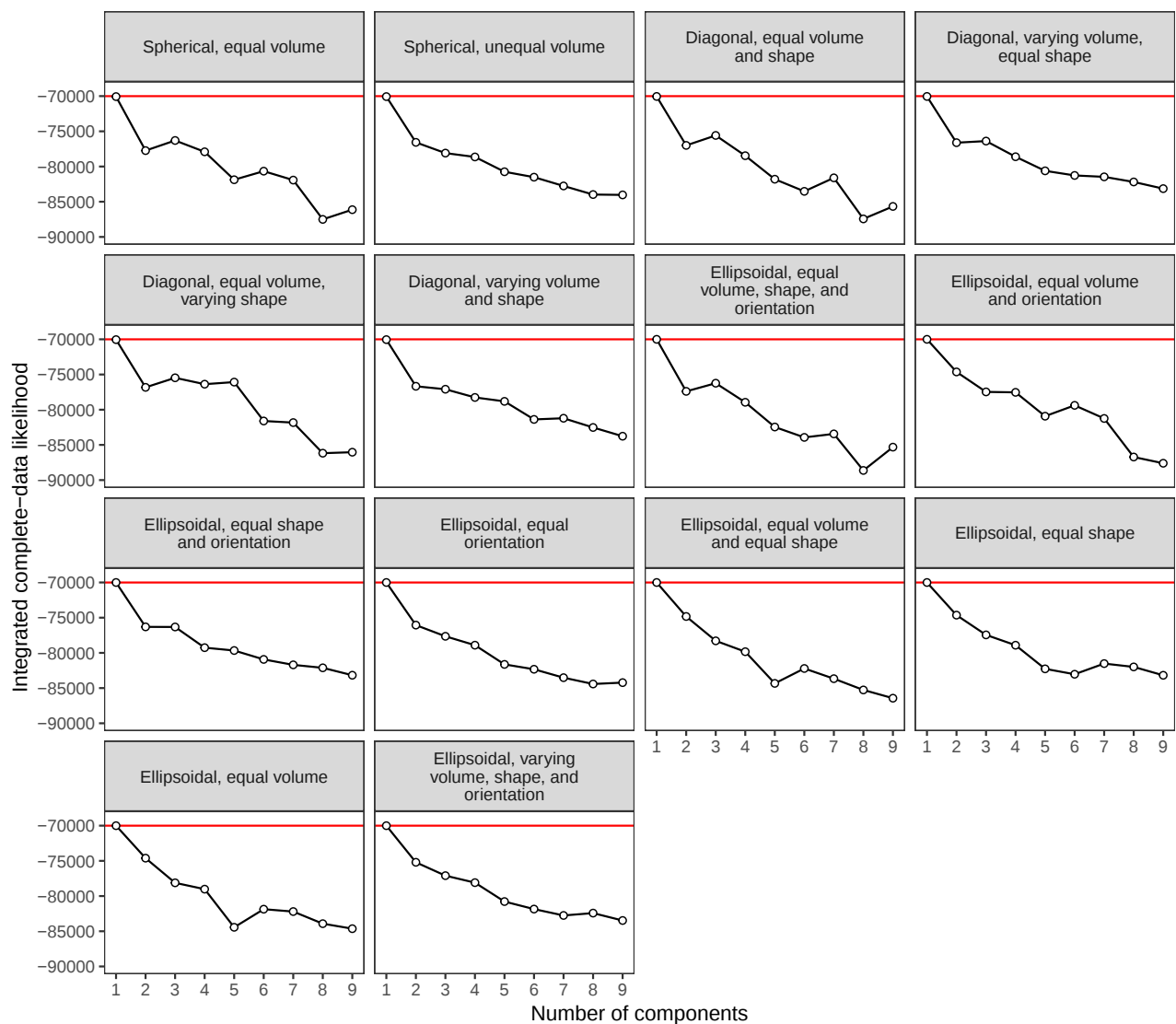
Supplementary Figure 2 | Levels of polarization in responses generated by each Likert item within the survey. The Likert items are arranged from those which generated the most polarised responses at the top to those which generated the least polarised responses. Error bars indicate 95% confidence intervals calculated using a non-parametric bootstrap.



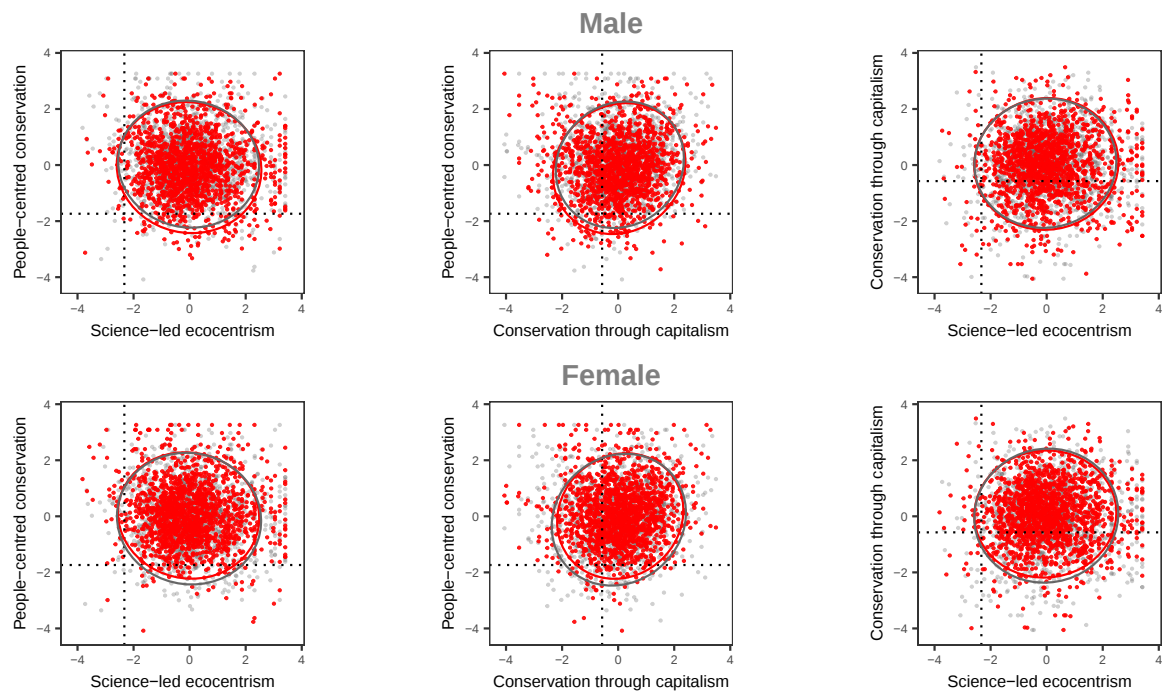
Supplementary Figure 3 | Scree plots used to obtain an initial estimate of the number of factors present within the data. The plots are calculated based on the matrix of polychoric correlations between Likert items from the Future of Conservation survey data. The two panels show Scree plots for two equally-sized, randomly-selected subsets of the data (in both cases $N = 3,088$).



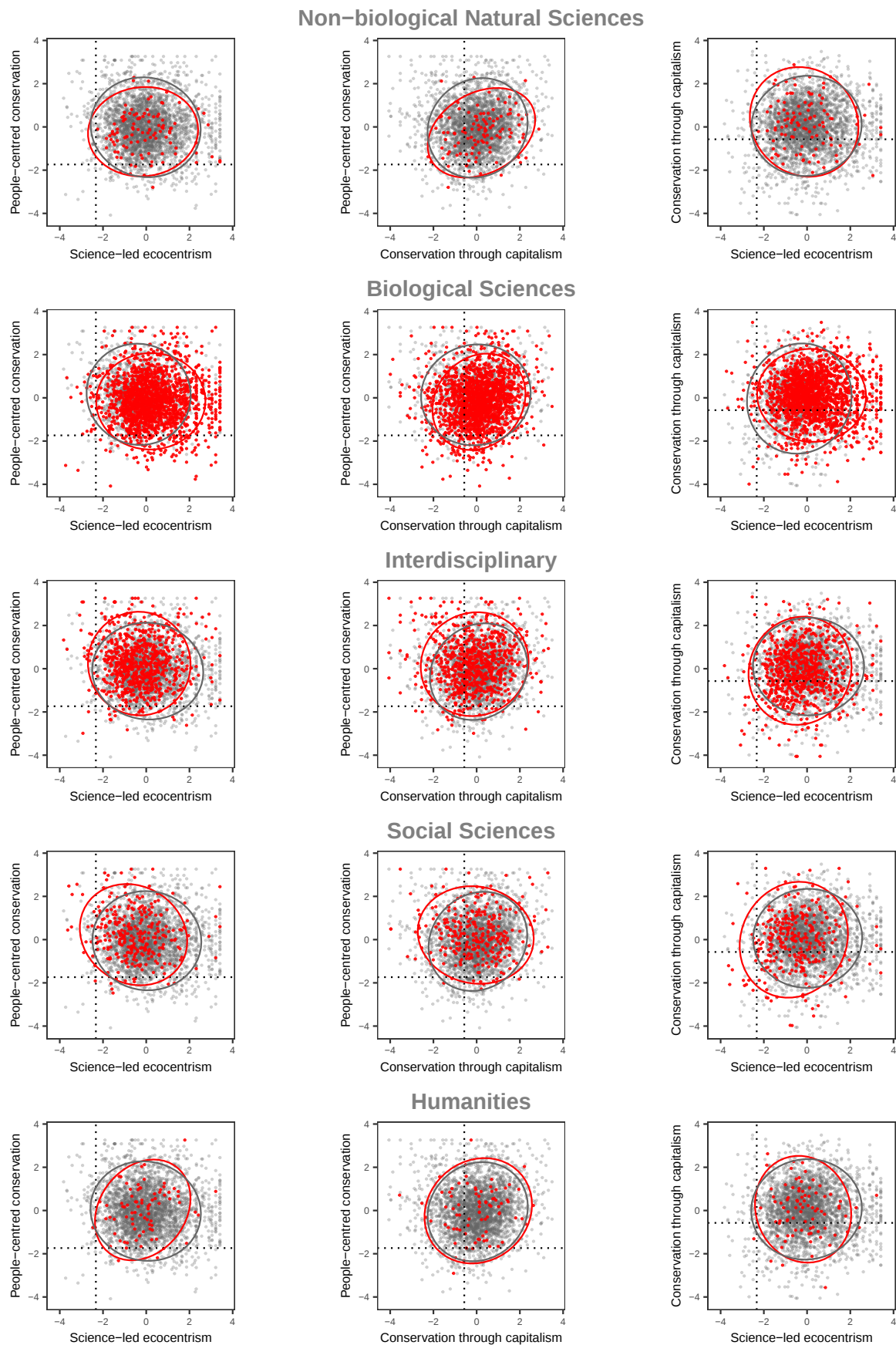
Supplementary Figure 4 | Comparison of factor loadings from two independent replicate exploratory item factor analyses. The factor analyses were carried out on the Likert items from two equally-sized, randomly-selected subsets of the Future of Conservation survey data (in both cases $N = 3,088$) assuming three dimensions. The upper row of panels show the correlation between the loadings of each Likert item onto the three factors when estimated using the first or the second subsets of the data. The dotted red line indicates where the points would fall if the factor loadings were identical for each subset of the data. The lower row of panels show the squared difference between the loadings of each Likert item onto each of the three factors when estimated using the first or the second subsets of the data. The red dotted line indicates a squared difference of 0.05 which was taken as the cutoff for a large difference.



Supplementary Figure 5 | Cluster analysis of respondents' views. Each panel represents a different set of modelling assumptions about the geometric properties of the clusters. Within each panel, circles represent the integrated complete-data likelihood criterion (ICL) values for models with a specified number of mixture components. Higher values of ICL indicate better fit. The horizontal red line indicates the ICL value of the best-fitting models across the whole candidate set.

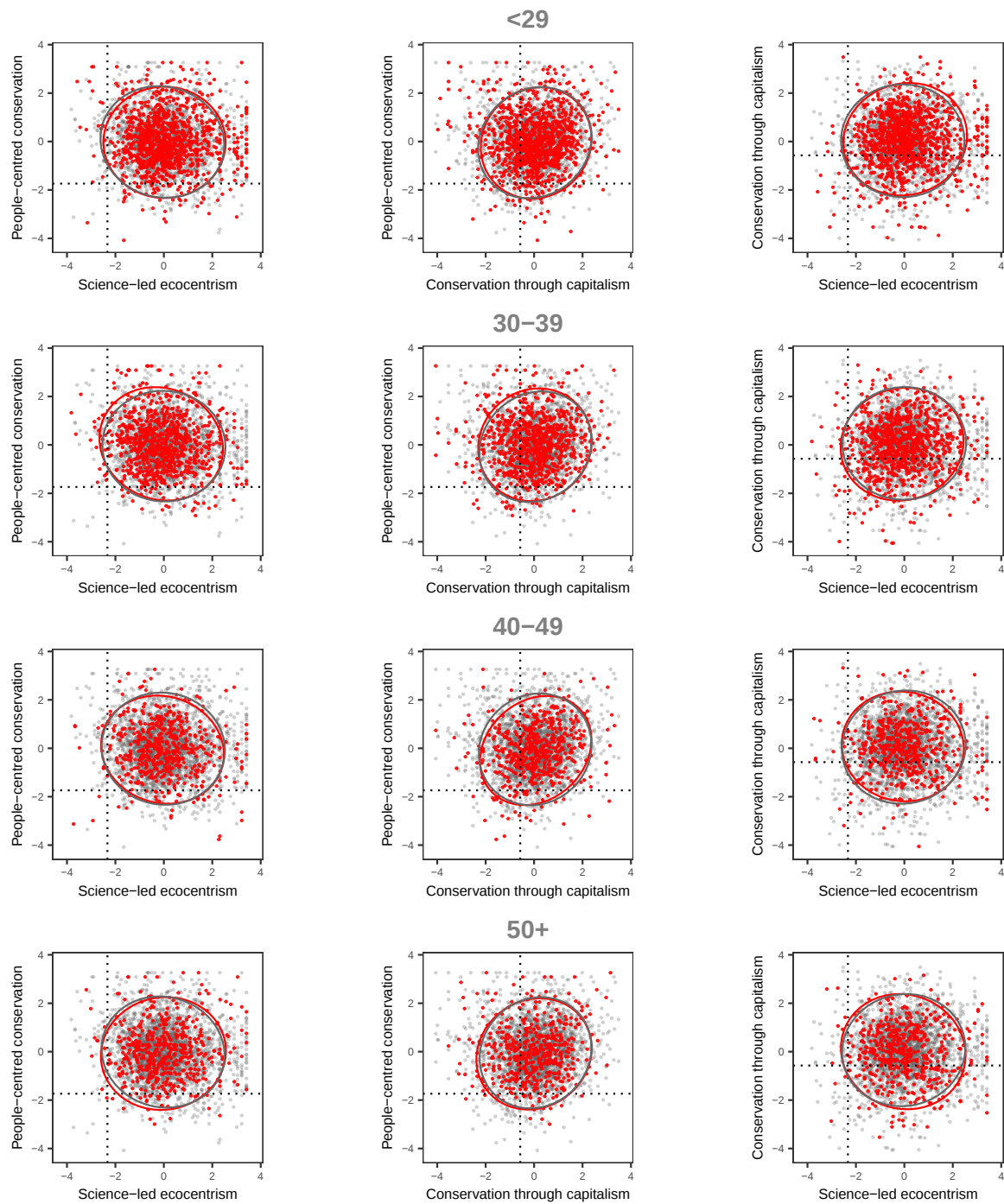


Supplementary Figure 6A | Conservationists' views separated by gender. Relationships between each pair of dimensions identified in a multidimensional graded response model. Axes display factor scores. In each sub-panel the points and confidence ellipse for the focal group indicated in the title are plotted in red while those for the other, non-focal group(s) are plotted in grey. Dotted lines represent the score for each dimension that would be generated if 'neutral' was selected for every survey item (further details in Methods).

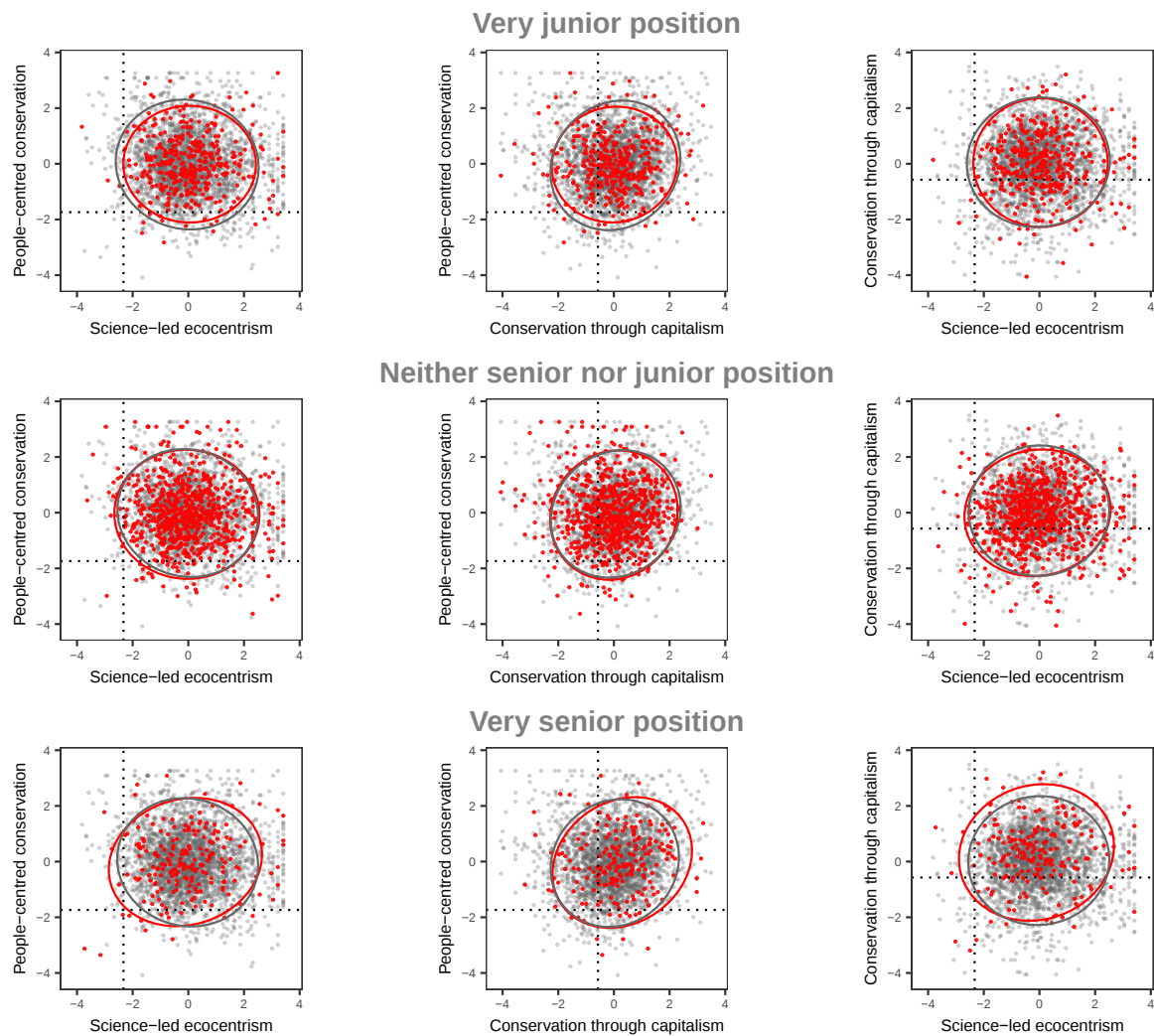


Supplementary Figure 6B | Conservationists' views separated by educational specialism. Relationships between each pair of dimensions identified in a multidimensional graded response model. Axes display factor scores. In each sub-panel the points and confidence ellipse for the focal group indicated in the title are plotted in red while those for the other, non-focal group(s) are plotted in grey. Dotted lines represent the score for each dimension that would be generated

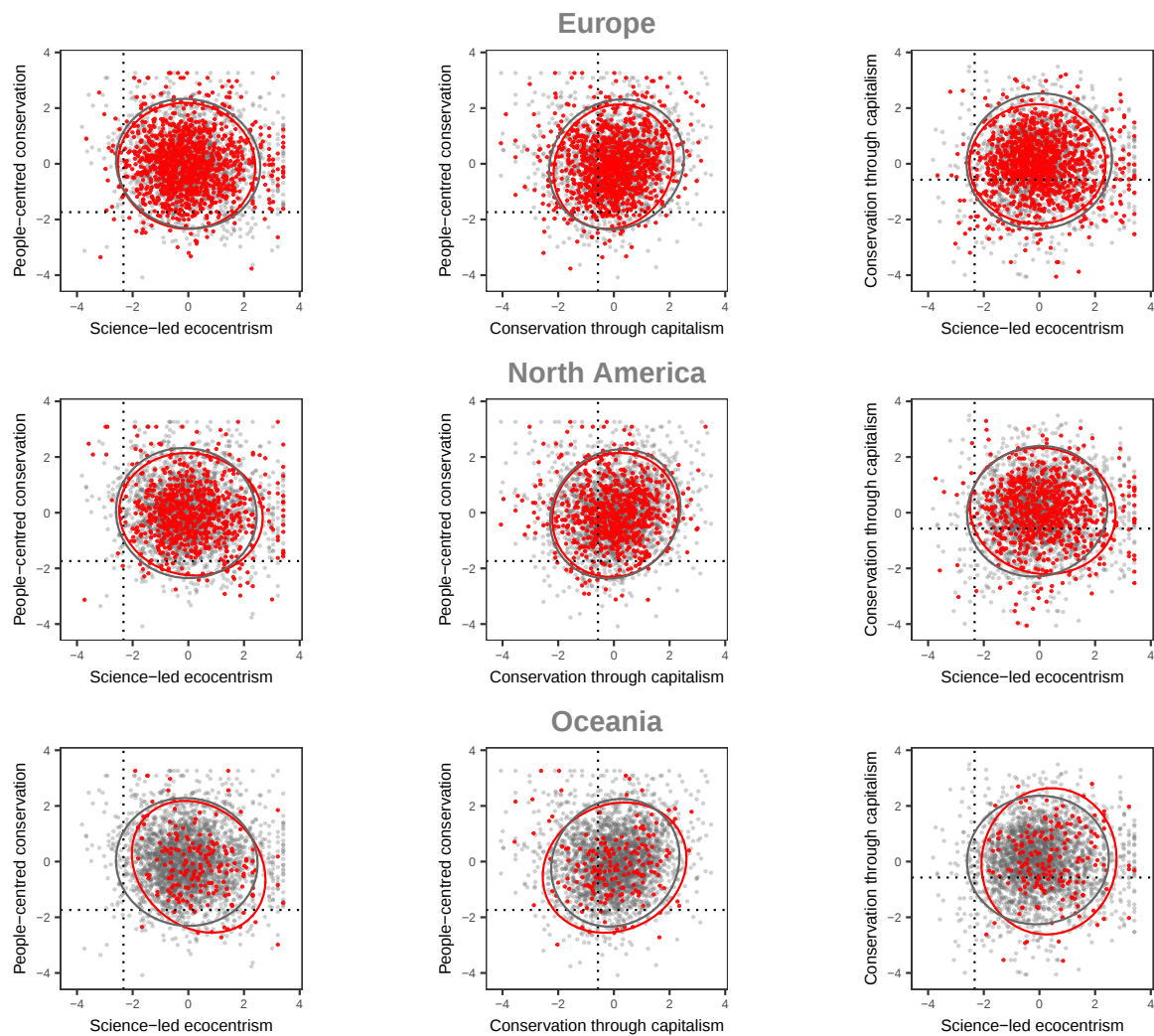
if 'neutral' was selected for every survey item (further details in Methods).



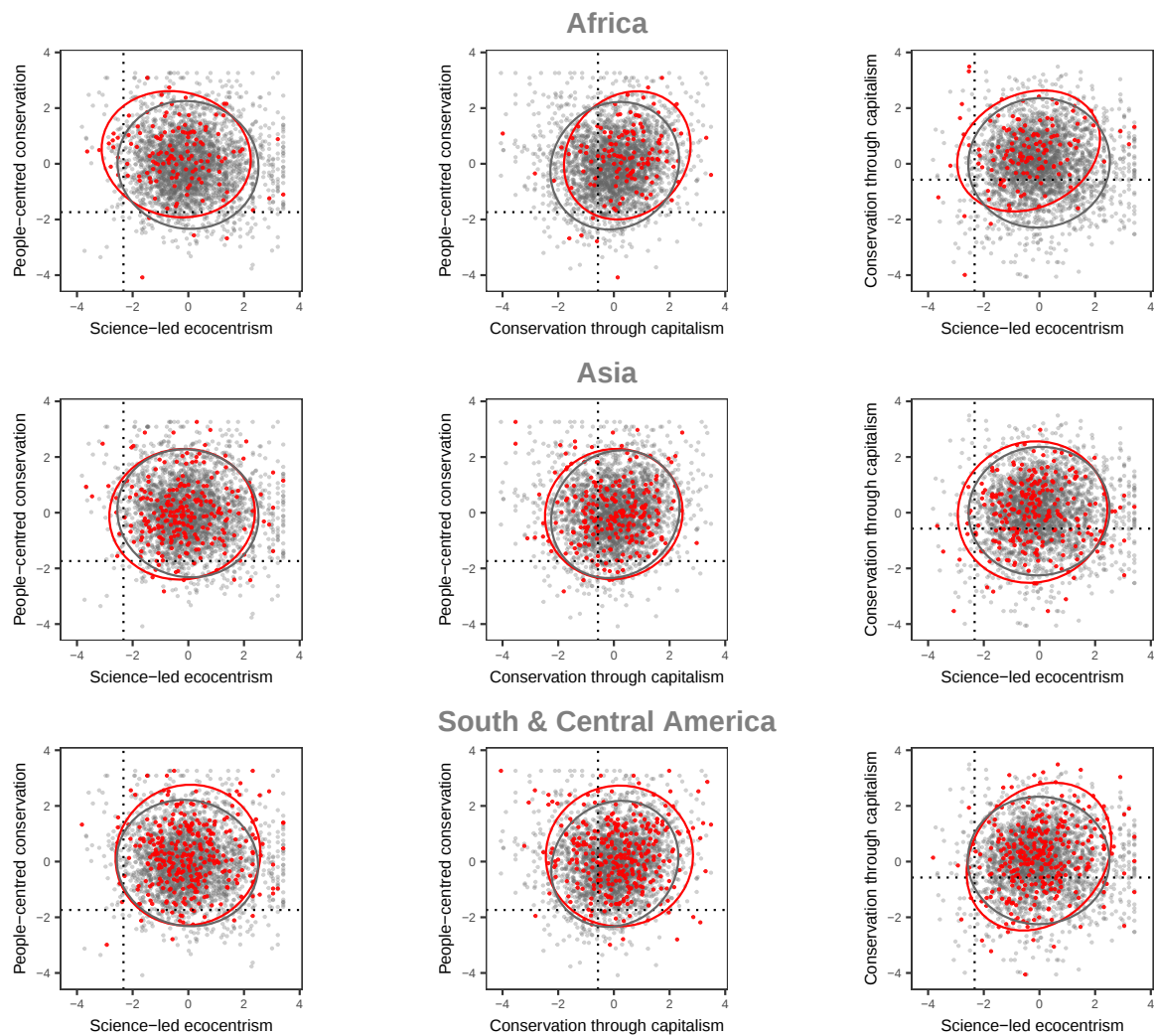
Supplementary Figure 6C | Conservationists' views separated by age. Relationships between each pair of dimensions identified in a multidimensional graded response model. Axes display factor scores. In each sub-panel the points and confidence ellipse for the focal group indicated in the title are plotted in red while those for the other, non-focal group(s) are plotted in grey. Dotted lines represent the score for each dimension that would be generated if 'neutral' was selected for every survey item (further details in Methods).



Supplementary Figure 6D | Conservationists' views separated by level of professional seniority. Relationships between each pair of dimensions identified in a multidimensional graded response model. Axes display factor scores. In each sub-panel the points and confidence ellipse for the focal group indicated in the title are plotted in red while those for the other, non-focal group(s) are plotted in grey. Dotted lines represent the score for each dimension that would be generated if 'neutral' was selected for every survey item (further details in Methods).



Supplementary Figure 6Ei | Conservationists' views separated by region of nationality. Relationships between each pair of dimensions identified in a multidimensional graded response model. Axes display factor scores. In each sub-panel the points and confidence ellipse for the focal group indicated in the title are plotted in red while those for the other, non-focal group(s) are plotted in grey. Dotted lines represent the score for each dimension that would be generated if 'neutral' was selected for every survey item (further details in Methods).



Supplementary Figure 6Eii | Conservationists' views separated by region of nationality. Relationships between each pair of dimensions identified in a multidimensional graded response model. Axes display factor scores. In each sub-panel the points and confidence ellipse for the focal group indicated in the title are plotted in red while those for the other, non-focal group(s) are plotted in grey. Dotted lines represent the score for each dimension that would be generated if 'neutral' was selected for every survey item (further details in Methods).