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## Supplementary Material

### The influence of basic beliefs and object-specific attitudes on behavioural intentions towards a rare and little-known amphibian

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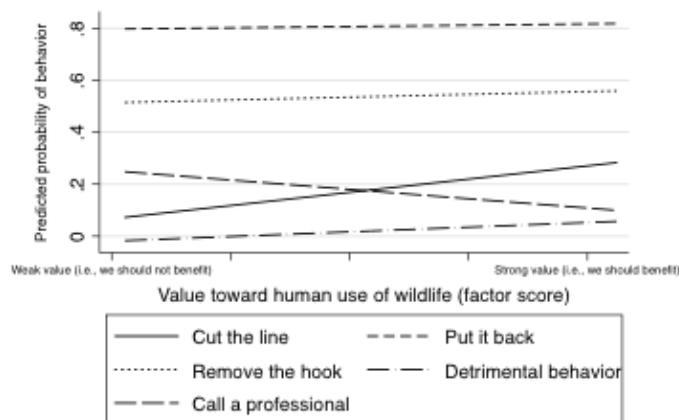
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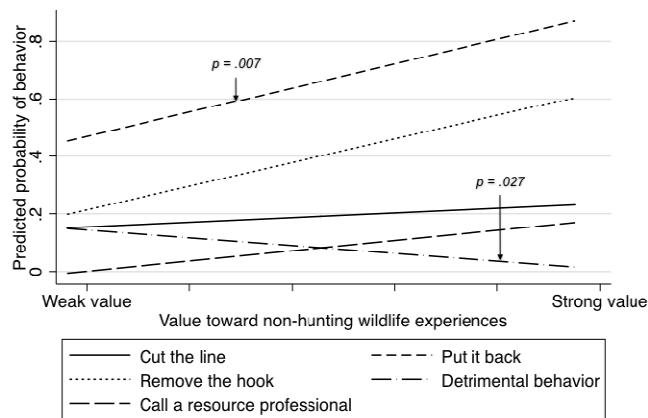
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### Figure S1. Predicted probabilities of behavioral intentions in response to catching a Hellbender relative to wildlife value orientations

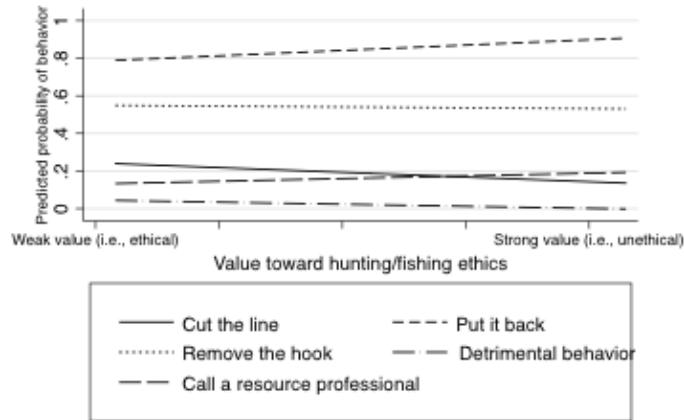
All predicted probabilities are estimated at the means of all other covariates in the final model (i.e., all other independent variables are being held constant)



Panel A. Behavioral intentions relative to the strength of values toward human use of wildlife



*Panel B. Behavioral intentions relative to the strength of values toward non-hunting wildlife experiences*



*Panel C. Behavioral intentions relative to the strength of values toward hunting/fishing ethics*

**Table S1. Results from mixed-effects logistic regression panel model without attitudinal response measure**

| Behavior and covariate                   | Coef.          | SE   | z     | 95% CI |       |
|--|----------------|------|-------|--------|-------|
|  |                |      |       | LB     | UB    |
| <b>Cut the Line</b>                      |                |      |       |        |       |
| Management of Wildlife (M–D)             | 0.19           | 0.14 | 1.36  | 0.19   | 0.14  |
| Non-hunting Wildlife Experiences (D–M)   | 0.03           | 0.12 | 0.26  | 0.03   | 0.12  |
| Ethics of Hunting or Fishing (D–M)       | 0.06           | 0.13 | 0.47  | 0.06   | 0.13  |
| Heard of Hellbender Before               | -0.02          | 0.21 | -0.09 | -0.02  | 0.21  |
| Angler                                   | 0.42           | 0.22 | 1.91  | 0.42   | 0.22  |
| <b>Remove the Hook</b>                   |                |      |       |        |       |
| Management of Wildlife (M–D)             | -0.03          | 0.11 | -0.30 | -0.26  | 0.19  |
| Non-hunting Wildlife Experiences (D–M)   | 0.14           | 0.10 | 1.39  | -0.06  | 0.33  |
| Ethics of Hunting or Fishing (D–M)       | 0.07           | 0.10 | 0.71  | -0.13  | 0.28  |
| Heard of Hellbender Before               | 0.83***        | 0.18 | 4.71  | 0.48   | 1.17  |
| Angler                                   | 0.67***        | 0.18 | 3.78  | 0.32   | 1.02  |
| <b>Put it Back</b>                       |                |      |       |        |       |
| Management of Wildlife (M–D)             | 0.13           | 0.13 | 0.94  | -0.14  | 0.39  |
| Non-hunting Wildlife Experiences (D–M)   | 0.28**         | 0.10 | 2.74  | 0.08   | 0.49  |
| Ethics of Hunting or Fishing (D–M)       | 0.33**         | 0.13 | 2.56  | 0.08   | 0.59  |
| Heard of Hellbender Before               | 0.58**         | 0.20 | 2.86  | 0.18   | 0.98  |
| Angler                                   | 0.26           | 0.21 | 1.28  | -0.14  | 0.67  |
| <b>Call a Resource Professional</b>      |                |      |       |        |       |
| Management of Wildlife (M–D)             | -0.18          | 0.15 | -1.14 | -0.48  | 0.13  |
| Non-hunting Wildlife Experiences (D–M)   | 0.37*          | 0.18 | 2.07  | 0.02   | 0.72  |
| Ethics of Hunting or Fishing (D–M)       | 0.25           | 0.14 | 1.74  | -0.03  | 0.52  |
| Heard of Hellbender Before               | 0.29           | 0.27 | 1.08  | -0.23  | 0.81  |
| Angler                                   | 0.38           | 0.27 | 1.41  | -0.15  | 0.92  |
| <b>Detrimental Behavior</b>              |                |      |       |        |       |
| Management of Wildlife (M–D)             | 0.62           | 0.34 | 1.83  | -0.04  | 1.28  |
| Non-hunting Wildlife Experiences (D–M)   | -0.27          | 0.19 | -1.42 | -0.65  | 0.10  |
| Ethics of Hunting or Fishing (D–M)       | -0.17          | 0.31 | -0.55 | -0.79  | 0.44  |
| Heard of Hellbender Before               | -0.58          | 0.44 | -1.31 | -1.44  | 0.29  |
| Angler                                   | -0.37          | 0.45 | -0.83 | -1.25  | 0.50  |
| <b>Socio-demographic Characteristics</b> |                |      |       |        |       |
| Gender                                   | 0.21           | 0.11 | 1.88  | -0.01  | 0.42  |
| Age                                      | -0.01**        | 0.00 | -3.00 | -0.02  | 0.00  |
| Education                                | 0.05*          | 0.03 | 2.02  | 0.00   | 0.11  |
| <b>Panel variables</b>                   |                |      |       |        |       |
| Cut the line                             | 0.79*          | 0.34 | 2.34  | 0.13   | 1.46  |
| Remove the hook                          | 1.58***        | 0.32 | 4.98  | 0.96   | 2.20  |
| Put it back                              | 3.25***        | 0.32 | 10.09 | 2.62   | 3.88  |
| Detrimental behaviors                    | -0.49          | 0.47 | -1.05 | -1.40  | 0.42  |
| Call a professional                      | 0.00 (omitted) |      |       |        |       |
| Constant                                 | -2.16***       | 0.36 | -5.95 | -2.87  | -1.45 |

| Random effects parameters | Estimate | SE   |
|---------------------------|----------|------|
| Sample                    | 1.42e-06 | 0.08 |

*Note.* Model log-likelihood = -1395.18, AIC = 2858.36, BIC = 3065.03

(M–D) indicates an orientation continuum from *mutualism* to *domination*

(D–M) indicates an orientation continuum from *domination* to *mutualism*

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\*\*\*  $p \leq 0.001$ ; \*\*  $p \leq 0.01$ ; \*  $p \leq 0.05$

## Appendix S1. Analysis of Scale Reliability and Validity

### Basic Wildlife Beliefs Scale

#### *Method*

We checked reliability through Cronbach's alpha ( $\alpha$ ) and reliability coefficients ( $mc^2$ ). A basic wildlife belief dimension (i.e., the latent factor) was deemed reliable if Cronbach's  $\alpha$  value, a common measure of internal consistency among sets of measurement items, was above .70 (Nunnally and Bernstein, 1994). For individual statement items, reliability was checked through reliability coefficients ( $mc^2$ ), which are the square of a statement item's multiple correlation measure (Clark and Watson, 1995). Reliability coefficients gauge the proportion of an item's variance explained through its intended latent factor; the higher the coefficient, the more reliable the statement item (Kline, 2011).

We checked convergent validity through factor loading values ( $\lambda$ ) and overall statistics of model fit. An item was deemed to be a valid measure if it loaded well ( $\lambda > 0.60$ ) on its intended latent basic wildlife belief dimension (Hair et al., 2010). Regarding model fit, the correlation-covariance structure of the data was compared against the hypothesized model using the following fit statistics: relative  $\chi^2$  ( $\chi^2/df$ ), root mean square error of approximation (RMSEA), comparative fit indices (CFI), and Tucker Lewis Indices (TLI). For the relative  $\chi^2$  measure, a value of 3.0 or less was considered acceptable (Carmines and McIver, 1981). RMSEA values between 0.06 and 0.08 are acceptable, so long as the upper bound of the RMSEA's confidence interval is below 0.10 (Hu and Bentler, 1999). Also, CFI and TLI measures above 0.90 were considered to support an appropriate fit of the data to the hypothesized model (Hu and Bentler, 1999).

Finally, we checked for discriminant validity through analysis of factor correlations. We deemed the measurement scale could sufficiently discriminate basic wildlife belief dimensions if the correlations between their constructed latent factors were low ( $|r| < 0.80$ ) (John and Benet-Martinez, 2000).

### *Results*

To verify construct validity, we first looked at reliability. For data from both samples, the internal consistencies (Cronbach's  $\alpha$  values) of the latent belief dimensions were all acceptable ( $> 0.70$ ) as were the reliability coefficients ( $mc^2$ ). Though the Cronbach's  $\alpha$  value for the "Management of Wildlife" belief within the Missouri sample was 0.68, we deemed this close enough to the 0.70 criterion to be acceptable. Also, the proportion of each latent factor's variance explained by its set of measurement items was high ( $\geq 0.68$ ). Given the consistency of values across the two datasets, we deemed the measurement items to be reliable.

In addition to reliability, we also looked at convergent validity. Initial checking of the basic wildlife belief scale's construct validity resulted in eliminating 3 of the scale's 14 measurement statements because they loaded poorly ( $\lambda < .60$ ) on their intended latent factor across the data from both samples (see Table 1). Once these three statements were removed, we checked the fit of the data's correlation-covariance matrix to the matrix implied by our hypothesized three-factor first-order model. The resulting fit statistics are shown in Panel B of Tables 1 and 2. For both the Missouri and Indiana samples, the fit statistics indicate adequate model fit as the relative  $\chi^2$  ( $\chi^2/df$ ), RMSEA, CFI, and TLI measures all meeting appropriate thresholds. Collectively, the factor loadings and the fit statistics across both sets of data, support the convergent validity of the scale.

Finally, we examined discriminant validity. For data from the Missouri survey, the latent wildlife belief dimensions were not highly correlated ( $|r| < 0.41$ ). The same was true for data from the Indiana sample ( $|r| < 0.46$ ). The scale's measurement items produce distinct latent constructs.

## **Attitudinal Scale**

### *Method*

We confirmed the construct validity of the single-factor attitude scale through assessments of reliability (Cronbach's  $\alpha$  and reliability coefficients,  $mc^2$ ) and convergent validity (factor loadings,  $\lambda$ ) (Kline, 2011). Again, we analyzed each sample independently. For the reliability measures, we utilized the same criteria as we did for the value orientations scale. For the convergent validity measures, we follow Raubenheimer (2004), who suggests using 0.40 as a critical value when measurement items are not well established or the research is exploratory.

### *Results*

Descriptive statistics for the hellbender attitudinal response scale are shown in Table 2. Attitudes were more positive (reflected by lower mean scores for scale items) in Missouri than in Indiana. The scale was found to be highly reliable, with Cronbach's  $\alpha$  at 0.90 for both samples. Regarding convergent validity, two of the antonym pairs, *hardy to fragile* and *dry to slimy*, did not load strongly ( $< 0.40$ ) on the single attitude factor. Consequently, we removed these two pairs from the final attitude scale.

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