PERSPECTIVE ARTICLE

Proposing a Community-Based Wildlife Conservation Well-Being Instrument

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Abstract

In this perspective article, we propose a well-being survey instrument based on Bhutan's Gross National Happiness (GNH) framework for use in community-based wildlife conservation projects. Allgood, Hofberg, Musikanski, Michelini and Moser (2019) found that while there is a need, there is not a well-being survey instrument that includes indicators to measure the impacts on community and wildlife for communality-based wildlife conservation projects. The instrument proposed in this paper is designed to meet the unmet need. It is developed based existing instruments as well as indicators adapted by the authors based on the authors' experience. The proposal concludes with recommendations for use of the instrument.

Keywords Well-being · Community-based wildlife conservation · Community engagement · Indicators

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Introduction

This article is in response to a recommendation by Allgood et al. (2019) for a well-being instrument to analyze and guide community-based wildlife conservation programs based on Bhutan's Gross National Happiness (GNH) framework. They assessed nine successful community-based wildlife conservation projects, finding similarity between the projects in that all considered a variety of well-being factors within the GNH framework. They recommended the formation of a well-being instrument encompassing the domains of the GNH framework for use by project managers of community-based wildlife conservation projects. They also found that a well-being instrument that measures community well-being in the context of wild-life conservation projects with the purpose of contributing to community well-being and wildlife conservation does not exist and that there is a need. This proposal is for an instrument designed to fulfill the need.

For the purposes of this proposal, we draw from Phillips and Wong (2017) to define well-being as "embedded with multidimensional values including the economic, social, and environmental aspects" (p. xxix). Aspects of well-being included are drawn from the Organization for Economic Cooperation's (OECD) *Better Life Index* (OECD 2011), Bhutan's Gross National Happiness Index (Ura et al. 2012), the United Kingdom Office of National Statistics' National Measures of Well-being (UK ONS) (United Kingdom Office of National Statistics National Measures of Well-being 2019) and the Happiness Alliance's Happiness Index (H HI) (Musikanski et al. 2017a). These aspects of well-being, also called domains, include satisfaction with life, affect, psychological well-being, community, culture, education, environment, government, economy, time balance and work. We define community well-being as "place that is connected and moving forward with ideas and actions that enable it to be attractive, supportive, and enabling" (Musikanski et al. 2019, p. 47).

The wildlife conservation field has evolved to incorporate community well-being into projects (Allgood et al. 2019; Dressler et al. 2010). However, improving community well-being while simultaneously furthering wildlife conservation goals has proven to be difficult (Dressler et al. 2010; Buach et al. 2014; Delgado-Serrano 2017). We propose that an instrument for gathering well-being data within the context of community-based wildlife conservation projects may aid in the successful achievement of the twin goals of improving community well-being and conserving wildlife. Furthermore, it may aid in testing the suggestion by Allgood et al. (2019) that consideration of well-being factors in wildlife conservation projects contributes to their effectiveness and sustainability.

While our primary purpose for producing a well-being instrument is to respond to Allgood et al.'s recommendation, a secondary purpose is to contribute towards what Randers et al. (2018) termed "transformational change" (p. 31). They describe this as a shift in values from economic growth to well-being, where ecological factors as well as community well-being matter as much as money (Randers et al. 2018). Compton and Kasser (2009) found a causal relationship between metrics and values. We propose that using well-being instruments to guide and measure the success of community-based conservation projects will contribute to a shift from values seated in economic factors to those based on well-being factors. This is similar to the shift that can be observed from livelihoods as merely economic

opportunities to an expanded scope in the sustainable livelihoods framework (Chambers and Conway 1991). Another example is that found in the development and conservation sphere to incorporate a wider range of community interests beyond a predominately economic focus (Knutsson 2006).

Diaz et al. (2019) state that, "Many of nature's contributions to people are essential for human health and their decline thus threatens a good quality of life" (p. 11). They also found that biodiversity is declining faster now than in any other time in human history with nearly one million species predicted to be extinct. Additionally, they pinpointed the use of economic metrics and the goal of economic growth as contributing to the decimation of wildlife and natural ecosystems (Diaz et al. 2019). Randers et al. (2018) suggest that with a continued emphasis on economic metrics and growth, all species will be decimated, including humans. They state, "the outlook from 2050 into the second half of century (is) look(ing) bleak for the majority of people" (Randers et al. 2018, p. 25).

Economists, psychologists, policy makers and others are also calling for the use of well-being metrics in addition to or in lieu of economic metrics due to the multiple deleterious impacts on humans and nature from prioritizing economic growth (Diener et al. 2009; Diener et al. 2015; Diener and Seligman 2004; Helliwell et al. 2012; Layard 2005; Stiglitz et al. 2009; Musikanski et al. 2019; de Graaf and Batker 2011). This is not a new concern. Almost a century ago, Kuznets (1934) who formulated the instrument most commonly used to measure economic growth (gross domestic product, commonly referred to as GDP), stated "the welfare of a nation can scarcely be inferred from a measurement of national income" (p. 7). Over three decades ago, the World Commission on Environment and Development (the Brundtland Commission), warned that "we must be ever mindful of the risk of endangering the survival of life on Earth" (World Commission on Environment and Development (Brundtland Commission) 1987, p. 35). Thus, a tertiary purpose of ours in formulating the community-based wildlife conservation well-being instrument is to empower those concerned with wildlife conservation to - as stated by a popular phrase - *be the change they wish to see*. By providing data and evidence to empower the shift to well-being based economies, societies and communities, the instrument can serve as a tool for guiding analysis and subsequent action.

The proposed community-based wildlife conservation well-being instrument is, to the authors' knowledge, the first instrument designed to measure well-being in a community-based wildlife conservation context.

Methodology

There are a number of well-being instruments in use by nations, states, communities, and other entities (Durand 2018; Lee et al. 2015; Musikanski et al. 2017a; Phillips and Wong 2017; Sirgy, Phillips, & Rahtz, 2009; Sung and Phillips 2018; Ura et al. 2012; Santipolvut 2015; Barrington-Leigh and Escande 2016). However, to date, there is no agreement between nations, states or communities about which indicators or domains to include in a well-being instrument (Organization for Economic Cooperation and Development, 2019, 1:59:35–2:00:27). Moreover, in spite of the proliferation of calls for livelihoods impacts in conservation, there is no established well-being instrument developed for application in community-based wildlife conservation projects.

The community-based wildlife conservation well-being instrument is designed to provide common metrics as well as a method to tailor the instrument to unique community characteristics. It is based on pre-existing well-being measurement instruments and grounded in an assumption of content validity for the well-being instruments used, meaning each instrument "measures what it says it measures" (National Business Research Institute, n.d., p. 2). Another assumption we made is that sustainable development is an aspect of community well-being; therefore, sustainable development is included in this well-being instrument.

Domain Selection

The domains for the community-based conservation well-being instrument are derived from eight well-being instruments and two articles. These were selected based on the following criteria:

1. There is measurement of well-being, defining well-being broadly to encompass multiple domains.
2. Data are actively being gathered or reported about organizations that actively gather data.
3. The methodology or similar information about the instruments is publicly available.

Four international level instruments were used, three national level instruments, and one instrument provided by a nonprofit organization. In addition, two articles were used, one with analysis arriving at a compilation of domains for well-being instruments used at a local level in the United Kingdom and the other with analysis of developing nations efforts towards conservation. The well-being instruments and articles from which we derived the domains for the community-based conservation well-being instrument are listed as follows, along with the abbreviations used for each source in Table 1 and subsequent discussion.

- United Nations' Sustainable Development Goal indicators (UN SDG) (United Nations 2018),
- Organization of Economic Cooperation and Development's (OECD) Better Life Index (OECD, n.d.),
- Eurostat 8 + 1 Quality of Life (EU QoL) (Eurostat n.d.b.),
- Gallup World Poll (GWP) (Gallup World Poll 2008),
- Government of Bhutan's Gross National Happiness Index (B GNH) (Ura et al. 2012),
- Thailand Green and Happiness Society Index (T GHS) (Santipolvut 2015),
- United Kingdom Office of National Statistics' National Measures of Well-being (UK ONS) (United Kingdom Office of National Statistics National Measures of Well-being 2019),
- Happiness Alliance's Happiness Index (H HI) (Musikanski et al. 2017b),
- *Systematic Scoping Review of Indicators of Community Wellbeing in the UK* (UK CWB) (Bagnell et al. 2017), and

- *What are the Effects of Nature Conservation on Human Well-being? A Systematic Map of Empirical Evidence from Developing Countries* (NC HWB) (McKinnon et al. 2016).

Themes within the instruments and articles were categorized with sub-themes or aspects. The nomenclature for themes varies between instruments, therefore we categorized based on similarity of nomenclature and the indicators within that theme. For example, *community*, *community vitality*, *sense of belonging*, and *community empowerment* are all categorized as *community*. Some themes have more than one aspect, for example, *economy* has the most, with six aspects. In some cases, themes were consolidated as with *education and culture*. Table 1 displays the categorization of themes and aspects within each of the instruments and articles. Common themes are named in the first column of Table 1. The common themes are included in the proposed instrument. The common themes are depicted in Table 1 in the first column as: (1) satisfaction with life and affect, (2) psychological well-being, (3) community and social support (4) education and culture, (5) environment, (6) government, (7) health, (8) economy, and (9) work and time use.

Indicator Selection

The next step was to develop a set of indicators for each domain that can be used at both aggregate and individual levels. Instruments for this step were selected based on the criteria for the domain selection (see prior section) as well as an additional criterion that data are available freely or at a cost that is not onerous. Five instruments fit all the criteria. They are:

- United Nations' Sustainable Development Goal indicators – UN SDG (United Nations 2018),
- OECD's Better Life Index – OECD BLI (OECD Better Life Index, n.d.),
- Government of Bhutan's Gross National Happiness Index – B GNH (Ura et al. 2012),
- United Kingdom Office of National Statistics' National Measures of Well-being – UK NMWB (UK ONS, 2019), and
- Happiness Alliance's Happiness Index – H HI (Musikanski et al. 2017a).

Indicators were organized by aspects within each domain. If an instrument had more than one indicator for an aspect, it counted as one indicator. For example, Bhutan's GNH Index contains 13 questions about indigenous knowledge literacy and 23 questions about volunteering, which counted as one question for indigenous knowledge literacy and one question for volunteering. Only indicators from the UN SDGs that could be used by local communities were included, ruling out any UN SDG indicators that measured national or international level activity.

A total of 633 indicators were analyzed. For the domain of satisfaction with life (and affect), 32 indicators were analyzed. In the domain of work (and time use), 34 indicators were analyzed. For psychological well-being and government, 40 and 47 indicators were analyzed, respectively. In the domains of health, education and culture,

Table 1 Categories of well-being themes

Aspects of themes	UN SDG	OECD BLI	EU QoL	GWP	B GNH
Common theme: SATISFACTION WITH LIFE AND AFFECT					
Satisfaction with life		Satisfaction with life	Overall experience of life		
Affect					
Common theme: PSYCHOLOGICAL WELL-BEING					
Psychological Well-being				Well-being	Psychological Well-being
Spirituality					Spirituality
Common theme: COMMUNITY					
Community		Community			Community Vitality
Relationships			Social Interactions		
Safety		Safety			
Social Support					Social Support
Common theme: EDUCATION AND CULTURE					
Culture				Religion and Ethics	Cultural Diversity & Resilience
Diversity	Goal 5: Gender Equality			Social Issues	
Education	Goal 4: Quality Education	Education	Education	Education and Families	Education
Common theme: ENVIRONMENT					
Environment		Environment	Natural and living environment	Environment	Ecological Diversity and Resilience
Climate Change	Goal 13: Climate Action				
Water	Goal 6: Clean Water and Sanitation				
Biodiversity	Goal 15: Life on Land & Goal 14: Life Below Water				
Energy	Goal 7: Affordable and Clean Energy			Environment and Energy	
Common theme: GOVERNMENT					
Governance	Goal 17: Partnerships to achieve the Goal		Governance and basic rights	Government and Politics	Good Governance
Civic	Engagement		Civic Engagement		Civic Engagement
Institutions	Goal 16: Peace and Justice Strong Institutions			Law and Order	
Common theme: HEALTH					

Table 1 (continued)

Aspects of themes	UN SDG	OECD BLI	EU QoL	GWP	B GNH
Health	Goal 3: Good Health and Well-being	Health	Health	Health	Health
Common theme: ECONOMY					
Income	Goal 10: Reduced Inequality	Income	Economic and physical safety		
Living Standard	Goal 1: No Poverty				Living Standards
Hunger	Goal 2: Zero Hunger				
Housing	Goal 11: Sustainable Cities and Communities		Material living conditions	Transportation (called "Other" by Gallup)	
Jobs		Jobs		Business and Economics	
Production	Goal 12: Responsible Consumption and Production & Goal 9: Industry, Innovation and Infrastructure			Communications and Technology	
Common theme: WORK					
Work	Goal 8: Decent Work and Economic Growth	Work Life Balance	Productive or main activity	Work	
Time Use			Leisure		Time Use and Balance

Aspects of themes	T GHS	UK NMWB	UK WB	NC CWB	H HI
Common theme: SATISFACTION WITH LIFE AND AFFECT					
Satisfaction with life		Satisfaction with life		Subjective well-being	Satisfaction with Life
Affect		Affect			
Common theme: PSYCHOLOGICAL WELL-BEING					
Psychological Well-being		Flourishing/ Eudaimonia	Resilience and Empowerment		Psychological Well-Being
Spirituality				Culture and Spirituality	
Common theme: COMMUNITY					
Community	Community	Empowerment		Engagement & Sense of belonging and cohesion	
Community					
Relationships	Warm and Loving Family	Community - relationships	Relationships	Social Relations	
Safety		Community - safety	Safety & Trust	Security and safety	

Table 1 (continued)

Aspects of themes	T GHS	UK NMWB	UK WB	NC CWB	H HI
Social Support		Community - social support	Services & Social Capital		Social Support
Common theme: EDUCATION AND CULTURE					
Culture			Culture	Culture and spirituality	Lifelong Learning, Arts & Culture
Diversity			Inclusion and Integration		
Education		Education and Lifelong Learning	Education	Education	Lifelong Learning, Arts & Culture
Common theme: ENVIRONMENT					
Environment	Surroundings and Ecological Systems	Environment	Environment		Environment
Climate Change		Environment - Climate Change			
Water					
Biodiversity		Environment - Biodiversity			
Energy		Environment - Energy			
Common theme: GOVERNMENT					
Governance	Democratic Society with Good Governance	Governance	Governance	Governance (and empowerment)	Government
Civic Engagement			Citizenship & Participation		
Institutions			Justice, Fairness and Equality,	Freedom of choice and action	
Common theme: HEALTH					
Health	Health	Health	Health and Well-being	Health	Health
Common theme: ECONOMY					
Income	Economic Strength and Equity	Economy / Income / Equity and Equality	Economy		
Living Standard				Economic living standards (income, etc)	Standard of Living / Economy
Hunger					
Housing		Cities and Areas: -Housing - Transportation	Housing / Infra-structures & Transports	Material living standards (housing, transport, food etc),	

Table 1 (continued)

Aspects of themes	T GHS	UK NMWB	UK WB	NC CWB	H HI
Jobs			Opportunities and Resources		
Production		Consumption and Production			
Common theme: WORK					
Work		Work	Work		Work
Time Use		Work-time balance	Leisure		Time Balance

Source: Authors compilation based on United Nations Sustainable Development Goal indicators (United Nations 2018); OECD Better Life Index (OECD BLI, n.d.); Eurostat 8 + 1 Quality of Life (EU QoL, n.d.b); Gallup World Poll (GWP 2008); Government of Bhutan's Gross National Happiness Index (Ura et al. 2012); Thailand Green and Happiness Society Index (Santipolvut 2015); United Kingdom Office of National Statistics National Measures of Well-being (UKONS, 2019); Happiness Alliance Happiness Index (Musikanski et al. 2017b); Scoping Review of Community Well-being in United Kingdom (Bagnell et al. 2017); Systematic Map of Nature Conservation on Human Well-being (McKinnon et al. 2016)

and community; 58, 74 and 112 indicators were analyzed respectively. In each of the domains of economy and environment, 118 indicators were analyzed. Indicators were selected when they appeared twice or more within an aspect. Predominantly subjective indicators were selected, as research has evidenced that subjective indicators can be used reliably to measure well-being (OECD 2013; Frey and Luechinger 2007; Diener and Pavot 1993).

For constructing the community-based wildlife conservation well-being index, indicators used were first drawn from H HI. When a subjective indicator was not in the H HI, the indicator that best met the *OECD Guidelines for Measuring Subjective Well-being* was selected or an indicator was developed following these guidelines. We added three subjective indicators: in the domain of government, indicators for voting behaviors and sense of freedom were added; and in the domain of the environment, an indicator for satisfaction with access to water was added. These indicators were formulated based on the *OECD Guidelines for Measuring Subjective Well-being.* Tables 2 illustrates where two or more instances of indicators occurred.

The wording for the indicators was generated based on the working of the indicators in the H HI or when the H HI did not have an indicator, from other instruments. In some cases, by the authors' judgment, indicators are not relevant to community-based wildlife conservation context. In these cases, the indicators were adapted according to the authors' judgment. Drawing from Table 2 the following indicators were generated:

Satisfaction with Life and Affect Indicators

- Overall, how satisfied are you with your life nowadays?
- Overall, to what extent do you feel the things you do in your life are worthwhile?
- Overall, how happy did you feel yesterday?
- Overall, how anxious did you feel yesterday?

Psychological Well-Being Domain Indicators

- I lead a purposeful and meaningful life
- I am engaged and interested in my daily activities.
- I am optimistic about my future.
- Most days I feel a sense of accomplishment from what I do.
- In general, I feel very positive about myself.
- How spiritual do you consider yourself to be?

Community Domain Indicators

- How would you describe your feeling of belonging to your local community?
- Do you trust your neighbors?
- Have you been a victim of a crime in the last 12 months? (Adapted from have you been a victim of the following crimes in the last 12 months)
- How satisfied are you with your personal safety in your city or town?
- In the past 12 months, how frequently have you helped others in your community by giving your time and labor, such as by helping a friend or neighbor with child or elder care, helping with repairs or otherwise giving your time to aid others? (Adapted from how frequently have you volunteered your time to an organization?)
- In the past 12 months, how frequently have you given money, food, clothing or other items you possess to a friend, a neighbor or organization in your community? (Adapted from how frequently have you donated money to a charity?)
- How satisfied are you with your personal relationships?
- How satisfied are you with the support you get from your friends?
- To what extent do you agree: People in my life care about me.
- To what extent do you agree: I have relatives or friends to count on in times of need.
- Overall, do you feel lonely?

Education and Culture Domain Indicators

- Are you satisfied with your access to sports and recreational activities?
- Are you satisfied with your access to artistic and cultural activities?
- How satisfied are you with your access to formal education?
- Are you satisfied with your access to informal education (including skill development for work and non-work activities)? (Slightly modified to define informal education, per authors' judgement).
- Do you feel uncomfortable or out of place in your neighborhood because of your ethnicity, culture, race, skin color, language, accent, gender, sexual orientation, or religion?
- What is the highest level of education that you have completed? (This question appears in demographics).

Environment Domain Indicators

- How satisfied are you with the opportunities that you have to enjoy nature?
- How satisfied are you with the efforts being made to preserve the natural environment in your community/neighborhood?
- Have you or a close family member suffered loss to property, health due to a natural disaster such as a flood, landslide, etc., in the last 12 months?
- How satisfied are you with the air quality in your environment?
- How satisfied are you with the water quality in your environment?
- How satisfied are you with access to water?
- How satisfied are you with the management of waste (garbage, litter, etc.) in your community?

Government Domain Indicators

- State your level of agreement with the following statement: Corruption is widespread throughout the government in my city or town.
- State your level of agreement with the following statement: The public officials in my city/town/village pay attention to what people think
- Do you feel confident in your national government?
- Do you feel confident in your local government?
- When elections take place, do you vote? (Added from the World Values Survey 2010–2014).
- How satisfied are you with your freedom to choose what you do with your life? (Added by adapted from freedom to choose question used in World Happiness Reports [Helliwell et al. 2019, p. 22]).

Health Domain Indicators

- Overall, how satisfied are you with your health?
- Overall, how satisfied are you with your access to health care?
- Overall, how healthy would you say you are?
- Please state your level of agreement with the following statement: Overall, I experience work-limiting disabilities or disabilities that limit my day-to-day activities.
- An objective indicator for this domain is healthy life expectancy. (This is the only domain with an objective indicator.)

Economy Domain Indicators

- In general, how satisfied are you with your personal finances?
- How frequently do you find yourself just getting by financially and living paycheck to paycheck?
- Overall, how satisfied are you with your housing?

Table 2 Instances of Indicators

Satisfaction with Life and Affect Domain Indicators

	Satisfaction with Life	Worthiness	Positive Affect	Negative Affect
B GNH	X		X	X
H HI	X	X	X	X
OECD BLI	X			
UK ONS	X	X	X	X
UN SDG				
Total instances	4	2	3	3

Psychological Well-being Domain Indicators

	Accomplish-ment	Engagement	Optimism	Positive about self	Purpose	Spiritual
B GNH	X	X	X	X	X	X
H HI	X	X	X	X	X	X
OECD BLI						
UK ONS						
UN SDG						
Total instances	2	2	2	2	2	2

Community Domain Indicators

	Belonging in Community	Experience of Crime	Sense of Safety	Volunteered	Donated	Trust in neighbors
B GNH	X		X	X	X	X
H HI	X	X		X	X	X
OECD BLI	X		X			
UK ONS			X			
UN SDG		X		X		
Total instances	3	2	3	3	2	2

Community indicators continued.

	Satisfaction with personal relationships	Feel lonely	Someone to turn to in times of need	Feel cared about
B GNH	X		X	X
H HI	X	X		X
OECD BLI	X		X	
UK ONS		X	X	
UN SDG				
Total instances	3	2	3	2

Education and Culture Domain Indicators

	Cultural Activities	Recreational Activities	Education	Informal Education	Discrimination
B GNH	X			X	X
H HI	X	X	X	X	X
OECD BLI			X		

Table 2 (continued)

UK ONS		X	X			
UN SDG				X	X	
Total instances	2	2	3	3	3	

Environment Domain Indicators

	Access to nature	Restoration	Natural disasters	Air quality	Water quality	Waste
B GNH			X	X	X	X
H HI	X	X		X		
OECD BLI				X	X	
UK ONS	X	X		X		X
UN SDG		X	X	X	X	
Total instances	2	3	2	5	3	2

Government Domain Indicators

	Confidence in government	Sense of corruption	Sense that decisions by officials are inclusive and responsive	Participation by voting
B GNH	X	X		X
H HI	X	X	X	
OECD BLI				X
UK ONS	X			X
UN SDG		X	X	
Total instances	3	3	2	3

Health Domain Indicators

	Satisfaction with Health	Self-assessed health status	Experience disability	Access to health care	Life expectancy
B GNH	X	X	X	X	
H HI	X	X			
OECD BLI		X			X
UK ONS	X		X		X
UN SDG				X	X
Total instances	3	3	2	2	3

Economy Domain Indicators

	Adequate Food	Adequate Housing	Living paycheck to paycheck/just getting by	Satisfaction with Finances	Income level
B GNH		X	X	X	X
H HI	X		X	X	X
OECD BLI		X			X

Table 2 (continued)

UK ONS		X	X	X	X
UN SDG	X				X
Total instances	2	3	3	3	5

Work and Time Balance Domain Indicators

	Employment	Satisfaction with work	Work Life Balance	Leisure time*
B GNH		X	X	
H HI		X	X	X
OECD BLI	X		X	X
UK ONS	X	X		X
UN SDG	X			
Total instances	3	3	3	3

*Measured by three questions

Source: Authors compilation based on United Nations Sustainable Development Goal indicators (United Nations 2018); OECD Better Life Index (OECD BLI, n.d.); Government of Bhutan's Gross National Happiness Index (Ura et al. 2012); United Kingdom Office of National Statistics National Measures of Well-being (UKONS 2019); Happiness Alliance Happiness Index (Musikanski et al. 2017a)

- How often do you eat less because there wasn't enough food for money for food or there was insufficient access to food in your area? (Adapted from How often do you eat less because there wasn't enough food for money for food?)
- What was your total household income from all sources last year (including wages, winnings, awards, profits, investments, etc.)? (This question appears in demographics. See Appendix A).

Work and Time Balance Domain Indicators

- Regarding employment, which of the following options best describes your current work life? (This question appears in demographics, see Appendix A).
- All things considered, how satisfied are you with your current work life?
- How satisfied are you with your work-life balance?
- In a typical week, how much of your time are you able to spend doing the kinds of things that you enjoy?
- Do you agree? I have had plenty of spare time
- Do you agree? My life has been too rushed

Wildlife and Community-Based Conservation Domain Assessment Indicators

Two sets of questions were devised to gather data to assess community member perceptions of wildlife on their well-being and to assess if these perceptions changed

over the course of a community-based wildlife conservation project. Responses to these sets of questions are analyzed separately from community well-being measures, although they may be interpreted in tandem. The OECD *Guidelines for Measuring Subjective Well-being* (2013) was consulted for the formation of the two sets of questions. The answer choices were based on the Cantril ladder 11-point scale, with 0 being extremely negative and 10 being extremely positive.

The questions can be customized by those seeking to use the instrument, based on assessment of particular circumstances. The two sets of questions were designed to gather data for the domains in general. The questions are:

Please indicate the effect wildlife has on your:

- Psychological well-being
- Physical health
- Leisure time
- Belonging to community
- Personal relationships
- Access to arts and culture
- Sense of environmental quality
- Financial situation
- Work
- Sense of good governance
- Sense that your area is a good place to live

The second set of questions is focused on community.

Please indicate the effect wildlife has on the:

- Psychological well-being of people in my community
- Physical health of people in my area
- Leisure time for people in my community
- Community belonging for people in my community
- Strength of personal relationships for people in my community
- Access to learning and education for people in my community
- Arts and culture for people in my community
- Environmental quality of my community
- Local economy of my community
- Employment levels in my community
- Overall quality of my local government
- Overall quality of my community

Because these questions are analyzed separately from the more general well-being questions, it may also be desirable for conservation project managers to assess these themes in a participatory fashion. Within a group, each of the questions in the community set could be asked of a community group, charting responses on a radar chart, with each of the questions forming an axis on the chart. While the survey style of assessment allows for more specific data collection and sharing of information between projects, the participatory style of data collection would allow for the community themselves to become engaged in the topic. This may offer more detail to project

managers enabling more critical thinking about their own well-being with regard to the wildlife in their midst. Both options may even be employed in projects with especially engaged and curious staff.

Limitations

The proposed instrument has not been put into use, and as such, data has not been gathered so that the instrument can be tested to ensure the indicators reflect the well-being of communities engaged in wildlife conservation efforts and are beneficial to the goal of wild-life conservation. While gathering data with the instrument, additional indicators and variations of the indicators should be developed, and the data for these indicators tested against the proposed indicators in the instrument.

Discussion and Recommendations

We suggest that gathering data prior, during, at the conclusion and at points beyond of a project could allow for insight into how engagement in a wildlife conservation project influenced community members' perceptions about the impact of wildlife on their well-being. Project managers could gather these data from community members to test the usefulness of this question.

Further, we suggest the primary goals for use of the community-based wildlife conservation well-being instrument are (1) to contribute to the effectiveness and sustainability of projects and (2) to enhance or even transform the relationship between communities and wildlife. The instrument can be provided to project managers and others interested in wildlife conservation in such a way that they can customize the instrument, deleting or adding questions as fits their circumstances. The instrument enables data gathering useful for particular projects as well as for comparing with other projects.

Another use for the community-based wildlife conservation well-being instrument is to gather data about attitudes and preferences on community wellbeing and wildlife. This will aid project managers' understanding of the cultural context of sites and help them uncover assumptions and biases. This information will help with (1) engaging communities and (2) empowering communities in the design, implementation and monitoring of projects. A set of questions to assess preferences and perspectives about wildlife and well-being has been provided for this purpose. Support and information may be needed for analyzing data for each indicator and domain as well as for comparisons. We also recommend that objective data be collected on a case-by case basis, as determined by the circumstances, the availability of data, and usefulness of the data for the purposes of the project. The general absence of objective indicators should not be taken to imply that they are not important and should be added as needed. An additional goal is to foster research into connections between community well-being and wildlife conservation. Data gathered with the instrument could be used to explore and foster better understanding of how community well-being is affected by wildlife conservation, and how wildlife conservation can and does benefit community well-being.

We highly recommend the use of community engagement processes for data gathering and interpretation of the community-based wildlife conservation well-being

instrument. Diaz et al. (2019) found that communities living with wildlife are critical partners in finding potential solutions to the biodiversity crisis. Participatory engagement would allow the community to engage in developing appropriate conservation strategies. It would also draw on enhancement of community assets (Phillips and Pittman 2015), indigenous wisdom (Trevan 2016) and the benefits of such methods as "radical listening" used in an Indonesian project, participatory community engagement in Malawi, and community-lead implementation in Mexico and in Tanzania (Allgood et al. 2019).

Conclusion

The community-based wildlife conservation well-being instrument fulfills the recommendation of Allgood et al. (2019) for a well-being instrument that also incorporates Bhutan's GNH Framework for use in community-based wildlife conservation projects. It is, to the authors' knowledge, the only well-being instrument for measuring well-being in a community-based wildlife conservation context. It is formulated to provide common metrics as well as a mechanism for tailoring the instrument to particular community and project circumstances. The instrument is based on frequency of indicators in existing well-being instruments to help ensure construct validity. It is composed of 55 subjective indicators and one objective indicator. The instrument is constructed with the intent that data collected for a site can be compared to data gathered from other sites as well as from general populations. We recommend use of the instrument to facilitate effectiveness and sustainability of wildlife conservation projects through community engagement in every phase. Use may aid in an effective and sustainable conservation of wildlife, positive contributions to community well-being and a transformation of social and economic systems where well-being for humans, communities, animals and the planet is the priority.

Compliance with Ethical Standards Statement   There are no conflicts of interests. No research involving human or animal participants was involved in the formation of this essay. All relevant ethical standards were observed.

Appendix 1

Demographic Questions

The following demographic questions are provided. Users will have the ability to change or adapt questions. For example, the question for what nation, region and city or town one lives in can be adapted to a neighborhood or area in a community. The questions are drawn from the Happiness Alliance's Happiness Index (Musikanski et al. 2017a).

Question: What is your current age?

Answers: <12 years old, 12–17 years old, 18–24 years old, 25–29 years old, 30–34 years old, 35–39 years old, 40–44 years old, 45–49 years old, 50–54 years old, 55–

59 years old, 60–64 years old, 65–69 years old, 70–74 years old, 75–79 years old, 80–84 years old, 85–89 years old, 90 years or older.

Question: Which gender do you identify as? Answers: Female, male, other.

Question: What race or ethnicity do you identify as? Answers: Black/African, East Asian, Hispanic, Middle Eastern, South Asian, White/European/Caucasian, two or more, other, prefer not to say.

Question: What is your current marital status? Answers: Married, domestic partnership, never married and/or never in a domestic partnership, separated, divorced, widowed, other.

Question: How many people currently reside in your household, including you? Answers: 1, 2, 3, 4, 5, 6, 7, 8, 9 or more.

Question: Do you have any children under 18? Answers: Yes, no.

Question: What country do you live in? Answer: (Dropdown of nations).

Question: What region or state do you live in? Answer: (Dropdown of regions or states).

Question: What city or town do you live in? Answer: (Dropdown of cities or towns).

Question: What is the highest level of education that you have completed? Answers: Less than Grade 9 (no high school), More than Grade 9 but less than Grade 12 (started high school but did not graduate), high school graduate or equivalent, Trade, technical or vocational training, associate's degree (AA, AS, etc.), bachelor's degree (BA, AB, BS, etc.), Graduate university degree (MA, MS, MBA, etc.), professional degree (MD, DDS, DVM, LLB, JD, etc.), doctoral degree (PhD, EdD, etc.), other. Question:

What was your total household income from all sources last year? Answers: <$10,000, $10,000–$19,999, $20,000–$29,999, $30,000–$39,999, $40,000–$49,999, $50,000–$59,999, $60,000–$69,999, $70,000–$79,999, $80,000–$89,999, $90,000–$99,999, $100,000– $109,999, $110,000–$119,999, $120,000–$129,999, $130,000–$139,999, $140,000–$149,999, $150,000–$159,999, $160,000–$169,999, $170,000–$179,999, $180,000–$189,999, $190,000– $199,999, ≥$200,000.

Question: Regarding employment, which of the following options best describe your current work life? Answers: Full-time employee, part-time employee, working independently/self-employed, military, volunteer, homemaker, unemployed looking for work, unemployed not looking for work, retired, student or in training, unable to work, other.

Question: In one word, what makes you happy?

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