



## Advancing CBSG Conservation Planning Process Design to Incorporate Human Behavior Change

**AIM:** The aim is to explore the feasibility of expanding our practical vision for endangered species conservation planning, with an explicit focus on local human population abundance, growth rate, and ecological consequences of individual/community behavior and impacts to endangered species persistence.

**BACKGROUND:** In late 2011, CBSG Chair Onnie Byers challenged our Strategic Committee to identify the next “Big Idea” that could shape a segment of our future activities. Bob Lacy responded with an essay outlining the dire threat that continued human population growth poses to the planet’s biodiversity, and proposed that all CBSG risk assessment processes explicitly include consideration of this threat: “...I would suggest that every risk assessment we undertake should include deliberate and explicit analysis of the projections for changes in human population numbers and activities [emphasis added] in the area of concern.”

We have only rarely incorporated human demographic analysis into our risk assessment workshops. Even more conspicuously absent from our risk assessment work is a detailed treatment of the nature of human activities on the landscape and how those activities impact associated wildlife populations. Especially important from a risk assessment perspective is the need to understand how those threatening activities may change in the future as human populations continue to grow (hence the added emphasis in Lacy’s quote above). As pointed out by a growing number of conservation professionals, the real issue with human population is their mechanisms and rate of natural resource consumption, particularly as nations evolve along the socio-economic continuum. Therefore, successful planning for endangered species conservation requires identifying means by which human activities can be modified to maintain viable populations. For more than 20 years, CBSG’s Population and Habitat Viability Assessment (PHVA) workshops have featured recommendations that are developed in the spirit of moderating our negative impacts on species and habitats. But we have not systematically addressed the issue of increasing human population abundance and how to face the dynamic impacts of this threat.

**PROCESS:** The working group will begin by briefly evaluating the breadth and depth of existing conservation goals for those species-based projects facilitated by CBSG, perhaps with a specific workshop as a case study. We will then explore a more ambitious set of goals that consider local human populations and the impacts of their behavior on the species of concern. We will also discuss the practicality of facilitating a revised process that leads the participants to this level of goal-setting.

### Working Group Notes

Phil’s additional thoughts

- Different strands of thinking already in the literature
  - Accelerated human population growth and protected area edges
  - Conservation in the anthropocene (Peter Kareiva)
  - Global biodiversity conservation and the alleviation of poverty

Plan of 1999 of Bob Lacy and Phil Miller

- How do changes of habitat quality affect carrying capacity
- How does poaching affect survivorship and fecundity
- But then how to link into the human-generated threats and the dynamics of human population

A lot of data out there on population growth projections (global and regional) – World population prospects – the 2012 revision

Examples:

- threats to Sumatran rhino pop growth PVA 16-18 Feb 15: direct threats and drivers of those threats (e.g. poaching driven by demand for rhino horns)
- Colorado pikeminnow PVA: explicit links of human activities, their impact on the environment and their impact on target pop (impact of mercury – generated by coalfire power generation); % injury as a function of mercury accumulation; and have rate of change of mercury input into the river system, and have a sense of the reproductive rate as a function of age and mercury accumulation
- Example re-introduction of Arabian oryx in Oman (M S-P): mid 80s, then mid 90s facing poaching (450 => 200); initially thinking of human element was not done carefully; now government fenced reserve the size of 2800 km<sup>2</sup>
- Tried it out on woolly monkeys in Alto Mayo Protected Forest Peru

Perspective of risk assessment – then we do have to go through this process

Recognizing the consequences of behavior; incentives

CBSG, PVA & the theory of change

**Knowledge + attitude + interpersonal communication + barrier removal => behaviour change => threat reduction => conservation result**

- CBSG knows conservation result and go back to threat reduction
- Other collaborators (IFAW, Rare) think about behaviour change
- Stimulated by the question: Can you use vortex to model behavior change in people?

Several theories of behaviour change, e.g. – breakdown of these models

- Community based social marketing
- ... (Kirsten Pullen)

What is the question? Several options

- Formalizing the functional relationships in threat analysis
- Improve the level of detailed threat analysis
- Improve the quality of developing the details and chance of successful implementation of recommendations {on the basis of good solutions for behaviour change}
- Improve the scope of recommendations

Conceptual issues

- Not just a question of what you are good at but also what you need to be good at to save species
- Need to include the human component where necessary

Implementation

- Bring in additional / external expertise? (e.g. social scientists)
- Need the people who make you buy things that you do not want
- Use examples from health sector which have had two decades of experience
- Do we have enough time within the workshop setting? Usually not. Requires people in the room who know about the drivers and threats. Often they also think they know the solution.
- How much change of behaviour do we need to change to have a demographic impact? (e.g. how much more knowledge does the local community need to gain in order to change behaviour)
- Use each arrow in the graphic model of causal chains as a potential intervention point
- A scale issue – local – regional – global

Phil questions:

Should we do this and if so how?

- Human pop projections
- Functional relationships
- Predicting future impacts
- Making management recommendations
- Workshop process modifications

Part 2: try out a hypothetical workshop

Humboldt penguin conservation plan

Workshop 18 years ago in Peru

Want to redo one with a big picture –

- basic interaction with local fisheries, including competition for food,
- El Niño becoming more frequent and severe, which have the consequence that the fish supply drops, followed by reproductive failure of penguins,
- guano harvesting for fertilizers takes away the basis for nesting,

How to do it?

- Need to know who wants the workshop and why
- Identify appropriate participants which either participate in early analytical parts
- Have a detailed Vortex-like checklist to ensure appropriate coverage of potential aspects for the economic, cultural and social dimensions {requires at least a generic detailed “model” of what might affect human activities}
- Improve threat analysis by paying more detailed attention to the human component
  - quantitative estimates of intensity of threat
  - temporal dynamics of change of that intensity
  - social and cultural drivers, recognizing that not everyone in the community is the same
  - external impacts on local economies such as local fisheries
  - additional external environmental drivers such as acidification
  - invoke or use data on local and if necessary regional human population dynamics (past as well as future projections)
- This implies collecting some data in advance to prepare well
- Find out whether community cares about the species in question; and if not do not assume that behavior change may not be possible because
- Design expanded modeling analysis and create scenarios in the risk assessment context which incorporate various degrees of behavioural change as well as population dynamics
- New issues in designing recommendations which potentially involve behaviour change
  - Ethical dimensions: stop a starving person from eating that endangered plant, tell a person that they have no right to reproduction
  - Identifying appropriate behaviour and the changes required from current behaviour often makes numerous assumptions (and thus are a potentially dangerous way)
  - Salient belief research – identifying misconceptions or incentives (Melbourne vs Perth guano: loo paper hygiene and appearance vs flimsiness)
  - Enforceability of regulations
  - Recommendation may include the starting of a process with or without the involvement of CSBG which may include another workshop on implementation options
  - Resembles (in a very generic way) decision steps of Ex situ Guidelines
- Scenario of time line

- Gathering information (Workshop 0)
- Diagnosis along traditional PHVA lines (Workshop 1)
- Do salient belief research
- Recognizing the limits of immediate behavior change recommendations: Workshop 2 on implementation, include marketers
- Advantages:
  - Fulfills the need for immediacy, also allowing for short-term emergency action
  - Pulls in other kinds of people
  - Allows the management of expectations in an appropriate way
  - Supports a line of thought that the only successful projects invoke groups of dedicated people who see it all through (rather than bits of modules done by various bits of people)
- Conservation psychology
- Did the group consider dynamics of human behaviours that cannot be changed? Part of behavioural maintenance...