Seek simplicity – and, having found it, suspect it.

James Conant
Non-biological aspects to be considered in endangered species recovery programmes

Aspectos no biológicos en programas de recuperación de especies amenazadas

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RESUMEN
El propósito de este capítulo es resaltar la importancia de los factores de tipo no biológico en cualquier programa de conservación de especies amenazadas, con énfasis en aquéllos que tienen un componente ex situ. A la hora de manejar este tipo de programas, se debe tener en cuenta que la supervivencia final de la población que tratamos de conservar se ve últimamente influenciada por cómo la sociedad en general percibe y prioriza el problema de su conservación y por cómo nos organizamos los profesionales de la conservación para evitar la extinción de una especie.

Cualquier programa de recuperación que tenga cierta relevancia pública involucra a un conjunto numeroso y diverso de actores con identidades, perspectivas, demandas y recursos claramente diferenciados. Resulta crucial tener una visión lo más completa posible de este contexto social para gestionarlo eficientemente, evitando bloqueos interinstitucionales y conflictos destructivos. Aunque el conflicto tiende a ser visto como un proceso negativo, si se maneja adecuadamente, puede convertirse en una fuerza creativa de mejora constante de un programa. Para lograr esto, se propone: 1) incentivar el desarrollo de relaciones colaborativas frente a otras más competitivas entre proyectos e instituciones; 2) incluir a profesionales en gestión de conflictos dentro de los programas de conservación, y 3) fomentar el amplio reparto de recursos no distributivos. Igualmente, se destaca la importancia que los aspectos organizativos pueden tener sobre la recuperación de una especie amenazada. En este sentido, se propone: 1) desarrollar procesos de planificación colaborativa; 2) incentivar la creación de equipos de trabajo efectivos adecuadamente liderados y con capacidad de trabajo sobre el terreno; 3) evitar que las estructuras de control institucional detengan el desempeño de acciones concretas y necesarias sobre el terreno, y 4) identificar y minimizar procesos de desplazamiento de objetivos. Finalmente, se hace una llamada a la múltiple y frecuente evaluación de los programas de recuperación de especies amenazadas para asegurar su mejora constante y sistemática.

PALABRAS CLAVE
Contexto social, gestión de conflictos, aspectos organizativos, desplazamiento de objetivos, equipos de conservación, evaluación de programas
ABSTRACT
This chapter seeks to highlight the key influence of non-biological issues in any recovery programme, with an emphasis on ex situ conservation. When managing a recovery programme, we need to be aware that the final survival of any population of concern will be ultimately determined by how society perceives and prioritises its conservation, and by how professional conservationists organize themselves to avoid its extinction. Any conservation programme of public relevance involves a complex arrangement of stakeholders with distinct identities, perspectives, demands and resources. It is key to achieve a clear picture of this social context in order to manage it effectively, and to avoid inter-institutional gridlocks and destructive conflict. Even though conflict tends to be perceived as a negative process, when properly managed it can become a creative force, encouraging programme improvement. To achieve this, I propose to: 1) include professionals with experience in conflict management within conservation programmes; 2) promote the establishment of collaborative instead of competitive relationships between projects; and 3) encourage the open exchange of non-distributive values. Organizational issues can exert a significant influence on species recovery. In this regard, I propose to: 1) develop collaborative planning processes; 2) establish on the ground teams with effective leadership and strong capabilities; 3) avoid institutional arrangements focused on process control, which end up hindering actual implementation of necessary actions, and 4) identify and defuse goal displacement processes. There is a final call for multiple and regular evaluation of recovery programmes to promote constant and systematic improvement.

KEYWORDS
Social context, conflict management, organizational issues, goal displacement, conservation teams, programme evaluation
Non-biological aspects to be considered in endangered species recovery programmes

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INTEGRATED APPROACHES FOR EX SITU CONSERVATION?

Most readers would not be surprised when hearing that endangered species recovery is a complex challenge consisting of biological, ecological and health issues, compounded by social, organizational, political, economical or even psychological factors. This has been said in enough places and occasions to astonish any seasoned conservationist. What is most surprising is the wide gap that still remains between accepting the previous proposition and really bringing it into our daily practice. We repeat this and similar phrases, nodding sympathetically when someone proclaims these kind of statements in each congress or professional meeting and, afterwards, it seems like we almost forget about it. It sounds like a concept that it is always nice to say, but we don’t really need to turn it into actual actions.

One might even find a certain contradiction in the title of this book, which calls for an interdisciplinary approach to ex situ conservation and then invests most of its space discussing biological aspects focused on husbandry, genetic management, veterinary aspects and reproductive physiology. Is this really a multidisciplinary approach to ex situ conservation? I have no doubt about it. Does the width and detail of subjects included in the book adequately represent the challenges that will determine the final success or any recovery programme? Can we face ex situ conservation armed with this powerful multidisciplinary biological tool-kit? Would it be enough to bring species from the brink of extinction? I’m afraid not, and I would assume that many readers would agree with me. Then, why do we keep acting, meeting and publishing like if it was so?

I believe that the answer to this question does not lie in a deliberate effort to ignore pressing and uncomfortable non biological issues, but in our professional training. Through several years of reading books, attending meetings and workshops, we have been taught—in a very indirect subtle way, never explicitly—that conservation is mostly a biological challenge. When a certain group of subjects are repeatedly taught, discussed and written, they become the only subjects that exist. Such process is best described through what the economist and political scientist Herbet Simon (1983) called bounded rationality: the ability of the human mind to perceive and comprehend our environment through certain filters and approaches that allow us to selectively reject and ignore facts and views that are alien to our personality and education. Thus, it looks like we, conservationists, refuse to explicitly and systematically incorporate most social issues in our professional algorithms. This rejection is carried on even if we hear and read about the importance of such issues or while we might be actually dealing with them most of our time.

I think of my present professional situation: I must coordinate two ex situ conservation programmes for locally
endangered mammals in Argentina: one for the giant anteater and the other for the pampas deer. My original training is that of a zoologist. However, I spend around 80% of my time managing these programmes on social tasks: negotiating with government agents for animal donations; convincing other colleagues and institutions that they should join the processes or, at least, not try to block them; designing collaborative recovery plans with other stakeholders that would have a strong scientific, political and social support; talking to land-owners, forestry and agricultural businessmen to convince them that destroying critical habitat for those species should be part of their concerns or, at least, interests. Very seldom do I carry out some deer census on the field or supervise the capture, handling and transport of anteaters; these being the few clearly biological moments of my work.

It is clear to me that my biological-scientific training has been –and still is– extremely useful to guide my decisions and to help me convince other stakeholders. But it is also true that most of the time I see myself navigating through and trying to manage problems that are essentially non biological and will eventually determine if we achieve our conservation goals. And I do not see myself as an exception among professionals managing ex situ conservation programmes.

As an example, the Captive Breeding Programme for the Iberian lynx was blocked for years by interpersonal and interinstitutional conflict. As a result of such conflict, a measurable biological result was obtained: no Iberian lynx were born in captivity. Only when this history of destructive conflict was properly managed through the establishment of a consensus policy and a widely respected captive breeding team, we started witnessing the history of biological success so well described in this book. The lesson is simple: social and political problems can be behind the final failure or, at least, significant delay of many recovery programmes.

Hence, my purpose with this chapter is to join my voice to many others (Clark et al., 1994; Stephens and Maxwell, 1996; Clark, 1997; Clark and Wallace, 1998; Wallace et al., 2002, Groom et al., 2006; Robinson, 2006) to highlight one more time the key importance of social issues on any conservation programme, this being in situ or ex situ. To do so, I'll present some themes and recommendations that might guide professionals involved in these programmes. Whenever possible, and in order to fit the chapter within the spirit of this book, I will use examples from the Iberian lynx conservation process, of which I have been an external but passionate witness for more than 10 years.

I would like to send a simple message through this chapter. To specialists with a background in natural sciences who are involved in ex situ/in situ conservation programmes: be aware of your conceptual and academic biases –your bounded rationality– and be sensitive to the need for calling social scientists and professionals to bring their knowledge and expertise into the conservation challenge. To conservation professionals involved in actual management of ex situ and in situ populations: open your mind to a wide transdisciplinary understanding of the challenge at hand and try to set up interdisciplinary teams that can comprehend and handle it in its myriad of biological and social aspects.

ENDANGERED SPECIES RECOVERY AS A COMPLEX SOCIAL ENDEAVOUR

Figure 1 presents groups of factors that determine the final success or failure of ex situ/in situ conservation programmes. At the end, success will depend of the final balance between reproduction and mortality. These two processes are directly influenced by the specie's own biology and some proximate biological threats affecting it, both in a potential reintroduction site as well as in captivity. Most of these factors have been discussed throughout this book. But reality tends to be more complex. There are social factors that affect and are also affected by the previous biological issues and wield an enormous effect on the recovery or extinction of an endangered species or population.

Some biological traits determine how society responds towards a certain species. Thus, large carnivores, like wolves, big cats or bears, tend to elicit passionate stands in favor or against their conservation, while many insects, fishes or plants receive a lukewarm response from public opinion (Kellert, 1997). On the other hand, the arrangement and interplay of stakeholders who are interested, affected or opposed to the conservation programme can affect its overall economical, political or legal support. Conservation programmes do not exist in a social vacuum. They always compete with other social interests for public support, these having to do with health, education, trade, entertainment or cultural issues, to name a few. As a result of this, the whole programme can flourish within its social context, get gridlocked in the middle of rampant conflict or dwindle from general public indifference.
At the same time, while external social actors can have a key effect on the conservation programme, the way we, as conservationists, interact with other people and organizations involved in the same pursuit—allegedly to save the species from extinction—will have significant effect in the Programme’s and, ultimately, the specie’s fate. These interactions can be expressed in psychological, scientific, economic, communicational or organizational terms. It is no small paradox that some of the worst and most destructive conflicts blocking and threatening conservation programmes happen amongst conservationists; the previous example about the Iberian Lynx Captive Breeding Programme being a good example of this point.

As an example of social complexity surrounding a recovery programme we could check the stakeholders involved in the Iberian lynx reintroduction programme lead by the Andalusian Environmental Agency (Simón et al., this book). This institution holds the legal mandate and authority to conserve lynxes within its territory, and it can muster significant technical, financial and political resources to this task. The European Union stands out as an essential funding agency of such programme, which bestows a significant power to influence, if not veto, the whole process.
There are also two other agencies or ministries of the Andalusian government—Public Infrastructures and Agriculture—with less legal authority on the species’ conservation and, arguably, less interest in it, but much more clout over the general political process for the whole region. Other groups should be added to this list: the Spanish Central Government, represented by the Ministry of Rural, Marine and Natural Environment, is funding some components of the Programme and the neighboring government of Extremadura is an official partner of the Programme. Meanwhile, the government of Portugal and other regional governments in Spain have expressed their interest to gain access to the “Andalusian” lynxes to start their own ex situ programmes (Sarmento et al., this book; Vargas et al., this book).

But this is not all. The Programme also includes as official partners four environmental NGOs and three hunting associations, each with different access to public institutions and political centers. Around them there are several scientific advisors influencing the process, like the internationally renowned Doñana’s Biological Station (CSIC) and the IUCN Cat Specialist Group, plus the always-vigilant gaze of the public opinion and the mass media. Any of these groups, by themselves or in alliance with others, has enough clout to promote, deter or divert major conservation actions and, eventually, the whole reintroduction programme. Each of these institutions and the many individual actors working for and within them bring into the overall conservation process a complex set of beliefs, demands, expectations, attitudes and approaches; many of which point towards interpersonal or interinstitutional conflict. Could anyone doubt that we are talking about a highly complex social endeavor?

Within this framework, it becomes especially relevant to analyze the social context surrounding an ex situ/in situ conservation programme. This implies identifying and understanding individuals and institutions whose very distinct interests are involved or affected by such programmes, and who can mobilize resources in order to arrive to results that favor those interests. Which are these interests? Following Lasswell (1971) we can propose that both individuals and groups are always looking to augment their share of the eight following basic “values”: respect, rectitude, power, enlightenment, wealth, well-being, skill and affection. The key issue is that these values are not equally shared and sought by each person and institution. Even though we often assume that “we all look for the same things”, this is not usually the case. For example, in the Iberian lynx reintroduction programme some institutions typically treasure and deploy power (i.e., Andalusian Environmental Agency), while others use wealth (i.e., European Union), enlightenment (i.e., Doñana Biological Station) or respect (IUCN Cat Specialist Group) as leverage. Even within these general groups there are interpersonal struggles, alliances and conflicts directed to trade and obtain any of the eight basic values. The startling fact is that many destructive conflicts are caused by people and institutions that claim the conservation of species as their main goal. Once we start seeing who gets or wants to get what from whom, we will be able to understand these conflicts and manage the social play of conservation in a much more efficient way. Achieving this does not require as much of a scientific-quantitative analysis of social process but a systematic and alert predisposition to study and understand human behavior. Any open-minded conservation professional armed with enough curiosity and patience should be able to achieve this.

**CONFLICT AS A POTENTIALLY DESTRUCTIVE OR CREATIVE FORCE**

Throughout the previous paragraphs the term conflict has been used in several occasions. Conflict can be defined as the energy created by individuals and groups when they try to satisfy interests and objectives perceived as incompatible. Thus, conflict occurs when two or more players disagree over the distribution of material or symbolic values all of them related to the eight basic values described above, and start acting based on these perceived incompatibilities. Hence, convergence of multiple individuals and stakeholder groups with unique expectations, demands and identifications make conflict an inevitable ingredient of any conservation process receiving significant public attention.

The key issue is that, depending on how we manage any public conflict, it can either promote or harm actual conservation. People are most familiar with the negative aspects of conflict, which explains why many tend to avoid acknowledging its mere existence. The main problem with this approach is that it actually prevents us from seeing and promoting many positive aspects related to these situations. Thus, a conflict that is managed creatively tends to advance learning, team spirit, constant self-reflection, organizational adaptation and improvement. In 1999, after years of destructive conflict and interinstitutional gridlock surrounding captive breeding of Iberian lynxes, the Spanish Ministry of Environment called all relevant stakeholders to attend a participatory planning workshop in Madrid (see Vargas and Heredia, 2001). The explicit goal of such meeting was to agree on a National Captive Breeding Plan for the species and establish the basis for the Conservation
Breeding Programme. The implicit goal, even if not evident to all attendants, was to try to manage destructive conflict in a more effective manner. To this purpose, an external and respected facilitator was hired, who used a collaborative decision making approach to create consensus from existent destructive dissension. In retrospect, one can identify that meeting as a turning point in the Iberian lynx conservation history and an excellent example of conflict and dissent used as a base from which to seek and build a more accepted public policy expressed through the resultant captive Breeding Action Plan. In this line of thought, Lee (1993) identified bounded conflict as a major force for adaptation and improvement in conservation and other environmental processes in democratic societies.

Which specific actions can be pursued to advance creative conflict? First, we can follow the previous example with the Iberian lynx: call a professional with experience in conflict management. In another example, Johnson (2000) describes how, after many years of unproductive conflict between government biologists and landowners involved in the Alala or Hawaiian crown recovery, they decided to hire a family therapist to work in relationship-building. This author describes how this unusual decision served to improve the way both groups communicated and worked together. It must be said that such progress did not suffice to avoid final extinction of this bird in the wild a few years later (Walters, 2006).

Second, it is important to turn possible competition into collaboration. When we started a reintroduction programme for the giant anteater in Northeastern Argentina (Figure 2) we soon found out that there was an Argentinean zoo that was already announcing a conservation project for the same species. This project was coordinated by a veterinarian experienced in zoo management, while we were field biologists trained in wildlife management. Zoos do not benefit from wide credibility in the Argentinean conservation community and many people tend to criticize them at ease. They were putting anteaters into a zoo, while we wanted to reintroduce animals in the wild. The setting was ripe for competitive and destructive conflict based on typically opposing world-views: biologists vs. veterinarians, wildlife managers vs. zoo people, in situ vs. ex situ conservation. Our decision was to turn this potential conflict into collaboration (Figure 3). Open, frank and respectful talks were initiated aimed to look for common ground. As a result of these, and in spite of remaining important differences and external pressures against collaboration, trust was built and both programmes have agreed to work together in the reintroduction of two captive anteaters previously included in the zoo project.

Third, another way to prevent and manage unproductive conflict is to build trust and collaboration through sharing non-distributive resources. When looking at the list of eight basic values sought by people, it might be
noted that some of these values like power, wealth and, somehow, rectitude tend to show a distributive nature. This means that whatever you give of these values you tend to lose it for yourself. When a governmental agency delegates authority to another institution it tends to lose its own power on this matter. A similar fact happens with money. One could even say that when one admits that a moral rival might be right (i.e., giving her the value of rectitude), at the same time one could be debilitating one’s own moral position. Here is the foundation of competitive and destructive conflict: “I cannot help the other, because whatever I give her I end up losing it for myself”. Under this light we are condemned to rivalry entangled within a mesh of interdependent relationships.

The trick is that our cultural tradition is too fixed on distributive interpersonal exchanges. When looking to the other values sought by people, including potential rivals or allies, we notice that they do not have a distributive nature. Any person can share respect, skills, information and affection with another without finding its share of them diminished. On the contrary, the fact that I offer respect to another person or institution –even if major disagreements interpose between us may actually increase my own respect. Here is a pathway to building trust and creative collaboration: one can freely share these values with actual or potential rivals and turn them into allies or, at least, into respectful and civilized neighbors.

MANAGING ORGANIZATIONAL ISSUES
Most issues described up to this point deal with the way we relate with other conservationists and society in general. But there are also issues related to the way we organize ourselves to achieve our goals as conservationists that are critical to the success or failure of such enterprise (see the box on the bottom right of Figure 1). We could assume that most organizational shortcomings and failures stem from three general problems: 1) lack of a clear and shared vision and direction; 2) lack of action, also known as the implementation gap, and 3) inaccurate assumptions and inadequate knowledge.

Many recovery conservation programmes are built without a clear and shared idea of their ultimate goals and the approaches and methods needed to achieve them. In some cases an ex situ conservation programme is proposed when there is no clear evidence of how it would benefit the target population or species. Animals are bred and/or released without a clearly identified conservation need for these actions. In other cases, different actors and organizations hold divergent or antagonistic views of the challenge at hand, its desired result and the means to achieve it. Clark (1997) uses the conservation story of the black-footed ferret captive breeding and reintroduction programme as an example of this interinstitutional lack of agreement.

Open, frequent and effective communication amongst all relevant stakeholders serves as a general solution for this major problem. This should include arranging and managing regular collaborative planning instances that can help to: 1) establish a clear and shared vision of the common task; 2) call for multiple resources for ex situ/in situ conservation actions; 3) establish effective organizational structures, and 4) set the bases for continuous learning through monitoring, evaluation and widespread information exchange.

Plans can be agreed, and a clear and shared vision can be built, but that does not assure proper implementation of effective actions directed to change the status of our target population. Clark (1997) described this organizational problem as the implementation gap: actions may be identified and agreed upon but they are not actually carried on. A classical solution proposed for these situations is to call for increased funding. Proper funding is certainly a key issue but it does not assure adequate implementation, unless there is an organizational structure that is designed and adapted for its effective and efficient management. Several organizational arrangements can improve actual performance.

First, it is important to find a right balance between high control and low executive levels. In any organization there are high decision levels (i.e., chiefs, directors or political appointees) that are in charge of outlining general policies and monitoring their compliance. Below them there are usually teams or individual professionals who are in charge of implementing these policies. The former offer a sense of general direction and tend to insert any programme within a larger policy frame, while the latter take care of on-site executive matters. Implementation gaps tend to appear when high levels of control override executive groups thwarting their timely and efficient functioning, this being a typical result of bureaucratic organizations. Clark et al. (1994) described and analysed several conservation processes where this happened.
Second, in order to avoid implementation gaps in recovery programmes it is key to identify, train and empower programme leaders and active teams who are in charge of executive matters. What kind of leader do we want to have in such position? It could be summarized to: someone who wakes up in the morning reflecting about how to reestablish the species in accordance to other groups and people. What kind of person do we not want in such position? Someone who wakes up without reflecting about how to recover the species, who promotes a business as usual attitude and who is just thinking about how to keep control of the process or wanting to save the population excluding other interested parties. In order to promote effective implementation, conservation teams would benefit from showing the following traits: motivated, professional, empowered, focused on the task, ready to learn, interdisciplinary and open-minded.

Third, conservation institutions should be aware of the need to prevent and avoid goal displacement. Goal displacement occurs when a person or organization starts acting in ways that harm their explicit goal but benefit a second and often unexpressed purpose, typically related to programme control, career advancement or position strengthening. The problem is widespread, and also very human, because we all want other things besides avoiding some specie’s extinction. Examples abound: Clark (1997) and Reading and Miller (1994) use the concept to describe actions taken by the Wyoming Department of Game and Fish in order to control the black-footed ferret programme. Lieberknecht (2000) identifies “goal substitution” as the “the root of the policy problem” in the conservation of the Barton Springs Salamander in Texas. The author proposes that “participants, such as the federal government (...), the state government (...), and environmentalist groups (...), have substituted the purpose of power for their stated goal of salamander conservation”. And, Naves (2005), while analysing brown bear conservation in Asturias, Spain, described decisions taken by the relevant governmental agency, which favoured programme control over implementation of needed research and management actions.

Programme evaluation: Organizational learning for ex situ conservation

Conservation is a complex task inserted in a context of scientific, political and social uncertainty. There is a need to act early to prevent species extinction, even if we have not discerned all relevant facts. Still, when we are able to get a clear picture of what is happening and what needs to be done, the context becomes too dynamic and tends to change in fast and unpredicted ways by the time we start acting. Here lies a major organizational challenge: the need to take decisions and act in an environment of uncertainty and change, while trying to avoid that these decisions and subsequent actions are based on inadequate knowledge and wrong assumptions. In this regard, several authors have proposed adaptive management as the paradigm that should guide decision-making in conservation programmes and other complex natural resource challenges (Lee, 1993; Salafsky et al., 2001). Within this framework, programme evaluation takes a leading role.

Programme evaluation implies the continuous questioning and reflection on our assumptions, objectives and methods and, sometimes, even our final goals. A permanent questioning when managing a conservation programme should be: what are we assuming or doing that is wrong or, at least, clearly improbable, perhaps ineffective or even potentially harmful? Programme evaluation helps us frame and answer that question. Evaluation could be either internal or external and formal or informal (see Backhouse et al., 1996) (Figure 4). Any programme can benefit from a combination of these complementary approaches. Informal internal evaluation implies creating a working environment where all programme participants can openly share thoughts, worries and proposals related to the conservation task. It also involves encouraging reflection and constructive criticism while searching for and creating spaces and moments when most programme members can meet face to face.

External informal evaluation implies bringing frequent “fresh air” into the Programme. The key word is transparency: make your objectives, methods and protocols public so they can be reviewed and criticized by all relevant experts and, whenever possible and sensible, all possible stakeholders. Open your breeding and quarantine facilities, and show your release and monitoring methods to national and foreign experts. This will encourage a collective learning process that goes beyond the Programme’s staff and turns conservation into a matter of truly public interest.

Internal formal evaluation means designing plans and strategies in order to monitor programme performance at several levels (i.e., goals, objectives and activities; see Margoluis and Salafsky, 1998). Such evaluation requires developing measurable goals and objectives, establishing performance indicators for each one of these
and, most important, assigning time and resources within the programme for systematic monitoring of their compliance. It also means taking programme-monitoring results seriously and being ready to change based on these findings.

Finally, external formal evaluation implies calling for an external agent to carry out a thorough review of your programmes’ performance. Backhouse et al. (1994) describe the story and results of one such evaluation for the Eastern barred bandicoot recovery programme. This Australian marsupial was protected since the 1970s and a conservation programme was initiated in the 80s. By 1988 the species had lost 98% of its original distribution and abundance, with only 190 remaining animals alive. At that time it was obvious that the recovery programme was not working properly and a major formal evaluation was called for, which included foreign evaluators from the United States. The evaluation cited major weaknesses related to the Programmes’ organization and operation: 1) causes of decline were poorly known; 2) there was an underestimation of the situation’s urgency and a business as usual attitude towards the whole programme; 3) inadequate planning was used where clear goals, time frames and responsibilities were absent; 4) there was lack of good information about relevant social and organizational aspects; 5) absence of systematic monitoring and evaluation procedures directed to learning and programme improvements; 6) lack of effective leadership, and 7) poor communication among programme participants. As a result of this evaluation, there was a major programme reorganization, which was very much focused on improving programmatic and organizational aspects. Greatly as a result of this evaluation and reorganization process, by the end of the 1990s there were more than 1000 bandicoots established at six reintroduction sites, plus the original population and a captive breeding programme.

Each one of these evaluation approaches has its own advantages and caveats. Discussing them goes beyond the space and scope of this chapter. Nevertheless it must be highlighted that any recovery programme would benefit from using all four approaches at different times and under different circumstances throughout its history. In an environment where programme organization and performance can make the difference between a species survival or extinction it is peremptory to invest time, thoughts and resources in making constant assessments and improvements of our own actions.

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