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What does IUCN species action planning contribute to the conservation process?

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Abstract

More than 60 Species Action Plans have been published by the Species Survival Commission (SSC) of IUCN—The World Conservation Union. They are designed to assess the status of threatened species and their habitats, and provide prioritised recommendations for action, but there is debate about the effectiveness of such plans in stimulating conservation action and research. We evaluated three Action Plans covering a group of large terrestrial birds, published in 1995. Of 54 projects suggested in these plans, 33 had been initiated in the 5 years since publication, and 35 specific conservation actions were undertaken. Forty-five peer-reviewed papers were published, and at least 88 other outputs in the form of symposium presentations, posters and popular articles were produced. Although it is impossible to demonstrate the effectiveness of species action planning through rigorous scientific assessment, these results indicate a substantial amount of conservation-relevant activity directly attributable to the process. They also highlight the need for a clear definition of the role of Action Plans. We suggest that many of the criticisms directed toward species action plans result from an over-optimistic view of their power to catalyse action, and conclude by presenting a new model describing their niche within the wider context of conservation biology and policy.

Keywords: IUCN; Galliformes; Species action plans; Conservation policy

1. Introduction

Species Action Plans have been published since 1986 by the Species Survival Commission (SSC) of IUCN—The World Conservation Union. By early 2002, more than 60 plans had been published in this series, including several second editions. The plans provide an assessment of the conservation status of species and their habitats, and set conservation priorities. Furthermore, IUCN publicity material claims that "the series is one of the world's most authoritative sources of species conservation information available to nature resource managers, conservationists, and government officials around the world" (see Action Plan back covers, e.g. Fuller et al., 2000). Action Plans are compiled by SSC Specialist Groups, most of which are taxon-specific volunteer organisations composed primarily of research biologists and natural historians.

According to the IUCN Action Plan guidelines (version last updated March 1999, available from Species Survival Commission, Rue Mauverney 28, CH-1196 Gland, Switzerland), simply publishing information on species is not sufficient to ensure that the appropriate action results, and so Action Plans should "make prioritised recommendations specifically designed for key players". What are the specific purposes of Action Plans? They are designed primarily as a compendium of the knowledge and expertise of a Specialist Group's membership in one package, helping to guide future

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activities. They elaborate on species information presented in the IUCN Red Lists of threatened species by describing the current threats to each species, action currently underway to address these threats, further actions that need to be taken, and their order of priority. As such, they provide a baseline against which to measure change, in terms of both species status and action taken to reduce the risk of extinction. Action Plans provide the rationale, information and recommendations that need to be conveyed to audiences throughout the world, particularly those who could support SSC's work. Action Plans provide a common framework and focus for a wide range of players from decision-makers at the governmental level, to those who will implement conservation recommendations on the ground (e.g. protected area managers). It is intended that scientists, resource managers, agency officials, funding organisations, and political leaders will utilise them when deciding how to allocate available resources, and they can be used as an aid to fund-raising. There are few other resources available that provide species information in a framework for conservation action. Action Plans can provide additional guidance through cited references. This is especially important to the many conservationists and researchers who work in isolated conditions.

The practical value of IUCN Action Plans has been questioned (Collar, 1994; McNeely, 2000) and it is apparent that demonstrating the effectiveness of these plans in reducing extinction probabilities is not easy (Gimenez-Dixon and Stuart, 1993). McGowan et al. (1998a) discussed the findings and opinions of Collar (1994) and Gimenez-Dixon and Stuart (1993) in an informal review of Action Plan outcomes. McNeely's (2000) comments are similar in tone, suggesting that although Action Plans contain a wealth of information relevant to the conservation of particular species, the priorities set as a result seem removed from the practical steps required on the ground. He supported this by pointing out that, of the 105 actions proposed in the Wild Cats Action Plan (Nowell and Jackson, 1996), 71% were for surveys and other research. This, he suggested, implied that the greatest problem facing the cats was a lack of information on their status and distribution, which he did not believe to be the case.

McNeely's (2000) similar assessment of the Asian Rhino Action Plan (Foose and van Strien, 1997) revealed a rather more even distribution of recommendations between various conservation actions, including intensive protection and anti-poaching measures, habitat management research and other activities. However, McNeely (2000) still felt that the fundamental needs of these large mammals were not being highlighted, suggesting that development and policy issues had to be addressed to ensure the survival of these species, and that Action Plans were inadequate in stimulating these crucial kinds of action.

Since IUCN Action Plans were first published, other action planning processes have become established. Pre-eminent amongst these is the compilation of National Biodiversity Strategies and Action Plans, required of each country that has ratified the Convention on Biological Diversity. In some cases this process has included action planning for threatened species as, for example, in the UK Biodiversity Action Plan (Department of Environment, 1994). National activity is distinct from the global process that we are evaluating and although there is clearly opportunity for dialogue between them, a critical comparison is outside the scope of this paper.

We compiled IUCN Action Plans for the period 1995–1999 for three groups of Galliformes ("gamebirds"): the megapodes (Dekker and McGowan, 1995), the partridges, quails, francolins, snowcocks and guineafowl (McGowan et al., 1995), and the pheasants (McGowan and Garson, 1995). Most of the species treated in the second of these plans are the Old World partridges and quails (Perdicinae), and the New World quails (Odontophoridae). The guineafowl (Numididae) were included to ensure that the conservation requirements of this small family were not overlooked. Each plan was taken as the work programme of the relevant Specialist Group for the 5 years after publication, and has now been updated as scheduled with a new edition for 2000–2004 (Dekker et al., 2000; Fuller et al., 2000; Fuller and Garson, 2000). We believe that the compilation of these Action Plans has had a positive impact on the conservation of these species (McGowan et al., 1998a), but recognise that there is no way of objectively demonstrating their effectiveness or otherwise. This is because comparisons between taxa with and without action plans are confounded by variables such as phylogeny, geography and precision of threat categorisation.

In this paper, we focus on the outcomes associated with IUCN Action Plan production and present new data on the extent to which projects suggested in the plans were implemented on the ground. Such evaluation of how Action Plans are implemented is crucial in testing their effectiveness, and whether they achieve the laudable objectives with which they are associated. Specifically, we set out to determine how many priority projects and component objectives outlined in the three Action Plans were initiated within the 5-year time frame, and to identify the factors that allowed the project to be started. Based on these investigations, we then assess how Action Plans fit into the conservation process and suggest that the role of SSC Specialist Groups should be more carefully delimited.

2. Methods

The plans were explicitly action-orientated and thus contained little or no biological information not directly

relevant to the conservation of the species and the setting of conservation priorities [see McGowan et al. (1998b) for a detailed summary of how the plans were constructed]. The process, which involved the entire Specialist Groups, resulted in the identification of a total of 54 priority projects that were designed to gather the information necessary to underpin development of sound conservation measures. There were 10 projects for the megapodes, 19 for the partridges, quails, francolins, snowcocks and guineafowl and 25 for the pheasants, each summarised over 1–2 pages.

The Specialist Groups considered that the implementation of these priority projects was central to their work programmes for the period 1995–1999, although the groups had no staff to implement projects themselves. Therefore, in addition to core activities such as producing newsletters, reviewing and assisting in the development of project proposals and other networking activities, a considerable amount of effort was devoted to stimulating the implementation of Action Plan projects by group members and then monitoring their progress. Once a project had been favourably peer-reviewed, the Specialist Group Chair issued an endorsement to the principal investigator to aid in obtaining the necessary funds. A questionnaire was also sent to each principal investigator in 1999 focusing on project and funding details, project objectives, outputs, and consequent conservation actions.

3. Results

Of the 54 projects suggested in the three Action Plans, 33 (61%) had been initiated by the time of the evaluation exercise, 5 years after their publication (Table 1). For projects not yet underway, the Specialist Groups felt that the main obstacle was a lack of suitable personnel. One megapode project was cancelled owing to economic and political instability near the study area.

In the Pheasant Action Plan, for which we have the most complete information, the 25 projects contained 73 component objectives as follows: surveys (25), management recommendations (20), ecological study (17), taxonomic study (3), support for existing work (3), awareness programmes (3), monitoring (1), and captive management (1). Of these 73 objectives, 37 (51%) were achieved, 10 were continuing at the time of evaluation, and 26 had not been attempted.

Table 1
Status in 2000 of priority projects suggested in the three 1995–1999 Galliformes Action Plans

Action Plan	Fully/partially achieved	Not initiated
Megapodes	7	3
Partridges, quails, francolins, snowcocks and guineafowl	7	12
Pheasants	19	6
Total	33	21

Although projects were identified in the three Action Plans, it could not automatically be assumed that this was the sole reason that investigators had initiated them. A total of 106 reasons was cited for starting the projects highlighted in the three Action Plans, often with more than one reason per project: listed in 1995 Action Plan (41%); aligned with existing national/regional research priorities (25%); principal investigator already active in related work (16%); some funds already available in advance (14%); other (4%).

Of 90 funding applications made by principal investigators intending to carry out the 1995–1999 priority projects, 75 were successful, 10 failed, and five were pending at the time of the evaluation. The high apparent success rate suggests that there was under-reporting of failed bids, although we did ask for details of all applications. Thirty-eight of the applications were made to funding sources suggested to the principal investigator by the relevant Specialist Group. The endorsement letter issued by the Specialist Group (see Methods) was sent with the funding application in 41 cases. The appropriate Action Plan was cited explicitly in 41 of the funding applications, and the project brief was sent with the application in 36 cases.

Our evaluation identified 35 specific actions resulting from the projects identified in the 1995–1999 Galliformes Action Plans (Table 2). For example, research on the brown eared-pheasant (*Crossoptilon mantchuricum*) in northern China revealed that disturbance by mushroom collectors was a likely explanation for low breeding success at Pangquangou National Nature Reserve (Zhang Zheng-wang, 1998), and measures have now been put in place to control such activities within the reserve; illegal hunting and poaching have also been restricted. New distributional data collected on the maleo (*Macrocephalon maleo*) in Sulawesi as a result of an Action Plan project have enabled a large-scale site selection exercise to be performed (Butchart and Baker, 2000), providing a focus for future fieldwork. Funds are now becoming available for further conservation work at these sites.

In addition to action on the ground, at least 133 research outputs during the implementation period of the Galliformes Action Plans were identified. Of these, 45 were papers in journals (of varying quality, but all peer-reviewed), and 88 were non peer-reviewed outputs such as reports, talks, newsletter items and popular articles.

4. Discussion

We are not aware of any other published evaluation of the degree to which IUCN Action Plans have been

Table 2
Specific conservation actions carried out in line with the three 1995–1999 Galliformes Action Plans

Category	No. of actions	Types of actions
Management	22	Adverse development stopped Control of introduced species Control of minor forest product collection (2) Disturbance stopped (2) Future designation of new/extended protected areas promised (3) Hunting stopped (4) Management recommendations made (5) New/extended protected areas designated New controls on poaching planned New habitat management planned Re-introduction
Information	8	Information supplied for conservation projects (8)
Research	2	Improved effectiveness of other projects (2)
Education	2	Raising awareness of local people to conservation issues (2)
Finance	1	Funds provided at local level

implemented. A recent Species Survival Commission report assessed its Action Plan programme (SSC, 2002), concluding that the plans selected for assessment had played a valuable role in the conservation process, but that a more highly targeted role was now appropriate.

Our analysis clearly shows a substantial amount of conservation-related activity and tangible output from projects contained in Action Plans. It also reveals a close involvement by the relevant Specialist Group in obtaining funding for projects (the Specialist Groups themselves have no funding directives) and implies that principal investigators were making a link between the high profile of an Action Plan project and their chance of securing funding. Yet there is probably scope for this link to be strengthened further. That six pheasant projects were not initiated was due largely to lack of suitable personnel coming forward, and the Pheasant Specialist Group was not involved directly in soliciting funds and personnel for projects. One of these projects has now been dropped, but the remaining projects have been included in the 2000–2004 Action Plan (one in altered form), indicating that they are still viewed as priorities for action (Fuller and Garson, 2000).

If the projects are broken down into their component objectives, the picture is slightly different, with a smaller proportion (51%) of the original objectives being achieved. There are two possible reasons for this. One is that projects were only partially successful and the other is that during the initial stages of the project, some objectives were seen as superfluous or were altered. This illustrates that projects evolved as they were planned and carried out, suggesting that it is unrealistic to expect every specific objective mentioned in the original Action Plan project description to be addressed. Species-specific project proposals should therefore be written in a way that allows, and even encourages, this evolution, but within a framework ensuring that the information collected is useful in deriving conservation action.

The concrete conservation actions reported here represent actual change on the ground in the cause of Galliformes conservation, and demonstrate that work stimulated by the Action Plans has led to significant conservation outputs. The number and variety of outputs from the research activity reveal a healthy level of communication of research findings, something the Specialist Groups have always been keen to promote.

Our assertion that action planning is an effective process could be considered to some degree circular, if Action Plans are produced only for taxa where much interest and research infrastructure already exist. However, these three SSC Specialist Groups define their work plans in terms of their Action Plans and thus there is a very close relationship between the activities of Specialist Group members and the priority projects identified. The two aspects are inevitably interlinked and suggest that the Specialist Groups are addressing agreed global priorities to the best of their ability.

These species-based syntheses have to be seen in the light of the process that drives them. This leads from the collation of information and recommendation of research effort through to policy or other interventions and the subsequent monitoring of the impact of such action. It is an iterative process in which research findings should constantly refine and stimulate conservation science and promote increasingly effective conservation measures. This is particularly important for many threatened species that occur in regions where infrastructure is poor, expertise is sparse and access is difficult or dangerous.

5. A new model for the role of species action planning

Where do IUCN species Action Plans, and the considerable amount of activity that they have stimulated for taxa such as Galliformes, fit into the conservation process as a whole? The relevant Action Plan compiler is responsible for synthesising available information into specific conservation recommendations (target-setting) and/or further research questions. This process is not limited to IUCN Specialist Groups. BirdLife International recently synthesised all available species-based information, to produce a Red List of threatened birds,

set targets for each, and specify research requirements (BirdLife International, 2000).

The process is well illustrated by comparing the 1995 Pheasant Action Plan (McGowan and Garson, 1995) with the 2000 edition (Fuller and Garson, 2000). This shows a distinct progression of recommendations up a hierarchy required to conserve a species (Fig. 1). In particular, we are reaching a situation where we have enough distribution and status information on many pheasant species to move forward and conduct more intensive ecological research and analytical population modelling exercises, and also to institute experimental management regimes.

Once taxonomic units have been clarified, surveys and basic ecological research programmes can commence. These should provide new information that relates directly to such species characteristics as seasonal habitat requirements and distribution, altitudinal movements, tolerance of disturbance, and use of secondary or degraded habitats.

After these baseline stages, strategic conservation recommendations can be made. These may involve site-selection exercises to identify priority areas for conservation (Williams, 1999) and then population viability analyses (Boyce, 1992; McCarthy et al., 2001) to establish whether populations suitable for conservation attention exist within the chosen areas. Research on only a few species has reached this level of sophistication (but see McGowan et al., 1999; Butchart and Baker, 2000). Once this stage has been reached, appropriate global level conservation recommendations can be made, and then translated into physical reality by forging alliances between NGOs and governments. The iterative design of the IUCN action planning process (plans produced on a 5-year rolling cycle) is well suited to situations where the state of knowledge is in continuous flux. The need to undertake management action with incomplete knowledge, while retaining a flow of new information, can use limited conservation funds more efficiently (Walters, 1986). Management can therefore make use of the best science available, while species action planning and the results of monitoring exercises can identify key areas for further research or changes in management policy (Salafsky et al., 2001).

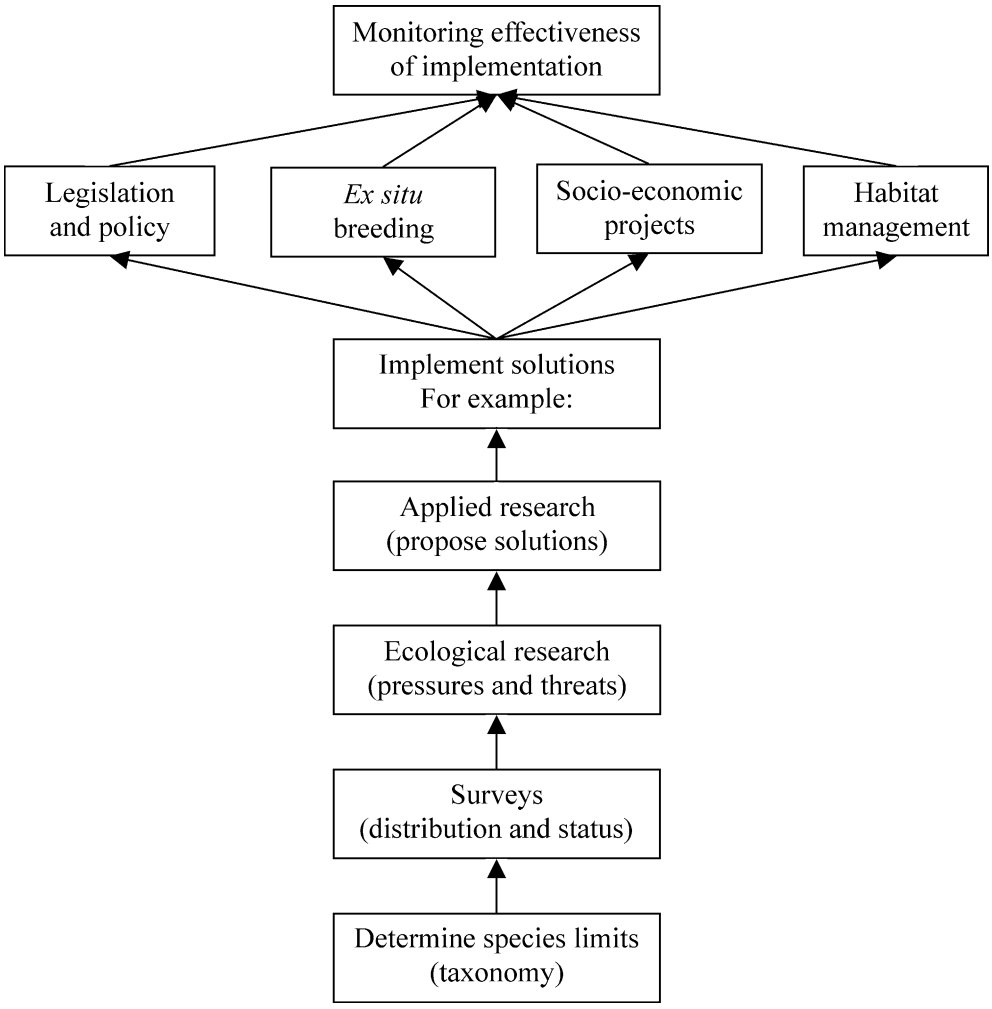

Fig. 1. From information to action in species conservation.

5.1. Refining the purpose of Action Plans

Results from IUCN Action Plan projects allow the translation of species-based information into site-based synthesis and policy recommendations. We believe there is a clear mismatch between the composition of Specialist Groups and the expertise required to implement the kind of work suggested by Collar (1994) and McNeely (2000). Specialist Groups typically comprise field scientists, natural historians and zoo-based captive breeding experts, rather than people involved in the advocacy and decision making needed for policy changes and development planning. This arrangement is appropriate because species-based research should independently assess the status of organisms, drive further research in the correct direction and monitor the efficacy of management initiatives. Authors of Action Plans can only synthesise species information from researchers and recommend measures to address threats that the information has highlighted. How this is turned into physical action is ultimately the responsibility of national governments but may be influenced by pressure from NGOs and international organisations such as IUCN. Such activities reside in the spheres of sociology, economics and politics rather than biology (Vane-Wright, 1996). It is therefore advocacy organisations that should assimilate species-based information and produce syntheses based on geography or government department as appropriate in a given situation. With this arrangement, we can be sure that the best, independent scientific recommendations are taken, tested for feasibility and political reality, and then implemented.

Therefore, it would seem that the considerable diversity of purposes ascribed to Action Plans, even though they are overlapping, now compromise the very effectiveness of plans. It has allowed interested parties to develop widely differing expectations of what such plans should contain. We therefore propose a more focused but realistic role for species-based synthesis and action planning, and suggest that the activities of those who translate science into conservation policy should then be used to complement this.

5.2. Building an Action Plan alliance

There is a need to increase the flow of information between research biologists and others involved in land-use issues, legislation, etc. It would therefore seem appropriate to establish a consortium of agencies that are concerned with threatened species, and their global management. Agencies committed to conservation action for threatened species include the secretariats and national focal points for multilateral environmental agreements such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on Biological Diversity. It also clearly involves international organisations such as IUCN through its Secretariat, Commissions and Regional and Country Offices. Such an alliance would provide for a greater consensus in forging policy and law by involving a broader spectrum of professionals with their implementation. Provision of the underpinning science can then become the major concern of the species action planning process.

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