BirdLife IBA IMPORTANT BIRD AREA

Monitoring Important Bird Areas

a global framework

Version 1.2

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Contents

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Summary

- This document gives guidelines for implementing BirdLife's global IBA monitoring framework.
- IBA monitoring is one element of a wider framework for monitoring progress towards BirdLife's strategic objectives. This includes monitoring of species, sites and habitats.
- At the national level, IBA monitoring is essential to track and respond to threats, understand the status and trends of biodiversity, and assess the effectiveness of conservation efforts.
- A standardised system will allow national data to be compiled regionally and globally. This should provide a powerful tool for international conservation advocacy and fundraising.
- The IBA monitoring framework provides a standardised way to assign scores for the threats to IBAs ('Pressure'), the condition of IBAs ('State') and conservation actions taken at IBAs ('Response'). These guidelines explain how this scoring system works, and also outline principles for designing and implementing a sustainable monitoring process.
- The scoring system makes it possible to integrate a wide range of information, which may often be qualitative rather than quantitative.
- Ideally, all IBAs in a country should be regularly monitored. The minimal requirement is collection of information on at least one appropriate indicator for each of Pressure, State and Response once every four years.
- Sustainability is very important, so monitoring must be kept simple, robust and inexpensive. The minimal data required are simple and mainly qualitative. They can usually be collected on site by management authority or project staff, Local Conservation Group (LCG) members, IBA caretakers and other volunteers.
- A national monitoring coordinator should be designated to synthesise information from the field and from other sources (such as remote sensing), and to assign indicator scores and hence overall status scores for each site.
- More in-depth monitoring may be appropriate, where resources allow, at a sub-set of priority sites. The sites and variables to be monitored need careful selection. Such monitoring should be linked clearly to IBA conservation objectives.
- IBA monitoring will usually require working in partnership with other organisations, especially site management authorities and SSGs. If monitoring is 'institutionalised' within these organisations, so that it becomes part of their routine work, then direct costs can be kept low. Extra resources are needed for coordination, training and reporting.
- This approach is built on the principle that monitoring is participatory. Thus, data should be held and owned by the organisations that collect them. National results feed up further to the regional and global levels, coordinated by the BirdLife Secretariat.

1. Background and overview

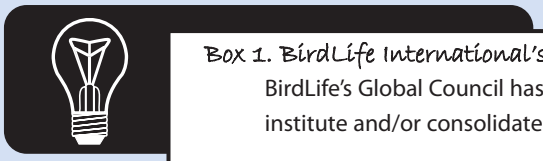
The BirdLife global strategy (BirdLife International 2004a) sets objectives under the themes of species, sites, habitats and people. The strategy recognizes the need to monitor progress against these objectives. The monitoring of sites – Important Bird Areas (IBAs) – forms part of this broader monitoring strategy. Other important components are monitoring of globally threatened birds and, to detect habitat-level changes, of common bird species (see Box 1). These elements are closely interlinked, contribute to each other and should not be viewed in isolation. In many parts of the world, however, bird monitoring at the species and habitat levels is not yet well developed. Most effort in the near future is expected to be devoted to site monitoring. These guidelines, which have evolved as a result of input from many BirdLife Partners (see Box 2), outline a global framework for the monitoring of IBAs.

The IBA programme aims to identify and protect a network of sites critical for the long-term viability of wild bird populations, across the range of those bird species for which a sites-based approach is appropriate.

IBAs are sites of international biodiversity conservation importance, chosen using agreed, objective, quantitative and scientifically defensible criteria. As such they form part of the set of key biodiversity areas (see Eken *et al.* 2004, Langhammer *et al.* in press). IBAs are selected because they hold (a) bird species that are threatened with extinction or have highly restricted distributions; (b) species assemblages characteristic of particular biomes; and/or (c) exceptionally large numbers of congregatory bird species.

In many countries, the BirdLife Partnership has moved beyond IBA identification to the next stages of the process. These involve conservation advocacy and action to protect these sites in perpetuity.

Monitoring is central to the IBA process. IBA monitoring is needed both to assess the effectiveness of conservation measures and to provide an early warning of problems. The results should feed directly into national reporting to, for instance, the Conference of Parties of the Convention on Biological Diversity (CBD). In Europe, IBA monitoring is also highly relevant in the context of the European Union legislation (see Box 3). However, it has proved difficult to put in place effective national IBA monitoring systems. One major reason for this is the lack of a standard framework that is simple, flexible and practical enough to be implemented effectively across an enormous range of sites. Such a framework should also allow national data to be compiled at the sub-regional, regional and, eventually, global levels, in order to fulfill the wider aims of the BirdLife Partnership.

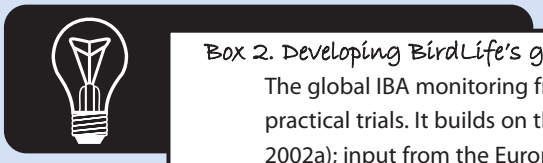


Box 1. BirdLife International's broader monitoring strategy

BirdLife's Global Council has endorsed and supported a focused effort across the BirdLife network to institute and/or consolidate the following monitoring processes:

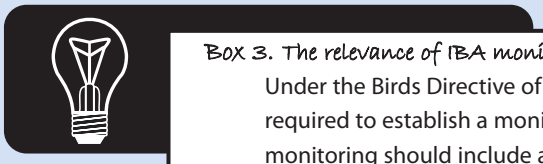
1. Update of IUCN Red List status (all bird species) and actions (Globally Threatened Birds)
2. Simple monitoring of Pressure, State and Response (including safeguard status) at all IBAs in network countries, supplemented by remote sensing (within and outside the network)
3. Population trend assessment for all Critically Endangered species, using a 'species guardian' approach
4. Assessment of trends in relative abundance of a set of common bird species using birders' day lists (see www.worldbirds.org)
5. Regular update from network NGOs on membership, number and membership of affiliated Local Conservation Groups (LCGs), and self-evaluation against criteria of sustainability and stability.

An IBA Local Conservation Group or Site Support Group (SSG) is an individual or a group that works on a predominantly voluntary basis, has the objective of conserving one or more IBAs, and pursues this work under the auspices of a formal or informal agreement with the BirdLife Partner.



Box 2. Developing BirdLife's global IBA monitoring framework

The global IBA monitoring framework has evolved since 2002 through a series of discussions and practical trials. It builds on the monitoring framework adopted by BirdLife's African Partnership (Bennun 2002a); input from the European Partnership at a workshop held in Almen, The Netherlands, April 2003; input from subsequent meetings and discussions in other regions; and lessons learned from a pilot implementation project, supported by the UK's Darwin Initiative, in Kenya (see Bennun *et al.* 2005). The framework also takes into account the ongoing development of national and global biodiversity indicators under the CBD.



Box 3. The relevance of IBA monitoring in the context of the European Union legislation

Under the Birds Directive of the European Union (Council Directive 79/409/EEC) Member States are required to establish a monitoring system covering the spectrum of activities within the Directive. The monitoring should include assessments of population levels of species listed in Annex I of the Directive, of the ecological value and integrity of Special Protection Areas (SPAs) and of the effectiveness of mechanisms to prevent undue harmful activities to bird species listed in Annex II. In addition, monitoring should also assess compliance with the conditions relating to the marketing of wild birds, the effects of hunting on conservation efforts and the effects of introducing non-native species.

BirdLife's Important Bird Areas Programme in the EU is closely aligned to the requirements of the Birds Directive. In practice, IBAs are considered as potential SPAs, and therefore monitoring of IBAs in EU Member States parallels SPA monitoring in several respects. First, national BirdLife Partners have a crucial role to play in SPA monitoring because they are able to mobilize a large number of volunteers. Second, historic data from IBAs can and do influence the setting of ecological targets for SPAs because the obligations of the Member States to maintain the ecological conditions of the SPA refer back to the date when the Directive came into force. Because of this, the requirements of SPA monitoring were taken into account in the development of BirdLife's global IBA monitoring framework. In addition, the BirdLife European Partnership's Birds and Habitats Directives Task Force has developed a position paper on 'Favourable Conservation Status' of SPAs which sets out the standards by which, in BirdLife's opinion, SPAs should be monitored.

2. Designing a monitoring framework

This section outlines some general issues relevant to developing a monitoring scheme, detailing those features common to successful schemes. **Monitoring is used here to mean the repeated collection of information over time, in order to detect changes in one or more variables.**

2.1 Steps to success

Monitoring schemes are much more likely to succeed if they are planned systematically. Figure 1 shows the steps needed to design an ideal monitoring scheme. This process may seem complex, but it really amounts to the consideration of five questions in sequence:

- ⇨ Why monitor?
- ⇨ What should we monitor?
- ⇨ How should we monitor?
- ⇨ Who should monitor?
- ⇨ What happens next?

All these questions are important, but the first and last generally receive far less attention than the others. Techniques for data collection are well documented, but there is less advice available on how to design the system in the first place and how to use the information collected to achieve real conservation objectives.

This is partly because people often think of monitoring as just the business of collecting data. In fact, **monitoring is a process and a means to an end – that end, in this case, is better conservation.** It involves the stages of design, data (including collection, storage, analysis and interpretation) and application. A good monitoring scheme also has appropriate feedback loops built in at each stage.

2.2 Why monitor IBAs?

Our overall reason for monitoring IBAs is clear. **IBAs are internationally important places for bird, and therefore, biodiversity conservation. We need to understand what is happening to them in order to adapt our interventions accordingly.**

IBA monitoring should happen at each site. However, to be fully effective, the monitoring scheme also needs to integrate information at the national, regional and global scales.

At the site level, we monitor IBAs in order to:

- ⇨ Detect and act on threats in good time. Monitoring data provide ammunition for advocacy and information for designing interventions.
- ⇨ Assess the effectiveness of conservation efforts. Is investment in conservation actually bringing about an improvement? Are 'sustainable use' approaches really proving sustainable?

Additional site-level benefits of monitoring include:

- ⇨ Expanding and updating site data including, where necessary, the identification and mapping of site boundaries.
- ⇨ Providing a focus and wider framework for existing IBA-based activities, ranging from birdwatching events to systematic surveys.
- ⇨ Catalysing the formation of new LCGs and the growth and development of existing ones.

At the national level, we monitor IBAs in order to:

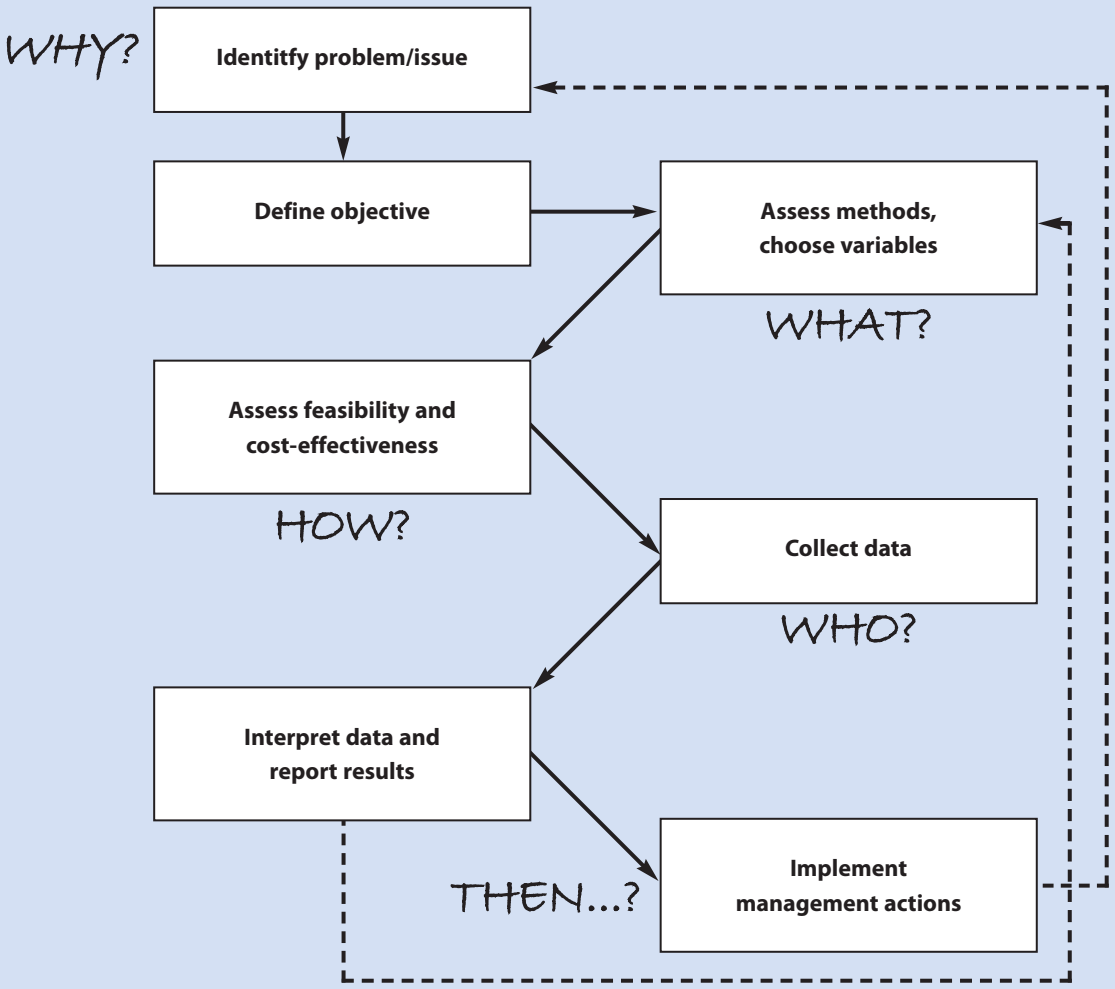
- ⇨ Provide information on national biodiversity trends. This feeds directly into reporting for the CBD, other international and, where appropriate, national legislation. It also allows the impacts of economic and environmental policies that affect more than one IBA to be assessed.
- ⇨ Periodically review the IBA network. Do all sites continue to meet the criteria for which they were listed? Do some sites now quality under additional criteria?

Additional national-level benefits include:

- ⇨ Providing opportunities for Partners to establish and strengthen stakeholder networks.
- ⇨ Raising awareness of the biological and socio-economic values of the national IBA network and the threats to them, by tapping into the increasing engagement of civil society in conservation issues and their consequent coverage in the media.
- ⇨ Delivering information that will help integrate IBA conservation into broader socio-political agendas through 'mainstreaming' biodiversity into other policy sectors; EIA legislation and donor environmental safeguard policies, both of which may be informed by IBA monitoring process and data, are examples of mechanisms through which this integration can be enhanced.
- ⇨ Providing increased opportunities for the development of approaches to IBA conservation, through improved understanding of land-use issues that deliver socio-economic benefits to local communities.

Bringing together IBA monitoring data at the regional and, eventually, global levels will provide indices of biodiversity status and trends. At least initially, these indices will be formed from a sample of sites, across a sub-set of countries. Nevertheless, they will be unique and valuable products, providing a meaningful way of monitoring biodiversity on a large scale. Despite the globally recognised importance of biodiversity, it has proved difficult to monitor. Remarkably, very few other credible indices of this kind presently exist. Successful application and integration of IBA monitoring at the regional and global levels will greatly strengthen BirdLife's international advocacy and fundraising work.

Figure 1. Simplified steps to designing a monitoring scheme

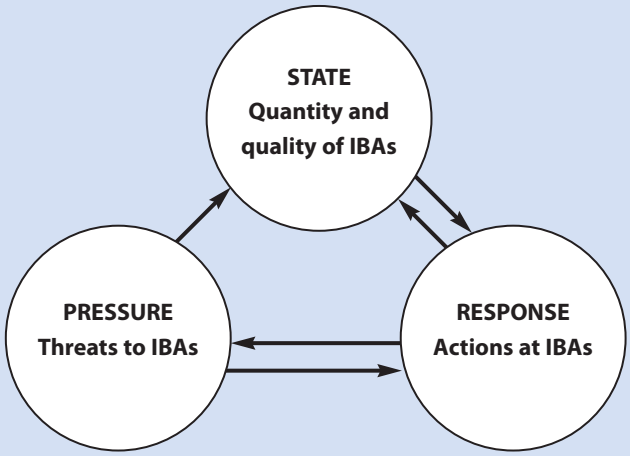


2.3 What should we monitor?

IBAs should be managed to conserve important bird populations. Therefore **we need to understand what is happening to IBAs in relation to those bird species for which the sites qualify as IBAs.** This basic point is fundamental, because it defines the overall conservation goal. This will in turn affect which variables are monitored.

We cannot monitor every relevant attribute of an IBA. Instead, we need to choose indicators that are appropriate for our conservation goal. There are many ways to classify indicators, but it is often helpful to think of them within a 'Pressure–State–Response' framework (see Figure 2). This approach has also been adopted by the CBD.

Figure 2. The relationship between indicators of pressure, state and response



Pressure

Pressure indicators identify and track the major threats to important bird populations at IBAs. Examples include rates of agricultural expansion, over-exploitation and pollution.

State

State indicators refer to the condition of the site, with respect to its important bird populations. State indicators might be population counts of the birds themselves. They might also be measures of the extent and quality of the habitat required by these birds.

Response

Response indicators identify and track conservation actions: for example, changes in conservation designation, implementation of conservation projects and establishment of LCGs.

Indicators need careful selection. Obviously, a good indicator will actually indicate or track something – it will respond clearly to changes. Thus, numbers of recently cut stumps might be a good indicator of logging intensity (a Pressure variable) in a forest; mean monthly rainfall probably would not. An indicator should also be linked clearly to the conservation management goals for the IBA. For example, it might not be useful to monitor the amount of dry grassland within a site if the species for which the site is important live only in wetlands.

It must be possible to collect information for the indicator within the likely constraints of capacity and resources. Many monitoring schemes are over-ambitious, designing indicators that are informative but that also require expensive and time-consuming data collection. Such schemes simply do not work. Indicators should also be scientifically credible, simple and easily understood, and quantify information so that its significance is clear (SBSTTA 1999). Finding indicators that fulfil all these requirements is not always easy.

2.4 How should we monitor?

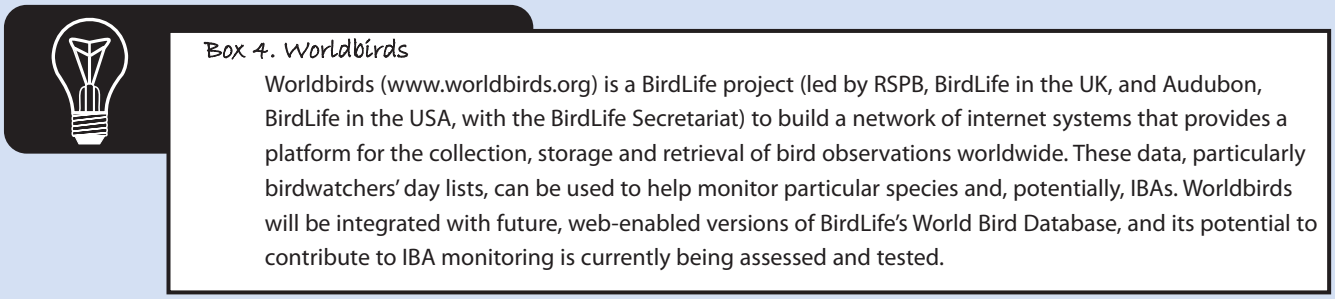
Monitoring is worthless unless it produces results that can be interpreted meaningfully. Thus, monitoring must be:

- ⇨ Soundly designed
- ⇨ Systematic
- ⇨ Regular (though not necessarily frequent)
- ⇨ Sustained

In-depth IBA monitoring (for example, counts of a particular species) also must be consistent (carried out each time in the same way, in the same season, by people with similar expertise and experience). The local resources available for monitoring are scarce, and external project support is rarely available for more than a few years (Bennun 2001, 2002b, Danielsen *et al.* 2003, Bennun *et al.* 2005). It is essential therefore that IBA monitoring schemes operate as inexpensively as possible. In practice, this means making the best possible use of:

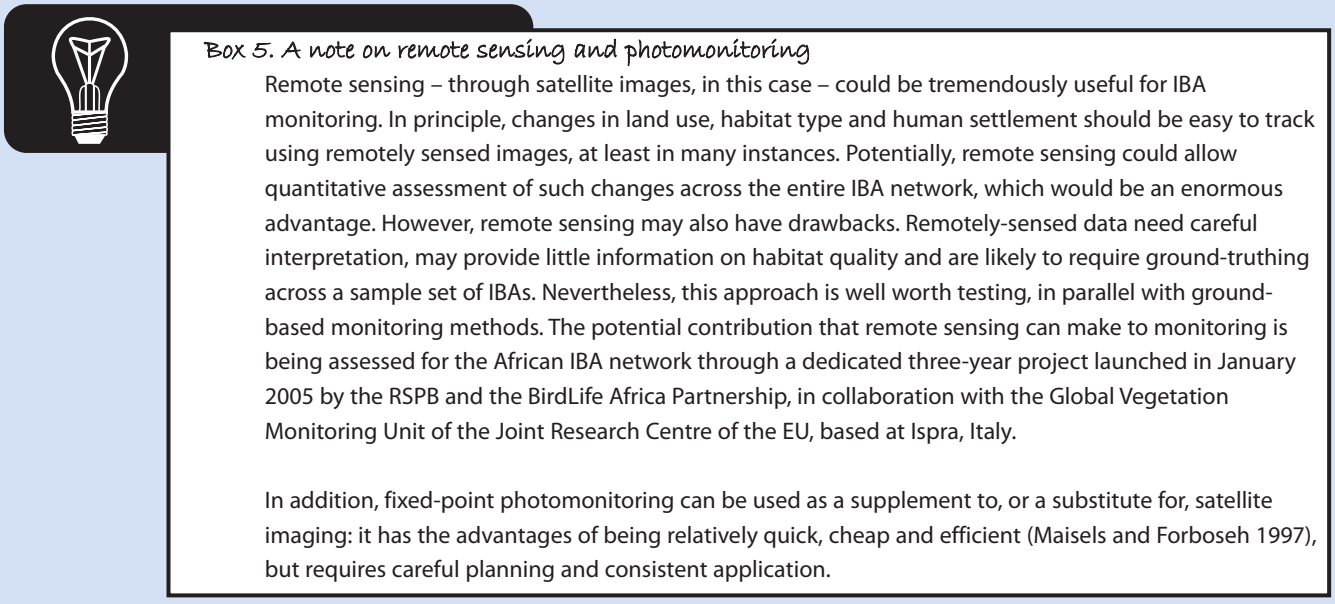
- ⇨ Existing data-collection schemes and coordinating mechanisms
- ⇨ Personnel (of government institutions or conservation organisations) already on the ground
- ⇨ LCGs
- ⇨ Other volunteers

This implies that **monitoring techniques need to be kept simple, robust and cheap.** It is far better to collect basic data reliably over many years than to adopt a more ambitious scheme that soon collapses. We need systems that produce useful data, but avoid unnecessary sophistication. Worldbirds is one such system (see Box 4). In addition to data collected on the ground, information from remote sensing may be very useful in monitoring IBAs, especially those that are difficult to access (see Box 5).



Box 4. Worldbirds

Worldbirds (www.worldbirds.org) is a BirdLife project (led by RSPB, BirdLife in the UK, and Audubon, BirdLife in the USA, with the BirdLife Secretariat) to build a network of internet systems that provides a platform for the collection, storage and retrieval of bird observations worldwide. These data, particularly birdwatchers' day lists, can be used to help monitor particular species and, potentially, IBAs. Worldbirds will be integrated with future, web-enabled versions of BirdLife's World Bird Database, and its potential to contribute to IBA monitoring is currently being assessed and tested.



Box 5. A note on remote sensing and photomonitoring

Remote sensing – through satellite images, in this case – could be tremendously useful for IBA monitoring. In principle, changes in land use, habitat type and human settlement should be easy to track using remotely sensed images, at least in many instances. Potentially, remote sensing could allow quantitative assessment of such changes across the entire IBA network, which would be an enormous advantage. However, remote sensing may also have drawbacks. Remotely-sensed data need careful interpretation, may provide little information on habitat quality and are likely to require ground-truthing across a sample set of IBAs. Nevertheless, this approach is well worth testing, in parallel with ground-based monitoring methods. The potential contribution that remote sensing can make to monitoring is being assessed for the African IBA network through a dedicated three-year project launched in January 2005 by the RSPB and the BirdLife Africa Partnership, in collaboration with the Global Vegetation Monitoring Unit of the Joint Research Centre of the EU, based at Ispra, Italy.

In addition, fixed-point photomonitoring can be used as a supplement to, or a substitute for, satellite imaging: it has the advantages of being relatively quick, cheap and efficient (Maisels and Forboseh 1997), but requires careful planning and consistent application.

2.5 Who should monitor?

Who undertakes the monitoring will vary from situation to situation. Wherever possible, existing institutions and personnel should be used, rather than creating new (and probably expensive) structures. Where there is one, the institution charged with managing a particular site should be involved, at least in contributing information. National and even overseas volunteers can be useful in many cases, provided that there is adequate coordination. **As far as possible, IBA monitoring should also involve the local community in collecting data.** As well as considerations of expense and sustainability, there may be several good reasons for this:

- ⇨ Sharing responsibility
- ⇨ Building and validating participation in management and a sense of ownership
- ⇨ Building trust
- ⇨ Providing a means for feedback and encouragement
- ⇨ Creating new skills

In particular, monitoring has proved a useful focal activity for LCGs (see Bennun *et al*. 2005). Whether or not it directly involves local communities, IBA monitoring should aim, wherever possible, to build capacity among those carrying out the work. Local institutions may need help in various ways to undertake monitoring. Where necessary, their personnel must be trained and equipped, and monitoring should be regarded by staff at all levels as both an important activity and part of their routine responsibilities. This is also important to ensure consistency in the data. In-depth monitoring, especially, benefits from as much individual continuity as possible (if the expertise of those involved varies greatly between monitoring sessions, then the results may be biased). There is a need to develop genuine partnerships where all involved feel that investing effort in monitoring is worthwhile. **Organisations need to 'buy in' to the monitoring process and be prepared to institutionalise it.**

2.6 What happens next?

Monitoring data must feed back into achieving better management on the ground – that is the whole point of collecting them! The first step in ensuring this is proper monitoring design. The right questions need to be posed, and then answered clearly through the methodology chosen. If the outputs of monitoring are genuinely useful, they are more likely to be acted upon. The aim is to produce credible analyses of sound data.

A monitoring programme should produce monitoring reports, but audiences need to be carefully considered, and reports targeted accordingly. For instance, it might be appropriate to provide a technical report for managers and a readable summary for higher-level decision-makers. A summary report, relatively inexpensive to produce, could also be useful for circulation to the wider network of those contributing data.

IBA monitoring information should feed directly into national reporting for the CBD and other environmental conventions to which particular countries may be party (such as the Ramsar Convention on Wetlands and the Bonn Convention on Migratory Species). If this information is to be derived from regular monitoring reports, then their content and periodicity need to be considered in the light of national reporting requirements. An alternative is to produce a separate report, or summary of the data, to fit the requirements and timetable of particular conventions.

Monitoring data should inform action planning for IBAs. Site action plans should include monitoring as a priority activity, and ensure that there are clear mechanisms for adapting management according to monitoring results. If monitoring reveals a conservation problem, there need to be ways to deal with it. It is important to develop clear procedures for taking action. Many BirdLife Partners have set up IBA National Liaison Committees, or similar coordinating mechanisms, between NGOs and Government.

Finally, making the monitoring happen in the first place requires substantial investment in a national network of institutions and individuals. Most of the work will be done through personal interest, commitment and good will. Therefore, **the monitoring network needs to be cultivated and supported, not least through appropriate feedback of the results and acknowledgement of contribution.** As well as contributing to monitoring, this network should also be able to help respond to the findings.

At the regional and global levels, **implementing this monitoring framework should allow the BirdLife Partnership to learn lessons about what approaches work best for conserving IBAs across the world.** These lessons will be documented, analysed, interpreted and published – and fed back into strategies for site conservation – by Partners and the BirdLife Secretariat.

3. Making it work

Considering the points discussed above, the challenge is to implement a monitoring scheme that is sufficiently rigorous to be credible, sufficiently relevant to be informative, and sufficiently cost-effective to be sustainable. At a minimal level, what is required is the regular assessment for each site of at least one appropriate indicator for each of Pressure, State and Response.

The actual indicators used can vary from site to site and country to country, so long as they are appropriate for making an overall rating for each IBA following the standard methodology (see Section 4). These indicators can be simple and qualitative, and may only highlight fairly large changes. For instance, it is relatively easy to detect gross alterations in site condition – such as drainage of a wetland or clearance of a forest. More subtle changes – such as a moderate decline in population of a threatened species – may be much harder to detect. These can probably only be measured at a small number of sites where more in-depth IBA monitoring is focused.

It is strongly recommended that the Partnership should, in the short term, focus on setting up and maintaining national monitoring schemes that involve a minimal level of monitoring across the whole national IBA network. Less effort should be devoted to in-depth monitoring, except at IBAs where it is already happening or planned under other programmes or schemes, such as the International Waterbird Census (see Annex 1). In some cases it may not be possible to monitor all IBAs because of, for example, capacity issues or because there are no or very poor data for some sites. In such cases it may be necessary or preferable to prioritise IBAs for monitoring, and to focus efforts on these. How this subset of IBAs should be selected is still under debate but ideally they should be representative of the IBAs across a country as a whole (rather than, for example, sites with forest habitat or in one region only), so that monitoring information can contribute meaningfully to national, regional and global reports.

3.1 Monitoring frequency

How often should monitoring happen? **It is important to have an accepted, predictable system that can be sustained into the future, without long delays and lapses.** Organisations tend to plan their work on an annual basis, so, if IBA monitoring is to be fully institutionalized at the national level, there is much to be said for making it an annual process. This, however, may be less appropriate where most of the work is being carried out directly by the Partners and their volunteer network. In Europe, for instance, where there are large numbers of IBAs, the Partnership has agreed to monitor at least once every two years.

At the global level, it would be advantageous for the monitoring frequency of IBAs to be linked to that of globally threatened birds, with each process informing the other. The BirdLife Secretariat, as the Red List Authority for birds, is committed to providing IUCN with updates on the status of all the world's birds once every four years, with the next comprehensive revision scheduled for 2008. **It is proposed that IBA monitoring data be collected from as many countries as possible by the end of 2007, with increasingly comprehensive updates on a four-yearly cycle thereafter.**

3.2 Structures and processes

Effective IBA monitoring requires coordination, communication and feedback among three main levels: local/site, national and regional/global.

Figure 3 shows how the process can work and how the main roles and responsibilities can be divided, and Box 6 (overleaf) discusses who owns and holds the data. The key points of this process are listed below.

1. Monitors based at or near IBAs provide information on structured field forms (see Annex 3). These monitors may be staff of local or national Government agencies, LCG members, BirdLife Partner or other project staff, or volunteers. The forms are submitted to the National IBA Monitoring Coordinator. More than one form may be submitted per site, by different people or at different times. Submission of forms may be scheduled (and the input of agency staff may be coordinated through their headquarters) but there is also scope for 'ad hoc' submission of forms at any time.

2. It is recognised that official involvement of government agency staff is likely to be hard or impossible to obtain in some countries or regions. There may be instances, however, where such staff are prepared to participate in IBA monitoring unofficially or anonymously because of their interest in or concern for sites. In the absence of official endorsement, collaboration in this form is obviously welcome, both because of the data it provides and as a means of influencing institutional thinking long-term. Where even this is not possible, means will have to be found for undertaking IBA monitoring without the involvement of the national management authorities.

3. The National IBA Monitoring Coordinator assembles the forms and any other relevant information on the status of particular sites. This could include, for example, satellite images, scientific or popular publications, official journals or gazettes which give news of, for example, changes in protected area designations and the results of in-depth monitoring.

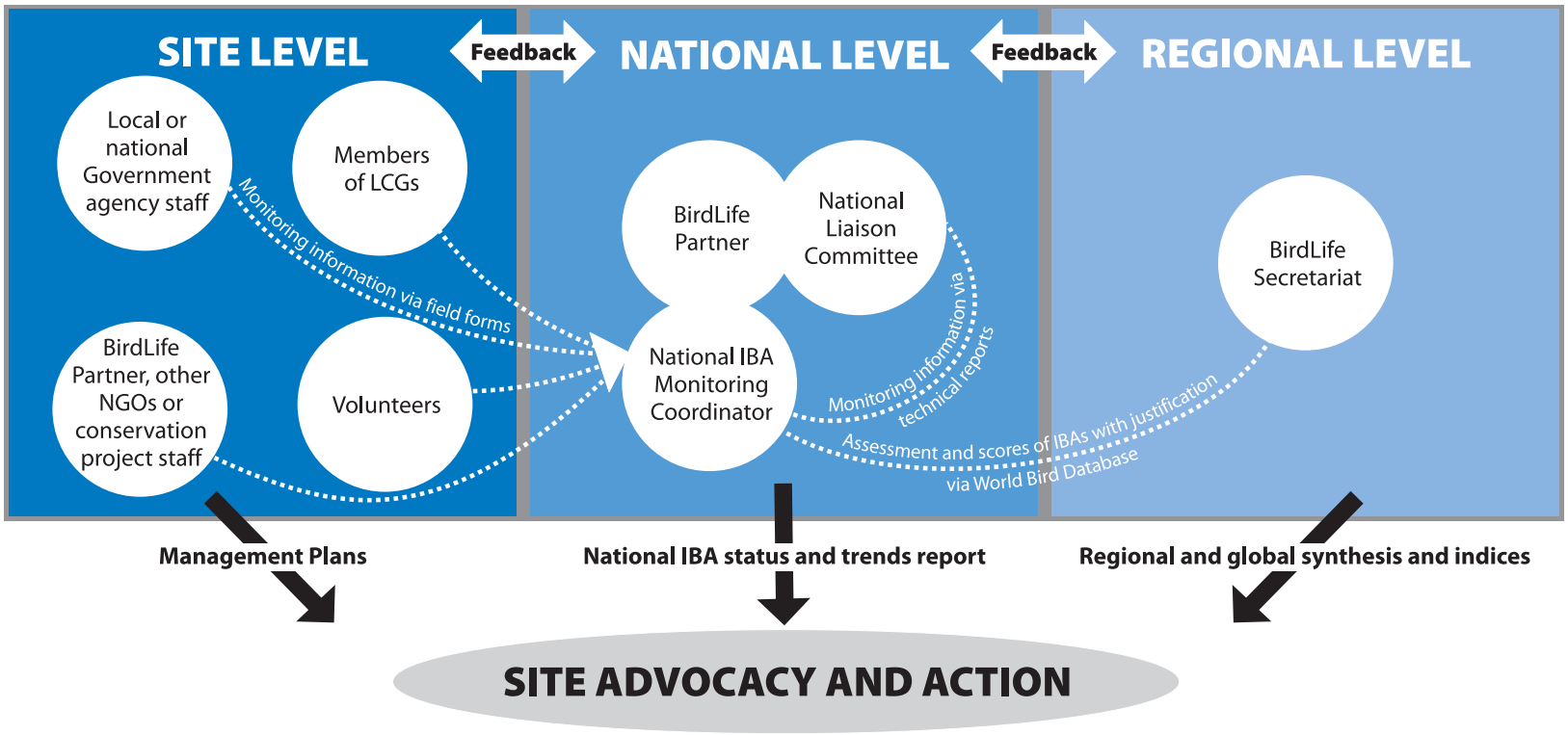
4. Following the monitoring schedule (i.e. annually or every two or four years) the Coordinator applies the standardised methodology (see Section 4) to the information available and, in consultation with other experts, where possible, assigns indicator scores to give overall IBA status scores for each site. The scores, with their justification, are entered into the World Bird Database so that trends can be determined and national, regional and global analyses undertaken.

5. The Coordinator uses the information and scores for each site to compile a national IBA status and trends report, and to provide appropriate feedback to the site-based monitors and the collaborating institutions.

6. The BirdLife Partner ensures that the national IBA status and trends report is used (re-packaged as necessary) for national and site-level advocacy and intervention. An IBA National Liaison Committee (NLC) that brings together the key organisations with an interest in, or influence on, IBA conservation will often be useful here (and in helping to coordinate the collection of monitoring data).

7. The BirdLife Secretariat uses the IBA monitoring data submitted by many Partners to produce periodic (at least 4-yearly) regional and global syntheses (such as those in BirdLife International 2004b). At this level, trends may be broken down geographically and by habitat type, for example, and case studies of particular sites highlighted. The results are used for international-level advocacy to stimulate conservation action.

Figure 3. Structures and processes for IBA monitoring at site, national and regional levels



Roles and responsibilities for key players involved in IBA monitoring:

SITE LEVEL

Field/site staff of Government agencies, NGOs or conservation projects, Local Conservation Groups

⇨ Collect data, return monitoring forms, take action based on results

Researchers, other volunteers

⇨ Collect data, return monitoring forms

NATIONAL LEVEL

National IBA Monitoring Coordinator

⇨ Design monitoring framework, coordinate technical aspects of monitoring, check quality of data, and assess and score status of IBAs, enter data into the World Bird Database, produce analyses and technical reports

BirdLife Partner

⇨ Undertake fundraising, establish a monitoring programme, organise training, conduct evaluation, report to NLC and data gatherers, produce advocacy materials, plan and take action

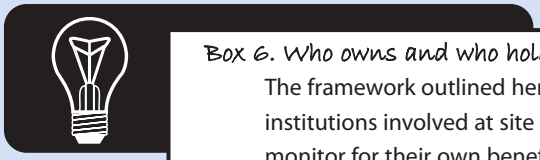
IBA National Liaison Committee (or equivalent)

⇨ Institutionalise monitoring in Government agencies and NGOs, provide channel for advocacy using results

REGIONAL/GLOBAL LEVELS

BirdLife Secretariat

⇨ Manage World Bird Database, store and analyse regional and global data, undertake regional and global reporting, advocacy and fundraising



Box 6. Who owns and who holds the data?

The framework outlined here is built on a genuinely participatory process. This means that the institutions involved at site level – such as the national management authorities and LCGs – should monitor for their own benefit, because they are concerned with the conservation of their sites. This also implies that site-based institutions should own and retain the original data. This applies to all monitoring but is particularly important for in-depth monitoring. Thus, if a LCG is carrying out monitoring at its site, the original data forms should be kept at the site for reference. The LCG must be involved in any decisions regarding the wider availability of data that it has passed on.

Local 'ownership' of the data is also important since the monitoring, and its results, need to be meaningful to the participants – that is, those who are in a position to take action on the ground. For example, recommendations are more likely to be acted upon if they arise from data collected by management authority staff as part of their own monitoring scheme, rather than, say, the BirdLife Partner working independently. However, data collected on site should be made available promptly to the National IBA Monitoring Coordinator. The cross-site synthesis and analysis of data performed by this unit will add value to the information from all sites. This, plus the training, support and quality control that the national monitoring framework will make available for site-based monitors, provides the *quid pro quo* for site-based institutions that allow access to the data that they own.

Taking things up a level, national BirdLife Partners provide summary data to the BirdLife Secretariat for the same reasons. The regional and global synthesis and analysis performed by the Secretariat also make the data work harder for national conservation and advocacy. An important element in the whole process is **feedback**. Those collecting the data at site level need to see how they have contributed to the overall picture at site level. The same is true of Partners supplying national data to the global and regional analyses. Reports must be produced and circulated in good time, and with appropriate acknowledgement of everyone's contribution.

3.3 The National IBA Monitoring Coordinator

A unit is needed to coordinate IBA monitoring nationally. The scale of this task will vary, depending on the number of IBAs per country or territory, the level of reporting, and the extent of in-depth monitoring. This could be a part-time role for one person, a full-time job or the responsibility of a small team of several people or a committee. Usually, it will be appropriate to designate an individual as the National IBA Monitoring Coordinator, even if this is not their full-time responsibility. Preferably, this person will be based in the Partner organisation, though they will need to work closely with other institutions.

The national IBA Monitoring Coordinator (and team) have the tasks of:

- ⇨ Coordination, quality control, compilation, storage and analysis of data and technical reporting
- ⇨ Assigning the IBA status scores. This requires careful sifting and assessment of the information available, which may include seeking clarification or verification of certain data. Where multiple forms are returned from a site, there may be conflicting information, and the Coordinator will then have to make a judgement as to which to use.

There will always be a subjective element to this scoring, but to minimize this it is important that:

- ⇨ The scoring methodology and guidelines are carefully followed
- ⇨ The scoring involves wider consultation, and in particular the participation of the main institutional stakeholders. This involvement could happen at the initial scoring stage or (perhaps more efficiently) through a review panel that considers a set of problem cases.

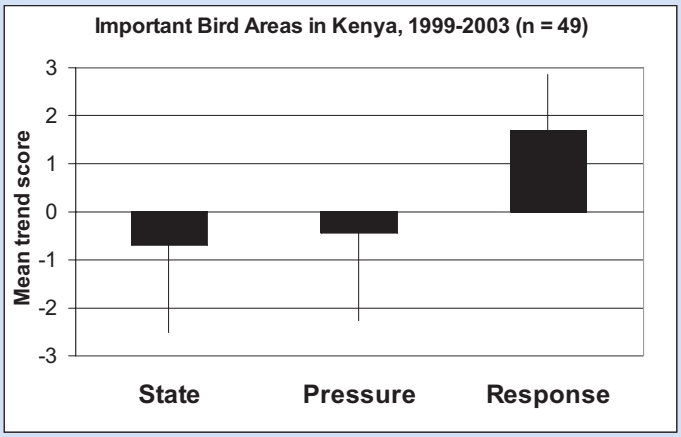
Other functions of the National IBA Monitoring Coordinator are likely to include:

- ⇨ Gathering information at the national level from Government, donors and commercial organisations about their development plans
- ⇨ Promoting the incorporation of IBAs into National Biodiversity Strategy and Action Plans (NBSAPs)
- ⇨ Ensuring that site monitors have all available baseline information, including World Bird Database data, maps, previous monitoring reports, aerial photos, satellite images etc.

3.4 The National IBA Report

The national IBA status and trends report should highlight any significant positive or negative changes at particular sites, and give as detailed a health check as possible for any sites assessed in urgent of conservation action. **It should include a clear list of management recommendations based on the monitoring outcomes.** This would also be an appropriate place for a brief review of how well the monitoring process itself has worked. The report on the status and trends of Kenya's IBAs for 2004 (Otieno *et al.* 2004) provides an indication of what such a publication can look like (see Figure 4).

Figure 4. Summary results from monitoring Kenya's IBA network for the period 1999-2003



3.5 Resource requirements for monitoring

The minimal resource requirements are:

- ⇨ Personnel with appropriate skills for handling both the network of monitors (including institutional focal points) and the data (including the necessary expertise in the use of the World Bird Database).
- ⇨ Appropriate computer hardware and software to run the World Bird Database and (ideally) GIS; and a filing cabinet, for the paper IBA database.
- ⇨ Funds for the production and circulation of forms and reports, follow-up within the network, facilitation of the IBA-NLC, and for copying materials to the IBA paper database.

These resources may not be large but they are unlikely to be met from NGO core budgets. **The costs for monitoring need to be built into future project funding, both national and regional, for the IBA programme.** There are issues of longer-term sustainability that are difficult to address at present: these are linked to the need to find core resources for the BirdLife Partnership to function. Often, many of the NLC institutions need to monitor IBAs to fulfil their own mandates. The more responsibility they can take on institutionally, the more likely it is that the system will be sustainable.

As well as these resources, in order to run smoothly, IBA monitoring will require:

- ⇨ Endorsement by the IBA-NLC institutions or equivalents, and oversight from group (e.g. a Monitoring Sub-committee) consisting of focal points for the relevant institutions
- ⇨ A strategy for sensitisation and training of Government and NGO field staff, LCG members and other volunteers (e.g. through short seminars).

4. Assessing and scoring Important Bird Areas

This section presents the method for assessing and scoring the threats to IBAs, the condition of IBAs, and conservation actions taken at IBAs. It involves assigning simple scores to selected indicators for each of Pressure (threats), State (condition) and Response (actions) (see Note 1). These indicator scores are then used to obtain overall IBA status and trend scores. The scoring system uses a 'weakest link' approach applied to IBA 'trigger' species (see Notes 2 and 3). The scores and supporting information are entered, managed and analysed through the World Bird Database (see Note 4) which includes an indication of the quality of the data (see Note 5).

Although the details of scoring Pressure, State and Response differ, the resulting scales are the same for each. **Status scores** are assigned on a simple, four-point scale, from 0 to 3 (or -3 in the case of Pressure). **Trend scores** can be calculated by comparing status scores between assessments, on a scale of -3 to 3. Trends cannot usually be assessed until the second set of monitoring data has been collected; the first time the information is collected represents the 'baseline', against which subsequent comparisons are made. However, there may sometimes be enough existing information that one or more assessments can be completed retrospectively: in Europe, for many IBAs the baseline will be governed by the targets established at the time the site was designated as an SPA (see Note 10). An overview to the scoring system is given below (see Figure 5).

Figure 5. Monitoring Important Bird Areas: scoring overview

VARIABLE	STATUS			TREND	
	Pressure				
	Scores	**Status scores**			**Trend scores**
Timing	0,1,2,3				
+	+				
Scope	0,1,2,3				
+	+				
Severity	0,1,2,3				
=	=			Status score from	
Total (Impact)	0-9	→ 0,-1,-2,-3	→	Year 2 – Year 1 →	-3,-2,-1,0,1,2,3
	State				
	percentage remaining			Status score from	
Populations or habitats	<40, 40-70, 70-90, >90	→ 0,1,2,3	→	Year 2 – Year 1 →	-3,-2,-1,0,1,2,3
	Response				
	Scores				
Designation	0,1,2,3				
+	+				
Planning	0,1,2,3				
+	+				
Action	0,1,2,3				
=	=			Status score from	
Total	0-9	→ 0,1,2,3	→	Year 2 – Year 1 →	-3,-2,-1,0,1,2,3

See Annex 2 for a more fully worked example for assessing and scoring the threats to an IBA, the condition of an IBA, and conservation actions taken at an IBA.

Note 1

Why such a simple scoring system?

The scoring system for monitoring IBAs allows clear and easily understood presentation of the results, both site-by-site and between sites, in a similar way for each of Pressure, State and Response. Its simplicity is appropriate for a system that will often be based on qualitative data, and which aims to capture a valid general impression (rather than a precise measurement) of status and trend. With only four levels, the size of the step between each level is large. This makes the scores relatively insensitive to change. More detailed information is not lost, however, but is captured through the methods for arriving at these overall 'headline' scores in the World Bird Database (see Note 4).

Note 2

The 'weakest link' approach

Some sites may support 'trigger' species (see Note 3) that differ in their conservation status, or depend on habitats that are changing in different ways. In these cases, the scoring system uses a 'weakest link' approach. This means that IBA scores are based on the 'worst' case indicator score (e.g. the most threatened species or the least intact habitat). This approach is **precautionary** and gives a **simple decision rule** to use when only incomplete information is available. Common sense, however, needs to be used to avoid IBA scores based entirely on a species or habitat for which the site is relatively unimportant.

For example, consider an IBA which is also an 'Alliance for Zero Extinction' (AZE) site (see www.zeroextinction.org) because is it the only known site for a Critically Endangered (CR) species. The site may have also been identified as an IBA for another, more widespread Globally Threatened Bird (GTB). Action at the site may have improved things for the CR species but the widespread GTB may have declined (perhaps even because of this action/management). In this case it would not be appropriate to use the widespread GTB as the 'weakest link'.

Note 3

Trigger species

'Trigger' (or qualifying) bird species are those for which the site has been recognised as an IBA under any of the global (or, where appropriate, regional) criteria.

Note 4

Monitoring IBAs and the World Bird Database

The World Bird Database will ensure that the data are entered appropriately so that indicator scores can be applied consistently. It will also automatically assign IBA status and trend scores, based on information entered for the indicators. However, the validity and usefulness of these results will ultimately depend on the selection of appropriate indicators, timely collection of field data, consistent interpretation of this information, sensible application of the 'weakest link' approach (see Note 2), and explanation of the basis for the scores so that they can be acted upon meaningfully.

Note 5

Data quality assessment

The World Bird Database includes provision for an assessment of the quality and reliability of the data upon which the scores are awarded, as follows:

Good – based upon reliable and complete or representative data
Medium – based upon reliable but incomplete or partially representative data
Poor – based upon little, or potentially unreliable or unrepresentative, data.

4.1 Assessing and scoring threats (Pressure)

The threats to IBAs are scored by National IBA coordinators based on information collected at each IBA by site-based monitors (see Annex 3 for an example of a field form), along with whatever other reliable information is available. A list of threat types is given in Annex 3 (see also Note 6).

Threats are scored according to their timing, scope and severity, in relation to how likely they are to affect the 'trigger' bird species at the site. Depending on the circumstances and the information available, the threat assessment may be based on:

- ⇨ Information on threats that affect one or more 'trigger' species (for which there is good information) or each 'trigger' species assessed individually (then applying the 'weakest link' approach)
- ⇨ Knowledge about the site (and especially the key habitats on which the 'trigger' species depend) as a whole.

Timing, scope and severity scores are then combined to give an **impact** score as follows:

Timing of threat	**Timing score**
Happening now	3
Likely in short term (within 4 years)	2
Likely in long term (beyond 4 years)	1
Past (and unlikely to return) and no longer limiting	0

Scope of threat	**Scope score**
Whole population/area (>90%)	3
Most of population/area (50-90%)	2
Some of population/area (10-50%)	1
Few individuals/small area (<10%)	0

Severity of threat	**Severity score**
Rapid deterioration (>30% over 10 years or 3 generations, whichever is the longer – see Note 7)	3
Moderate deterioration (10–30% over 10 years or 3 generations)	2
Slow deterioration (1–10% over 10 years or 3 generations)	1
No or imperceptible deterioration (<1% over 10 years)	0

Impact score of threat = timing score + scope score + severity score (see Note 8)

Important: if the score for any of timing, scope or severity for a given threat = 0, then the impact score for that threat = 0. (This means that the impact score never has the value 1 or 2.)

Using the 'weakest link' approach, the highest impact score of any threat is then used to assign a threat status to the IBA on a scale of 0 to -3 (see Note 9), as follows:

Highest impact score of any threat	**IBA threat status score & its description**
0	0 Low
3-5	-1 Medium
6-7	-2 High
8-9	-3 Very high

Note 6

A standard system for recording threats, habitats and actions

The standard system for recording threats, habitats and actions against IBAs in the World Bird Database is being revised and updated. It is now based on a simplified version of the IUCN Authority Files used in the Red List assessment and documentation of the threat status of species. There are obvious data management and analytical benefits in harmonizing the classification systems used by the two programmes as far as possible. Note that in the World Bird Database threats are coded against the site as a whole even though these may be determined from threats to individual 'trigger' species. For a more detailed explanation of the threat categories than can be given in the Appendix, see www.redlist.org

Note 7

Generation length

Generation length is the average age of parents of the current cohort.

Note 8

Calculating the impact score for threats

For timing, scope and severity of threat, estimates of the time period and extent will usually be based upon informed guesses, rather than accurate counts or measurements. The thresholds shown are thus for guidance only. 'Likely in short term' means that the expectation is high that the threat will be realised because plans are approved, permission has been granted and no serious obstacles to the execution of the threat are anticipated. 'Likely in long term' means that the imminence of the threat is more distant because plans are not yet approved. The severity of the threat should be assessed **only** against the proportion of area or population affected. Assessment of the severity of impending threats may be difficult; common sense has to be used, drawing, where possible, upon experience of the effects of similar threats previously or elsewhere to make informed predictions.

This method for calculating impact is different from the one used until now by the IBA programme. It has been refined in the light of experience gained in the use of the previous system and seeks to address its shortcomings. Conceptually, the threat impact should be determined by the product (multiplication) of timing, scope and/or severity. For ease of use, however, addition is used here (the end result is identical).

Note 9

Why is the IBA threat status score zero or negative?

This allows consistent presentation with the scores for status and response. In each case, a higher score (less negative, or more positive) is good for conservation and a lower score is bad for conservation.

4.2 Assessing and scoring condition (State)

Condition of IBAs are scored by National IBA Monitoring Coordinators based on information collected at each IBA by site-based monitors, along with whatever other reliable information is available.

The condition assessment may be based on:

- ⇨ Population sizes for one or more 'trigger' species (for which there is good information) or each 'trigger' species assessed individually (then applying the 'weakest link' approach)
- ⇨ The area and quality of the key habitats on which the 'trigger' species depend, as an indirect measure, or 'surrogate', for population size.

For many IBAs, population data will not be available and scores for the condition status of the site will be based on habitat(s). In Europe, the approach to be adopted also has to take into account the requirements of SPA monitoring (see Note 10). Which approach to use and how to interpret it will, however, usually depend on the circumstances and the information available (see Note 11). For migratory bottleneck IBAs, habitat condition may not be relevant and count data may not be available. At these sites, the condition of the air space may be the most important feature, which in turn could be affected by threats from hunting, power lines, airports, or pollution. Assessing the condition of such sites is still under discussion and thus, in the immediate future, the condition of these sites may have to be left as "unset", with notes to capture any relevant factors which might be useful for future evaluation.

Scores must also take into account a comparison of the population sizes of 'trigger' species to either:

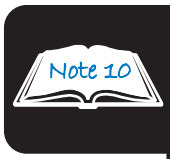
- ⇨ Their size when the IBA was first identified, assuming there is no indication that species' populations then were declining or depleted
- ⇨ The optimum for the site, based on the estimated extent of potential habitat and population density in undisturbed conditions.

Similarly, scores must also take into account the existing areas and quality of key habitats compared to the estimated potential optimum for the site. These comparisons are used to calculate or estimate the percentage of potential population or habitat remaining as follows:
% potential population or habitat remaining = (remaining population or area / estimated optimum population or area) x 100%

This equation assumes that the habitat quality is optimal. Often this will not be so. In which case the estimates will need to be 'devalued' accordingly (see Note 12 for further details). In cases where population estimates are given as a range, it is recommended that the lower figure is used for assigning scores.

Using a 'weakest link' approach, the IBA is assigned a condition status score based on the percentage of potential population or habitat (after adjusting for quality) remaining of the 'worst' species or habitat, as follows:

% potential population or habitat remaining of 'worst' species or habitat	**IBA condition status score & its description**
>90%	3 Good
70-90%	2 Moderate
40-70%	1 Poor
<40%	0 Very Poor



Favourable Conservation Status - an additional flag for IBAs in Europe

For IBAs in Europe it is important to know if they have 'Favourable Conservation Status' (FCS), a phrase used in relation to the condition of sites designated as Special Protection Areas (SPAs) under the Birds Directive of the European Union (see also Box 1 on page 5). For a site to have an FCS, all of its trigger species must themselves have FCS, that is, must meet or exceed targets specified for their population sizes (or ranges or habitats). IBAs that are assessed to have >90% of their potential trigger species populations or key habitats remaining are scored as '3' under the IBA monitoring framework (='Good'). European IBAs which are assigned this score may also meet the (higher) requirements for FCS. An extra flag in the WBDB is available to record this.

Note 11

Interpreting information on populations and habitats

Care is needed when basing estimates of condition on population counts. First, some bird populations show substantial natural fluctuations between years (for instance, due to weather variation). Second, populations may change for reasons that have nothing to do with the site itself, particularly in the case of migratory or nomadic species. It is important to assess the kind of species involved and the stability of the baseline counts. On the other hand, while habitat area and quality may often give a good estimate of site condition, they must be used carefully too. Even with optimal habitat availability, bird populations could remain low if affected by other factors (internal to the site) such as hunting pressure.

Habitat may be heterogeneous within an IBA. If a particular habitat is crucial for the IBA 'trigger' species, then attention should focus there. The area of remaining habitat at a site should refer to natural (or restored) habitat – i.e. declines occur if natural areas are converted by or for human use. Sometimes habitat area might change without a change in land use (e.g. through encroachment of scrub or bushes on grassland).

Change based on habitat area or quality may be scored annually, if data are available. This may not be appropriate when based on species populations which tend to fluctuate. However, a change in the same direction in two consecutive years (or sets of observations, if less frequent) merits scoring. Changes may not always be consistent across different 'trigger' species or key habitats. A common-sense assessment of the comparative importance of the site for these species or habitats is required here, to avoid basing the score on a species or habitat for which the site is relatively unimportant.

Note 12

Combining information on habitat area and quality

The quality of the habitat is important as well as its area. Where a habitat has been degraded so that it may hold less than an optimum density of the 'trigger' species, the area needs to be 'devalued' accordingly.

Example: When first designated, 10,000 ha of an IBA was covered in montane tropical forest, the remaining 500 ha being natural grass glades. The IBA 'trigger' species are confined to montane forest. Monitoring now suggests that the forest area has reduced to only 9,000 ha. Furthermore, half this remaining forest (4,500 ha) has been intensively logged leaving only half (4,500 ha) undisturbed. Where logging has taken place, it is estimated that this may cause a reduction in density of the most sensitive 'trigger' species to 60% of its former levels.

The area of disturbed forest needs to be 'devalued' accordingly in the calculation. So:
% potential population/area remaining = (((4500 x 0.6) + 4500) / 10000) x 100 = 72%

The site's condition should therefore be scored as 2 = 'Moderate'.

It will often be difficult to estimate change with this degree of precision. In the absence of detailed ecological knowledge, the exact effect of habitat degradation may only be guessed at, so this needs to be handled cautiously. The following table provides a guide to arriving at an IBA condition status score in the absence of numerical data.

		Area			
		Good (>90%)	Moderate (70-90%)	Poor (40-70%)	Very poor (<40%)
Quality	Good (>90%)†	3	2	1	0
	Moderate (70-90%)	2	1	0	0
	Poor (40-70%)	1	0	0	0
	Very poor (<40%)	0	0	0	0

† These percentage ranges relate to the population density of the 'trigger' species in its key habitat. Thus 100% means that the species is at carrying capacity in its habitat.

4.3 Assessing and scoring actions (Response)

The level of conservation response is scored by the National IBA Monitoring Coordinator based on information collected at each IBA by site-based monitors, and whatever other reliable information is available.

Three complementary measures of response – the levels of (1) formal designation for conservation, (2) management planning and (3) implementation of conservation action (see Note 13) – are scored, as follows:

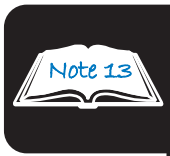
Conservation designation	**Score**
Whole area of IBA covered by appropriate conservation designation (>90%)	3
Most of IBA covered (including the most critical parts for the trigger species) (50–90%)	2
Some of IBA covered (10–50%)	1
Little/none of IBA covered (<10%)	0

Management planning	**Score**
A comprehensive and appropriate management plan exists that aims to maintain or improve the populations of qualifying species	3
A management plan exists but it is out of date or not comprehensive	2
No management plan exists but the management planning process has begun	1
No management planning has taken place	0

Conservation action	**Score**
The conservation measures needed for the site are being comprehensively and effectively implemented	3
Substantive conservation measures are being implemented but these are not comprehensive and are limited by resources and capacity	2
Some limited conservation initiatives are in place (e.g. action by LCGs)	1
Very little or no conservation action is taking place	0

The IBA is assigned an overall response status score based on the summed status scores for the three different action types as follows:

Summed action scores	**IBA action status score & its description**
8–9	3 High
6–7	2 Medium
2–5	1 Low
0–1	0 Negligible



Different types of conservation response

Conservation designation refers to formal recognition (whether or not legally binding) that should effectively protect the site and its biodiversity from adverse human influence. It may include a range of governance measures, from being gazetted under national or regional law as a protected area, to coverage by community management agreements or designation as a private nature reserve. To be considered comprehensive, in some instances management plans will need to take account of issues pertaining beyond the boundaries of the IBA. When assessing the effectiveness of a management plan, particular attention needs to be given to how it affects the trigger species. Conservation designation, management planning and conservation action have been chosen as the most appropriate indicators of the level of conservation response at IBAs. However, as well as monitoring these three responses, other information on conservation actions should also be recorded. The number of LCGs and LCG members is particularly important. The suggested checklist of actions to be considered is given in the example field form (see Annex 3). For in-depth monitoring of the effectiveness of protected area management plans and their implementation, consideration should be given to using the 'Management Effectiveness Tracking Tool' developed by WWF and the World Bank Alliance – see www.panda.org.

4.4 Calculating trends in threats (Pressure), condition (State) and actions (Response)

At the national, regional and global levels, trends in threats, condition and actions can be determined by plotting, for example, the mean value of the IBA status scores as a line graph. It will also often be useful to present trend scores for individual sites. These can be calculated by comparing the IBA status scores between assessments, i.e. (IBA status score in assessment 2) – (IBA status score in assessment 1) to provide a snapshot in time. In this case, the following threat, condition and response trend scores and their descriptions are proposed for consistency:

IBA threat, condition and action trend scores & their description

+3	Large improvement
+2	Moderate improvement
+1	Small improvement
0	No change
-1	Small deterioration
-2	Moderate deterioration
-3	Large deterioration

Further work is needed to develop and test these approaches once datasets have been generated. One issue that needs to be addressed is how to update indicator and IBA status scores retrospectively as a result of improvement of knowledge so that trend measures are based on the best available information and representative of genuine changes as far as possible.

Annex 1 In-depth monitoring

Because resources are usually scarce, in most countries in-depth monitoring will only be possible at a sub-set of top priority sites, where it is important to track and understand changes in more detail. There are no set rules or standards for in-depth monitoring: schemes must be tailored for the circumstances of individual sites.

Site selection

An explicit process is needed to select sites for in-depth monitoring. The first step is to set priorities for conservation action among IBAs. All IBAs are, by definition, high priority sites for biodiversity conservation. However, the sites that are most threatened and most irreplaceable are those where there is most to lose if action is not taken quickly. A general methodology for setting priorities for action is given in Langhammer *et al.* (in press); for a slightly simpler approach applied to IBAs see Bennun and Njoroge (1999).

When selecting sites for in-depth monitoring the crucial question is 'Where will monitoring have the greatest conservation value?' It is also important to consider whether in-depth monitoring at a particular site is feasible and potentially sustainable. Sites ranked in the top, critical, bracket of priorities for action are likely to be the first candidates for monitoring. Other site attributes that could be considered include:

- ⇨ Ongoing conservation interventions or projects (monitoring can help assess their impact, and provide the information for adaptive management)
- ⇨ Particular threats that need to be tracked, and that can be monitored effectively
- ⇨ The presence of people who can do the monitoring (active LCGs/IBA caretakers, other volunteers or interested Government agencies).

How often and how much to monitor?

As always, this depends on the questions being asked. In-depth monitoring should be done often enough to track changes and obtain an understanding of natural fluctuations, but not so often that it becomes a hugely expensive and time-consuming exercise. If monitoring happens only at very long intervals, it will be difficult to know whether any changes are the result of a long-term trend or simply due to underlying natural variation. On the other hand, in-depth monitoring should obviously not be carried out so often that it becomes an end in itself and leaves no time or resources for conservation action.

When in doubt, for most sites and most variables, annual measurement (consistently at the same time of year) will be a sensible choice. The time of year selected will depend on what is being measured. Some species are only present during certain seasons, for example.

How many data should be collected each time? This is important where data collection involves sampling. There are statistical methods, as well as useful but less sophisticated rules of thumb, to provide guidance. Expert advice should be sought wherever possible. Preliminary surveys may be needed to establish levels of variation. A sampling regime can then be designed that detects changes above a particular magnitude.

Practical limitations will often make an ideal sampling design impossible. Some aspects cannot be compromised, however, if the data are to mean anything. Sampling schemes must be:

- ⇨ Unbiased. This requires careful randomised or systematic sampling.
- ⇨ Sensibly stratified, where appropriate. A stratified design samples separately in parts of a site with different characteristics that might influence what is being measured. For instance, it could be important to separate different altitude bands, or areas with different land-management histories.
- ⇨ Adequately replicated. Statistical analysis is impossible unless there are enough independent sample units within each stratum. As a very rough rule of thumb, under six is certainly too few; 10 might just do; 30 is comfortable; 100 might be overkill. It is important to avoid pseudo-replication – e.g. covering a transect several times gives a more accurate measurement for that transect, but still provides only one data point for analysis.

What to monitor?

In-depth monitoring is likely to focus mainly on State variables – the site's biodiversity value, and related habitat condition measures (where these are known to affect the species of concern). However, in-depth assessment of Pressure and Response may sometimes be needed. A range of variables can potentially be monitored, and these need not be the same from site to site or country to country.

Variables need to be carefully selected so that the monitoring can help improve site management. If monitoring numbers of a threatened bird, for example, it is probably useful to monitor habitat structure too. Then changes in bird numbers can be related to habitat changes, with appropriate feedback to management.

The variables assessed should be clearly linked to the conservation values and management objectives for the site: for IBAs, these will generally relate to important bird populations. These values and objectives will not always be obvious or universally agreed, and need to be made explicit when monitoring is being planned.

For Africa, Bennun (2002a) lists possible variables for monitoring in different habitats, and provides examples of in-depth monitoring protocols that can be used by LCGs. These may give useful ideas for other regions too.

Resource requirements for in-depth monitoring

In-depth monitoring requires resources additional to those outlined in section 3. These include:

- ⇨ Personnel with the technical capacity to design and implement appropriate sampling regimes and monitoring protocols
- ⇨ Technical training and provision of equipment for monitoring teams (made up of LCG members, Government and NGO staff, and other volunteers)
- ⇨ Funds for transport and subsistence (where necessary) of monitoring teams
- ⇨ Funds for follow-up training and inspection visits.

Conservation projects could provide start-up funds for this work. However, this must in due course become an activity carried out mainly by LCGs from money they raise themselves, or by Government/NGO staff as part of their duties (supported from central funds). LCGs in particular need to be encouraged to take ownership of the process at their sites.

Key points: In-depth monitoring

- ⇨ In-depth monitoring must be designed for each site separately.
- ⇨ Priorities need to be set for in-depth monitoring based on its value for conservation, and feasibility.
- ⇨ Technical advice is needed for the sampling design. Sampling must be unbiased, sensibly stratified and with enough independent replicates.
- ⇨ The variables monitored should be linked to the conservation goals and management targets for the site. For IBAs these should reflect the important bird populations.
- ⇨ Ideally, in-depth monitoring should be carried out by local residents: LCGs/IBA caretakers and/or Government field officers (rangers, forest guards, etc.).
- ⇨ LCGs and Government need to institutionalise in-depth monitoring in their strategy and work programme. Problems arise if they believe they are monitoring 'for' BirdLife, rather than for themselves.

Example of in-depth monitoring: the International Waterbird Census

The International Waterbird Census (IWC) is a major existing monitoring system coordinated by Wetlands International. It has been running since 1967 and now covers more than 100 countries (with variable consistency) in Africa, Asia, Europe, the Neotropics and the Pacific. A separate but parallel scheme runs in North America. Many BirdLife Partners are involved with the IWC, some acting as the chief coordinators in their countries.

The IWC involves annual (sometimes more frequent) counts of waterbirds at selected wetland sites. A detailed site description form is completed for each site when it is visited for the first time. Thereafter, a standardised census form (tailored regionally and sub-regionally) is completed for each census. This form includes a section on site condition and disturbance, though only basic information is likely to be recorded.

Wetland sites are often IBAs because of the congregatory waterbirds they hold. Changes in waterbird numbers can indicate ecological changes at these sites (though because numbers are often very variable, data from several years are needed to set a baseline). Waterbird counts also demonstrate whether the IBA criteria continue to be met. Clearly, therefore, the IWC fits very well into the overall IBA monitoring framework. The IWC also provides the only in-depth IBA monitoring in a number of countries that are presently outside the BirdLife network.

The IWC objectives are wider than IBA monitoring. The main goals include estimating waterbird population sizes, monitoring changes in waterbird number and distribution, improving knowledge of little-known waterbirds and wetlands, identifying and monitoring sites that qualify for Ramsar listing, providing information on the conservation status of waterbirds under international agreements, and increasing awareness of the importance of waterbirds and wetlands. These broad goals mean (among other things) that the wetlands monitored in the IWC may not be the top priorities for in-depth site monitoring, nor indeed IBAs in the first place.

Greater integration between the IWC and the IBA monitoring system is desirable. BirdLife Partners involved in the IWC should view it as one component of their bird monitoring programme, contributing to species, habitat and particularly site monitoring. In practical terms, this means that the IWC National Coordinator and National IBA Monitoring Coordinator should either be the same person (or team), or at least communicate, and divide up responsibilities appropriately.

Partners need to ensure that the most appropriate set of sites is covered for the IWC. This set may not overlap completely with the priorities for in-depth site monitoring among IBAs, but it should at least have taken those priorities into account.

While the IWC already collects some additional data beyond bird numbers, this could be enhanced. It would be useful to know of major changes in site condition, and to have more detailed measurements to help interpret the waterbird data (such as water depth, water quality, extent of various habitats, etc.).

There is also a need for BirdLife to work with Wetlands International to develop joint, or at least compatible, site monitoring forms for use at wetlands covered by the IWC. There are plans to do this under a UNEP-GEF Flyways Project, covering the African-Eurasian Waterbird Agreement (AEWA) region, scheduled to start in 2006.

Annex 2 Assessing and scoring an IBA: an example

When first designated, approximately 10,000 ha of an IBA were covered in seasonally flooded grassland, interspersed with freshwater lakes. The area of grassland has been reduced to 9,200 ha and the habitat quality has recently deteriorated. Different IBA 'trigger' species occur in each of the habitats, so it has been decided that both should be monitored (rather than the bird populations) as indicators of State. There are three threats (grazing by livestock, harvesting of reeds, and water pollution owing to agricultural run-off) that are of particular concern to the 'trigger' species, so these have been selected as indicators to monitor Pressure. Information has been provided in two consecutive years by a LCG and entered into the WBDB by the National IBA Coordinator, with an assessment of the IBA as follows:

Pressure: status = High; trend = No change
State: status = Moderate; trend = Small decline
Response: status = Low; trend = Small improvement

This assessment is based on the following scoring:

For Pressure

follow dark line first

Threat type	Impact score (year 1)	Timing score (year 2)	Scope score (year 2)	Severity score (year 2)	Impact score (year 2)
Grazing by livestock	6	3	3	1	7
Harvesting of reeds	7	3	0	1	0
Water pollution	0	2	2	2	6

Highest impact score any threat	**IBA threat status score & its description**	**Threat trend scores for IBA & their description**
0	0 Low	+3 Large improvement
3-5	-1 Medium	+2 Moderate improvement
6-7	-2 High	+1 Small improvement
8-9	-3 Very high	0 No change
		-1 Small decline
		-2 Moderate decline
		-3 Large decline

The IBA threat status score in its second assessment is -2 (= 'HIGH') based on the threat from grazing livestock (happening now, over most of the area, causing slow deterioration: 3+3+1=7) which has the current highest impact score of the selected threats (and which is therefore used as the 'weakest link').

The IBA threat trend score is 0 (= 'NO CHANGE') based on the difference between impact scores for the threats from grazing (the highest impact score for the second assessment) and harvesting (the highest impact score for the first assessment).

Note that the threat from harvesting reeds has an impact score of 0 in its second assessment because it scores 0 for 'scope' (now only affecting a small area and few individuals of trigger species). Note also that the impact scores of individual threats have changed, and that the score for pollution has changed the most (although the timing score indicates that this is a predicted threat).

For State

follow dark line first

Habitat class	Calculated optimum area for IBA (ha)	Calculated area (year 1)	Quality (year 1)	Adjusted % habitat remaining (year 1)	Calculated area (year 2)	Quality (year 2)	Adjusted % hab. remain (year 2)
Grassland	10000	9200	Good	92	9200	Moderate	70–90
Wetland	Unknown	Unknown	Good	>90	Unknown	Good	>90

% potential population or habitat remaining	**IBA condition status score & its description**
>90%	3 Good
70-90%	2 Moderate
40-70%	1 Poor
0-40%	0 Very Poor

Condition trend scores for IBA & their description	
+3	Large improvement
+2	Moderate improvement
+1	Small improvement
0	No change
-1	Small decline
-2	Moderate decline
-3	Large decline

The IBA condition status score in its second assessment is 2 (= 'MODERATE') because although 92% of its grassland habitat still remains, the quality is no longer optimal, and thus the % remaining has been 'devalued' accordingly (see Note 10). The grassland habitat is the worse of the two key habitats because the wetland habitat is judged to be >90% of its potential, even though there is currently no estimate of its extent.

The IBA state trend score in its second assessment is -1 (= 'SMALL DECLINE') based on a decline in the quality of its grassland habitat, owing to an increase in the impacts from grazing.

For Response

follow dark line first

Action type	Status score (Year 1)	Status score (year 2)
Conservation designation	0	0
Management planning	0	3
Conservation action	1	2
Total	1	5

Summed indicator response scores	**IBA response status score & its description**	**Response trend scores for IBA & their description**
8–9	3 High	+3 Large improvement
6–7	2 Medium	+2 Moderate improvement
2–5	1 Low	+1 Small improvement
0–1	0 Negligible	0 No change
		-1 Small decline
		-2 Moderate decline
		-3 Large decline

The IBA action status score in its second assessment is 1 (= 'LOW') based on the combined status scores for designation, planning and action (no designation, an existing comprehensive management plan, and substantive but limited actions in place).

The IBA action trend score for this IBA in its second assessment is +1 (= 'SMALL IMPROVEMENT') based on the difference in total status scores between the two assessments for the three different action types (previously no plan and only some limited actions in place).

Annex 3 Example of a field form (see opposite and following pages)

Forms can be tailored to the requirements of particular countries, institutions and sites. It helps if they are structured so that the information can be used easily by the National IBA Monitoring Coordinator for scoring IBAs and entering the details into the World Bird Database. An example of a field form is shown at the end of this report. It may often be appropriate to include the logos of other institutions that are involved in the monitoring, or to design specific forms for their use.

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BirdLife IBA IMPORTANT BIRD AREA

Monitoring Important Bird Areas

Help to monitor IBAs – key sites for biodiversity conservation!

PLEASE:

- Answer the questions below.
- Give details wherever possible.
- Return a completed form once a year if you are resident at a site or a regular visitor, but note that relevant information is helpful, at any time.
- Consider making use of sketch maps as an additional means of recording key results, such as the precise location & extent of threat, sightings of key species, extent of particular habitats, routes taken and areas surveyed etc.
- Return the completed form to the National IBA Coordinator or equivalent of the BirdLife Partner in your country. For details of BirdLife Partners see www.birdlife.org/worldwide or write to BirdLife International, Wellbrook Court, Girton Road, Cambridge CB3 0NA, UK

PART I. ESSENTIAL INFORMATION (please use a different form for each site)

Name of the IBA _____ Date _____

Your name _____ Postal address _____

_____

Telephone/fax _____ email _____

What does this form cover? (tick one box)

☐ (a) the whole IBA ☐ (b) just part of the IBA

If (b), which part/how much of the whole area?

_____

_____

Do you live at or around the IBA?

☐ (a) Yes ☐ (b) No

If (b) when did you visit the IBA and for how long?

_____

_____

what was the reason for your visit(s)?

_____

_____

_____

Part II. MONITORING THE IBA

You don't need to answer all the questions or fill in all the tables – please just put down the information that you have available.

THREATS TO THE IBA ('PRESSURE')

General comments on threats to the site and any changes since your last assessment (if relevant):

In the table opposite and overleaf, please score each threat that is relevant to the important birds at the IBA, based on your observations and information, for Timing, Scope and Severity. In the 'details' column, please explain your scoring and make any other comments. Please note any changes in individual threats since the last assessment. If threats apply only to particular bird species, please say so.

Use the following guidelines to assign scores for Timing, Scope and Severity. The numbers are there to help you score, but are intended as guidance only: you don't need exact measurements to assign a score. For scoring combined threats, Timing, Scope & Severity scores should either be equal to or more than the highest scores for individual threats; scores cannot be less than those allocated to individual threats.

Timing of selected threat	**Timing score**
Happening now	3
Likely in short term (within 4 years)	2
Likely in long term (beyond 4 years)	1
Past (and unlikely to return) and no longer limiting,	0

Scope of selected threat	**Scope score**
Whole area/population (>90%)	3
Most of area/population (50-90%)	2
Some of area/population (10-50%)	1
Small area/few individuals (<10%)	0

Severity of selected threat	**Severity score**
Rapid deterioration (>30% over 10 years or 3 generations whichever is the longer)	3
Moderate deterioration (10–30% over 10 years or 3 generations)	2
Slow deterioration (1–10% over 10 years or 3 generations)	1
No or imperceptible deterioration (<1% over 10 years)	0

Notes on threat types

1. **Agricultural expansion & intensification** Threats from farming and ranching as a result of agricultural expansion and intensification, including silviculture, mariculture and aquaculture. Note that wood and pulp plantations includes afforestation, and livestock farming and ranching includes forest grazing. Agricultural pest control and agricultural pollution-specific problems apply to '5. Over-exploitation, persecution & control', and '9. Pollution' respectively.
2. **Residential & commercial development** Threats from human settlements or other non-agricultural land uses with a substantial footprint; resulting in habitat destruction and degradation, also causing mortality through collision. Note that domestic or industrial pollution-specific problems apply to '9. Pollution'.
3. **Energy production & mining** Threats from production of non-biological resources; resulting in habitat destruction and degradation, also causing mortality through collision. Note that renewable energy includes windfarms.
4. **Transportation & service corridors** Threats from long narrow transport corridors and the vehicles that use them; resulting in habitat destruction and degradation, disturbance and collision.
5. **Over-exploitation, persecution & control** Threats from consumptive use of wild biological resources including both deliberate and unintentional harvesting effects; also persecution or control of specific species. Note that hunting includes egg-collecting, gathering includes firewood collection, and logging includes clear cutting, selective logging and charcoal production.
6. **Human intrusions & disturbance** Threats from human activities that alter, destroy and disturb habitats and species associated with non-consumptive uses of biological resources.
7. **Natural system modifications** Threats from actions that convert or degrade habitat in service of managing natural or semi-natural systems, often to improve human welfare. Note that 'other ecosystem modifications' includes intensification of forest management, abandonment of managed lands, reduction of land management, and under grazing. 'Dams & water management/use' includes construction and impact of dykes/dams/barrages, filling in of wetlands, groundwater abstraction, drainage, dredging and canalisation.
8. **Invasive & other problematic species & genes** Threats from non-native and native plants, animals, pathogens and other microbes, or genetic materials that have or are predicted to have harmful effects on biodiversity (through mortality of species or alteration of habitats) following their introduction, spread and/or increase in abundance.
9. **Pollution** Threats from introduction of exotic and/or excess materials from point and non-point sources causing mortality of species and/or alteration of habitats. Note that domestic and urban waste water includes sewage and run-off; industrial and military effluents includes oils spills and seepage from mining; agricultural and forestry effluents and practices includes nutrient loads, soil erosion, sedimentation, high fertiliser input, excessive use of chemicals and salinisation; and air-borne pollutants includes acid rain.
10. **Geological events** Threats from catastophic geological events that have the potential to cause severe damage to habitats and species.
11. **Climate change & severe weather** Threats from long-term climatic changes which may be linked to global warming and other severe climatic/weather events.

THREAT TYPES	Scores: Timing	Scores: Scope	Scores: Severity	DETAILS
1. Agricultural expansion & intensification				Give details of specific crops, e.g. oil palm, or animals, e.g. cattle, & issue
Annual crops – Shifting agriculture				
– Small-holder farming				
– Agro-industry farming				
Perennial non-timber crops – Small-holder plantations				
– Agro-industry plantations				
Wood & pulp plantations – Small-holder plantations				
– Agro-industry plantations				
Livestock farming & ranching – Nomadic grazing				
– Small-holder grazing, ranching or farming				
– Agro-industry grazing, ranching or farming				
Marine & freshwater aquaculture – Subsistence/artisanal aquaculture				
– Industrial aquaculture				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				
2. Residential & commercial development				Give details of type of development & issue
Housing & urban areas				
Commercial & industrial areas				
Tourism & recreation areas				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				
3. Energy production & mining				Give details of specific resource & issue
Oil & gas drilling				
Mining & quarrying				
Renewable energy				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				
4. Transportation & service corridors				Give details of specific type of transport & issue
Roads & railroads				
Utility & service lines				
Shipping lanes				
Flight paths				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				
5. Over-exploitation, persecution & control of species				Give details of issue
Direct mortality of 'trigger' species – hunting & trapping				
– persecution/control				
Indirect mortality (bycatch) of 'trigger' species – hunting				
– fishing				
Habitat effects – hunting & trapping				
– gathering plants				
– logging				
– fishing & harvesting aquatic resources				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				

THREAT TYPES	Scores			DETAILS
	TIming	Scope	Severity	
6. Human intrusions & disturbance				Give details of specific activity & issue
Recreational activities				
War, civil unrest & military exercises				
Work & other activities				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				
7. Natural system modifications				Give details of the alteration & issue
Fire & fire supression				
Dams & water management/use				
Other ecosystem modifications				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				
8. Invasive & other problematic species & genes				Give details of the invasive or problematic species & issue
Invasive alien species				
Problematic native species				
Introduced genetic material				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				
9. Pollution				Give details of pollutant, source if known (e.g. agricultural, domestic, industrial) & issue
Domestic & urban waste water				
Industrial & military effluents				
Agricultural & forestry effluents & practices				
Garbage & solid waste				
Air-borne pollutants				
Noise pollution				
Thermal pollution				
Light pollution				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				
10. Geological events				Give details of specific event and issue
Volcanic eruptions				
Earthquakes/tsunamis				
Avalanches/landslides				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				
11. Climate change & severe weather				Give details of specific event and issue
Habitat shifting & alteration				
Drought				
Temperature extremes				
Storms & floods				
If more than one threat is scored in this section, please also score here their Timing, Scope & Severity in combination				
12. Other				If the threat does not appear to fit inthe scheme above, give details here of the threat, its source if known and how it's affecting the IBA
1.				
2.				
3.				

CONDITION OF BIRD POPULATIONS AND HABITATS ('STATE')

General comments on condition of the the site and any changes since your last assessment (if relevant):

If you have **estimates or counts of bird populations**, or other information on the important bird species at the IBA, please summarise these in the table below:

Bird species or groups	**Population estimate** (state whether individuals or pairs)	**Details/other comments**

If you have information on the **area** of the natural habitats important for bird populations at the IBA, please summarise it below. Please note any major changes since the last assessment in the 'details' column.

Habitat	**Current area if known** (include units, e.g. ha, km^2) or code†	**Details/comments/major changes**

†Habitat area codes: Choose from Good (overall >90% of optimum), Moderate (70–90%), Poor (40–70%) or Very Poor (<40%)
If you do not know the actual habitat area, give your best assessment of the current habitat area at the site, in relation to its potential optimum if the site was undisturbed. The percentages are given as guidelines only: use your best estimate. Please justify your coding in the 'details' column.

If you have information on the **quality** of the natural habitats important for bird populations at the IBA, please summarise it below. Please note any major changes since the last assessment in the 'details' column.

Habitat	**Quality rating***	**Details/comments/major changes**

*Habitat quality rating: Choose from Good (overall >90% of optimum), Moderate (70-90%), Poor (40-70%) or Very Poor (<40%).
Give your best assessment of the average habitat quality across the site, in terms of its suitability for the important bird species. The percentage ranges relate to the population density of the 'trigger' species in its key habitat. Thus 100% means that the species is at carrying capacity in its habitat. The percentages are given as guidelines only: use your best estimate. Please justify your selection in the 'details' column.

CONSERVATION ACTIONS TAKEN AT IBA ('RESPONSE')

General comments on actions taken at the site, including recent changes or developments

Please tick the box next to the text that applies for each of conservation designation, management planning and conservation action below. Please add any details and where appropriate give a brief explanation for your choice.

CONSERVATION DESIGNATION

- ☐ Whole area of IBA (>90%) covered by appropriate conservation designation
- ☐ Most of IBA (50–90%) covered (including the most critical parts for the important bird species)
- ☐ Some of IBA covered (10–49%)
- ☐ Little/none of IBA covered (<10%)

Details and explanation

MANAGEMENT PLANNING

- ☐ A comprehensive and appropriate management plan exists that aims to maintain or improve the populations of qualifying species
- ☐ A management plan exists but it is out of date or not comprehensive
- ☐ No management plan exists but the management planning process has begun
- ☐ No management planning has taken place

Details and explanation

CONSERVATION ACTION

- ☐ The conservation measures needed for the site are being comprehensively and effectively implemented
- ☐ Substantive conservation measures are being implemented but these are not comprehensive and are limited by resources and capacity
- ☐ Some limited conservation initiatives are in place (e.g. action by Local Conservation Groups)
- ☐ Very little or no conservation action is taking place

Details and explanation

PART III. INFORMATION ON PEOPLE AND INSTITUTIONS AND THEIR ACTIVITIES

Please record any IBA-Local Conservation Groups (IBA-LCGs) (e.g. SSGs, Caretaker Groups) established at the site in the table below.

IBA-LCG name	Total members	Male members	Female members	Other information

In the table opposite, please indicate the activities undertaken by any CBO, the BirdLife Partner, Government agencies or other organisations or people at the IBA.

Notes on action types

1. **Land/water protection** Actions to identify, establish or expand parks and other legally protected areas.
2. **Land/water management** Actions directed at conserving or restoring sites, habitats and the wider environment.
3. **Species management** Actions directed at managing or restoring species, focused on the species of concern itself.
4. **Education & awareness** Actions directed at people to improve understanding and skills, and influence behaviour
5. **Law & policy** Actions to develop, change, influence, and help implement formal legislation, regulations (including at the community level), and voluntary standards.
6. **Livelihood, economic & other incentives** Actions to use economic and other incentives and to influence behaviour.
7. **External capacity building** Actions to build infrastructure resulting in better conservation, including through civil society development (e.g. enhancing community role in decision-making on natural resource use).

PART IV. ACTIVITIES UNDERTAKEN AT THE IBA

Please indicate the activities taken by the IBA-LCG, CBO, and other organisations/agencies on the table below. This should include current activities, and activities carried out in the last four years.

ACTION TYPES	Action being undertaken by:					DETAILS
	IBA-LCG	Other CBO	BirdLife Partner	Government	Other (specify)	
1. Land/water protection						
Site/area protection						
Resource & habitat protection						
2. Land/water management						
General site/area management						
Invasive/problematic species control						
Habitat & natural process restoration						
3. Species management						
General species management						
Species recovery						
Species (re)introduction						
4. Education & awareness						
Formal education						
Training						
Awareness, publicity & communications						
5. Law & policy						
Public legislation						
Policies and regulations						
Private sector standards & codes						
Compliance, enforcement & policing						
6. Livelihood, economic & other incentives						
Linked enterprises & livelihood alternatives (e.g.						
ecotourism)						
Substitution (alternative products to reduce pressure)						
Market forces (e.g. certification)						
Conservation payments						
7. Capacity building						
Institutional & civil society development						
Alliance and partnership development						
Conservation finance						
8. Other (e.g. surveys, research, EIAs)						
Non-monetary values (e.g. spiritual, cultural)						
1						
2						
3						

PART V. ADDITIONAL INFORMATION

Please give any further information or details that you think may be helpful. For example • Number of conservation staff and volunteers • Number of visitors • Revenue generated • Interesting bird records • Lists or details of other fauna or flora • Useful contacts (for research or conservation projects, tourism initiatives etc.) • Other notes. Please attach or send more sheets or other documents/reports as necessary.

Thank you for taking the time to fill in this form!

The Important Bird Area Programme of BirdLife International

- The function of the Important Bird Area (IBA) Programme is to identify, protect and manage a network of sites that are important for the long-term viability of naturally occurring bird populations, across the geographical range of those bird species for which a site-based approach is appropriate.

- The continued ecological integrity of these sites will be decisive in maintaining and conserving such birds. Legal protection, management and monitoring of these crucial sites will all be important targets for action, and many (but not all) bird species may be effectively conserved by these means. Patterns of bird distribution are such that, in most cases, it is possible to select sites that support many species.

- The IBA Programme is global in scale and more than 10,000 IBAs have already been identified world-wide, using standard, internationally recognised criteria for selection.

- The sites are identified on the basis of the bird numbers and species' complements that they hold, and are selected such that, taken together, they form a network throughout the species' biogeographic distributions.

- This network may be considered as a minimum essential to ensure the survival of these species across their ranges, should there occur a net loss of remaining habitat elsewhere through human, or other, modification. Therefore, the consequences of the loss of any one of these sites may be disproportionately large.

- The programme aims to guide the implementation of national conservation strategies, through the promotion and development of national protected-area programmes. It is also intended to assist the conservation activities of international organisations and to promote the implementation of global agreements and regional measures.

www.birdlife.org

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