COST 635: INTERCAFE-Conserving Biodiversity: Interdisciplinary Initiative to Reduce pan-European Cormorant-Fisheries Conflicts

Evaluation Report prepared by the "ad hoc" Evaluation Panel established by the Domain Committee and edited by the Rapporteur

1. Evaluation panel and evaluation procedures

List the members of the panel: Title, name, affiliation, Tel., Fax, E-mail.

Describe briefly the evaluation activities the documents made available to and used by the members of the panel and the procedures followed for the evaluation.

Panel members:

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The Evaluation encompassed a number of approaches:

- The Action Rapporteur had been following the Action from mid-way as part of his ESSEM DC membership duties. This gave the opportunity for frequent interaction with the Action Chair and MC and annual review.
- The Panel all participated in two MC meetings and associated workshops: South Bohemia (April 2008) and Paris (September 2008).

- The Panel met with the Action Chair to plan the Evaluation in April 2008; then convened as a team in Edinburgh in July 2008 to prepare the Evaluation; then convened as a team in Paris in September to finalise the Report.
- The Panel reviewed the numerous Action paper outputs.

2. Results versus objectives

Describe briefly how and to what extent the results obtained match the objectives.

The value of, and need for, enhanced European research coordination in the area of cormorant-fisheries conflict was demonstrated by the EU-funded FPV Concerted Action "Reducing the conflicts between cormorants and fisheries interests on a pan-European scale" (REDCAFE) conducted between 2000-2002. This brought together many interested parties and organisations from 25 countries (including 10 in Central and Eastern Europe) and included many local stakeholders and also a number of case-studies involving recreational angling. Building on this initial network of researchers at the forefront of pan-European cormorant-fisheries conflict resolution, this cross-cultural and cross-disciplinary COST Action had the overall objective:

"improve European scientific knowledge of cormorant-fisheries interactions in the contexts of the interdisciplinary management of human:wildlife conflicts and of sound policy formation, so as to inform policy decisions at local to international levels across Europe and to deliver a coordinated information exchange system and improved communication between all stakeholders".

The wealth of material collated within INTERCAFE covers all relevant aspects of the cormorant-fisheries conflict. The sheer output of the Action is remarkable, convincing in both detail and scientific value, and was achieved despite no staff time and co-ordination work being financed by the Action.

INTERCAFE has built considerably on the REDCAFE framework for understanding the cormorant-fisheries conflict. It has drawn together key players and stakeholders working on a range of issues including how the scale of the problem is evolving across Europe, methods to reduce the interactions between cormorants and fisheries, social and economic factors and, essentially, improving the dialogue between the conflicting stakeholder groups. There is, however, greater output in terms of cormorant-related information than fisheries. The latter has arisen because of the complexities of assessing the status of fish populations in large water bodies and is not a criticism of the Action.

European scientific knowledge on the cormorant-fish conflict has been enhanced by a number of articles in the international, peer-reviewed scientific literature and through a range of other outlets. There is clear evidence of the Action's impacts in citations in DG Research and DG Maritime Affairs and Fisheries publications, and in products from international and global NGOs. Action outputs have been included in local and regional management plans and policy. The standardised methods for collating data on both bird populations and their impacts on fisheries have provided a step forward in coordinating data at the European level; and the large number of web hits (see below) and media uptake demonstrate the value of a single, credible source of information. There is greatly enhanced communication between all stakeholders, especially in and around workshop venues. The overall objective has been largely met.

The main results of the Action are in the form of comprehensive reports written after each meeting/workshop; the number of workshops and associated activities was very high. As the Action included many of the national key researchers in cormorant-fisheries interactions across Europe and several social scientists with expertise in human-wildlife conflicts and their development and potential forms of resolution, the work of the Action almost certainly represents state-of-the art on this issue.

The Action made considerable progress towards understanding the complex issues surrounding the cormorant-fish interactions. This information was used to design actions to address conflicts in ecological and socially acceptable ways. It also highlighted the importance of fisheries and inland water bodies to the cultural heritage and biodiversity in many countries and influenced decisions on compensation for cormorant damage to protect these attributes.

Specific results

WG1: Ecological databases and analyses

• Document the status and distribution of cormorants across Europe

Standardised monitoring results on population dynamics, migration routes, and areal changes of the two subspecies and different populations of European cormorants were collated by INTERCAFE experts, and form an essential basis for a rationalized discussion on potential or actual threats to fisheries on a regional, national or supra-national level. The summary table of the independent database on size, location and status of all European cormorant breeding colonies is extremely valuable, and maintaining open access to this via the Action's web site is appropriate (and which also allows for any future updates). It is vital that this database is continually updated and extended to fulfil this important role in future. Acceptance from the bird conservation side is best achieved if cormorant impacts on fish stocks are clearly and unequivocally shown and not confounded by the range of other variables that might impact on fish population demography and abundance.

Information gathered and disseminated by the Action on the distribution and dispersal of cormorants is valuable from a fisheries perspective because it allows forecasting of the potential conflict areas and orientation of management actions. It should be possible to integrate this information with more extensive fisheries data likely to arise as an outcome of the Water Framework Directive and derive more robust assessments in the future.

• Develop a Water Systems Database

The Water Systems Database has been developed and this has a good geographical coverage (although a few gaps were apparent, notably Russia, Belarus, Ukraine; and France and the Iberian Peninsula) based on best available information and expert knowledge. It is structured on a number of water body categories and has demonstrated relationships for assessing cormorant presence in relation to water surface area and turbidity/water quality; but has also confirmed the relationship with fish biomass to cormorant abundance in Europe, especially in coastal areas and large lakes. This is a very formative database that should be published and further developed and updated.

• Explore GIS possibilities

GIS mapping techniques were developed to show temporal shift in cormorant distribution relative to air temperature classes: temperature was shown to be an important driver of cormorant breeding onset and time of fledging. The 50x50km water grid is helpful for estimating the surface area of water available for cormorants. Major cormorant regions around the Baltic and sections of large European rivers were identified. Main conflict areas (mapped by number of shooting licenses issued) unexpectedly showed that most conflicts did not coincide with cormorant numbers in both summer and winter. Follow-up work is needed to include water quality and fish data, and more analyses of conflict distribution in relation to seasonal cormorant distribution.

The database and GIS are major tangible products from the Europe-wide collaboration engendered within the Action.

WG2: Conflict resolution and management

• Coordinate biological, social and economic assessments of actions and mitigation measures at local to national scales

Over 20 Country Reports were collated, and these contributed towards quantifying changes in the numbers of birds being killed across Europe.

The Toolbox offers a decision support guide for the user to identify the most appropriate management action in a given situation, helping to avoid measures that could increase friction between the conflicting parties. The practicalities of various management options are illustrated through a range of contrasting Case Studies. The table summarising management actions taken against cormorants in Europe forms a very important baseline for decision makers.

The production of the Toolbox to assist conflict resolution and management is a major success of the Action. Information on the effectiveness of management strategies is presented at regional levels. The Toolbox provides the essential framework to assess how conflicts can best be resolved. It offers fisheries managers a breadth of measures to mitigate or resolve conflicts between cormorants and fisheries. The Toolbox perhaps needs expanding as there are numerous options, but with no obvious choice decision making pathway for various types of waters or different impact scenarios. This would best be supported by cost-benefit analysis techniques and inclusion of these would be an important element for any future Action or other follow-up activity. Overall, the Toolbox will be an extremely important outcome widely used by both conservationists and other interest groups alike.

• Examine the legal frameworks operating in relation to actions and mitigation measures and consider economic aspects of specific fisheries

The fully systematic review has not been achieved due to time and financial constraints, but the approach has proven beneficial in understanding the overall context of the issues.

WG3: Linking science with policy and best practice

• Promote links between the biological and social science communities, local stakeholders, economists and policy advisors to better understand the role of socio-cultural issues in conflict, their management within legal frameworks, and efforts towards their resolution

The Action has worked hard to foster enhanced links between all stakeholders involved in the cormorant-fisheries debate. While there is some clear evidence of uptake of outputs by local and national policy and resource management groups, communication between some stakeholders has, however, only been partly improved by this Action. This is not so much related to the Action *per se*, but rather a general communication issue regarding an emotionally-charged topic. From an initial position of two clear camps at the Action's outset, there is now a more unified group discussing the cormorant-fish issues. Over time this has assisted in developing a shared understanding of the conflict, which is less adversarial and more focussed on consensus building.

One of the key issues identified from an external fisheries perspective concerns the development of an action plan on a pan-European scale. Although developing such a plan was not an Action objective, it is clearly perceived as a need by some fisheries stakeholders – and this has been acknowledged by the Action. While the Action has enhanced stakeholder dialogue in general, this was not seen as adequate by some external fisheries stakeholders, who have responded by proposing an action plan be developed via the EIFAC working party on cormorants.

3. Outcome and achievements

Describe the main outcome and the main achievements, and the significance of these, including the dissemination of results

The Action has several achievements and successes:

Excellent networking not only between national research efforts but also between natural and social sciences; researchers and policy; conservationists and fisheries industries/angling communities.

Good outreach to society through effective and strategic use of media to communicate with stakeholders.

Strong and potentially very effective publication plans in place based on a variety of outputs for difference audiences: scientific, policy and society at large.

The Action has been hugely beneficial, bringing together different stakeholders and conflicting groups to a common forum where the problems are debated and consensus found. It certainly has helped to change the perception of people involved (not only within the Action, but generally of those in charge with the fisheries/cormorant conflict). It may also have changed the language that conflicting parties use in discussions. The problems fisheries now face are acknowledged more by conservationists as a result of the INTERCAFE reports. Information from the project has been widely circulated amongst fisheries agencies and practitioners, and the partners have made numerous presentations to all levels of society to encourage dialogue between sectors and harmonise activities to minimise conflict. It is recognised that dissemination is an ongoing process and mechanisms should be explored for maintaining and updating the website, at least in the foreseeable future.

One of the distinguishing features of this Action was the strong bio-social component, which adopted a political ecology approach. This encompassed a number of main elements: stakeholder analysis, temporal perspectives, conflict management, governance, issues of scale, law, and science and society (incorporating science communication). Together these have provided a rich contextual setting for the activities, and have been well-integrated with

the more biological aspects. They have contributed strongly to make this Action an exemplar of how to address conflict resolution in environmental management issues.

The political sensitivities surrounding the Action have been considerable, and required an extraordinary scientific evaluation of the Action (replacing the standard mid-term evaluation of all COST Actions) to verify the scientific integrity of the Action and to assuage lobbyists on the issue.

4. Impact of the Action

Describe the importance and benefits for international science and technology.

"Impacts" need to be seen in terms of near-term, and long-term.

Near-term impacts of the Action primarily improved scientific and social understanding of the issues involved, and a brought heightened awareness of the complexity of the cormorant-fisheries debate across the wide range of stakeholders involved. This is manifested by the enthusiastic involvement of fisheries managers, conservation groups and policy makers in the Action and the considerable media coverage of the Action's activities. Throughout the life of the Action, the number of requests to join the Action increased.

The BirdLife International/FACE agreement¹ of June 2008 can be seen as a success of REDCAFE and INTERCAFE. This agreement seems to be the first on this conflict at European level. It is worth noting that neither the conservationists (represented by BirdLife International) nor the hunters (represented by FACE) are in any way favouring a pan-European management plan for the cormorant or a downgrading of the species to Annex II of the Birds Directive, i.e. to the status of a game species requiring constant management. It is clear, though, that the political evaluation of the cormorant issue and the consequences for lobbying work and recommendations made by BirdLife International at the EU level are based on the Action. The Action's mere existence has played a major role in the formation of this agreement - although the actual decision to work out such an agreement was reached as a reaction to the lobbying pressure arising at EU Parliament level.

In addition to the agreement with FACE, BirdLife International is planning to bring INTERCAFE representatives and the EU Committee on Fisheries together in due course (autumn 2008) to develop common solutions on the conflict to be outlined within a planned EU parliamentary report. This is intended to help the EU Commission form a sound opinion on the subject and see to the instalment of INTERCAFE recommendations at a pan-European level. At present, it can be envisaged on the basis of the planned discussions that INTERCAFE will influence management strategies at international level and have impact on legislative discussions both at the EU level and within individual states.

Outputs from the action have been utilised as part of the formulation of the new EU Fisheries Policy and further input from the action will be expected as the policy is finalised. Perhaps the most significant impact is the realisation within the fisheries sector that cormorants and fisheries can coexist and measures are available to minimise the adverse interactions in certain circumstances. Continued promotion of the outputs is essential to maintain this positive momentum.

It is difficult to assess long-term impacts by the Action on regional or pan-European societies at this stage, and this will probably only be possible well after the final dissemination of the

 $^{^{1} \; \}texttt{http://gozonews.com/notices/joint-statement-of-birdlife-international-and-face-on-cormorants/}$

wealth of documents (an element of the outcomes) of the Action at the end of 2008. It is clear that by building on the earlier REDCAFE study, work in this area is highly topical, visible and of keen scientific, policy and social interest. Ultimately EU and national policy is likely to be significantly influenced by the work of the Action.

5. European added-value

Describe how the Action used the COST Framework to achieve its goal and what synergies and added value resulted from COST cooperation.

The Action used the COST framework to network a wide range of researchers and other stakeholders across 27 countries, in continental Europe from Portugal to Finland. Furthermore, the Action also included participants from Russia, Serbia, Croatia, Georgia, and Israel. The Working Group structure was effectively used to addresses discrete – yet well coordinated – aspects of the work plan, and a range of synthesis activities brought these together. There was clear added value at the European level by (i) bringing best science to bear on a pan-European issue; (ii) integrating natural and social sciences in the context of a societal-level and policy-relevant agenda; (iii) integrating disparate data and information within agreed standards; and (iv) identifying areas for further collaboration at the European level.

6. Coordination and management

Describe briefly the effectiveness of coordination and management.

The Action management comprised:

Chairperson: Dave Carss

Vice-chairperson: Rosemarie Parz-Gollner

WG1 (Ecological databases and analysis) Co-ordinators: Stefano Volponi and Stef van Rijn

WG2 (Conflict resolution and management) Co-ordinators: Thomas Keller and Kareen Seiche

WG3 (Linking science with policy and best practice) Co-ordinators: Mariella Marzano, Scott Jones and Dave Carss

Given the large number of countries involved, the full MC was too cumbersome to work effectively, and a smaller Steering Committee was convened. This proved a good strategy as the Committee worked well together, and ensured coordination between WGs. Working through local participants, the Committee sought as full an engagement with local stakeholders as possible in meetings. Strong leadership was provided by the Chair, with enormous scientific and logistic assistance from WG Leaders (especially Mariella Marzano). The web-based forum was a useful tool for helping communications within the Action and was used to run an e-conference. It is noteworthy that the Action was delivered during the period of COST financial instability and uncertainly; and that the Action was administered by four different SOs of very differing ability.

The use of the Small Meetings COST instrument was used extensively, and was instrumental in effective management of the Action. The financial uncertainty in the early years limited the potential for STMS, but these were used effectively in later stages to help with technology transfer and capacity building, database development and technology testing in the field. More formal Training Schools were not undertaken as there was no clear topic warranting the use of the instrument.

7. Dissemination of results

Describe briefly the effectiveness of the dissemination of results.

The Action has been active throughout in disseminating results through scientific publications in peer-reviewed journals and international meetings. The fisheries aspects have also been disseminated through the EIFAC working party on Cormorants and thus to fisheries agencies throughout Europe. The information has been taken up by DG Fisheries and Maritime Affairs as part of their strategic vision of the fisheries sector.

Media coverage has been impressive during the course of INTERCAFE with extensive coverage on the widely-perceived conflict in local as well as national media, at least in those countries where the workshops were being held. A significant dissemination aspect has therefore been this strategic use of the media and specialist magazines and other outlets. Given the social nature of the conflict, this was an effective means of bringing the issues to the fore, and informing local people about the Action and its activities. The Action website (www.intercafeproject.net) has also been used effectively, with a very high hit rate (ca. 90,000/month), especially around the times of regional activities. A press conference is planned for a presentation of Action outputs in association with an appropriate international meeting.

The Action's publication plan and dissemination strategy is well conceived and offers a wide variety of information to different users from politicians to school children, while Working Group reports, Case Study reports, Minutes of Action meetings, etc., all give important insights into the current situation in different European regions and into potential or actual solutions in the cormorant/fisheries conflict. To gain an overview on this massive output, the more formal Toolbox and Cormorant Manual form vital synoptic views, which are crucial and very helpful outcomes from the Action. In addition, the "integrated synthesis" within a glossy brochure, in which important aspects of the massive range of reports are summarized in one- or two-page abstracts each, will be of real help to decision makers in focussing their attention on individual items. Major outcomes of the Action should be translated into the European languages as soon as possible (with additional financial means supplied by EC for this purpose). The idea of holding a high-level Briefing in Brussels, and an associated press conference, is welcomed as a key aspect of the dissemination strategy particularly in relation to EU-level policy formulation. This, coupled with the aim of distributing the formal reports and brochures widely within all 30 countries involved in the Action (together with pdf products via the INTERCAFE web site), clearly warrants the full and urgent implementation of the publication plan.

8. Strengths and weaknesses

The Action had a number of clear strengths:

Visionary approach in design: The need for the work, and the value of pan-European networking and integration, was clearly identified in the REDCAFE project. This was effectively built upon to deliver a broader approach based on bringing together the best research with policy and industry. This was a visionary approach, built on recognising the need to establish a broad-based community to address the "thorny" issues head on.

Targeting a societal level, policy relevant issue: The very topic of this Action was one of its strengths; it set out to address a highly contentious issue by bringing best science to the table to inform (not prescribe) the debate and "survived" a vigorous attack by lobbyists. This is an excellent example of an integrated Action that the "environmental management" aspect of ESSEM envisions.

Delivery of outputs: The outputs evaluated above attest to the success of the Action. While not all anticipated outputs (*vis à vis* stated objectives) have been fully achievable, the Water Systems Database, the 'Cormorant Manual', the Toolbox and the envisioned publications are all commendable and will undoubtedly be used by government agencies and institutions for assessing potential mechanisms for minimising conflicts.

Balancing nature conservation with fisheries heritage: The Action provided critical insight into the way different countries have responded to the problems arising from the cormorant-fish interactions, and most importantly how conservation of traditional fisheries heritage activities and water body usage are protected through social and political intervention.

Enthusiasm, drive and commitment of the MC: The overall dedication by the MC to implementing the Action has been a key factor in the success. This has engendered inputs from the Action members well beyond what would have been expected given the level of funding.

The Action had, perhaps, two weaknesses:

The lack of sufficient economic expertise to deliver the hoped-for industry-level impacts in cash terms is noted, but this is a huge endeavour in its own right and warrants a follow-up study (see below). Hard economic data did not enter INTERCAFE's deliberations in the way anticipated. Reasons for the reluctance to deliver such data were already listed in the REDCAFE report (p. 153-4), and INTERCAFE has also been largely unable to overcome these obstacles despite the best attempts of participants. Nevertheless, some economic information (perhaps available only semi-quantitatively) was tabled at each meeting.

INTERCAFE was seen by some angling and fish farming stakeholders as biased towards cormorant conservation rather than an "open" forum, and they may have felt ill-represented in the Action. Despite best efforts by the Action, this is largely due to the perception from the fisheries sector that the project was orientated too much towards delivering information on cormorant distribution and abundance in comparison to fisheries-related issues. This was perhaps inevitable considering the problems with obtaining quality information on status of fisheries across Europe. It is anticipated that the outputs of the Water Framework Directive will benefit projects of this nature and enhance the understanding of the impacts of bird predation.

9. Recommendations

Include recommendations on new Actions.

The Action has clearly highlighted the importance and value to science and society of this area of work. While the Action has been effective in delivering nearly all its objectives, it has identified several areas deserving follow-up:

• Maintain the network's vigour and networking activities.

- Maintain the website and message board.
- Undertake cormorant (status and distribution) censuses every 6 years.
- Develop the high potential of using the GIS product for predictive modelling.
- Develop an agreed methodology to determine the economic cost of cormorant damage to fisheries, probably differentiated into coastal areas, fishpond systems used for aquaculture and recreational purposes, and natural lakes and riverine systems with their respective properties and diverse fish stock.
- Make information on various control measures (lethal, fish habitat-related and fish stock management) widely available.

The **overarching recommendation** therefore is that the EU should fund long-term monitoring across Europe of cormorant populations (including all lethal actions), and fisheries impacts. This would fall in line with the EC Habitats Directive cycle, and should be discussed with JRC to establish EU "ownership" of the process.

Specific recommendations are:

- * Form a supra-national scientific platform (working group) under EU mandate, with the aim of getting it officially accepted by all interest groups, to (i) collate (and disseminate) conflict-relevant material; (ii) maintain an interactive website; (iii) clarify expressions and concepts used in the conflict, i.e. find an operational definition of "damage" (to fish stock); (iv) work out how economic or ecological damages have to be proven to warrant compensations or management actions; (v) harmonise guidelines for interpretation of Article 9 of the Birds Directive; and (vi) to see to the improvement of data sets, especially concerning Europe-wide knowledge on fish stock, on fish population sizes and population trends, on management measures, and their dependencies on natural and abiotic factors (including integrating better the cormorant datasets with fisheries mapping). It may also be necessary to ask this science group to test important conflict cases with respect to whether cormorants were essential in the (proven) decline of fish stock or whether other factors were more, or solely, important. This work should include the development of web-based technologies for data collation, integration and analyses.
- Translate the INTERCAFE Toolbox, Cormorant Manual, and Integrated Synthesis into all European languages to maximise usage in all EU countries (and beyond) and encourage the adoption of INTERCAFE results and solutions in all EU countries. There is a need to further advance the Toolbox by incorporating new developments, both considering population changes (birds, fish) and management techniques. It is thus important to develop a questionnaire for Toolbox-users in which to ask about their experiences with the Toolbox for its further improvement.
- Continue to bring together research tools to reduce the impact of cormorants on fish stocks and update the Toolbox package on a regular basis. This should include financial (cost-benefit) analyses of the various options. It is recognised that this is a workpackage in its own right and environmental economic methodologies may have to be adapted to assess damage caused by bird predation. It is also recommended that the Toolbox is modified to include a risk analysis tool rather than a predictive tool for dealing with the potential impact. This would widen the applicability of the Toolbox

- and avoid the problems with trying to develop predictive models based on highly dynamic, multifaceted ecological and social systems.
- ❖ Work in conjunction with EIFAC, BirdLife International, high-level bodies in appropriate DGs in the EC and with other relevant groups to develop a pan-European, multi-disciplinary strategy that reduces conflicts between fish and cormorants under different scenarios and promote guidelines for determining economic losses and possible compensation procedures.
- Continue to enhance the social and economic dimensions and understanding of the motives and drivers of the various stakeholders involved in cormorant-fisheries conflicts, hence enabling a more proactive collaborative process.
- Explore specific links between this work and other relevant natural resourcemanagement conflicts.

The need for these follow-up activities warrants a fully funded next phase. While a new Action to address some of these gaps might be helpful, the highly competitive process of launching new Actions, together with the limited funds provided for them, suggests other funding mechanisms should be explored, but with the support of COST Office as appropriate. This would both add value to the investment made in the Action thus far, and help show how COST and COST Office helps in leveraging further resources.

Should a follow-up Action be launched, aims could be to improve the communication between different "interest groups", especially with respect to management planning; assess the costs to local, regional or national economies of changing cormorant numbers under different management scenarios; assess the effectiveness of management strategies and conflict resolutions and formulate final paper of recommendations to the EU. Such an Action would need to include a strong socio-economic component to ensure that all aspects of the conflict can be treated on the highest scientific level, and hence might best be considered as a Trans-Disciplinary Proposal in COST.

Summary Statement formally endorsed by ESSEM Domain Committee (19 September 2008)

COST Action 635 "INTERCAFE" was a knowledge-transfer network aimed at better understanding and informing the highly-charged debate between conservationists, commercial fisheries, recreational anglers and policy processes at a range of levels from very local to Europe-wide. This ambitious Action effectively coordinated and synthesised best available science and contextual knowledge from across Europe and achieved almost all its stated aims. It delivered a wide range of innovative and high-quality products which are already having significant impact on policy formulation and resource management at European-, national- and local-levels. This impact will be reinforced by the full implementation of the publication plan and dissemination strategies, including the proposed high-level briefing in Brussels.