



Convention on the Conservation of Migratory Species of Wild Animals

Secretariat provided by the United Nations Environment Programme



TECHNICAL WORKSHOP ON MIGRATORY BIRDS POISONING

REPORT

Tunis, 27-28 May 2013

1. Opening of the meeting, appointment of Chair and introduction of participants

Khaled Zahzah (Tunisia) opened the meeting, welcoming participants to Tunisia. He assured delegates that they could expect a warm reception and that the country was overcoming a few hurdles as it progressed towards democracy. He thanked CMS for having accepted the invitation of the Tunisian government to hold the meeting in Tunis and urged all those attending to make the most of their visit and see the sights. Turning to the subject of the Workshop, the poisoning of birds worldwide was deeply worrying and needed to be addressed as a matter of urgency. He concluded his comments by announcing that Tunisia would be signing the MOU on Raptors during the course of the day.

Mr Zahzah introduced Ivana d'Alessandro of the Secretariat of the Council of Europe's Bern Convention. She said that the Workshop was the first manifestation of the Memorandum of Cooperation between the Bern and Bonn Conventions signed in 2009 under which the two Secretariats had undertaken to collaborate on common goals. She thanked the Tunisian Government for hosting the Workshop in conjunction with two meetings organized by the Bern Convention. The Bern Convention was the first biodiversity-related treaty dedicated to the conservation of European biodiversity, but its geographic range had been extended and it was open to non-European countries, such as Tunisia.

In 2011 the Parties to the Bern Convention had passed a resolution on the illegal killing of birds, which was relevant to the subject matter of the Workshop. Ms d'Alessandro pointed out that the annual meeting of the Standing Committee (the Bern Convention's equivalent of the CMS COP) would take place in Strasbourg, France from 3 to 6 December 2013, and the issue would be on the agenda then. The findings of the present Workshop would be relevant and she was eagerly waiting to hear the further discussions.

Nick P. Williams (Programme Officer, UNEP/CMS Raptors MOU) added his thanks to the Government of Tunisia. He explained the role of the Raptors MOU within the structure of the CMS Family.

He cited three examples illustrating the urgency of the need to act to conserve bird species threatened by poisoning. First, he recalled that as a child there were thought to be just two to three pairs of Peregrine Falcons in south-western England, where previously there had been 200-300. Secondly, in the space of just a few years, the populations of three Asian vulture species had collapsed and from being relatively common, they were now classified as Critically Endangered. Their severely reduced numbers had led to loss of human lives as the

prevalence of rabies carried by feral dogs had increased and had deprived the ecosystem of services valued at US\$34 million. Thirdly, while in Thailand in search of the Oriental Hobby (*Falco severus*), he had witnessed the evening exodus of the bats from a roost he had explored. As he drove away he noticed that the windscreen of his car was covered with insects. He recalled that this used to happen in the UK, but insect numbers there had been reduced by the use of pesticides, leaving bats and other insectivorous species with no prey. He concluded his comments by noting that Tunisia was an important staging post for many migratory birds that crossed the Mediterranean between Europe and Africa.

Borja Heredia (Scientific and Technical Officer, UNEP/CMS) expressed his satisfaction that after all the preparations so many people had come to the meeting and he too expressed his gratitude to the host government for the warm reception and support in organizing the Workshop. He also acknowledged the close collaboration of colleagues from the Secretariat of the Bern Convention.

He explained that the Scientific Council Working Group on Minimizing the Risk of Poisoning to Migratory Birds had been established as a result of Resolution 10.26 tabled by Switzerland and adopted by the Tenth Conference of the Parties to CMS in 2011. Symone Krimowa (RSPB) had been appointed coordinator of the Working Group, a post that it had been possible to create because of voluntary contributions from Switzerland and the United Kingdom. He also expressed thanks to Laura Aguado for her hard work in the organization of the Workshop. The Workshop had in turn been made possible thanks to the support of the Tunisian Ministries of Equipment & the Environment and Agriculture, the United Kingdom's Department for Environment, Food and Rural Affairs (Defra), the Swiss Federal Office for the Environment (FOEN), the CMS Raptors MOU, the European Science Foundation and BirdLife International.

Salah Hassini, Director General for the Environment and Quality of Life, officially welcomed the participants on behalf of the Host Government, noting that some had travelled long distances to attend. He expressed his thanks to the Council of Europe, the CMS Raptors MOU and CMS itself, as well as others that had contributed to the organization of the meeting and the production of documents.

Poisoning, both intentional and unintentional and both primary and secondary, was one of the main threats to migratory birds. It was an issue of international importance affecting health and the environment, which as a result required international cooperation to find effective solutions. Tunisia had already taken measures to control chemicals and was committed to working in international forums too. Birds were a vital part of the global environment and countries should work together to protect them.

Election of Officers

Mr Heredia (UNEP/CMS) invited nominations from the floor for the office of Chair of the Workshop. David Stroud (UK-JNCC) proposed Richard Shore (Predatory Bird Monitoring Scheme), who was elected by acclamation.

Mr Heredia proceeded to invite nominations from the floor for the office of Vice-Chair of the Workshop. David de la Bodega (Sociedad Española de Ornitología) proposed Juan Diego Vargas (Asociación de Ornitólogos Unidos de Costa Rica), who was similarly elected by acclamation.

Signature by Tunisia of the Raptors MOU

Mr Zahzah signed the Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia on behalf of Tunisia, bringing the total number of signatories to 43.

2. Workshop outline and modus operandi

The Chair thanked the meeting for the confidence that it had shown by electing him and outlined how he proposed to proceed through the ambitious agenda.

Presentation by Expert

He introduced Pierre Mineau (Carleton University), who gave a presentation entitled “Exploring and Assessing the Main Causes of Chemical Poisoning in Migratory Birds”. Mr Mineau proceeded on the assumption that participants had read the background papers provided by Ms Krimowa.

The key elements of the presentation included an explanation of the measurement and assessment of toxicity of substances to birds; evidence of the long-range impacts of the use of pesticides (as illustrated in the case of Swainson’s Hawks (*Buteo swainsoni*) migrating from the Argentinian pampas to the south-western USA); effects of rodenticides, poison-baits, lead and veterinary pharmaceuticals; indications that the use of alternative products could reduce the level of risk for many species and some localized threats – road salt affecting finches, cyanide leeching and mercury contamination in gold mining areas and oil ingestion. The slides comprising Mr Mineau’s presentation are attached as Annex 1 to this report.

Question & Answer Session

It was suggested that some of the safeguards used by the industry had been ignored in the presentation, but Mr Mineau felt that if these were really effective, the mortality incidents would not have occurred. He added that some regulatory bodies had a simplistic and misguided approach to their dealings with avian exposure to toxins. Also, the UK, with a long tradition of active ornithological NGOs lobbying for the conservation cause was not typical of the world as a whole.

The Chair intervened to curtail the debate at this point, suggesting that the detail be discussed in the thematic Working Groups that were about to be set up.

3. Introduction and scope of issue

The Chair introduced Ms Krimowa (RSPB) who described the remit of the meeting which had been set in the light of the limited time available. The slides comprising Ms Krimowa’s presentation “Introduction and Scope” can be found at Annex 2 of this report.

The objectives of the Workshop included starting to draft a set of Guidelines, assessing the scope and severity of poisoning of birds in the different flyways to identify which toxins were affecting which birds in which regions, identifying the drivers in the toxins’ use, identifying knowledge gaps and making recommendations and proposing solutions to address the problems. The findings of the Workshop would be passed to the CMS Scientific Council,

which would be meeting in mid-2014. In turn, a draft Resolution would be prepared to be tabled at the CMS Conference of Parties, to be held later the same year.

With regard to the taxonomic scope, the Workshop would deal only with migratory birds, although relevant evidence relating to other species should not be ruled inadmissible.

Ms Krimowa proceeded to provide definitions of key terms such as “lethal” and “sub-lethal”, “primary poisoning” and “secondary poisoning” (respective examples being direct ingestion of poisoned granules and eating poisoned carcasses) and “deliberate” and “accidental” with respect to poisoning. The indirect effects on migratory birds, e.g. the depletion of prey species, would not be considered by the Working Group.

Explaining the methodology of the Workshop, Ms Krimowa said that first three regional “break-out” groups would be established to deal with prioritizing poisoning issues by flyway, particularly in the Africa-Eurasia, the Americas and Asia-Pacific Flyways, to be chaired respectively by Alan Buckle, Pierre Mineau and Sarah Dove.

Later, five thematic “break-out” groups would be established to consider the different categories of poison: poison baits, lead poisoning, insecticides, rodenticides and NSAIDs/veterinary pharmaceuticals (see documents CMS/MPWG/Doc.03.a to CMS/MPWG/Doc.03.e). The conveners of the groups were respectively: David de la Bodega, Sergey Dereliev, Olivier Biber, Fernando Spina and David Stroud. The groups were asked to identify the main drivers behind the use of the different categories of poison and any knowledge gaps, to suggest possible solutions and to provide case studies that might offer valuable lessons. The Chair suggested that in prioritizing actions, Groups should give preference to actions that would be easiest to implement and produce fast results.

Mr Heredia (UNEP/CMS) explained that one of the main aims of the Workshop was to feed ideas into a Resolution to be tabled at the CMS COP11 in 2014. The Resolution would not only address Parties, but also other actors, such as the FAO and industry, and its content and scope would therefore be tailored accordingly.

4. Prioritization (by working groups) of poisoning categories to be addressed in workshop

The three regional groups were given the task of identifying the five main poisoning issues affecting their geographic area.

Americas

Mr Vargas, the rapporteur of the Americas Group, said that separate consideration had been given to North, Central and South America. The conclusion of the group was that the following categories were of greatest concern: organophosphates, carbamates, lead, second generation anticoagulants and first generation anticoagulants.

Deliberate poisoning and mercury had also been discussed but these were considered to be of lesser importance in the region

Africa-Eurasia

Mr Williams, the rapporteur of the African-Eurasian group, reported that the northern part of the region was well regulated, with the level of control reducing generally further south. Despite ample legislation controlling them, pesticides and insecticides were still being used illegally. Substances banned in Europe were still being produced and exported to Africa. Flower farms in East Africa were thought to be using high doses.

Second generation rodenticides had been considered and were thought to be a problem, with widely found evidence of environmental contamination and traces found in raptors. Inappropriate dosages were thought to be used.

Poisoned baits were also a major issue, and despite its being banned, use of strychnine was increasing, while lead was the most prevalent of the heavy metals because of its use in hunting.

An emerging problem was new insecticides and it was noted that the EU had recently imposed a ban on certain neonicotinoid products because of their effect on bees. PCBs and NSAIDs were not a major issue within the region. In the far north of the region (the UK and Scandinavia), the use of gritting salt on the roads in winter could cause localized poisoning, while irrigation schemes in Africa and the Middle East had unknown impacts.

Other categories of poisoning had also been considered but did not in the opinion of the Group members merit listing in the top five.

Asia

Tim Snow, rapporteur for the Asian group, said that discussions had been impeded by most members having little direct knowledge of the region (despite the fact that both CMS and the Ramsar Convention were active there) and the lack of research from the region (or at least any literature in English).

Insecticides in rice paddies were probably a major source of poisoning, as were pesticides. It was not known whether lead, used either in shooting or as weights for fishing, was a major factor in the region. Illegal poisoning, while constituting a global challenge, was thought to be significant with regard to ducks as a source of food and for controlling pest species. It was thought that Carbofuran (frequently marketed as Furadan ®) might be a problem in eastern Russia, and mercury emissions were rising as a result of greater demand for power.

It was suggested that the areas where endangered species were found should be mapped against the seasonal occurrence of crops and the worst threats from poisoning. There was a difference of opinion about how easily this mapping could be done.

It was also feared that there was masked threat resulting from the loss of habitats leading birds to concentrate into a smaller number of sites and being exposed to more intense threats.

Coordinated data collection along the lines of the approaches adopted in Australia, South Africa and the United Kingdom would be useful and might lead to “naming and shaming” manufacturers in an effort to improve product stewardship and industry standards and encourage effective prevention and mitigation strategies.

A number of species considered vulnerable to NSAIDs were not included in the lists provided in the meeting documentation. As these lists included all species and higher taxa on the CMS Appendices, those omitted were either non-migratory or not considered sufficiently threatened to be included.

Summary of Findings of the Regional Groups

The Chair drew together the findings of the three groups. All three had mentioned insecticides (organophosphates and carbamates) and both first and second generation anticoagulant rodenticides. Lead was a widespread problem, though possibly not affecting Asia as much as other regions. Poison baits and NSAIDs had been identified as an issue in Africa and Asia. Mercury was possibly an increasing threat in Asia. In some localities, insecticides (neonicotinoids), salt and irrigation were dangers.

Table: Prioritizing poisons by flyway, results from group sessions

| | Americas | African-Eurasian | E Asia / Australasian |
|--|---------------|------------------|-----------------------|
| Insecticides <ul style="list-style-type: none"> • OPs • Carbamates | * | * | * |
| Rodenticides <ul style="list-style-type: none"> • SGARS • FGARS | * | * | * |
| Lead | * | * | ? |
| Poison baits <ul style="list-style-type: none"> • Alphachlorolose • Strychnine • Carbamates | | * | * |
| NSAIDS | | ? | * |
| Mercury | | | Knowledge Gap |
| Insecticides <ul style="list-style-type: none"> • neonicotinoids | Knowledge Gap | | |
| Salt | Knowledge Gap | | |
| Irrigation | Knowledge Gap | | |

*Issue in flyway

5. Assessment (by working groups) of the drivers and impacts of poisoning on migratory birds

Before taking the reports of the working groups, the Chair said that it was most likely to be the case that too many proposals would be made to make the recommendations of the Workshop feasible. He therefore asked the Groups to identify two to three priority actions.

Insecticides Working Group

Mr Edwards explained that the Group had attempted to provide scores for the table to be representative of each chemical category, but found that products within each category varied considerably in their potential impacts. Separate tables had been prepared for organochlorines, organophosphates/carbamates and neonicotinoids and the tables had been simplified by excluding activities that did not apply.

One knowledge gap arose through the lack of proper documentation of the use of insecticides by crop and region, especially in developing countries. There was also some doubt regarding the level of threat posed by neonicotinoids.

The solutions proposed by the Group included: the removal and replacement by safer alternatives; stressing the importance of following the label; developing incentives to develop (and use) safer alternatives; identifying “migration hot spots” and overlap with crops and potential insecticide use; raising awareness of the poisoning of migratory birds and securing the inclusion of “migratory bird criteria” under the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.

Food crops and non-food crops (flowers and plants grown for fibres) had been treated separately because they tended to be regulated differently, with stricter controls over residues in food crops, especially those meant for consumption by humans or livestock. The group also found that under Criterion 1 (seriousness of effect) category three as defined (indirect effects) seemed to fall outside the remit of the Working Group and had therefore been interpreted as to mean having only minor direct impacts

Case Study

Incidents involving monocrotophos affecting Swainson’s Hawk (*Buteo swainsoni*) in Argentina (see also Mr Mineau’s presentation under agenda item 2 above) were highlighted

Question and Answer Session

Removal of dangerous substances from circulation and replacing them with safer alternatives posed the question of whether this could be achieved through voluntary actions or whether it required legislation. Substitution was a thorny problem and in some cases led to as many new problems as it solved old ones. When incentives were proposed to encourage alternative substances, the questions of whether it was the users or the producers, who should receive the incentives and who was to pay were raised. Certification schemes were often effective (cf shade coffee) and could be based on a range of criteria (e.g. environmental footprint, labour conditions)

In the case of the Swainson's Hawk example, the voluntary approach had worked. Much depended on the availability of acceptable alternatives – where two products were available and one was significantly more toxic than the other, the choice was clear. It was less obvious what should be done if only one product was on the market with serious impacts on birds: its use could be better regulated or in extremis it might have to be banned outright. Some substances were candidates for global bans under international chemicals agreements such as the Rotterdam Convention where safer alternatives existed. Compounds that were no longer under patent however were cheaper to produce and economic factors made them more attractive.

It would be relatively easy to start compiling a list of “hotspots” as key wintering sites, stop-overs and corridors were well known. It would take more time to plot against these sites the use of different chemicals and the crops that might be planted in or around them. A simple first step would be to ask the farmers, which would have the secondary advantage of initiating contact between landowners and conservationists. Such an approach had worked well in the case of the Burrowing Owls (*Athene cunicularia*) where farmers had been successfully converted to the use of less damaging chemicals.

Summarizing, the Chair said that local scale actions were often as effective as higher level strategies. Much could be gained by simply asking the right questions to landowners. It was also thought that in many cases farmers were aware of the issue but often they did not take the time or trouble to adhere strictly to the instructions on product labels. Changing end user attitudes was therefore important, as was dealing with old stocks, especially those of products that had been banned.

The slides comprising Mr Edwards' presentation can be found at Annex 4 of this report.

Rodenticides Working Group

Mr Buckle described the main themes that had been addressed, namely drivers, patterns of use and user groups, exposure routes, knowledge gaps and solutions.

Rodenticide use in open field agriculture and crop protection was identified as the greatest risk. Most manageable appeared to be usage when deployed against invasive alien species, which also had the least impact.

The main use patterns and user groups ranged from large plantation companies (e.g. sugar in Mexico and rubber in Indonesia) and government agencies dealing with rodent “plague outbreaks” (irruptions) to smallholders and subsistence farmers, all of whom sought to protect crops. Farmers (both large- and small-scale) and gamekeepers used rodenticides to protect livestock, as did pest control officers (PCOs) and municipal authorities charged with food and public health responsibilities. Rodenticides were used in food production factories, food and crop stores, restaurants and food retail outlets and by the general public controlling vermin in their houses.

Risks to migratory birds in descending order occurred in open field agriculture, animal husbandry and food hygiene and in urban settings through public health initiatives. Poisoning could be both primary and secondary, with some birds specifically targeted and others not. Raptors feeding on poisoned rats or other prey were contaminated through the food chain. Some birds fed on poisoned bait set for other animals. In the period 1985-2000, studies in the UK showed high levels of residue anti-coagulant poisons in Barn Owls (*Tyto alba*)

Permanent baiting with tamper-resistant boxes used by PCOs was particularly bad for wildlife. These boxes tended to be set along factory perimeters, used second generation anticoagulant rodenticides (SGARs) and were serviced for topping up the poison every month or so.

First Generation Anticoagulant Rodenticides (FGARs) tended to need large doses and were labour intensive to apply, but had lower single exposure toxicity. SGARs required lower dosages, were less labour intensive but had higher long-term toxicity.

Knowledge gaps to be addressed included uncertainty over the population level impacts of poisoning and the prevalence of resistance to FGARs. Knowledge of the effects on sedentary species was greater than that for migratory ones; as a group, raptors were best understood in this regard. Where resistance was uncommon, use of FGARS was to be preferred over SGARs. There is more knowledge available about non MS rather than MS.

Possible solutions looked to both better stewardship and regulation (including outright bans). Opposition could be expected from small-scale farmers to any ban on the use of SGARs in open field agriculture on grounds of cost and the lack of effective alternatives. Permanent baiting should be discontinued as a routine practice. An awareness raising programme focussing on routes of exposure and mitigation measures should be instigated and research should be undertaken to understand resistance better.

A definition of “open field agriculture” was needed. Use of SGARs had never been permitted in such places in Canada and had been banned there in the EU and the USA because of their effect on wildlife. In Canada, SGAR contamination in raptors arose from the substances being used in and around farmyards and farm buildings. It would also be problematic to restrict SGAR use to indoors, as PCOs deployed these poisons in and around buildings.

There was some discussion about the high percentages of some species with rodenticide residues (over 90 per cent of kestrels, barn owls, red kite and buzzards) and possible other factors affecting them. It was also pointed out that some pest species were prone to irruptions, in response to which rodenticide use was increased. Such irruptions presented predators with more prey than they could possibly kill and were also adversely affected by secondary poisoning, causing longer-term imbalances. Similar problems arose with locust plagues. Mongolia did however seem to have learned the lessons of the past and moderated its use of rodenticides in the face of irruptions.

Reference was also made to a recent article in Science, which had highlighted the role of climate change in disturbing delicate balances, such as that between raptor numbers and their prey, be it rodents or insects.

The slides comprising Mr Buckle’s presentation are included in this report in Annex 3.

NSAIDs Working Group

Ms Dove (RSPB) emphasized a case that had occurred in South Asia example and said that lessons should be learned to avoid any repetition.

The main driver behind the use of NSAIDs was the protection of livestock. It was not known how toxic these substances were for raptors and other non-target species. Products should be

tested to improve understanding on the physiological effects. While cases were known in South Asia, the extent of NSAID poisoning in other regions was not well documented, and it was possible that other ungulates were being treated and entering the food chain when consumed by carrion-eating birds. A better understanding of market dynamics might identify which products were on the rise and which had the best market share in different regions. There was also a risk of bio-accumulation.

One solution, following the precedent set by India where diclofenac had been banned with successful results, was to impose national bans when appropriate where safety testing (which should be mandatory) proved products to be unsafe.

Monitoring of species and use of pharmaceuticals conducted nationally and regionally should help identify high-risk areas, although the distances covered by some migrants might make this more complicated. It should also be established what procedures were in place to dispose of carcasses. Information should be exchanged more freely both nationally and internationally and direct contact with veterinarians made to learn from them, make them more aware of conservation concerns and possibly lead to drugs being prescribed in smaller, safer doses.

There were no slides accompanying this Group's presentation.

Question & Answer Session

For testing it would be important to find a suitable species to act as a model. In the case of organo-phosphates, chickens had proved to be a good indicator for the likely effects on humans. However, all species had differences in their metabolisms, and chickens were not affected by diclofenac. It was also not just in South Asia that animal carcasses were left for birds to eat; raptors were contaminated with barbiturates administered to livestock in North America.

With products coming off patent, it was more difficult to keep a check on which company was producing what products and in what quantities, as there was no requirement to publish such figures. Trade associations might be approached; although they did not have universal membership, it was in their interests to maintain the good name of their companies and avoid the adverse publicity that inevitably arose when environmental incidents occurred.

The Group had not had the time to address the issue of water contamination or artificial oestrogens. Other issues that might lead to more problems would be increasing wealth leading to greater use of pharmaceuticals and increasing resistance arising from excessive use of antibiotics, with consequent effects for human health.

It was pointed out that regulations concerning the disposal of animal carcasses had reduced the availability of food for species such as vultures, leading to exceptions being allowed. Fallen animals were meant to be burned, but it was unclear how well this requirement was being implemented. The EU restrictions on carcass disposal to prevent the spread of mad cow disease and its negative impact on vulture populations in Europe were a well known case study.

Lead Working Group

The slides comprising Ms Cromie's report from the Lead Break-out Group can be found at Annex 5 to this report.

Ms Cromie described lead poisoning as a "One Health" issue as it affected humans, livestock and wildlife. Its sources included petrol, paints and ammunition, and with regard to wildlife, its effects were detected in a range of taxa including waterbirds, raptors and scavengers.

The Group's findings were reliant on evidence provided from data emanating from North America and Europe. The wider extent of the problem could be predicted through mapping. It was pointed out that the Group comprised members from UK, Hungary, Tunisia and Bulgaria but did not include a representative from the hunting community. No attempt had been made to evaluate the accumulation of lead in plants.

The Ramsar Convention required its Parties in 1992 to plan for the "wise use" of wetlands in their territories, and it was recognized that this could not include the use of lead shot when acceptable alternatives were available. AEWA Parties at their MOP in 2008 were committed to phasing out the use of lead shot in wetlands as soon as possible and in accordance with self-imposed and published deadlines. FACE and BirdLife International agreed in 2004 to ask for the phasing out of lead shot in wetlands throughout the EU by 2009 at the latest. A recommendation from CIC from May 2009 recognized that it was technically feasible to eliminate the use of lead shot.

Case Study:

The regulations regarding wetlands in the UK were different in England, Scotland, Wales and Northern Ireland. A simple test had been carried out by buying wild ducks from poultry butchers and examining them for traces of lead bullets. The level of non-compliance of 68 per cent in 2002 had increased to 70 per cent more recently. BASC members were surveyed and had been asked bluntly whether they complied with the law. This question had received the answer "not always" from 45 per cent of respondents and the reason appeared that hunters understood the spirit of the law better than the letter of the law.

There was a perception that lead shot was not a real problem – unlike other poisons it did have visible results such as piles of dead carcasses and the evidence that a third of birds analyzed showed traces of lead at the same levels as in the 1970s was ignored. There was also a reluctance to use alternative ammunition which was thought to be inferior, more expensive and more difficult to obtain. As only one successful prosecution had been brought since lead shot had been banned (and even here the use of lead shot was a secondary offence; the main case involved illegal killing), many felt that the law was not being enforced.

The publication of the report led to adverse reaction in the shooting press, which accused the researchers of bad science.

In the case of AEWA it appeared that despite being politically attractive, voluntary bans were not effective as the Parties' National Reports indicated that they were difficult to enforce. Phasing out lead was feasible as the Netherlands had proved by managing to implement the elimination of lead in one year: Denmark had allowed twenty years. In the USA, the argument that if fewer birds were poisoned there would be more to shoot was persuasive. It

was also important to guarantee a market for manufacturers producing alternative shot. In the UK, the RSPB had set an example by not allowing the use of lead on its reserves.

Solutions tended to include outright prohibition of use, but softer approaches when used had not been effective. Solutions included better legislation, the promotion of alternatives, including the creation of a market, providing support resources; embarking on a campaign of persuasion, highlighting the negative impacts of lead and “myth busting” to change public perception and increase political pressure; cooperation with other MEAs and establishing dialogue with opinion formers among the hunting community. The use of a charismatic species – the Mute Swan (*Cygnus olor*) – in the campaign against lead fishing weights had helped sway opinion and the fact that swan numbers rose afterwards proved the connection.

There were knowledge gaps concerning industrial uses of lead and mining, but it was known that cows were poisoned through licking car batteries abandoned in the countryside. The situation in Europe and North America was clear and well documented. There were however knowledge gaps for other regions Knowledge gap on usage outside N America and Europe.

There were different experiences in using human health arguments in support of banning lead shot. There was some evidence that traces of the metal remained in game killed by lead shot, and people eating the meat were contaminated. In the UK, this argument had resulted in a great backlash from hunting organizations, while in Italy it helped persuade several regional authorities to ban lead in wetlands. It was suggested that NGOs should make the conservation case and leave it to the Health Authorities to explain the risks to humans. Elsewhere the argument that eliminating lead meant fewer ducks were poisoned and more were left for shooting proved persuasive. Another effective tactic on the part of legislators might be to raise the prospect of an outright ban but moderate the proposal in response to modified behaviour. This approach had worked with regard to rodenticides. Threatening bans however might be counterproductive and make hunters more difficult to win over. In the case of manufacturers, some of the claims that there were no markets for alternative ammunition were spurious, as the manufacturers were supplying countries where lead had been banned.

It was pointed out that a representative of FACE (the Federation of Associations for Hunting and Conservation of the EU) would be making a presentation the next day at the Bern Convention Conference. In 2007, the Bern Convention had adopted a non-binding charter on hunting and biodiversity and FACE had been spreading the word of sustainability and incentives for the conservation of habitats. European hunters going elsewhere to hunt were being urged to promote good practices.

One possible reason for the failure of the ban on the use of lead in wetlands was that there was little prospect of it being adequately enforced. Another was the failure to persuade hunters in general of the merits of the case. Banning the manufacture of certain types of ammunition might nip the problem in the bud, although it seemed that most lead ammunition used in Canada was imported.

Poison Baits Working Group

Mr Loureiro said that the five members of the Group had not presented a case study but it was clear that poison was entering the food chain from baits used for hunting birds and fishing, from poisoned carcasses used for predator control or to trap and control vultures and for killing domestic animals causing nuisance (e.g. cats and dogs). The principal drivers were the protection of commercial crops, livestock and game and harvesting wild birds.

The main problems identified were the widespread lack of legal frameworks; the lack of proper game management; the lack of adequate guidance on how to react in the presence of poisoned birds; insufficient knowledge of the nature and scale of the use of poison baits especially in Africa and China; the likelihood that species other than raptors were exposed to poison baits; and the lack of studies into alternatives to poison bait or into the effects of baits compared with other poisons.

Solutions would include: the establishment of a database and regular collection of data; the submission of data to a central point; monitoring both the use and effects of poisons; drafting a good practice manual and raising awareness amongst the general public and key stakeholders, including enforcement agencies; capacity building; better legislation; protocols on sampling and how to keep the chain of custody of samples; and reducing access to poisons used in baits.

It was suggested that the emphasis be placed on enforcement rather than awareness raising given that in many cases perpetrators committed illegal acts knowingly in the belief that they would not be caught. In the case of game management however it was important to engage in dialogue with land managers to try to find common ground. It was often the case that game managers were unaware of the subsidies on offer, of which they could take advantage.

Identifying the right counterparts and stakeholders was important. Because those breaking the law tended to be acting individually, pressure could be brought to bear on umbrella associations that wished to retain a good reputation and they could be persuaded to “name and shame” those responsible for criminal acts. The employers of game managers breaking the law should also be held to account. Consideration should also be given to introducing compensation schemes for farmers that lost stock to predators.

In the UK, buzzard and polecat populations had recovered after campaigns to discourage persecution. This had been more successful in the lowlands than the uplands, for reasons that were still not clear, but possibly related to the demise of large country estates in these areas in the inter-war years. In Portugal relations with hunters and farmers had been fraught, but improvements had been possible through careful explanations of the relationships between predators and prey, using an emblematic species, the Iberian lynx (*Lynx pardinus*). Some poisons, though banned, were still on sale “under the counter”; such activities could only be addressed through effective enforcement.

There were a number of precedents where initiatives had succeeded in overcoming human-wildlife conflicts, particularly where there were predator species involved such as large carnivores and fish-eating birds.

6. Discussion and agreement to solutions for each priority poisoning issue and issues to be included in draft Guidelines

The Chair presented a composite table of the findings of all of the Toxin Working Groups. His aim was then to secure agreement on the degree of urgency of the proposed measures. It was suggested that as all the measures proposed were urgent, it would be difficult to assign “high”, “medium” and “low” priority to them, and that it might therefore be more meaningful to identify actions to be undertaken immediately and those that should start as soon as possible. A member of the Working Group proposed classifying suggested solutions as either “immediate steps” or “next steps” and there was agreement from the Working Group to do

this. At this stage, the Groups were asked to concentrate on what actions were needed and not necessarily how they should be implemented, this being a task for the future.

Rodenticides Working Group

Mr Spina said that the use of SGARs should immediately be restricted or even banned in open field agriculture and in areas where there was no resistance to FGARs.

Best practice models should be promoted and awareness of poison issues raised, especially regarding secondary exposure as soon as possible. Best practice should be promoted immediately to prevent and manage rodent irruptions.

Knowledge gaps to be addressed concerned the identification of areas with resistance to FGARs. Where it was known that there was no resistance, the use of FGARs should be promoted.

Insecticides Working Group

Mr Mineau said that three immediate actions were: the removal of dangerous substances and their replacement by safer alternatives; securing data from manufacturers and governments on the use of insecticides and examining the feasibility of concluding international agreements with technical committees to draw up lists of substances to be banned or restricted; identifying hotspots where migratory species and insecticide use overlap and finally, have criteria relating to the conservation of migratory species incorporated into the application of the Rotterdam Convention.

NSAIDs Working Group

Mr Stroud reported that (mandatory) safety testing of NSAIDs that posed a risk to vultures and the development of new *in vitro* tests and methods that allowed better read across between species were immediate priorities. Also for immediate implementation were raising awareness of the issues among key stakeholders and the establishment of safe feeding zones.

To be implemented as soon as possible were the identification of high risk areas based on knowledge of the use of NSAIDs and the distribution of key species and introducing national bans on the use of key active compounds (such as diclofenac) in such high risk areas. Guidelines or directives on dealing with fallen livestock and enhanced surveillance of ungulate carcasses in existing high risk areas should also be introduced.

Lead Working Group

Ms Cromie said that raising awareness of the problem of lead poisoning and issues and promoting alternatives in advance of a total ban on the use of lead should be done immediately. An immediate start should also be made on an international ban on the supply and importation of lead ammunition and weights and sinkers. Lead-free operations in areas managed for wildlife should also be implemented without delay. Liaising with opinion formers in hunting associations to promote non-toxic shot should also start straight away and be extended to other stakeholder constituencies later.

Doubts were raised about the effectiveness of phasing out shot, as this approach had resulted in years of inaction in some countries. In some cases, because the problem had persisted, a

total ban had ultimately been introduced. It was agreed that phasing out should be coupled with a set but reasonable and scientifically justified deadline (20 years being considered excessive). The deadline would have to be. Some suggested that terminology such as “ban” or “prohibition” should be avoided, and words such as “substitution” should be preferred. Where the implementation of national legislation was left to other tiers of government, regular updates and monitoring might be necessary to ensure proper compliance. Parallels were drawn with the withdrawal of lead-free petrol; motoring had remained a legal activity, but had to be done in an environmentally responsible manner.

In view of the sensitivities of the issues and the need to win over key stakeholders such as the hunting community, which felt it was being unfairly targeted through the prominence given to lead, it was important to avoid draconian terms such as “total ban” and not to single out lead for special treatment when other substances were also posing a threat. Given that hunting was a legal activity, the emphasis should be placed on eliminating the use of lead and introducing suitable alternative ammunition.

Poison Bait Working Group

Mr Loureiro identified the collation of available data and researching to find new data to assess the scale of problem as immediate actions. Good practices needed to be developed and disseminated, and incentives devised to ensure that users followed any guidelines. Lessons should be learned from other human-wildlife conflicts. Access to poisons used in baits should be restricted through stricter enforcement of regulations, employers should be held to account if their employees broke the law, and a common framework of legislation should be developed especially for countries on the same flyway.

7. Agreement to joint declaration on the synergies and overlaps with Bern Convention

Mr Heredia (UNEP/CMS) pointed out that there was an item concerning the Workshop on the agenda of the following day’s Conference organized by the Council of Europe/Bern Convention on the Illegal Killing, Trapping and Trade of Wild Birds. He proposed that the Workshop deliver a formal statement to the Conference.

The draft text was projected on screen. Amendments were proposed from the floor, including the suggestion that reference be made to the Memorandum of Cooperation that existed between the Secretariats of the Bern and Bonn Conventions, that the conservation of habitats as well as species be added and that it should be stressed that certain practices had long been made illegal and that further action was clearly necessary. After a long discussion it was agreed that the statement should not allude to the call at the Larnaca Conference for zero tolerance of illegal killing, trapping and trade, as this had not been discussed at all during the Workshop. It was also pointed out that the subject matters of the Bern Convention Conference and the CMS Workshop while related differed in their scope, with the Bern Convention Conference dealing with illegal activities and the CMS Workshop poisoning in general.

The content of the statement was agreed and the Secretariat was charged with the editing. The statement is added as Annex 9

8. Agreement of main outcome of workshop and future steps

Main Outcomes

Ms Krimowa (RSPB) presented the next steps. She would review the background papers, the tables and the draft guidelines in the light of the past two days' discussions, while the Secretariat would produce the report of the Workshop within the next weeks and seek comments from participants by the end of July. Rapporteurs were asked to ensure that they passed the reports of their Working Groups to Ms Krimowa as soon as possible.

The main outputs from the Workshop would be a review on the impact of poisoning on migratory birds and draft guidelines on how to mitigate this problem.

A draft Resolution to be tabled to CMS COP11 would be prepared. The draft would be considered in depth by the CMS Scientific Council which was due to meet in mid-2014. The current expectation was for the Resolution to include an invitation to the CMS COP to adopt the guidelines.

The consultations on the Resolution would remain open throughout the coming months and participants in the Workshop would be given profiles and passwords to use the CMS Scientific Council electronic workspace.

Future of the Working Group

Included in the draft Resolution would be a recommendation that the Working Group be extended to cover some of the implementation. It was also suggested that the Resolution quantify the resources needed, as the clear identification of measures and their likely cost might be helpful for fund-raising. Mr Heredia (UNEP/CMS) pointed out that the Workshop had only been possible because of voluntary contributions from parties and it would be advisable to look to other sources of funding such as the private sector. In order to maintain momentum, the Working Group should remain in contact and be alerted to developments.

The slides comprising Ms Krimowa's presentation "Minimizing Poisoning Working Group: Next Steps" are attached to this report at Annex 6.

9. Any other business

No item was raised under this point of the agenda.

10. Closure of the workshop

After the customary expression of thanks to all those that had contributed to the success of the meeting, in particular the Tunisian Government, the CMS Secretariat, the coordinator, the Chair and the conveners and rapporteurs of the working groups, the Chair declared the business of the meeting concluded. Mr Zahzah, representing the Host Government, formally closed the meeting and was offered a customary present on behalf of the Working Group.