Convention on the Conservation of Migratory Species of Wild Animals (CMS)

Secretariat provided by the United Nations Environment Programme (UNEP)

Report of the Tenth Meeting of the CMS Scientific Council

Edinburgh, Scotland, United Kingdom, 2-4 May 2001

I. OPENING REMARKS OF THE CHAIR, HOST ORGANISATION AND SECRETARIAT

1. Colin Galbraith (UK) called the meeting to order from the chair, welcomed the delegates to Edinburgh and introduced Mr. John Markland, the Chairman of Scottish Natural Heritage (SNH). Mr. Markland noted that Scotland was an appropriate venue for a meeting of CMS, because of its location on the crossroads of many important migration routes. He was pleased that SNH could play its full role in the work of the Convention by providing the Chairman of the Scientific Council.

2. In his opening remarks, Mr. Arnulf Müller-Helmbrecht (CMS Executive Secretary) reminded the meeting that the Scientific Council was the motor of the Convention, producing many good ideas that had given the Convention a great deal of momentum. He expressed his hope that the meeting would prepare a number of proposals for the implementation and further development of CMS throughout the world, *inter alia* as an important piece of preparation for CMS COP7 in September 2002. The Executive Secretary referred to the latest edition of the CMS Bulletin (ScC.10/Inf.1) which reported on a number of CMS activities and successes. He paid tribute to long serving members of the Council and extended a welcome to new councillors, especially those representing Parties that had recently acceded to the Convention.

3. Mr. Galbraith saw the Council's principal task as being to expand the Convention's scientific base. Building on the Convention's practice of operating by consensus, there was a golden opportunity of making real progress in addressing the threats faced by migratory species. The Convention should also evaluate its own performance and effectiveness, seek ways of improving both as well as raising its profile in governmental and non-governmental circles alike, so that it could act more forcefully for migratory species.

4. During the proceedings of the first morning, Mr. Roger Crofts, the Chief Executive of SNH, addressed the Council. He stressed the importance of international work to SNH, ensuring sound science lay at the heart of decision-making, and gaining and retaining influence within government, the conservation community and with society as a whole. He remarked that public interest in the return of the osprey which had been reintroduced to Scotland, had been a public relations success story. International cooperation was an excellent method of learning from the experiences of others and all parties had as much to learn as to impart.

II. ADOPTION OF THE AGENDA AND SCHEDULE

5. A provisional agenda and annotated agenda had been circulated (ScC.10/Doc.1.rev and ScC.10/Doc 2). There being no comments, the agenda was adopted as presented. The agenda appears at Annex 2.

6. A provisional schedule (ScC.10/Doc.2.1.rev.1) had been circulated. There being no comments, the schedule was adopted as presented.

III. REPORT ON INTER-SESSIONAL ACTIVITIES

(a) Chairman

7. Mr. Galbraith reported that his two principal activities as Chairman of the Council thus far had

been to attend two meetings relating to the development on the Agreement on the Conservation of Albatrosses and Petrels (in Hobart, July 2000 and Cape Town, January 2001, including chairing of negotiation on the Action Plan) and to organise the 10th meeting of the Council. The Albatross Agreement highlighted CMS's global range and proved that the Convention was prepared to tackle difficult issues. He thanked especially Australia and South Africa for their role in the successful conclusion of the negotiations and to the Secretariat for its help.

8. He concluded his report by paying tribute to the late Pablo Canevari, who had died in March 2000. He had made a considerable contribution to conservation, including a time as CMS Technical Officer.

(b) Secretariat

9. The Executive Secretary gave a brief report on the activities of the Secretariat. Further details of recent developments were contained in the latest edition of the Bulletin.

10. The next meeting of the Conference of the Parties (COP7) would be held in Bonn at the invitation of the German Government. As with COP6, COP7 would be held in conjunction with the Meeting of Parties to AEWA, the CMS Standing Committee and the Scientific Council. The provisional timing (the first half of September 2002)[1] was subject to change to avoid coinciding with the Rio +10 Conference which might take place in Johannesburg at the same time.

11. There were now 73 Parties to the Convention. COP6 had set an ambitious target of 85 Parties by the time of COP7, and the Secretariat needed the active support of existing Parties to attract new members. Equally, as the Convention grew in size, it needed to extend the range of its activities.

12. An Agreements Unit had been established within the Secretariat in Bonn. AEWA had been the first to join in June 2000, with Bert Lenten as the Executive Secretary. ASCOBANS and EUROBATS had followed in January 2001. The appointment of staff to ASCOBANS and EUROBATS was expected to be finalised within a few weeks. The Agreement Secretariats, while administratively integrated with the parent Convention Secretariat, remained autonomous and responsible to their own parties in matters of policy.

13. Three new members of staff had joined the Secretariat. Ms. Jasmin Kanza had been appointed as Administration and Fund Management Officer, with additional responsibilities as the regional officer for Africa. Her post was funded through the overhead charges levied by UNEP on Expenditures for the Cms Trust Fund. Mr. Marco Barbieri had been appointed Technical Officer, the member of staff most closely associated with the work of the Council. He would also act as regional officer for the Mediterranean basin. Ms. Beatriz Torres had joined CMS from the CBD Clearing House Mechanism as Information and Capacity Building Officer, with regional responsibilities for Latin America and the Caribbean.

14. An Agreement Development Officer would be recruited shortly. It was expected that the successful candidate would have a legal background. It was also hoped that two Junior Professional Officer posts could be created. Countries with suitable candidates were invited to contact the Secretariat. Mr. Robert Vagg (the Special Projects Officer) was to leave the Secretariat shortly having completed a 2¾ year secondment from the United Kingdom Environment Ministry.

(c) Councillors (on work of other Conventions they were requested to follow on behalf of CMS)

15. The Executive Secretary read out the report of Ms. Beudels (Belgium) who served as Council Focal Point for the Convention on Biological Diversity. The main issues arising from the recent meeting of CBD's subsidiary body (SBSTTA) were alien species and the impacts of climate change on biodiversity. Of particular significance for CMS was the SBSTTA's recommendation to the next CBD COP to recognise the conservation and sustainable use of migratory species as an important component of the implementation of CBD, to acknowledge CMS as the lead partner on migratory species and to adopt a

[1] Note by the Secretariat: At the time this report is being finalized, the meeting is rescheduled to be held between 15 and 28 September 2002.

Joint Work Programme addressing all stakeholders involved in the implementation of CBD. The Executive Secretary requested advice and input from the Scientific Councillors to the Secretariat draft.

16. Mr. Schlatter (Appointed Councillor) and Mr. Wolff (Netherlands) reported respectively on the Ramsar Scientific and Technical Review Panel (STRP) and the Ramsar Convention. Mr. Schlatter suggested that the observers from Wetlands International and BirdLife International might be better placed to report. Mr. Schlatter had completed his term on the Ramsar Panel. Mr. Wolff reminded the meeting that he had asked to be relieved of his duties regarding the Ramsar Convention.

17. Mr. Davidson (Ramsar Bureau) gave a brief overview of recent developments and forthcoming events under Ramsar. The next Ramsar COP wold take place in Valencia, Spain, starting on 19 November 2002. The annual Standing Committee would take place in December 2001 with a further final meeting to complete planning of the COP scheduled for May 2002. Documents relating to the COP were to be posted on the Ramsar web-site. Mr. Davidson drew the meeting's attention to the Ramsar Forum, a facility for the open electronic exchange of information. He also explained the ongoing restructuring process of the Ramsar panel and the attempts to secure continuity and fair geographical representation. He also mentioned the role of partner organisations such as WWF, IUCN, BLI and WI in Ramsar's structures and policy development. Ramsar had also produced a set of "tool-kits" on a variety of policy themes, with case studies likely to be of interest to Parties.

18. Mr. Galbraith noted that the concentration of biodiversity-related Convention COPs in 2002 meant that the Conventions needed to liaise even more closely with each other to identify items of common interest and where cooperation would lead to better progress.

19. Mr. Perrin (Appointed Councillor) reported on the International Whaling Commission (IWC). He had attended the IWC meeting in June 2000 in Adelaide, where a number of CMS-listed species were discussed. He explained the latest thinking on the taxonomy of the right whales. Three species were now recognised: the Northern Atlantic right whale *Eubalaena glacialis*, the Pacific right whale *E. japonica* and the southern right whale *E. australis*. Subsistence takes of bowhead whales by American Eskimos had been examined and the quotas would be reviewed after the next full census had been completed. The difficulties of differentiating between the two subspecies of blue whale (*Balaenoptera musculus intermedia* and *B. m. brevicauda*) had been considered. Population estimates for the species varied between 400 and 1100. The taking of Humpback whale calves in the fisheries of St Vincent and the Grenadines caused some controversy. Recent survey work had improved the understanding of southern hemisphere Humpback stocks, with 14 recognised stock divisions instead of just 7. A major assessment of North Atlantic Humpback stocks was planned for 2001.

20. Regarding small cetaceans, IWC had a less clearly defined role, with some Parties disputing that IWC had any purview at all. The Scientific Committee conducted reviews of freshwater cetaceans, including some which occur on CMS Appendix II (Ganges susu, Boto, Tucuxi, Irrawaddy dolphin and the Finless porpoise). Three populations of South American boto had been confirmed, with the one in Bolivia possibly being a separate species. Populations of the Irrawaddy dolphin were small and declining, but existed in the Mekong in Vietnam, Laos and Cambodia. There was little data on the finless porpoise except for the population in the Yangtze which was an endemic Chinese population and therefore not of immediate concern to the Convention.

21. Consideration was given to by-catch mitigation measures including "pingers" which were found to be effective but expensive and difficult to maintain.

22. It was also noted that Japan had increased its quota for Baird's beaked whale (CMS Appendix II) from 54 to 62. Japan was refusing to cooperate with the IWC assessment on the sustainability of this take.

IV. REPORT ON CMS AGREEMENTS RECENTLY CONCLUDED OR UNDER DEVELOPMENT

(a) Albatross and Petrels

23. Mr. Baker (Australia) referred to Resolution 6.3 adopted at COP6, after which Australia had initiated a round of informal consultations, leading to negotiation meetings in Hobart (July 2000) and Cape Town (January 2001) to conclude an Agreement on southern hemisphere albatrosses and petrels. Twelve

States, four Intergovernmental Organizations, Non-governmental Organizations and an APEC member economy attended the Cape Town meeting. The text that emerged from the meeting was circulated as ScC.10/Inf.16; French and Spanish language versions would follow. References to "Southern Hemisphere" had been deleted to add to the flexibility of the Agreement to allow extension northwards when appropriate. The focus however in the short term would be on the southern hemisphere, and it had been agreed that a secretariat should be located in the south. Australia would continue to provide the interim secretariat and would act as depositary. A signing ceremony would take place shortly (some time after June 2001) and the Agreement should be in force before COP7.

24. All fourteen southern species listed under CMS were covered by the Agreement but the latest scientific data suggest that the taxonomy used in the CMS Appendices was out of date (new one identifying 24 species). The Albatross/Petrel Agreement used both, but it was premature to propose changing the CMS taxonomy as thinking was still in flux; indeed further changes had been made since the Cape Town meeting.

25. With regard to concerns that the Amsterdam Albatross should be added to CMS Appendix II in order to meet the conditions for the Agreement to qualify as an Article IV, para. 3 Agreement under the Convention, Mr. Baker had received legal advice. This indicated that listing was not necessary, as the Albatross Agreement was a self-standing legal instrument. The UK had received similar advice. The Secretariat suggested further bi- or trilateral discussions with Australian and UK experts on the interpretation of the relevant provisions of CMS.

ACTION. Secretariat to discuss with Australia and report to the next Scientific Council.

26. Mr. Galbraith expressed his thanks to Australia, South Africa and other Parties involved in the organisation of the meeting. He agreed that the proposed approach to the taxonomic issue was sensible, while stressing that bringing the appendices into line was desirable, and requested that Mr. Baker consult with the Secretariat over the listing of the Amsterdam Albatross.

(b) Marine Turtles - Indian Ocean and South East Asia

27. The Deputy Executive Secretary reported on the first of two successes for marine turtles, and referred to two information documents (ScC.10/Inf. 17) and Recommendation 6.6 (ScC.10/Inf.12). At the Scientific Council held in November 1999 in Cape Town, Environment Australia had agreed to convene a meeting of Indian Ocean and South-East Asian countries to develop an initiative for marine turtle conservation. At COP6, Recommendation 6.6 called on Parties in the region to conclude an Agreement. A Memorandum of Understanding was the result seven months later, potentially covering 40 countries. It would be opened for signature as soon as the accompanying Conservation and Management Plan was ready. The Philippines would host a final negotiation meeting 19-23 June 2001 in Manila, where the draft conservation and management plan would be finalized.

28. There were promising prospects for resources and a location for a secretariat, which were being discussed with UNEP HQ in Nairobi. Possibilities were being explored for finance through the UNEP-GEF co-ordination unit in Nairobi, which was particularly interested in regional projects of this nature.

(c) Marine Turtles (Atlantic Coast of Africa)

29. The Deputy Executive Secretary also reported that a similar initiative had also been launched for the Atlantic Coast of Africa, where a Memorandum of Understanding was already in place, signed by 12 Range States. Nigeria had offered to host a meeting in July 2001 to finalise the Conservation Plan, which had been circulated in December 2000. The Government of France had pledged financial support for national action plans in half a dozen countries. UNEP-GEF Unit and the UNESCO Man and Biosphere Programme (and possibly ACOPS) were also interested in projects in the region, so the prospect of full coverage of the Atlantic coastline was good.

30. Mr. Ankara (Congo) explained that problems with turtle conservation were being experienced, especially related to by-catch. Unfortunately no projects were yet in place to identify other pressures and threats. He asked whether there was a possibility of extending existing and planned projects to the coast of Congo, Angola and Gabon. Mr. Mshelbwala (Nigeria) confirmed that all Range States would be invited to the July meeting, which would provide Congo with the opportunity of raising its concerns. All potential participants were asked to send their ideas in advance to the CMS Secretariat or to the Nigerian authorities.

31. Mr. Moumouni (Togo) mentioned that his country too was concerned with turtle issues. Problems were occurring with farmers and coastal dwellers raiding nests and taking the females when they were on the beaches. Patrols had released many illegally captured turtles and 800 confiscated eggs had been artificially incubated. These efforts to confiscate illegally taken animals would continue if funding were available. Mr. Demba Mamadou (Senegal) reported on similar issues to Togo. Growth in tourism was an added pressure to coastal areas. Fisheries by-catch and illegal harvesting of eggs were also significant.

32. The Deputy Executive Secretary regretted that some African Parties were not present at the meeting. There was a great deal of enthusiasm among the African countries to make real progress with turtle conservation; much work was being done with modest resources, and at a recent seminar in the United States, such was the interest that a separate working group on Africa was established.

(d) Houbara Bustard

33. In the absence of a representative from the lead country, Saudi Arabia, the Executive Secretary, referring to COP6 Recommendation 6.4, reported on developments. No progress had been made since COP6, at which time there remained a small number of points to be clarified regarding the draft Agreement text (eg which country would serve as depositary), while the action plan was ready. The Executive Secretary had tried to contact the Saudi Arabian Scientific Councillor and had met him during the IUCN Congress in Amman, October 2000.

34. The Secretariat was prepared to assist the Saudi Arabian authorities with the distribution of the papers to the Range States. The Chairman of the Council offered to write to the Saudi Arabian Councillor to ascertain what needed to be done to regain momentum. The BirdLife International observer asked whether the Secretariat had approached other countries in the region to see if they could help progress matter.

ACTION. If no progress materialises, the Chairman of the Council should write to the Saudi Arabian Councillor, and if this does not bring the desired results, the Chairman of the Standing Committee would be asked to intervene.

(e) Great Bustard

35. Mr. Bankovics (Hungary) informed the meeting that four Range States had so far signed the MoU. He was in the process of organizing an international working group on the species in conformity with Recommendation 6.4, and saw the present meeting as a good opportunity to have discussions with the representatives of the Range States and interested organizations present on the identification of the members of the group. The Chair encouraged him to pursue the setting up of the working group.

36. The Executive Secretary announced that Bulgaria was expected to sign the MoU in either May or June 2001, what would bring the number of signatures of Range States to the minimum number of five to allow the entry into force of the MoU. A similar procedure for the signing of the MoU was being undertaken by Greece. Although the MoU was designed as a “soft law” instrument, some Range States reported that their legislative procedures required a formal ratification. The Executive Secretary was examining means of establishing “associate membership” of the MoU, to ensure the widest possible participation.

37. Ms. Ivanova (Bulgaria) reported that survey work had shown populations continuing to decline across the Balkans. Bulgaria was hoping to release Russian-bred birds in suitable habitat. Mr. Demba Mamadou (Senegal) expressed interest in this MoU, as the species occurred in Senegal.

ACTION. The Chairman requested the Secretariat to produce a list of key meetings of interest to CMS and the development of Agreements.

V. SCIENTIFIC COUNCIL TASKS ARISING FROM RESOLUTIONS AND RECOMMENDATIONS OF THE CONFERENCE OF THE PARTIES

5.1 Concerted Actions for Selected Appendix I Species/Groups According to Resolutions 3.2, 4.2, 5.1 and 6.1

a. Mammals

Sahelo-Saharan Ungulates

38. Ms. Beudels (Belgium) reported that the project submitted for funding to the *Fonds Français pour l'Environnement Mondial* (FFEM) had been accepted in November 2000, and the finer details were now being worked up. Other funding mechanisms were being sought for later stages of implementation, including the GEF. The first phase involved implementing elements of the 1998 Djerba Action Plan using Tunisia, Niger and Mali as pilot countries for four years. Training and monitoring activities would involve four additional Range States, namely Chad, Mauritania, Morocco and Senegal. Preparatory work included improving knowledge of population status and identifying historic sites (eg in Tunisia and Morocco) as a basis for a protected area and to mobilise community support for the project. Mr. Ankara (Congo) asked whether it was possible for the scope of the project to be extended as Congo too had populations of migratory ungulates.

39. Mr. Pfeffer (Appointed Councillor) commented that hunting and low levels of awareness were problems. He stressed that it was important to link activities initiated under this project with other work being carried out. Reserves were being established and reintroduction schemes for ungulates and other species, including ostriches, were being undertaken. Synergies could be possible. Mr. Issa (Niger) provided an update on actions undertaken since the Djerba meeting. The national authorities were considering reintroduction and WWF had been supporting survey actions in Niger.

40. Following interventions of councillors from Range States asking for clarification concerning the involvement of their respective countries in the project, Mr. Devillers (EU) explained that the initiative was in a phase where considerable resources were necessary, and projects were being prepared and proposed for funding to different potential donors. All that could not happen simultaneously, and it was therefore to be expected that the Action Plan would be implemented in different countries, at different times through different projects.

41. The Executive Secretary thanked both Ms. Beudels and Ms. Herrenschmidt (France) for their efforts to secure funding through the FFEM. He also pointed out that the project was relevant to the UN Convention to Combat Desertification and synergies were being sought with other initiatives, such as UNESCO's MAB, which was submitting a GEF project for six African biosphere reserves which could be amended to take in CMS interests.

Mountain Gorilla

42. Ms. Beudels reported on current assessments of the status of the Mountain Gorilla. Actions under CMS were impeded by the security situation in the region and because Rwanda was not party to the Convention. The Democratic Republic of Congo was trying to initiate and continue joint actions, despite the state of war with both Rwanda and Uganda. Several organisations, including WWF, were involved in establishing a joint programme. The population in the volcanic zone appeared to have risen from 320 (1989) to 355 (latest) animals. While this was encouraging, the threats (poverty, violence, habitat loss and poaching) still remained and the situation was still acute.

43. The Executive Secretary confirmed that Rwanda had still not acceded to the Convention, and agreed that this was an impediment to effective action by CMS. He reported that UNEP was preparing a project for all endangered ape species world wide including the Mountain Gorilla and a fund-raisung campaign. The Secretariat had written to support this initiative on request of UNEP.

South Andean Deer

44. Mr. Schlatter (Appointed Councillor) reported on the progress of a project funded by CMS in Argentina, aimed at monitoring the population and increasing public awareness. The project had been approved by the 8th Meeting of the Council, and mainly consisted of the construction of an observatory for the South Andean deer in the Los Glaciales National Park, where one of the few remaining viable populations is found. Preparatory work had been done, and the actual construction of the observatory was underway. Mr. Schlatter was appointed focal point for the species.

Franciscana Dolphin

45. With regard to the project on the Franciscana Dolphin approved for funding by the 8th Meeting of the Council, Mr. Schlatter reported that problems had been encountered with the funds not reaching the researchers on the ground, so the work had been delayed. It was not immediately clear where the problems had occurred. The chairman expressed concern that bureaucratic difficulties were causing delays to the Convention's urgent work. Ms. Acero Villanes (Peru) was appointed focal point for all South American dolphins.

Mediterranean Monk Seal

46. Mr. Gonzalez (Spain) reported that the situation of the Mediterranean Monk seal seemed to have stabilised. Referring to data presented in a recent meeting of the Barcelona Convention, about two hundred individuals were thought to make up the eastern Mediterranean population off the coasts of Greece and Turkey, while very few animals remained in the Western and Central Mediterranean. In the Atlantic, a population of about 25 individuals was present in the Madeira Archipelago and the colony near Cap Blanc was recovering after the die-off in 1997: 25 pups had been born in 2000. Another red toxic algal bloom had not affected the seals, but it had tested the authorities' co-ordinated emergency measures, which had proved effective.

47. As the Barcelona Convention was taking an interest in the Mediterranean populations, CMS's efforts were focused on the Atlantic, with Spain, Portugal, Morocco and Mauritania all involved in a working group developing an MoU and an action plan. The report on the Action Plan for the Mediterranean Monk Seal in the Eastern Atlantic and the Recovery Plan were tabled as Documents ScC.10/Doc3.1 and ScC.10/Doc.9.

48. In order to overcome difficulties related to the lack of consensus on certain controversial issues, the elaboration of the plan had been split in two phases. The recovery plan which was before the meeting had been prepared by the working group in a meeting held in Las Palmas in April 2000, and included actions for which a consensus had been reached. Actions where scientists had not reached a consensus would be discussed at the meeting in Spain, October 2001, held under the auspices of the IUCN Species Survival Commission. The Action Plan would hopefully therefore be in place by year's end, allowing an international meeting tentatively to be held in Mauritania to sign the MOU.

49. Spain had promoted and funded actions in Mauritania to help improve things on the ground, and had signed agreement with Morocco to fund actions under the Action Plan. A meeting was planned to choose actions which the Spanish Development Agency could fund. Morocco had declared a reserve 12 miles off Cap Blanc to curtail fisheries and had a programme to rescue pups during extreme weather off Cap Blanc; Mauritania was also doing considerable amount of work.

50. The situation remained critical although stable, so this species should remain a priority for CMS. A further report to next meeting of the Council was requested. The efforts of the four Atlantic countries were encouraging.

Southern Marine and River Otters

51. As no Councillor had been identified to lead on these species, no report was taken**.** Mr. Schlatter was appointed focal point for these species.

b. Birds

Siberian Crane

52. The Deputy Executive Secretary reported that three populations existed for this species. In the west 6-7 birds from Western Siberia wintered in Iran (down from previous years when 10 individuals were counted). A single pair constituted the central population, which wintered in India. No chicks or juveniles had been reported with this pair for some time. The eastern flock from Eastern Siberia wintering in China was made up of 2-3000 birds. Considerable fieldwork was being done in Russia with captive breeding and surveys to locate breeding sites and migration routes.#

53. The Secretariat was co-operating with the International Crane Foundation on a GEF project for wetlands, using the Siberian Crane as a flagship species. The PDF-B phase was nearing completion, and the full project worth $7-10 million was to be submitted in the summer, with the final touches to the project to be made in the margins of the 4th Range State meeting of the CMS MoU to be held in Baraboo, Wisconsin at the end of May 2001.

Andean Flamingos

54. Mr. Schlatter (Appointed Councillor) reported on recent developments concerning conservation of the flamingos of the High Andes, elaborating on the report included in issue 13 of the CMS Bulletin. The status of the populations remained critical as they fluctuated with water levels and quality and in conjunction with the effects of climatic phenomena like el Niño. Effort was concentrating in 200 wetland sites, which had been allocated to 39 management areas, some of which enjoyed national designations and other were internationally recognised as Ramsar sites.

55. A Strategic Plan was to be implemented through a GEF project. It was hoped that Peru would shortly join the existing trilateral agreement among Argentina, Bolivia and Chile. National efforts were being complemented by multilateral co-operation through CMS. Field-work was often difficult because of the high altitude and lack of oxygen.

56. The Deputy Executive Secretary drew attention to a new foundation established in the USA dedicated to flamingo protection and which had funds available to support projects.

Ruddy-headed Goose

57. Mr. Madsen (Denmark) showed a series of slides and graphics prepared in connection with his work undertaken in Patagonia and Tierra del Fuego as part of a CMS-funded project. He explained that this once numerous species had been reduced to just 300 individuals, which wintered near Buenos Aires and bred in the far south of Patagonia and Tierra del Fuego. The introduction of the Patagonian Fox to the island (to control the previously introduced rabbits) had proved devastating to the breeding success of the geese. On the mainland, the habitat provided more places for them to hide in.

58. Satellite telemetry enabled the research team to search 90% of the most suitable areas by van, and five breeding pairs had been found. In this remote area, there is little public information displayed about the geese (just one notice provided by an oil company). Local landowners (sheep rearing) were however sympathetic to reintroducing key traditional farming practices, which would help provide suitable habitat for the geese. Mr. Schlatter added that the geese often mingled with other geese species, which were considered a pest by some farmers, so it was possible that some were being killed.

Lesser White-fronted Goose

59. Mr. Madsen (Denmark) reported on a CMS-funded project on the Lesser white-fronted goose. Finno-Scandinavian work had helped with biological and migration information for this species. Many birds migrated to Kazakhstan, but routes were not yet known, because all ringed birds had been killed in Kazakhstan. Some migrated to China, where they were killed by poachers. The priorities were to protect the birds from hunting in the East and to discover the wintering grounds of the birds crossing Kazakhstan

possibly by fitting satellite transmitters to the birds while in Kazakhstan. A public awareness project had been completed. Posters and stickers had been circulated in Hungary, Bulgaria, Russia and Kazakhstan.

Slender-billed Curlew

60. Mr. Boere (Wetlands International) made a presentation including slides taken during a recent expedition to Western Siberia, to complement the report of the second meeting of the Working Group on the Slender-billed Curlew held in Kiev on 1-2 April 2001 (ScC.10/Doc.16).

61. The conclusions were that there had been no definite wintering sites recorded since Merha Zerda (1984-1995). The Italian birds had not been seen again. No breeding sites had been identified since 1925. Historic data provided a wide range stretching from Russia to Mediterranean countries. Expeditions to Russia, Kazakhstan and Iran had not been able to confirm reports of a largish flocks. The trend of sightings etc since 1960 produced a graph with a trend heading to 0. It was however too soon to declare the species extinct.

62. Threats included habitat loss (breeding, stopover and wintering sites), illegal and accidental hunting, disturbance, the breakdown of social behaviour because of drastically declining numbers and predation. Research indicated a link between droughts in Western Siberian areas affecting the breeding zones and breeding failures.

63. Activities to be continued included the BLI database, further monitoring of wintering areas, testing satellite transmitters on Whimbrels, and capacity building to increase the number of people capable of identifying the bird. The MoU Range States would meet in 2002 in the margins of CMS COP7 and AEWA MOP2.

64. Mr. Galbraith stressed that it was important to keep all researchers informed. Mr. Devillers (EU) congratulated the Working Group and reported that there was still much interest in the species in the different Range States, with Greece running several projects and starting a new one in 2002. He also mentioned the institutional issue within the CMS family. He suggested that the Scientific Council of CMS should retain an interest in the Slender-billed curlew species as a concerted action species, even though it was also included in the annexes of AEWA. Mr. Boere was re-elected chairman of the Working Group.

ACTION. The Chairman asked Mr. Devillers and Mr. Boere to produce a paper on the species for the Council. A copy of the paper is attached as Annex 3.

Lesser Kestrel

65. Mr. Devillers (EU) requested that the report on this species be deferred until the next meeting, as progress was slower than had been hoped. Ms. Herrenschmidt (France) reported that her country had produced a national report on the species, and 60 pairs had been counted in France.

White-winged Flufftail, Blue Swallow, Humboldt Penguin, Aquatic Warbler

66. No Councillor had been appointed as focal point for any of these species, so no reports were taken. South Africa would be invited to provide the focal point for the Flufftail and the Swallow. Ms. Acero Villanes (Peru) volunteered to serve in this capacity for the Humboldt Penguin, and Mr. Moser for the Aquatic Warbler.

ACTION. Secretariat to follow up with South Africa to seek appointment of focal point.

Ferruginous Duck

67. Mr. Devillers (EU) requested that the report on this species be deferred until the next meeting of the Council. Mr. Moser (Appointed Councillor) was appointed focal point for this species and for the White-headed Duck.

c. Reptiles

Marine Turtles

68. Mr. Limpus (Appointed Councillor) gave a presentation reviewing the conservation status of marine turtle species in relation to the threats affecting them as a consequence of human development in the last century.

69. The challenges for the future were to reduce by-catch, especially in high seas long line fisheries. What had been good news for marine mammals, had proved detrimental to birds and turtles. Harvesting remained a problem, as so-called subsistence and traditional harvesting was now being carried out using modern equipment such as motor boats and guns. It was also important to halt and reverse habitat loss, by restoring reefs and sea grass pastures. One positive development in the last century was the emergence of the conservationist lobby, which had raised public awareness of wildlife issues.

70. Ms. Herrenschmidt (France) reported that the French Environment Ministry was helping to set up a project to implement the Abidjan sea turtle MoU. The French Committee for IUCN was working with experts from relevant countries which have signed the MoU. The project should be cross boundary, would include actions to test the use of sea turtles as indicators for water quality. The sum accorded to the project would be in the region of **i** 1.4 million, which she proposed could be administered by the CMS Secretariat on the model of what was being done for the Sahelo-Saharan ungulate project.

d. Summary

71. The Chairman was encouraged by the activities being undertaken, but agreed with Mr. Moser that consideration should be given by the Council about how to present information to the Parties, especially as a guide to the effectiveness of CMS actions.

ACTION. The Chairman and the Secretariat should produce a rolling paper, updating the Parties on information concerning the conservation status of Appendix I species. The Deputy Executive Secretary pointed out that the COP6 had set aside funds for the preparation of review reports for Concerted Action Species.

5.2 Co-operative actions for Appendix II Species (Recommendations 5.2 and 6.2)

a. Mammals

African Elephant

72. The Executive Secretary referred to Recommendation 6.5 requesting CMS to deal with Western and Central African elephant populations. Burkina Faso had volunteered to take the lead in developing the exercise. A new focal point had recently been assigned to following up the issue. Burkina Faso would identify the migratory populations, seek scientific data as the basis for an action plan and plan a workshop.

73. Mr. Demba Mamadou (Senegal) welcomed the efforts of CMS and the French Government to address widely held concerns about the declining populations of African elephant. He reported on initiatives under CITES and co-operation with Burkina Faso to reintroduce elephants to Senegal. Mr. Pfeffer (Appointed Councillor) urged CMS to take all possible actions to prevent the extinction of the remaining populations and identified the ivory trade as the worst threat. He advocated the listing of the elephants on Appendix I of CMS as a strong signal of intent. Mr. Lamptey (Ghana) reported on existing initiatives in West Africa for elephants, recalling that a meeting in Abidjan had devised a strategy requiring each country to propose its own actions. Ghana was holding training courses for the Cote d'Ivoire and Burkina Faso. CMS's intervention at this stage could give additional impetus to existing efforts. Mr. Moumouni (Togo) welcomed CMS's interest. Togo had a shared population, so joint action was necessary. He agreed that Appendix I status would be desirable. Mr. Traoré (Mali) shared concerns about elephant conservation, as of the three populations in his country, just one was still viable (shared with Burkina Faso). Mali was working with France on a GEF biodiversity project using the Elephant as a flagship species. The Elephant was Appendix I on national protected list.

74. Mr. Mshelbwala (Nigeria) informed the meeting that the development of actions for the West African elephant advanced. Post-Abidjan, a draft strategy was in place, and had been reviewed in December 1999 and adopted February 2001. Every West African Range State was required to formulate a national plan (only Liberia and Sierra Leone had not been present). A Coordinator had been appointed to implement the MIKE programme (Monitoring of the Illegal Killing of Elephants) in key sites and he was about to enter duty. Clear procedures had been established for appointing national focal points, who were to liaise with the MIKE coordinator.

75. The next meeting would be run by Burkina Faso and CMS with French funding. Mr. Pfeffer and Ms. Beudels were appointed focal points for the species.

South American Dolphins

76. Mr. Schlatter (Appointed Councillor) reported that in 1997-98 surveys had been carried out in Ecuador, Guyana, Brazil and the Falklands/Malvinas. Thirty-eight species were identified, 22 at least were insufficiently researched, so more work was needed. Seven species were identified as facing low level threats; seven more were deleted from the list for lack of data. As a result this study, funded by CMS, had been published and recommendations made for priority for research and action, with an emphasis on fisheries interactions, monitoring systems, research addressing information gaps, carrying out ecological and biological studies to identify stocks and distributions, and el Niño. Chile was studying legal proposals for protected marine reserves with management regimes. Cetaceans and other marine mammals were being included. It was hoped to hold the 2nd regional conference on marine mammals at the end of 2001. CMS's role might be to prepare a list of possible projects and provide some funding for a workshop for Latin American experts to draft joint projects for Appendix I and II species.

b. Birds

Corncrake

77. John O'Sullivan (BirdLife International) reported that BLI had produced a booklet in English and German in collaboration with partner organisations in Germany and the UK. The Chairman commented that this species was strange by proving highly sensitive to changes in parts of its range and apparently adaptable in others.

Quail

78. As with the Lesser Kestrel and the Ferruginous Duck, at the request of Mr. Devillers, discussion was deferred until the eleventh meeting of Council.

Black-necked Swan

79. Mr. Schlatter reported that an excellent assessment of population and movements in Chile had been carried out. More information was required from the other key country, Argentina. Momentum had been lost since Pablo Canevari's death, but Wetlands International were trying to get the project going again in combination with projects related to the North-South migration routes. One problem seemed to be the wetlands drying up. The swans tended to move on to the next wetland when one dried up, rather than migrate. Mr. Galbraith suggested that reviving the project or even secure an Agreement would be a fitting tribute to Pablo Canevari's memory.

Albatrosses and Petrels

80. Further to the report at item 4 a, Mr. Baker (Australia) was appointed focal point for these species.

African penguin

81. It was reported that South Africa and Namibia were considering an MoU for this species, but as no representation of South Africa was present, the discussion was deferred to the next meeting.

c. Fishes

Whale shark

82. Mr. Perrin (Appointed Councillor) reported that a workshop was being considered for the Whale shark.

83. Mr. Custodio (Philippines) was appointed focal point.

Sturgeons and paddle fishes

84. The Executive Secretary reported that Germany had taken the lead, and he referred to page 11 of the latest issue of the CMS Bulletin (ScC.10/Inf.1) for further information. As background, he explained that a number of sturgeon and paddle fish species had been added to the Appendices at COP6. Since then, Germany, the Secretariat and the IUCN Environmental Law Centre had started to draft an MoU aimed at data collection, monitoring and exchange of information. At Germany's suggestion, this was to be part of a joint effort with CITES. Unfortunately, the CITES had too little spar capacity following its last COP. The joint process had therefore been suspended until such time as CITES could participate fully. In the meantime, the German Government had diverted the resources set aside to support the IUCN Species Survival Commission Sturgeon Specialist Group with their recent Moscow meeting.

85. Mr. Blanke (Germany) reported that the Moscow meeting had shown that the CITES listing of the sturgeon species was having little impact on the species' conservation status, because illegal internal trade was the main problem and this trade was in the hands of organised criminals. CITES was in the process of reviewing the effects of its policies through its Animals Committee. The EU, with structures in place to monitor imports had a role to play, but as many of the issues lay beyond CITES' competence, CMS should identify where it had a role to play in developing complementary approaches.

86. The Chairman pointed out that CITES' next COP would meet after CMS COP7. It was important that CMS developed its policies with an awareness of what was emerging from the CITES Animals Committee.

87. CITES was now concentrating on Caspian Sea issues. This region was also the main focus of the Moscow IUCN meeting. UNEP was involved in a regional meeting to be held in Baku. Unfortunately, none of the Caspian Sea countries were CMS parties. The initiative which CMS wanted to develop, had as a first phase the elaboration of a global MoU based on scientific data collection, monitoring and information exchange, with the possibility thereafter of an agreement dealing with conservation. Mr. Wolff stressed that the issues of habitat loss, by-catch and direct take all had to be addressed and asked what prospects there were of achieving a *global* conservation agreement, and suggested that it might be preferable to concentrate on *specific* regions. It was pointed out that a global approach could contain regional elements.

ACTION. Four actions were agreed:
- *The Secretariat would continue to liaise with the CITES Secretariat regarding a joint approach.*
- *Mr. Blanke would liaise with the CITES Animals Committee.*
- *A representative from the CITES Animals Committee would be invited to attend the next meeting of the Scientific Council.*
- *Germany would prepare a short paper for the next Council meeting, summarising the key conservation issues and which might serve as a framework for an action plan. Mr. Blanke agreed to serve as the species focal point.*

5.3 Other Resolutions and Recommendations

a. Resolution 6.2: By-catch

88. The Deputy Executive Secretary introduced Resolution 6.2 (reproduced in ScC.10/Inf.12), suggesting it was one of the most significant resolutions resulting from COP6. Effective follow-up was important. Albatrosses and petrels, small cetaceans and marine turtles were the worst affected species, and the Council needed an informed and detailed exchange of views led by appointed councillors. He reported that the USA was interested in holding on international expert conference on by-catch mitigation in long line fisheries, and CMS should be involved or even take a lead role. Mr. Limpus was encouraged by the

scientific community's efforts to highlight this threat, since as a result public awareness was much higher. More countries were undertaking research and finding they had a by-catch problem, which needed to be addressed. Especially in the larger oceans, most fishing effort was carried out in international waters, which was the cue for CMS involvement. More attention had to be given to the effects on turtle of long line fisheries. Mr. Baker (Australia) stressed that different solutions were needed for different problems. It had been found that changing deployment from daytime to night, the depth of the line and the type of bait all led to different species being involved in by-catch. The fisheries industry needed to be engaged. A Workshop – "fishers' forum" – held in New Zealand had included the fishing states for the first time and they had been candid about by-catch. It was however important to set clear goals before arranging such workshops and to target the audience carefully.

89. Mr. Perrin noted that more data was required for each fishery to help determine where action was needed and how unsustainable by-catch was. So far, only the Philippines had studied the dolphin by-catch in tuna fisheries, and it had been shown to be unsustainable. The wider picture was likely to be depressing. Many countries prohibited the retention of by-caught specimens; this proved to be a disincentive to fishermen to report by-catch, and carcasses were hidden and disposed of.

90. ASCOBANS was leading the investigation of the by-catch issue within its area; and it was hoped ACCOBAMS would play a similar role in its. CMS Parties that were also in the IWC had a duty to record by-catch. By-catch was an area where CMS and IWC could co-operate. The FAO and the European Union were also relevant to this issue. It was proposed that a Resolution for COP7 to require by-catch to be reported should be drafted, addressing data collection. The Chairman felt that the Council should communicate its views to the Standing Committee.

ACTION. In view of the impact of by-catch on migratory species and beyond, it was agreed that :

- *the CMS Secretariat should prepare an inventory of the activities being undertaken by other international and regional organisations with respect to fisheries by-catch and identify agencies that are capable of undertaking stronger actions than those currently in place;*
- *that CMS should participate in the proposed expert workshop being developed by the US NMFS;*
- *that members of the Council should raise the wider issues of by-catch within their national authorities and come to the 11th meeting of the Scientific Council prepared to report on by-catch of migratory species within their jurisdiction and the mitigation actions being undertaken.*

b. Resolution 6.4: Strategic Plan for 2000-2005

91. The Deputy Executive Secretary explained that COP6 had adopted a Strategic Plan shortly after the last meeting of the Council. The plan reproduced in ScC.10/Inf.12 together with the text of Resolution 6.4. ScC.10/Doc.5 was an overview of how the plan was being implemented and was an update of the report presented to the CMS Standing Committee in September 2000. As it was based on information provided to the Secretariat, it could not be an exhaustive review of CMS implementation, as many national initiatives were not reported to the Secretariat.

92. UNEP/WCMC was reviewing national reports submitted since CMS came into force, with a view to proposing conclusions and recommendations. Tables on pp 1-8 of Doc. 5, reflected themes under immediate discussion and followed the Scientific Council categories of species groups. The Strategic Plan also dealt with other issues where Scientific Council advice was required. Objective 2.4 stated that CMS aimed to have instruments to be in place for concerted action species by COP8 and agreed to fund status reports these species. Review of institutional arrangements concerning the Scientific Council was overdue, as little had changed since its inception, but its membership had grown with more Parties and observers. Other models for inter-sessional arrangements should be examined in the future, possibly in a working group.

93. Mr. Pritchard (BirdLife International) drew the Council's attention to discussions taking place in other organisations concerning the institutional arrangements for dealing with scientific information (e.g. Ramsar and STRP; CBD and SBSTTA and the debate in the Bern Convention about the need for a separate scientific body). The role of observers was also to be determined. The Chairman said that he welcomed the participation of observers in working groups and plenary.

94. Mr. Schlatter requested clarification of the different roles of the Councillors. As a species expert with a coordinating role, he experienced some difficulties contacting some experts, and suggested that the Secretariat might help facilitate the exchange of information.

95. The Chairman summarised by saying that the adoption of the Strategic Plan was a sign of the Convention's maturity, and was pleased that this realism had not diminished the Council's enthusiasm. Reviewing implementation was very much linked to the next agenda item, where the discussion could be pursued further.

c. Resolution 6.4: Performance Indicators

96. Mark O'Sullivan (UK), vice-chairman of the Standing Committee Working Group on Performance Indicators made a presentation on the progress achieved by the Group. He explained the background was the revolution in management practice in last 10 years in private and public organisations alike, which required information on performance to help work better in future. COP6 set up open Working Group (Resolution 6.4 Art 8). The Working Group had reported to the 22nd Meeting of the Standing Committee and needed to involve the Scientific Council, to give input on the overall success of CMS, the work of the Council and criteria for the listing of the species on the appendices. The Performance Working Group's work should be seen in the context of the Strategic Plan, UNEP report on harmonisation and the CMS-CBD joint work programme.

97. The Chairman felt that the performance indicators should reflect the Strategic Plan and focus on key areas of activity, co-ordination and communications, and not just biology.

INDICATORS WORKING GROUP

98. Mr. Bagine (Kenya), Chair of the Indicators Working Group, reported on the Group's interim findings, which were circulated at the meeting (Annex 4). Further work was necessary to finalise the report, as the input on threats from some of the taxonomic groups had yet to be incorporated.

99. Regarding the implementation report on the Strategic Plan, it as felt that it would benefit from having more specific deadlines and criteria of achievement. The level of detail to be incorporated into the report was a matter of judgement and balance. Two main issues were identified:

(1) The Convention and its effectiveness in conserving migratory species

100. CMS had an obligation to all migratory species, but resources meant that priorities had to be set. Monitoring closely all 85 Appendix I species would also be burdensome, and some of these species were also subject of actions in other fora, so the "concerted action" species were the most sensible ones to examine in detail, through systematic review of status.

101. CMS had a role to play in preventing species listed in Appendix II from meeting the criteria for listing on Appendix I. Indicators were required to ensure that the Convention was monitoring species adequately and establishing the necessary cooperative actions. An early warning system, drawing on historic data, was needed. Attention had to be paid to the quantity and presentation of data. Indicators of success might be a stable or increasing population and stable or increasing range or distribution.

102. Taxonomic groups were asked to provide input on the threats facing the species and species groups within their responsibility. Mr. Perrin found that there was little commonality of threat across the cetacean and large fish species. By-catch, direct catch, illegal trade, pollution, acoustic disturbance and global warming were all factors for cetaceans; poaching, hunting and by-catch were problems for dugongs in South East Asia. Manatees faced poaching, habitat degradation and collisions with vessels. Mr. Moser on the other hand found that there were many cross-species issues as well as species-specific ones. Mr. Davidson (Ramsar Bureau) recommended that for a comprehensive picture both a bottom-up and top-down approach should be taken to threat assessment.

(2) The Scientific Council and how it functions.

103. Councillors would understand their role better if given terms of reference and an induction course. The expertise of individual Councillors should be monitored to see how well the Council as a whole covers the subjects it has to deal with. The criteria for listing species on the appendices should be clear, robust and adhered to. Mechanisms for reviewing the status of species and the activities undertaken on their behalf must be adequate. Follow-up mechanisms should be in place to ensure that Council decisions are implemented. Finally, it should be asked whether the actual country attendance at Council meetings is sufficiently broad to ensure the representativeness of Council decisions.

ACTION. The Chairman agreed to draft a short paper outlining the respective roles and responsibilities of members of the Council.

d. Resolution 6.5: Information Management Plan and National Reporting

104. The Deputy Executive Secretary reported that UNEP/WCMC was finalizing an analysis of national reports submitted since CMS entered into force. Some recommendations were emerging, including a proposed new format which would be circulated.

ACTION. An updated report would be presented to the Standing Committee in December 2001,with the possibility that the new format would be used on trial basis for COP7. Four or five councillors were invited to review the proposed format ensuring that scientific input was received. Councillors from the UK, Ghana, Peru, the Philippines and Australia volunteered to participate.

VI. PROPOSALS FOR AMENDMENTS TO APPENDICES I AND II OF THE CONVENTION AT COP7

105. Proposals for amendments to the Appendices had been circulated in advance as ScC10.10/Doc.6, 7 and 8. Further proposals had been circulated at the meeting. In order to be considered at COP7, the proposals had to be formally submitted by a CMS Party five months in advance.

Gangetic River Dolphin

106. Mr. Perrin (Appointed Councillor) introduced ScC.10/Doc.6 which proposed upgrading this species to Appendix I listing. It was suggested that India be approached to formally table the proposal at COP7 as India was the only Range State which was Party to CMS. The Secretariat would send the document to India to stimulate interest in tabling the amendment and would contact other Range States. The meeting endorsed the proposal.

West African Manatee

107. In 1999 the Scientific Council had agreed that this was the most threatened manatee species. Mr. Perrin had reviewed the conservation status to report to this meeting. The Range extended from Mauritania to Angola and as well as some inland countries (including Burkina Faso and the Central African Republic, where suitable habitat occurred). As the range was interrupted, isolated populations of different status were thought to exist, with possibly a large number in Guinea-Bissau. The species was listed as vulnerable by IUCN after a 20% decline in 10 years and was also listed on CITES. Hunting was illegal in all the range, but poaching highlighted enforcement problems. The species met Appendix II criteria and would benefit from international co-operation.

108. Mr. Demba Mamadou (Senegal) supported Mr. Perrin's proposal, commenting that the species was on the brink of extinction in Senegal. Mr. Mshelbwala (Nigeria) cited the species as one of which was threatened by Nypa palm. It was also hunted for its oil, which was used in traditional rituals. Mr. Lamptey (Ghana) also supported the proposal. The species was found in a river shared with Cote d'Ivoire. Mr. Moumouni (Togo), Mr. Issa (Niger), Mr. Traoré (Mali) lent their support to the proposal as well.

ACTION. The Council endorsed the proposal. The Range States agreed to discuss the question of proposing the amendment formally among themselves and to report to the Chairman on their suggested way forward.

Other Species

109. Mr. Schlatter outlined a list of further species which might be considered for listing on the Appendices. For Appendix I: the Peruvian Diving Petrel (*Pelecanoides garnoti*), and for Appendix II: the Humboldt Current Squid (*Doridicus gigas*), the Perico macareno (*Brotogeris pyrrhopterus*), the Common South American Sea Lion (*Otaria flavescens*), the South American Fine seal (*Artocephalus australis*), Neo-tropical giant river otter (*Pteronura brasilensis*)and the Sperm whale (*Physeter macrocephalus*). Mr. Schlatter was requested to identify a Party to prepare the background papers in time for COP7 and detailed discussions at the next meeting of the Council.

110. Mr. Pfeffer (Appointed Councillor) suggested that the African elephant currently on Appendix II (West African population) was endangered according to IUCN, and so met the criteria for listing on Appendix I. The Chairman requested that Mr. Pfeffer identify a Party prepared to make the formal proposal.

111. Mr. Demba Mamadou (Senegal) had circulated a paper on the Turtle dove and announced that a formal proposal would be tabled at the next meeting of the Council.

112. Mr. Culik (Secretariat consultant) presented his paper "Small Cetaceans: Distribution, Behaviour, Migration and Threats – A Review", a summary of which was contained in ScC.10/Doc 14; the full report was available from the Secretariat. The report contained a chapter on each species, with sections on distribution, sub-species, population estimates, biology, behaviour, habitat, reproduction, feeding, migration and threats. Sources of information included satellite tracking and anecdotal evidence from fishermen. Information was presented in pie charts for conservation status and degrees of protection. The document suggested the opportuneness of new listing of nine species in Appendix II and one species in Appendix one, and the extension of the stocks or of the distributional area for seven species already listed in Appendix II.

113. The Executive Secretary stressed the importance of thorough preparation of the case for including new species to avoid wasteful work. He also drew attention to a paper presented by Mr. Lhagvasuren (Mongolia) outlining species of importance to his country, which had only recently joined CMS.

ACTION. The Chairman urged any Party considering an amendment to consult and involve all other Range States, and further asked the Secretariat to prepare a guidance note about how to submit amendments to the Appendices.

Taxonomy of Right Whales

114. Mr. Perrin introduced ScC.10/Doc.8 concerning the taxonomy of right whales, with implications for the CMS Appendices. He explained that three species of Right Whale were now recognised (see item 3 c) , rather than two as appeared in the CMS Appendices. As the recent revision had been based on thorough studies, Mr. Perrin was confident that no further changes were likely for some time and recommended that CMS adopt the new taxonomy. The Council accepted this recommendation.

VII. PROGRESS ON OTHER MATTERS REQUIRING SCIENTIFIC COUNCIL ADVICE

7.1 Potential New Agreements

Small Cetaceans and Manatees in West Africa

115. Mr. Perrin referred to the decisions of the 8th Meeting of the Council, that had approved the convening and sponsoring by CMS of a Workshop on the conservation and management of small cetaceans in West Africa. The workshop had been held in Conakry, Guinea, in May 2000, and had recommended *inter alia* the development of an Action Plan for the conservation and management of small cetaceans of West Africa, proposing that a first draft of the Action Plan be prepared by him in collaboration with Koen Van Waerebeek. The report of the Conakry workshop was available to the participants to the meeting as document CMS/ScC.10/Inf.20. As a consequence, an outline of an action

plan had been prepared by Mr. Van Waerebeek in consultation with Mr. Perrin, and was before the meeting as document CMS/ScC.10/Doc.10. Considering the unfavourable conservation status of the West African Manatee and the interest expressed by several Parties to take action for its conservation within CMS, the taxonomic coverage of the Action Plan included also this species. Informal consultations had been held collaterally to the meeting with the Councillors from the Range States present, who had in general expressed their interest to pursue in this initiative.

116. The Chairman noted with satisfaction the development that had been reported. He pointed out that under CMS usual procedure a Party should be identified to take the lead in the development of such initiatives. Guinea had previously expressed its willingness to play such a role, however the absence of the Councillor from that country did not allow to verify this continued interest. In this regard, the Councillor from Senegal expressed the interest of his country to possibly taking the lead in the case that Guinea were not in a position to play this role.

ACTION. It was agreed that the Secretariat would clarify this issue before pursuing in the development of the initiative.

African Elephant

117. Ms. Nina (Democratic Republic of the Congo) referring to Resolution 6.5 requested the Secretariat to continue its contacts with Burkina Faso. The Range States were to meet in February 2002 when they would present reports and consider a draft MoU. Funds had been earmarked to support this meeting. Mr. Mshelbwala (Nigeria) added that the African Elephant Conservation Group and the CITES appointed MIKE coordinator should be involved.

Sahelo-Saharan Antelopes

118. The Executive Secretary was confident that progress could be made with the Range States as soon as the Secretariat's Agreements Officer had been appointed.

Whale Shark

119. Mr Custodio (Philippines) said that he was about to draft an MoU on the whale shark, but required input from other Range States. Mr. Baker (Australia) offered to advise and assist.

ACTION. MoU to be drafted.

South America

120. Mr. Schlatter (Appointed Councillor) mentioned possible MoUs concerning the Ruddy-headed goose, the High Andean flamingos and the Franciscana dolphin. No particular timescale was identified at this stage.

Marine Turtles (Americas)

121. Mr. Limpus (Appointed Councillor) informed the meeting that the inter-American marine turtle treaty had entered into force. This agreement had been negotiated outside the auspices of CMS. He urged CMS Parties in the region to consider signing. Mark O'Sullivan (UK) said that the UK was a Range State to this agreement and was considering stressing that the agreement could be deemed to be an Article IV instrument under CMS.

Aquatic Warbler

122. John O'Sullivan (BirdLife International) reported that there had been considerable interest in concluding an MoU for the Aquatic warbler. Progress had ben slower than expected, but BLI was confident hat a lead country would be identified and that there would be greater progress to report at COP7.

7.2 Small-scale projects funded by CMS

a. Progress report by the Secretariat on completed and ongoing projects

123. The Deputy Executive Secretary reported that the Secretariat had prepared an overview of those projects dating from 1½ years ago at the time of the last Scientific Council (see tables in ScC.10/Doc. 11). The tables covered substantive outputs of the projects and analysed financial aspects. For further projects, on implementation and conservation, COP6 had decided to allocate $400k from the CMS Trust Fund for the years 2001 and 2002, with a further tranche of $300k if the funds were available. Some funds had to be allocated to work such as the CMS Information Management Plan ($ 75,000) and implementation reports, including a review of the status of Appendix I species. This meant that $390k had been allocated for conservation projects, with possibly a further $150k to be distributed by the Standing Committee in December 2001. The CMS Strategic Plan provided a blue print for the future and so was a good source of guidance for choosing projects. ScC.10/Inf.22 set out procedures for selecting and appraising projects and ScC.10/Inf.6 included a format for their submission.

124. Mr. Moser (Appointed Councillor) reported that most existing projects had successfully achieved their aims. One exception was the Houbara bustard project which now appeared dormant. The Deputy Executive Secretary clarified that he had been advised that the $4500 spent on this project had produced the draft action plan prepared by IUCN.

b. New Project Proposals

125. The list of projects recommended by the different taxonomic and regional working groups for approval by the Council was circulated in tabular form (Annex 5). The projects were:

Birds

126. Location of wintering areas for *Anser erythropus* by satellite tracking ($22,000); status report and recommendations for *Oxyura leucocephala* (Central Asian population) ($25,000); range state/expert group meeting on *Otis tarda* ($15,000). For other priority species for which project proposals were not available, an global amount of $100,000 had been estimated (details in Annex 5).

Mammals

127. Meeting for the development of an MoU on Central and West African Elephant ($10,000); matching funds to FFEM project, and development of projects which are not, or to a limited extent, covered by the FFEM project, notably Chad ($100,000).

Small Cetaceans and Large Fishes

128. Abundance estimation, habitat use and stock identity of the franciscana, *P. blainvillei* ($32,000); workshop on whale shark fisheries and international traffic in whale shark products ($30,000); second conference on biology and conservation of small cetaceans in SE Asia ($40,000), South American dolphins - projects emanating from the Second Neo-tropical Marine Mammal Congress (Valdivia Chile Nov-Dec 2001) ($30,000); sturgeons ($30,000).

Marine Turtles

129. Green turtle migration (Guinea-Bissau) ($15,000); marine turtle web-based database ($65,000); pilot project to develop funding support for the Indian Ocean - south East Asia MoU and Conservation Plan ($3,000); by-catch workshop ($30,000); marine turtle tagging and by-catch survey follow-up ($15,000).

Neo-tropics

130. Implementing Priority Actions for the conservation of High Andes Flamingos ($25,000); Habitat use of endangered bird species in sub-tropical pasture of Argentina, Paraguay and Uruguay ($25,000); Concerted actions for the conservation and management of *C. rubidiceps* in Argentina and Chile

($27,000); survey of population and habitat requirement of the Humboldt penguin ($10,000); survey of population and habitat requirement of the Southern Sea Otter ($10,000).

131. The value of the projects on the list corresponded with the likely resources available and the Council endorsed the list and empowered the Chairman, the Secretariat and the Appointed Councillors to oversee their development.

c. Procedure for project selection and appraisal

132. Mr. Moser (Appointed Councillor) recommended that the procedures for project submission should be tightened. Deadlines had to be adhered to, if proper consideration were to be given to proposals. The taxonomic and regional groups had to have a clearer definition of their responsibilities for overseeing projects. Finally, he recommended that the Scientific Council should retain responsibility for monitoring Appendix I species, even if they were also covered by one of the CMS Agreements. Mr. Devillers (EU) requested that the emphasis be placed on practical action rather than administrative tasks.

ACTION. The Chairman and the Secretariat undertook to prepare a paper to explain the submission and monitoring procedures.

7.3 Role of the Scientific Council in the revision and updating of the Range States List for species listed on the CMS Appendices

133. The list of Parties which were Range States to CMS-listed species had been circulated as ScC.10/Inf.8. The Secretariat had the task of submitting this list to the COP, but relied on the Parties and the Council to ensure its accuracy. In its review of national reports, the UNEP/WCMC had revealed discrepancies in the list, as many Parties maintained that they were Range States for additional species.

ACTION. The Chairman requested the Secretariat to circulate the UNEP/WCMC findings to Councillors. A draft list would be circulated three months before the next Council meeting, to allow for adequate review and formal endorsement by the Council.

7.4 IUCN Red Data List

134. The Technical Officer (Marco Barbieri) introduced this item concerning the recent revision of the IUCN categories (Version 3.1). As IUCN conservation status categories constituted a reference for CMS notably for the purposes of species listing in Appendix I to the Convention (see Resolution 5.3), the potential implications for CMS of the latest revision of the categories deserved to be evaluated. Version 3.1 of the categories had been circulated as document ScC.10/Inf.14.

135. The Chairman asked whether any Councillors already had close dealings with the IUCN process, as he intended to form a small working group to report back to the next meeting. ACTION. The Chairman, Mr. Baker (Australia) and the Appointed Councillors formed the group to draft a paper setting out the implications of the IUCN listing for CMS.

136. Mr. Schlatter pointed out that developing and transitional countries had difficulty keeping up with changes in the IUCN categories, and that they had only just approved the first version. Data on numbers and distribution was not readily available and implementing the third version would be difficult.

7.5 Review of artificial barriers to migration and other threats to migratory species and their habitats

137. The Technical Officer introduced this item, referring to document ScC.10/Inf.10. He pointed out that the prevention or mitigation of obstacles to migration were a fundamental issue to CMS, and indeed the CMS Strategic Plan 2000/2005 recognised addressing barriers as an objective and called on the Scientific Council to advise on the issue.

138. Mr. Wolff (Netherlands), who had authored the reference document prepared some years ago, expressed the view that barriers to migration, while significant, do not constitute in many cases the main threat faced by migratory species. He considered therefore sensible to concentrate on those barriers with

the greatest impact, such as dams. Mr. Moser (Appointed Councillor) agreed and suggested that the Convention could use this subject to start providing guidance and advice to Parties along the lines of the Ramsar "tool-kits". Existing literature, and notably the reports recently produced by the World Commission on Dams, could provide the basis of such advice.

139. Mr. Blanke (Germany) reported that there were 50+ applications for offshore wind farms in Germany, the Netherlands, the UK and Denmark and the effect of these on migratory birds was not yet known. The precautionary principle required some consideration of the likely consequences before planning permission was given. Telephone masts were also proliferating as were power lines. Mr. Madsen (Denmark) reported that research into collision risks surrounding wind turbines was to be carried out and that he would report back when the results were known.

ACTION. The Chairman asked Germany, Denmark and the UK to collaborate on a short paper for the next Council meeting and COP7, focussing on the two main barriers mentioned above. The Secretariat was asked to liaise with the Ramsar Bureau about devising useful guidelines.

7.6 Impact of Climate Change on Migratory Species

140. In introducing this agenda item, the Technical Officer referred to Recommendation 5.5 of the 5th meeting of the Conference of the Parties, which asked the Scientific Council to establish a Working Group on this issue with a series of tasks, including reviewing the scientific work under other bodies, eg CBD and IWC, and to report back. With a view to assisting the Council in its deliberations, the Secretariat had prepared a note (ScC10/Doc.15) that, with no pretension to be exhaustive, summarized information available at the Secretariat on the impact of climate change on biodiversity and in particular migratory species, current initiatives in other conventions/fora and possibilities of synergies and collaborations.

141. Mr Davidson (Ramsar) reported that as a result of co-operation between Ramsar and CBD, Parties to these conventions were being asked to provide a comprehensive assessment of the effect of climate change on wetlands, and to propose management measures needed to address change and rising water levels. The Inter-governmental Panel on Climate Change) was also doing a similar exercise for the CBD and its next SBSTTA. It was important to ensure that these initiatives were co-ordinated and cross referenced.

142. Dr. Limpus (Appointed Councillor) gave a presentation linking failure of turtle eggs to hatch to changing temperatures. The gender of hatchlings was also linked to temperatures on the beach where they were laid. 1998, when abnormally high temperatures had been recorded, saw a 20% drop in hatch rates. There was also evidence of a correlation between increasing Dugong mortality and the phenomenon of El Niño. La Niña led to wet weather and flooding, resulting in greater sediment loads affecting sea grass pasture.

143. Mr. Wolff (Netherlands) commented that different conclusions were being drawn from the same data and that it was important to separate observations of what had happened from speculation about what was going to happen.

ACTION. The Chairman asked the Secretariat to commission a review of climate change and the effects on migratory species, to enable the Council to consider how to make its input into the wider debate.

7.7 Consequences of the introduction of alien species (e.g. Nypa Palm)

144. The Chairman explained that alien and invasive species had been discussed at the CBD SBSTTA, and were a problem to many of the biodiversity-related conventions. He then invited Minister Okipido and Mr. Mshelbwala (Nigeria) to make their presentations on the particular case of the Nypa palm (*Nypa fruticans*) which had been introduced from Singapore to Nigeria in 1906 to help prevent coastal erosion, but had since spread along much of the Nigerian coastline, displacing mangrove, clogging up waterways and destroying important habitat, including that of turtles, manatees and birds. The text of both presentations was circulated at the meeting. The Minister invited councillors to attend the launch of a new initiative to remove the Nypa palm.

145. Mr. Davidson (Ramsar) was grateful for the explanation of the problem. He regretted that Nigeria found itself at stage three of the invasive species problem (these being: first to keep invasive species out, second to prevent them from taking hold and third, eradication). He suggested that the Global Invasive Species Programme (GISP) would be a source of advice and pointed out that the Ramsar Convention was developing assistance packages, especially for Africa.

146. The Chairman offered his support to Nigeria's eradication programme, thanked him for the invitation to attend the launch and offered to assist with any further initiatives that might be required, either with other conventions or with oil companies operating in the area who might be able to help.

VIII. COLLABORATION WITH OTHER INTERGOVERNMENTAL AND NON-GOVERNMENTAL ORGANISATIONS

a. *Convention on Biological Diversity*

147. The position regarding collaboration between CMS and CBD had been reported under item 3 c.

b. *UNESCO - Man and Biosphere (MAB) Programme and World Heritage Convention (WHC)*

148. An MoU between CMS and the UNESCO organisations, MAB and WHC, was in the advanced stages of drafting.

c. *Ramsar Convention*

149. An MoU existed between CMS and Ramsar. Work was progressing in elaborating a Joint Work Programme. Mr. Davidson (Ramsar) invited the CMS Scientific Council Chairman to attend the Ramsar Scientific and Technical Review Panel meetings.

d. *International Whaling Commission (IWC)*

150. The MoU between CMS and the IWC had been signed in July 2000, and contacts would be initiated to develop some concrete collaboration initiatives.

e. *CITES*

151. The possibility of an MoU between CITES and CMS was being considered, with the CITES Secretariat charged with the task of providing the first draft.

f. *IUCN*

152. The agreement with the IUCN Environmental Law Centre needed to be renewed. This presented the possibility of a wider MoU with the IUCN, and a draft had been prepared which was under discussion.

g. *Wetlands International*

153. The MoU between CMS and Wetlands International had been in place for years. Collaboration between the two organisations had been broadened by two Letters of Agreement, under which Wetlands International undertook to carry out promotional work for the Convention. These arrangements covered the Asia-Pacific and European-African offices of WI.

h. *BirdLife International*

154. No formal arrangements had been established between CMS and BLI, but co-operation across a range of activities had been growing.

SUMMARY ACTIONS. The Chairman: asked for comments on the suggestion that the Chairmen of the Scientific Advisory Bodies of the key biodiversity-related Conventions should hold meetings; asked the Secretariat to compile a list summarising the organisations with whom CMS works and how to improve

scientific interaction. The Secretariat also undertook to seek Councillors to serve as focal points for CITES, Ramsar, UNESCO-MAB, and UNESCO-WHC.

IX. DATE AND VENUE OF THE ELEVENTH MEETING OF THE SCIENTIFIC COUNCIL

155. Provided that the dates of the next COP were not changed to avoid coinciding with Rio +10, the eleventh meeting of the Scientific Council would probably take place 1-3 September 2002[2], in Bonn, Germany.

X. ANY OTHER BUSINESS

Selection of Appointed Scientific Councillor for Asiatic Fauna

156. The Deputy Executive Secretary reported that the Secretariat would write to the Focal Points of the Asian Parties to seek nominations for the Appointed Councillor for Asiatic fauna. The Chairman would be consulted about the selection and any short-listing procedure. Candidates did not have to be nationals of CMS Parties.

Satellite Tracking Working Group

157. The working group had met in the margins of the meeting and had produced a report entitled "Guidelines for satellite telemetry of migratory birds", which had been tabled before the Council (Annex 6). The Chairman invited further councillors to join the group and work intersessionally to further elaborate the report under the co-ordination of Mr. Limpus.

XI. CLOSURE

158. After the customary expression of thanks to all those who had helped organise and participated in the meeting, the Chairman declared the Council closed.

[2] Note by the Secretariat: Following the postponement of the dates of COP7 (footnote 1), the ScC11 will be held sometime after 15 September 2002.

Convention on the Conservation of Migratory Species of Wild Animals (CMS)

Secretariat provided by the United Nations Environment Programme (UNEP)

Tenth Meeting of the CMS Scientific Council

Edinburgh, Scotland, United Kingdom, 2-4 May 2001

Annex 1
CMS/ScC.10/Inf. 23 Rev.1

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Convention on the Conservation of Migratory Species of Wild Animals (CMS)

Secretariat provided by the United Nations Environment Programme (UNEP)

Tenth Meeting of the CMS Scientific Council

Edinburgh, Scotland, United Kingdom, 2-4 May 2001

Annex 2
CMS/ScC.10/Doc.1 Rev.1

AGENDA OF THE MEETING

1. Opening remarks of the Chairman and Secretariat

2. Adoption of the agenda

3. Report on inter-sessional activities

   a) Chairman
   b) Secretariat
   c) Councillors (on work of other Conventions they were requested to follow on behalf of CMS)

4. Report and discussion on CMS Agreements recently concluded or under development

   1. Albatrosses and Petrels (COP6 Resolution 6.3 refers)
   2. Marine Turtles - Indian Ocean and South-East Asia (COP6 Recommendation 6.6 refers)
   3. Marine turtles - Atlantic Coast of Africa (COP6 Recommendation 6.7 refers)
   4. Houbara bustard (COP6 Recommendation 6.4 refers)
   5. Great Bustard (COP6 Recommendation 6.4 refers)
   6. Other

5. Scientific Council tasks arising from resolutions and recommendations of the Conference of the Parties

   5.1. Concerted actions for selected Appendix I species/groups, according to Res. 3.2, 4.2, 5.1 and 6.1

      a) Mammals: Sahelo-Saharan ungulates, (COP6 Recommendation 6.3 refers), Mountain gorilla, South Andean deer (Huemul), Franciscana dolphin, Monk seal, Southern marine otter, Southern river otter
      b) Birds: Siberian crane, Andean flamingos, Ruddy-headed goose, Lesser white-fronted goose, Houbara bustard, Great bustard, Slender-billed curlew, Lesser kestrel. Whitewinged flufftail, Blue swallow, Humboldt penguin, Ferruginous duck.
      c) Reptiles: Marine turtles

   5.2 Co-operative actions for Appendix II species (Recommendations 5.2 and 6.2)

      a) Mammals: African elephant, South America dolphins
      b) Birds: Corncrake, Quail; Black-necked swan; Albatrosses and Petrels
      c) Fishes: Whale shark, Sturgeons and paddlefishes

   5.3 Other resolutions and recommendations (not already covered under previous agenda items)

a) Resolution 6.2: By-catch.
b) Resolution 6.4: Strategic Plan for 2000-2005.
c) Resolution 6.4: Performance indicators.
d) Resolution 6.5: Information Management Plan and National Reporting.

6. Proposals for amendments to Appendices I and II of the Convention at COP7

7. Progress on other matters requiring Scientific Council advice

7.1 Potential new Agreements
7.2 Small-scale projects funded by CMS
a) Progress report by the Secretariat on completed and ongoing projects
b) New project proposals
c) Procedure for project selection and appraisal
7.3 Role of the Scientific Council in the revision and updating of the Range State List for species listed on the CMS Appendices
7.4 IUCN Red List
7.5 Review of artificial barriers to migration and other threats to migratory species and their habitats
7.6 Impact of climate change on migratory species
7.7 Consequences of the introduction of alien species (e.g. Nypa Palm)

8. Collaboration with other intergovernmental and non-governmental organizations

a) Convention on Biological Diversity
b) UNESCO - Man and Biosphere (MAB) Programme and World Heritage Convention (WHC)
c) Ramsar Convention
d) International Whaling Commission (IWC)
e) CITES
f) IUCN
g) Wetlands International
h) BirdLife International
i) Other organizations

9. Date and venue of the eleventh meeting of the Scientific Council

10. Any other business

11. Closure of the Meeting

Annex 3

Slender billed curlew Concerted Action Memo to the Scientific Council of the Bonn Convention

The Slender-billed curlew Converted Action remains the responsibility of CMS and the Scientific Council until such date as a transfer to AEWA of all its aspects becomes institutionally possible and adequate and at the same time insuring the preservation of its current priority level.

At this point the process of transfer will be achieved by common agreement.

The existing Working Group continues to administer for the Scientific Council all actions deriving from the Concerted Actions as well as any actions relevant to the Concerted Actions taken in fulfillment of the existing MoU on Slender-billed curlew. For this the results of the Working Group meeting in Kiev, 1-2 April 2001, will be discussed with the Secretariat of CMS in order to determine follow-up actions also in relation to the Range States. Possible merging of the MoU into AEWA will be considered after transfer of the Concerted Action.

The Working Group will finalize a new version of a Concerted Action Plan, to be adopted by the appropriate bodies in September 2002, based on the action plans prepared by BirdLife International and endorsed by e.g. the Bern and Bonn Conventions. The new Concerted Action Plan will incorporate any new knowledge that has become available in the course of the Concerted Actions and, in particular the results of the Kiev meeting of the Working Group and adhering to the CMS Concerted Action Model, as exemplified by the Siberian Crane and Sahelo Saharan Antelopes Concerted Action Plans.

The Scientific Council asks Dr. Gerard C. Boere to continue as Chairman of the Slender billed Curlew Working Group as a Scientific Council appointed expert.

The Councillor for the EU proposed to act as focal point Councillor.

WORKING GROUP ON STRATEGIC PLAN AND PERFORMANCE INDICATORS

REPORT OF THE WORKING GROUP

Terms of Reference

A. Review the Implementation Report on the Strategic Plan from the perspective of the Scientific Council
B. Identify performance indicators appropriate to assess the success of the Convention and the work of the Scientific Council

Membership

Chairman:

Richard BAGINE

Participants:

Demba M. BA
Carlo C. CUSTODIO
Nick DAVIDSON
José GRANADEIRO
Oliver BIBER
Gerardo FRAGOSO
Ernest LAMPTEY
Jesper MADSEN
Mike MOSER
John H. MSHELBWALA
Mark O'SULLIVAN
Bill PERRIN
Roberto P. SCHLATTER

Secretariat:

Marco BARBIERI
Douglas HYKLE
Robert VAGG

Meetings

The Working Group met five times between 2 May and 4 May 2001, with a short additional meeting to agree this Report. Despite vigorous prioritisation, pressure of time prevented the Working Group from fully completing its ambitious agenda in the course of the Scientific Council meeting.

Implementation Report on the Strategic Plan

It was generally felt that improvements could be made in the report by introducing more generally into the task definitions precise time deadlines and criteria of achievement. Some members of the Group considered that more detail in the Plan would be useful, but others recollected the reasoning behind the abbreviation of the Plan by CoP6: it was a question of striking the right balance. However, the Working Group assigned low priority to the review of the Implementation Report on the Strategic Plan, on the grounds that it was also addressed by the taxonomic working groups which conducted a great deal of business during the Scientific Council meeting.

Performance Indicators

The Working Group recommended that performance indicators should be developed at two levels: those relating to the Convention's effectiveness in conserving migratory species; and those relating to the functioning of the Scientific Council itself. The Working Group also acknowledged that it was necessary to have an overview of the range of activities undertaken by the Scientific Council and for a particular species (ie "outputs"), as reported in CMS/ScC.10/Doc.5, but that a more meaningful assessment of performance would often emerge from evaluating "outcomes" which were (at least theoretically) quantifiable.

Assessment of performance in relation to species conservation

General considerations

The Working Group saw the Convention as having an obligation to address *all* migratory species. However, it recognized that it would not be possible at least in the short-term to try to assess CMS' performance in relation to *all* species covered by the Convention. Even the list of Appendix I species (currently numbered at 85) would be beyond the Convention's current resources; moreover many of the species listed in Appendix I were being addressed by other international instruments and would not benefit from such detailed attention by CMS. It might be logical, therefore, to look initially at the species designated by the COP as warranting "concerted action" under CMS. Many of these species were flagship species, themselves indicative of good ecosystem function. For each of these 'concerted action' species, status and activity reports could be prepared and reviewed more systematically (eg. updated for each meeting of the Scientific Council, according to an agreed format) and made available to the Scientific Council in advance of its meetings, making use of a budgetary allocation already committed for this purpose by COP6 (the funding required/available has not yet been defined).

But it was also recognised that the Convention has a vital role, particularly through the use of Appendix 2, in preventing migratory species from reaching the need for listing on Appendix 1. For this very large group of species, a different set of performance indicators were required, ensuring that the Convention was monitoring species status adequately, and establishing the necessary cooperative actions to achieve successful outcomes. In essence this meant that in addition to work on concerted action or Appendix I species there was a need for indicators which would constitute an early warning system addressing the species and populations potentially or actually on Appendix II, and which would signal to Parties in good time the need for action to arrest deterioration or promote improvements in conservation status. This system in particular would require historical records to be searched to provide an adequate time-series of data. If such data were aggregated at a relatively high level then this would be likely to (i) provide an adequate overview of that sector of the range of taxa addressed, (ii) compensate for any gaps in data relating to particular species or populations and (iii) reduce the volume and complexity of high-level reports to a manageable proportion. Care would need to be taken to retain the underlying complexity of data, however, for example where one population of a species was decreasing and another increasing.

There were dangers of data and information getting out of hand: it would perhaps in theory be desirable to list all kinds of potentially useful data that could be collected and then make judgements about what to select; but that was not a practical approach and in any event similar endeavours had already been made and could be learned from. WCMC said that they would be very ready to help. It would also be important to see that the eventual outputs of the task of reporting against indicators were manageable in volume and complexity. Careful attention would need to be given to the synthesis of indicators and their presentation.

It was noted that there were some parallels between the way it was now being proposed to deal with indicators and the approach followed by MIKE, though MIKE had not yet been running for long enough to evaluate fully the success of the method. It was also noted that numbers were not always enough: there had to be room in reporting for qualitative as well as quantitative approaches. It was also important that there should always be retained an audit trail back to the source of data, so that its character and reliability could be assessed.

It was agreed that it was vital in reporting to distinguish between outputs (eg reports, legal prohibitions on by-catch) and outcomes (eg improvements in numbers of threatened animals).

Indicators of outcome

In assessing the outcome of the actions taken within the framework of CMS as a contribution towards the conservation of particular migratory species, it was felt that the following criteria might be useful indicators of successful outcomes:

- Population stabilized or increasing (ie decline in numbers halted or numbers increased)
- Range (distribution) stabilized or increased

It would in some, perhaps many, cases be possible to obtain adequate data of this kind from existing sources such as the IUCN SSC (eg the Red Lists), UNEP-WCMC or Wetland International (on waterbird populations), and the Working Group proposed that arrangements be set up to this end.

It was agreed that these were *primary* criteria and must be qualified temporally and spatially in specific application. Routine rolling reports to the CoP of species and population statistics would be desirable.

Indicators of output

It was also agreed that the activities and other means that contribute toward these ends must be evaluated, with appropriate and efficient performance indicators beginning with the proposed listing of species in the Appendices and extending down to the field activities recommended by the Scientific Council that operate directly to achieve the ultimate ends. A key indicator of the latter was:

- Reduction in threat or pressures (eg bycatch, poaching, etc).

What was required would be an assessment of key threats to particular species, operationalised through pressure factors such as by-catch or poaching. This would enable indicator reports to capture not only change in the extent or urgency of key pressures, but success in remedial action (eg efforts to reduce by-catch). Moreover, once a comprehensive set of potential key pressure indicators had been identified, it should be possible to see a good deal of commonality in the data types needed. This should mean that it would not be necessary to work up, collect and analyse separate indicators for each species. For example, by-catch from long-lines could be a key pressure for seabirds, turtles and small cetaceans. Once this was established it would become clear that the data collection and analysis task involved in covering the full range of species to be addressed would be greatly reduced.

Accordingly the Working Group invited the taxonomic or threat working groups at the meeting to identify one or two key pressure indicators for each population, species or higher taxon that they were considering, especially in relation to Appendix I species. The Working Group would then group these into a set of pressure state indicators by taxon. It did not prove possible to complete this work in the course of the meeting, and it is proposed to do so by email correspondence.

Again, it would in some, perhaps many, cases be possible to obtain adequate data of this kind from existing sources such as the Millennium Ecosystem Assessment on habitat, and the Working Group proposed that arrangements be set up to this end.

Project assessment

The Working Group observed that performance indicators for projects needed to be addressed as well. It agreed that a standard evaluation method for projects should be developed which focussed both on outputs and outcomes, and in particular that all approved projects should have measurable success.indicators of these outputs and outcomes, but recognised that such indicators would need to be project-specific. Often they would relate to threats and pressures, along the lines of the following examples:

Identified threat	**Proposed action**	**Action-oriented success**
Habitat degradation	Restoration of habitat	Area of restored habitat
Excessive harvesting	Reduction of hunting	Reduced numbers hunted/increase in area of sanctuaries

Assessment of performance of the Scientific Council in the conduct of its work

Discussion revealed a number of areas of potential improvement in the activities of the Scientific Council, but that not all of these were apt to the use of performance indicators. For example, Councillors (including Appointed Councillors) would benefit from Terms of Reference and an induction briefing which set out clearly what was expected of them, their relationship with focal points, their role in project review, and the communication opportunities available to them. Again, was there adequate continuity of membership, yet regular infusion of new blood? Was the taxonomic and regional expertise appropriate to the current needs of the Convention? It might be that the time was now ripe for a comprehensive review of the functioning of the Council, and the possibility of a consultancy study of this should not be excluded, if funding could be obtained.

Turning more specifically to performance indicators, the working group identified the following considerations to be addressed in working them up:

- Necessary areas of expertise to be covered by the Council's membership could be identified and appointments monitored to seek coherence with this;

- Are the criteria for listing or delisting species in the Appendices clear, robust and used?

- Are the mechanisms for reviewing the status of species, and the activities undertaken for them adequate|?

- Does the Council monitor decisions to ensure adequate and timely follow-up? Is there effective evaluation after the Council has completed tasks?

- Is actual country attendance at Council meetings sufficiently broad to ensure the representativeness of Council decisions?

Way forward

The Working Group believed that it had made considerable progress in addressing the difficult questions addressed to it, but that it was not possible in the time available to reach firm or final conclusions on all the issues that needed to be considered. It sought the authority of the Scientific Council to remain in being as an email correspondence group over the period up to the next meeting of the Council, in order to work up its proposals further. Particular priority in this would need to be given to the work of the taxonomic working groups in identifying threats and quantifying changes in and responses to them. The Working Group invited other Councillors to join them in this new phase of the work.

List of projects approved in principle during the 10th CMS Scientific Council Meeting

Project title	Country/ies involved	Tentative implementation time frame	Approved budget in US$ (estimated)	Co-funding available?	Project proposal available?	Contact for follow-up and developing the full project proposal	Comments
BIRDS							
Location of wintering areas of *Anser erythropus* by satellite tracking	Kazakstan	Sept-Oct 2002	22,000		yes	Jesper Madsen, Ingar Oien, (Norwegian Ornithological Society)	Priority
Status overview and recommendations for *Oxyura leucocephala* Central Asian population			25,000		yes	Implementing Agency: Wetland International Asia/Pacific	Priority
Range State/expert group meeting on *Otis tarda*			15,000		No	Attila Bankovic	Priority
Status overview and extenson of action plan for *Aythya nyroca*					No		
To be defined - Matching funds to GEF project concerning *Grus leucogeranus*					No		
Action Plan of *Sarothusa ayresi* (?) - to be defined					No		
Action to Follow-up of the *Otis tarda* meeting					No		
Numenius tenuirostris - Follow up of the Kyiv recommendations ? Isotope analysis ? - To be defined					No		
Hirundo atrocaerulea - To be defined					No		
Acroceph. paludicola - To be defined					No		

Project title	Country/ies involved	Tentative implementation time frame	Approved budget in US$ (estimated)	Co-funding available?	Project proposal available?	Contact for follow-up and developing the full project proposal	Comments
Albatrosses/Petrels (capacity building) - To be defined					No		For all the 9 projects listed above without a budget so far and for which a proposal have to be developed a global amount of 100,000 US$ is estimated.
Falco naumanni - To be defined					No		
SUB-TOTAL			162,000				
MAMMALS							
Meeting for the development of an MoU on Central and West African Elephant			10,000	Expected (France)	No		
Matching funds to FFEM project, and development of projects in the countries which are not, or to a limited extent, covered by the FFEM project, notably Chad	Chad, Mali, Mauritania, Morocco, Niger, Senegal, Tunisia	2001-2005	100,000	France USFWS	Yes	Roseline Beudels (IRSNB),	Matching Funds
Kouprey survey in Cambodia					No		Reserve
SUB-TOTAL			110,000				
SMALL CETACEANS AND LARGE FISHES							
Abundance estimation, habitat use, and stock identity of the franciscana, *P. blainvillei*	Brasil, Argentina, Uruguay	2001-2002	32,000		Yes	Enrique Crespo	
Workshop on whale shark fisheries and international traffic in whale shark products	Philippines? Australia	Sept. 2002	30,000	Being sought	Yes	William Perrin	CMS main sponsor
Second conference on biology and conservation of small cetaceans in Southeast Asia		June 2002	40,000	Being sought	Yes	William Perrin	CMS main sponsor

Project title	Country/ies involved	Tentative implementation time frame	Approved budget in US$ (estimated)	Co-funding available?	Project proposal available?	Contact for follow-up and developing the full project proposal	Comments
South America dolphins - Projects emanating from the Second Neotropical Marine Mammal congress (Valdivia, Chile, Nov. Dec. 2001)			30,000		No		Reserve
Sturgeons			30,000		No		Reserve
SUB-TOTAL			162,000				
MARINE TURTLES							
Green turtle migration: Guinea-Bissau	Guinea - Bissau	July 2001 - Dec 2002	15,000	Yes	Yes	Brendan Godley	Matching funds
Marine turtle web-based database			65,000		Yes	UNEP-WCMC	
Pilot project to develop funding support for the IOSEA MoU and Conservation Plan			3,000			CMS MoU; Limpus; consultant	
By-catch workshop- Matching CMS contribution			30,000		No		Matching funds
Marine Turtle tagging and by-catch survey follow-up	Sri Lanka		15,000		No	Turtle Conservation Project (TCP)	Reserve
SUB-TOTAL			128,000				
NEOTROPICS							
Implementing Priority Actions for the conservation of the High Andes Flamingos	Argentina, Bolivia, Chile, Peru	Oct 2001 - Oct 2003	25,000	Expected from WCS, IFF, CONAF, SNU, NPA	Yes	Sandra Canziani, Patricia Manconi	
Habitat use of endangered bird species in subtropical pasture of Argentina, Paraguay and Uruguay	Argentina, Paraguay, Uryguay	1 year	25,000		Yes	Adrián Di Giacomo (AOP), Rosendo M. Fraga (Fundación Vida Silvestre Argentina)	Merging of two different project proposals
Concerted actions for the conservation and management of *C. rubidiceps* in Argentina and Chile	Argentina, Chile	1 year	27,000		Yes	Daniel Blanco (WI)	

Project title	Country/ies involved	Tentative implementation time frame	Approved budget in US$ (estimated)	Co-funding available?	Project proposal available?	Contact for follow-up and developing the full project proposal	Comments
Survey of population and habitat requirement of the Humboldt penguin	Peru, Chile		10,000				Reserve -project proposal to e developed
Survey of population and habitat requirement of the Southern Sea Otter	Peru, Chile		10,000				Reserve -project proposal to e developed
SUB-TOTAL			97,000				

GUIDELINES FOR SATELLITE TELEMETRY OF MIGRATORY BIRDS

(Report prepared by the CMS Scientific Council Satellite Tracking Working Group)

Background

The Scientific Council to the Convention on the Conservation of Migratory Species of Wild Animals (CMS) provides the following principles for guiding decisions with respect to the use of satellite telemetry for the study of migratory species.

While the question was originally asked in the context of using satellite telemetry to identify the breeding habitat of the critically endangered slender-billed curlew, the response has been cast to provide a more general perspective on the issue.

It is not the role of CMS to usurp the function of the specialist committees within the individual projects where the decisions concerning these studies should be made. In addition, the conservation management agencies within the respective countries have a responsibility to evaluate such studies before approving permits.

For most species, satellite telemetry studies require the capture of animals and the fitting to them of transmitter packages (PTT). This type of manipulative research is not without its risks to the welfare of the individual animals selected for study or indeed to the species when the population size is severely depleted.

Appropriate planning for a telemetry study should include:

- an assessment of the risks to the animals and the species and the benefits to be gained from the study;
- establishment of a team of suitably skilled persons available to capture and handle the animals in a humane and non-detrimental manner;
- choosing an appropriate PTT design:
- PTT should be of a size, weight and shape that will not have a significant impact on the behaviour under study,
- PTT should be capable of being attached securely to the animal for the duration of the required study;
- choosing a method for attachment of the PTT that does not have a significant impact on:
- the behaviour under study, and
- the health of the individual
- a clear identification of the information that may be gained from the study; and
- the calculation of the minimum sample size required to ensure a reasonable chance of success with the study.

Methods

The working group met on 3 May 2001 to discuss the issues and consider an approach to the problem. Following this we conducted a brief review of the literature relating to the use of satellite tracking devices to study animals, particularly migration in birds. Issues considered included:

- effects of transmitter weight on study organisms;
- the impact of different methods of attachment of telemetry devices on the survival of animals and performance of the devices;
- the likely body weight of slender-billed curlew; and
- the relevance of this information to recommendations for telemetric study of slender-billed curlew.

The literature review was conducted using a bibliographic database developed by one of the members of the Working Group. It should be noted that time did not permit a rigorous review of the literature on the effect of marks and devices on animals, and the database reviewed is not complete in its coverage of this topic. Nevertheless, a number of references relevant to this topic were identified. Although not necessarily referred to in this paper, they have been included in the references to below so that other researchers may refer to them at a later date.

Information on the theoretical weight of slender-billed curlews was obtained from the Slender-billed Curlew WG (Umberto Gallo-Orsi and Didier Vongeluwe). The estimated body mass of slender-billed curlews had been previously determined by three methods:

- calculating a mean fresh egg weight for slender-billed curlews by measuring six eggs of this species which exist in museum collections, and then determining a body mass for slender-billed curlew by extrapolation, using mean egg weight and body mass data for the closely related whimbrel;

- calculating the relationship between wing length and mass data for the bristle-thighed curlew and whimbrel (both long distance migratory shorebirds similar to the slender-billed curlew), and subsequent extrapolation using wing length data from museum specimens of slender-billed curlew; and
- use of body mass data from two specimens found dead in autumn.

Results

Effects of transmitter weight on study organisms

Experience with the use of techniques for radio and satellite tracking of wildlife following its rapid deployment as a research technique since the early 1980s has seen considerable changes in accepted practice. Whereas a device:study organism ratio of 10% was once acceptable (e.g. Runciman, 1996), in recent years it has become accepted that the maximum weight of a transmitter should not exceed 3% of the body weight of the study animal (White and Garott, 1990; Microwave Telemetry Inc). The derivation of this figure is not entirely clear, but would appear to relate more to identification of the negative impacts of transmitter:animal weight ratios which have exceeded 3% in particular studies, rather than to evidence obtained from experimental work designed to test and establish appropriate relationships for specific birds and animals (Calvo and Furness, 1992).

In recent years there have been a number of studies conducted to review the impacts of tracking methodologies on a number of different species. These studies have examined the impact of telemetric devices on survival (Esler et al, 2000; Ward and Flint, 1995) reproduction (Schmutz and Morse, 2000; Bro et al, 1999), growth rate (Hubbard et al, 1998) or have compared methods of attaching equipment (Dzus and Clark; 1996).

Whilst the 3% figure remains an industry standard, the working group identified one study that challenged its validity. Hedd, A. (1999), in a study of the shy albatross *Thalassarche cauta*, found that birds carrying satellite packs extended the duration of their foraging trips throughout the breeding season in comparison with breeding birds that were not carrying satellite packs. During early chick-rearing, not only were the duration of foraging trips extended but carrying satellite packs also appeared to result in nest abandonments. Prior to abandoning, the foraging trip durations of these birds were variable, and ranged up to 6.6 days. As no successful birds had such extended foraging trips early in the chick-rearing period, the author believed this indicated that carrying satellite packs during this stage was a real disadvantage. Up to and including studies in 1996/97, all attempts to attach packs (1.9 - 2.4% and 2.6 - 3.4% adult body mass) to birds in the post-brood guard period ended in nest abandonment. However, successful studies were carried out in 1997/98 when two smaller satellite packs (0.8 - 1.1% adult body mass) were deployed on birds early in the brooding period. The author believed that the success of these deployments was due to a combination of earlier attachment of smaller transmitters.

There are obvious difficulties in transferring information derived from studies of albatrosses to other groups of birds such as waders and the slender-billed curlew in particular, but the work of Hedd (1999) serves as a reminder for exercising caution when placing equipment on any species of bird. Albatrosses have the ability to soar when flying and use the wind effectively to minimise energy consumption. It is reasonable to assume therefore that species which are not capable of conserving energy in long-distance flight may experience similar adverse affects when transmitter:body weight ratios of 2 - 3% apply.

Methods of attaching transmitters

There are a number of methods which have been used to attach transmitters to birds, ranging from the use of glues, clips and thin fibres to fix equipment to the back or tail of birds, to the use of body harnesses or surgical implantation of equipment. There is clear evidence that the form of attachment is equally important as the relative weight of the equipment being used.

The use of glues, clips and fibres to attach equipment to birds has been widely used for studies and it generally considered that these forms of attachment have a minimal impact on birds (White and Garott, 1990; Microwave Telemetry Inc, but see Ford, 2000). The problem with this method is that, for many species, it is a short-term form of attachment, and many researchers need to keep equipment on birds for long periods, particularly when studying migratory species.

In an attempt to keep transmitters on birds for longer periods of time, researchers turned to the use of harnesses. Gessaman and Nagy (1988) demonstrated some time ago that the use of harnesses had a severe impact on homing pigeons *Columba livea.* On 90 km flights, harnesses alone slowed birds by 15% and harnesses and transmitters (< 5% body mass) slowed birds 25 -28%. On 320 km flights birds were

slowed by >31%. Moreover, on the 320 km flights, CO^2 production of the pigeons was 41 - 52% more total CO^2. The concluded that high performance homing pigeons work substantially harder and longer during a long distance flight when wearing harnesses and transmitters. Other studies since have clearly demonstrated that birds carrying transmitters attached via harnesses are impacted by the use of this equipment and form of attachment e.g. Ward and Flint (1995).

Since the work of Gessaman and Nagy (1988), techniques have been developed to implant equipment in the abdomen (Korschgen et al, 1996). This form of attachment has been now been tested on a range of species and found to have a low impact on study organisms (Dzus and Clark, 1996; Garrettson et al, 2000; Petersen et al, 1995; Schulz et al, 1998). Despite these findings, many researchers have seemed reluctant to embrace these findings, and continue to use harnesses e.g Driscoll, 1995.

Body weight of Slender-billed Curlew

The body weight of slender-billed curlews is likely to range from 255 g to 520 g. Most likely, mean body weight will range from 430 to 460 g for males, and 490 – 520 g for females. (Table 1).

Table 1. Estimated body weight of slender-billed curlew

Data source	Weight (g)	Comments
Bird found dead in Autumn	360	Immature, specimen dead for some time
Bird found dead in Autumn	255	Immature, specimen dead for some time
Estimate from theoretical egg weights	Male – 455 Female - 520	body mass determined by extrapolation, using mean egg weight and body mass data for the closely related whimbrel
Estimate from wing length measurements	Male – 430 Female - 490	body mass determined by extrapolation, using morphometric data for the bristle-thighed curlew and whimbrel

Advice

The currently accepted experimental design principle that the transmitter:body weight ratio should not exceed 3% should be considered to be a maximum upper level figure for any satellite or radio tracking study of a migratory bird species.

Further, there is clear evidence that for at least one migratory species (shy albatross *Thalassarche cauta*) this figure is too high and that a more appropriate maximum weight ratio was 1%.

Equally important in the design of satellite tracking studies was the method used to attach transmitters. The use of harnesses is inappropriate and likely to compromise both the survival of the animal and the integrity of the experiment. The Working Group does not recommend their use in telemetry studies. Researchers are encouraged to consider surgical implantation of transmitters or to develop alternative techniques if longer-term attachment of devices is required. The Working Group noted however that the use of tape and modern glues had proven to be successful in retaining equipment on albatrosses for periods of 6 months or longer, and this technique may well prove suitable for a number of other large migratory bird species such as cranes and waterfowl.

With respect to the slender-billed curlew, there is currently no satellite tracking equipment (transmitter and battery) available that is suitable for use if the 3% or lower guideline is to be adhered to (Table 2).

Table 2. Maximum weight of transmitters for combinations of bird body weight and transmitter/body weight ratios

Transmitter / body weight ratio

Body Weight	1%	2%	3%
400 g	4 g	8 g	12 g
450 g	4.5 g	9 g	13.5 g
500 g	5 g	10 g	15 g

Decisions to fit satellite tracking equipment to slender-billed curlew remain the responsibility of the Slender-billed Curlew Working Group, and will obviously need to take account of the conservation benefit to the species in taking such a decision, and the political ramifications of the decision. However, based on the available evidence, it is the view of this Working Group that the probability of success if this decision is taken will be low, given the constraints imposed by the technology available.

It is recommended that the development of methodology, trialing of equipment and the training of personnel should be undertaken using less threatened species rather than with threatened species.

Working group:
C. Limpus (Chair), B. Baker, R. Beudels-Jamar de Bolsee, O. Biber, P. Devillers, B. Lhagvasuren and G.C.Boere.

Working Group meeting: 3 May 2001, during 10th Meeting of Scientific Council, Edinburgh.

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Bergmann, P.J., Flake, L.D. and Tucker, W.L. 1994 Influence of brood rearing on female Mallard survival and effects of harness-type transmitters. Journal of Field Ornithology 65: 151 - 159.

Bro, E., Clobert, J. and Reitz, F. 1999 Effects of radiotransmitters on survival and reproductive success of gray partridge. Journal of Wildlife Management 63: 1044 - 1051.

Abstract: Because of the recent decline in gray partridge *Perdix perdix* populations in northern France, we conducted a field study in 1995-97 by using radiotelemetry to examine mortality causes. We investigated the effects of radiotransmitters on survival, reproductive success, and body mass of gray partridge. We captured 260 hens in spring 1995, 99 in autumn 1995, and 358 in spring 1996 and tagged them with a 10-g necklace radiotransmitter. We found no effects of radiotags on survival (P = 0.101), reproductive success (P = 0.375), and body mass (P = 0.990) in spring 1995. In contrast, adverse effects were observed in spring 1996 on survival (P < 0.001), reproductive success (P = 0.006), and body mass (P = 0.013). The post-release effect on survival observed in spring 1996 varied among populations (P < 0.001), between radio types (P = 0.036), and with regard to body mass at time of capture (P = 0.046). The differences observed between years and across study areas were correlated to weather and predator abundance but not to habitat features we measured. Our findings suggest that radiotelemetry data must be carefully interpreted with regard to potential radiotag effects, all the more that these effects are influenced by environmental conditions.

Brothers, N., Gales, R., Hedd, A. and Robertson, G. 1998 Foraging movements of the shy albatross Diomedea cauta breeding in Australia: implications for interactions with longline fisheries. Ibis 140: 446 - 457.

Abstract: Shy albatrosses from Albatross Island and Pedra Branca were satellite tracked. Breeding birds were found to concentrate over the continental shelf, with those from Pedra Branca overlapping with the Japanese tuna longline fishing fleet. The distance birds moved from their foraging grounds varied with the period of the breeding cycle. Adults which were tracked near the end of the breeding season (March - April, n=7) deserted their chicks prematurely.

Calvo, B. and Furness, R.W. 1992. A review of the use and the effects of marks and devices on birds Ringing & Migration 13: 129 – 151.

Cotter, R.C. and Gratto, C.J. 1995 Effects of nest and brood visits and radio transmitters on Rock Ptarmigan. Journal of Wildlife Management 59: 93 - 98.

Driscoll, P. 1995 Eastern Curlews carry the load!. Queensland Wader 15: 3.

Dzus, E.H. and Clark, R.G. 1996. Effects of harness-style and abdominally implanted transmitters on survival and return rates of mallards. Journal of Field Ornithology 67: 549 - 557.
Abstract: Adjusted return rates were lower (P<0.025) for females with harnesses (22.6%) than those with implants (55%). These findings provide further evidence of the adverse effects of harness-style transmitters.

Esler, D., Mulcahy, D.M. and Jarvis, R.L. 2000. Testing assumptions for unbiased estimation of survival of radiomarked harlequin ducks. Journal of Wildlife Management 64: 591 - 598.
Abstract: Unbiased estimates of survival on individuals outfitted with radiotransmitters require meeting the assumptions that radios do not affect survival, and animals for which the radio signal is lost have the same survival probability as those for which fate is known. In most studies, most researchers have made these assumptions without testing their validity. We tested these assumptions by comparing interannual recapture rates, and by inference survival, between radioed and unradioed adult female harlequin ducks, and for radioed females, between right-censored birds (i.e. those for which the radio signal was lost during the telemetry monitoring period) and birds with known fates. We found that recapture rates of birds equipped with implanted radiotransmitters were similar to unradioed birds, suggesting that radios did not affect survival. Recapture rates also were similar between right-censored and known fate individuals, suggesting that missing birds were not subject to differential mortality. This study suggests that implanted radios are an unbiased method for estimating survival of harlequin ducks and likely other species under similar circumstances.

Ford, H.A., Geering, D. and Ley, A. 2000. Radio-tracking trials with regent honeyeaters Xanthomyza phrygia and other honeyeaters. Corella 24: 25 - 29.
Abstract: Three methods of attachment of radio-transmitters were trialed on regent honeyeaters Xanthomyza phrygia, noisy friarbirds Philemon corniculatus and red wattlebirds Anthochaera carunculata. Radio tags were glued onto the backs of birds, glued onto tail clips and attached, or attached to the tail using glue. The authors do not recommend that transmitters be glued onto the backs of regent HEs, on the basis of the results from trials on the larger honeyeaters. Transmitters clipped or tied and glued onto the tail appear to be safer, though they are appropriate for use before the breeding season rather than after it when honeyeaters moult.

Garrettson, P.R., Rohwer, F.C. and Moser, E.B. 2000 Effects of backpack and implanted radiotransmitters on captive blue-winged teal. Journal of Wildlife Management 64: 216 - 222.
Abstract: The authors compared body mass and behaviour of captive blue-winged teal Anas discors females fitted with either a backpack-harness transmitter, abdominally implanted device, or no radio over a 12 week period. Females with implants lost mass during the first week following surgery, while backpack-marked and control birds gained mass (P= 0.02). Mass of implanted birds recovered by the second week after surgery, and never differed among treatment groups over the subsequent 11 weeks (p >/= 0.51). Females with backpack transmitters spent more time on comfort movements and less time in water (P <0.001) than did birds with implants or no radios. We found no differerence among the treatments in time spent resting, feeding, or on locomotion, except that backpack-marked females spent less time engaged in locomotion than did implanted females (p = 0.03). Our results corroborate previous studies showing effects of backpack-harness transmitters on behaviour. It is demonstrated that implants do not affect behaviour, but are associaed with a temporary post-surgical loss of mass. The alteration of behaviour caused by backpack transmitters did not diminish with time, so researchers should not assume that an adjustment period is sufficient to eliminate transmitter effects.

Gessaman, J.A. and Nagy, K.A. 1988 Transmitter loads affect flight speed and metabolism of homing pigeons. Condor 90: 662 - 668.
Abstract: On 90 km flights harnesses alone slow birds by 15% and harnesses and transmitters (< 5% body mass) slow birds 25 -28%, and 320 km flights by >31%. Moreover, on the 320 km flights, CO 2 production of the pigeons was 41 - 52% more total CO2. Therefore, high performance homing pigeons work substantially harder and longer during a long distance flight when wearing harnesses and transmitters.

Hedd, A. 1999 Foraging ecology of shy albatrosses Thalassarche cauta breeding in Australia: implications for interactions with longline fisheries. PhD Thesis, Univ. of Tasmania: Hobart (unpublished).
Abstract: Effect of carrying satellite packs. (Section 8.4.1 p.270).
It seems that carrying satellite packs extended the duration of foraging trips throughout the breeding season for birds at Albatross Island. During early chick-rearing, not only were the duration of foraging trips extended but carrying the satellite packs also appeared to result in nest abandonments. Prior to abandoning, the foraging trip durations of these birds were variable, and

ranged up to 6.6 days. As no successful birds had such extended foraging trips early in chick-rearing, this indicates that carrying satellite packs during this stage was a real disadvantage. Up to and including the 1996/97 studies, all attempts to attach packs (1.9-2.4% and 2.6-3.4% adult body mass) to birds post-brood ended in nest abandonment. However, successful studies were carried out in 1997/98 when the two smaller satellite packs (0.8-1.1% adult body mass) were deployed on Mewstone birds early in the brooding period. It seems likely that the success of these deployments was due to a combination of the earlier attachment of smaller transmitters.

Hubbard, M.W., Tsao, L.C., Klaas, E.E., Kaiser, M. and Jackson, D.H. 1998 Evaluation of transmitter attachment techniques on growth of wild turkey poults. Journal of Wildlife Management 62: 1574 - 1578.

Abstract: We compared the effects on growth of backpack-mounted and surgically implanted radiotransmitters used as marking techniques in studies of wild turkey Meleagris gallopavo poult survival. We applied repeated-measures ANOVA and Bayesian analysis to evaluate the null hypothesis that marking technique did not affect growth. Growth in body mass was similar among treatment groups. We did, however, find differences in wing-growth rates among treatment groups. The control group had the highest wing-growth rate, the backpack group had the lowest growth rate, and teh surgical implant group was intermediate. Latex backpack harnesses also caused physical developmental problems that would have negatively biased wild poult survival estimates in the field. Surgically implanted transmitters affected wing growth less than the backpack harnesses and are therefore recommended for attaching transmitters to wild turkey poults.

Hull, C.L. 1997 The comparative foraging ecology of royal Eudyptes schlegeli and rockhopper E.chrysocome penguins. PhD thesis, Zoology Dept, University of Tasmania.

Abstract: Experiments assessing the impact of investigatiors on breeding success found no significant effects, provided care was taken when working in the colony. The deployment of external devices (transmitters & Time Depth Recorders, TDRs) was integral to the study & their impact on royal penguins was assessed. No effects were found in birds carrying small, streamlined VHF transmitters, but the attachment of larger, unstreamlined TDRs decreased the likelihood that penguins would return from a foraging trip, increased foraging trip duration, increased water influx rates, and decreased accumulated fat levels. The different impacts of the devices was related to their size and streamlining most likely affecting drag.

Korschgen, C.E., Kenow, K.P., Gendron-Fitzpatrick, A., Green, W.L. and Dein, F.J. 1996. Implanting intra-abdominal radiotransmitters with external whip antennas in ducks. Journal of Wildlife Management 60: 132 - 137.

Abstract: Describes a reliable method for radiomarking ducks which has been successfully used in 2 field studies.

Petersen, M.R., Douglas, D.C. and Mulcahy, D.M. 1995 Use of implanted satellite transmitters to locate Spectacled Eiders at sea. Condor 97: 276 - 278.

Rohweder, D.A. 1999 Assessment of three methods used to attach radio-transmitters to migratory waders in northern New South Wales. Corella 23: 7 - 10.

Abstract: Thirty-two single-stage transmitters were atached to ten species of waders as part of a study on nocturnal habitat use. Three variations of a method used previously to attach transmitters to waders were compared. The aim of the comparison was to see if less disruptive variations of the standard attachment technique could provide similar retention times. The three variations were: 1. transmitter attached directly to the bird's lower back; 2. transmitter with gauze attached to a patch of trimmed feathers on the bird's lower back; and 3. transmitters were attached directly to a patch of trimmed feathers on the bird's lower back. Retention time ranged for 11 to 55 days. The longest mean retention time was recorded for variation 3 (31 days), followed by variation 2 (30 days) and variation one (19 days). Despite the large difference between the averages there was no significant difference in retention time between the three variations. A significant difference in retention time was recorded between different weight classes. Birds weighing over 300 grams retained transmitters for a significantly longer period of time than birds weighing less than 150 grams. The results suggest that the capture and attachment of transmitters can have a short-term effect on bird behaviour.

Runciman, D. 1996 Activity budget of non-breeding Helmeted Honeyeaters. Emu 96: 62 - 65.

Abstract: Birds without transmitters spent 8.4% more time flying than radio-tagged birds (transmitter weight 4.5 - 8% of body weight), effect of marks & devices,

Schmutz, J.A., and Morse, J.A. 2000 Effects of neck collars and radiotransmitters on survival and reproduction of emperor geese. Journal of Wildlife Management 64: 231 - 237.

Abstract: Neck collars have been used widely for studies of goose population biology. Despite concerns about their negative impacts, few studies have employed designs capable of clearly demonstating these effects. During a 1993-98 study of emperor geese *Chen canagica*, we contrasted survival and reproduction of geese marked with tarsal bands to those marked with either small neck collars, large neck collars, or small neck collars with attached radiotransmitters. Annual survival of adult females marked with tarsal bands varied among years and averaged 0,807 +/_ 0.140. Survival of geese with other types of markers also varied among years but was lower (0.640 +/_ 0.198). Collars with radiotransmitters lowered breeding propensity, as indexed by resighting rates. Although clutch sizes of tarsal banded birds were similar to those for unmarked birds, other markers reduced clutch sizes by about 1 egg. Egg mass and hatch date were not affected by marker type. Future studies of goose demographics should seriously consider use of alternative markers.

Schulz, J.H., Bermudez, A.J., Tomlinson, J.L., Firman, J.D. and Zhuoqiong, H.E. 1998. Effects of implanted radiotransmitters on captive mourning doves. Journal of Wildlife Management 62: 1451 - 1460.

Abstract: Previous mourning dove telemetry studies using transmitter glue attachment have found the technique to be relatively short term (<10 weeks), and that transmitter harnesses possibly have deleterious effects on doves. To improve attachment methods, we developed and refined surgical techniques for implanting subcutaneous and intra-abdominal radiotransmitters with external whip antennas in mourning doves, and determined physiological and pathological responses to the transmitter implants. We used a captive colony of 200 wild caught doves to develop and test procedures for subcutaneous implants (SC1), subcutaneous surgeries without implants (SC2), intra-abdominal implants (IA1), intra-abdominal surgeries without implants (IA2), and a control group without surgeries or implants (CNT); 20 males and 20 females were assigned to each experimental group. Surgeries for IA1 took less time than SC1 surgeries. Heterophil:lymphocyte ratios showed that IA1 and IA2 doves had higher (P=0.024) post treatment changes compared with SC1, SC2, or CNT groups. At 4-6 days postsurgery, 153 of 160 doves with surgical treatments showed closed or healed surgical sites with no complications. At 14 days post treatment, 34 (87%) SC1 implants were located in the thoracic inlet. Gross necropsy findings at 10 weeks post surgery found that 36 of 39 (92%) SC1 and 36 of 39 (92%) IA1 implants showed little or no tissue response to the implants. Functioning transmitters began failing 2 weeks post treatment, and 85% were not working at 10 weeks post treatment. Our data suggest subcutaneous implants with external antennas were a better alternative compared to intra-abdominal implants with external antennas, but further testing is needed to compare subcutaneous implants to conventional attachment techniques.

Tuck, G.N., Polacheck, T., Croxall, J.P., Weimerskirch, H., Prince, P.A., and Wotherspoon, S. 1999. The potential of archival tags to provide long-term movement and behaviour data for seabirds: first results from wandering albatross, Diomedea exulans, of South Georgia and the Crozet Islands. Emu 99: 60-68.

Reports the first attempts at geo-location of albatrosses using miniature data loggers attached to seabirds for extended periods of time. The paper highlights the potential of data loggers to gain insights into the foraging distribution and behaviour of seabirds. Archival tags recording light and temperature were placed on non-breeding wandering albatrosses Diomedea exulans from South Georgia and the Crozet Islands. Estimates of position from a wandering albatross from the Crozet Islands indicated an extensive journey from southern Africa across the Indian Ocean to south-eastern Australia and east of New Zealand. A wandering albatross from South Georgia apparently moved east accross the Atlantic Ocean, while another moved west to longitudes approximating the Patagonian Shelf. These areas correspond to previously known movement patterns to areas of high activity by Southern Ocean longline fishing fleets. Albatrosses are an important bycatch of these fisheries, and knowledge of the spatial and temporal distributions of these threatened species will assist assessments of interactions and risk. Also describes how light information obtained from tags is used to estimate position by estimating day-length from which latitude can be calculated, and by estimating the time of mid-day or mid-night from which longitude can be calculated. In general, the estimation of latitude is more difficult and can be expected to be less precise thatn the estimate of longitude. This is because the actual times of sunset and sunrise need to be determined precisely, which is difficult as light levels change rapidly at this time. However sea surface temperature recordings in conjunction with the longitude estimates can potentially help overcome these problems if matched with satellite sea surface temperature data.

Ward, D.H. and Flint, P.L. 1995 Effects of harness-attached transmitters on premigration and reproduction of Brant. Journal of Wildlife Management 59: 39 - 46.

Abstract: Colour-banded females with transmitters returned to the breeding colony in subsequent nesting seasons at a lower rate (<4%) than colour-banded females without transmitters (57 - 83%).

White, G.C. and Garott,R.A. 1990 Analysis of wildlife radio-tracking data Academic Press: San Diego, California