

Report of the Population and Habitat Viability Assessment (PHVA) Review for the Wattled Crane (*Bugeranus carunculatus*) in South Africa



incorporating the Supplementation Workshop of the Wattled Crane Recovery Programme (WCRP)



17th & 18th March 2009 in Glengarry, Kamborg, KwaZulu-Natal, South Africa

Edited by: Mike Jordan & Kerry Morrison



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the Wattled Crane Recovery Programme (WCRP)**

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Cover picture: Wattled Crane (*Bugeranus carunculatus*), © Mike Jordan.

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Wattled Crane (*Buggeranus carunculatus*) in South Africa - 17th & 18th
March 2009**

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Population and Habitat Viability Assessment (PHVA) Review for the Wattled Crane (*Bucconas carunculatus*) in South Africa - 17th & 18th March 2009

Introduction

A Population and Habitat Viability Assessment (PHVA) workshop, facilitated by the IUCN's Conservation Breeding Specialist Group (CBSG), for the Wattled Crane (*Bucconas carunculatus*) in South Africa was held between 31 July and 2 August 2000 in Wakkerstroom, Mpumalanga. A total of 36 people attended the workshop, representing NGOs, forestry, government, universities and zoos. That workshop reviewed the current knowledge on and status of the Wattled Crane in South Africa. It also set some clear recommendations and specific tasks to be carried out.

With more than eight years passed since that original workshop, and as a result of the consideration once more of releasing Wattled Cranes into the wild, it was considered that there needed to be a review of the original PHVA to assess the progress made on those original recommendations and also to highlight any new or emerging issues requiring new recommendations and goals.

The PHVA review workshop for the Wattled Crane in South Africa was held on 17 and 18 March 2009 in Glengarry, Kamberg, KwaZulu-Natal. The workshop was facilitated by the Endangered Wildlife Trust (EWT), and was attended by 26 delegates. This document sets out the starting point from the original PHVA held in 2000, followed by the group reports from the PHVA review in 2009.

On the 17th March 2009 the delegates worked in groups to review the PHVA, excluding the captive population and supplementation issues. The 18th March 2009 was set aside for reviewing the supplementation programme activities and this has been reported on separately (Pitman 2009), although a brief summary is included within this document and the full report of that meeting is included in the appendices for completeness.

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Summary of progress made towards achieving targets set in the original PHVA (2000)

During the PHVA held in 2000, the delegates divided into four working groups; 'Land-use patterns', 'Distribution & habitat', 'Threats' and 'Captive population'. The main tasks derived from each of these groups are given below, followed by an update on achievements since the PHVA in italics after each of the main tasks. This was provided to the delegates for the PHVA review in 2009 as an update from which to start reviewing current needs.

LAND-USE PATTERNS WORKING GROUP - 2000

In 2000 this group was tasked with assessing the historic, present and future land-use patterns, and how these have affected or may have affected certain habitats and therefore crane numbers.

Minimum Goal: to reduce the loss of active sites to zero over a five-year period, with a maximum loss not exceeding six sites

Maximum Goal: to halt the loss of active sites immediately, have no further reduction and establish at least one new potential site per year.

No sites have been lost since the PHVA in 2000. Some of the pairs though may have been lost to the sites. Three totally new sites have been added to the list since 2000.

1. Develop an accurate description of what constitutes viable Wattled Crane habitat - must include breeding habitat and foraging habitat with correct nutrition.
 - a) Develop hypothesis of what constitutes an ideal site – using the appropriate literature and knowledge, etc.
 - b) Survey all existing Wattled Crane breeding sites in terms of range of characteristics from hydrology to biology, etc.
 - c) Survey abandoned Wattled Crane breeding sites and “potential” sites.
 - d) Analyse these data and compare the characteristics.
 - e) Describe the ideal habitat characteristics.

McCann and Benn (2006) reported that Wattled Cranes had an average home range size of 16.64 km², comprising primarily open natural grassland, but often including temporary irrigated and dry land cultivated agriculture. The wetland constituted only 2.3% of the home range.

Wojtaszekova (2008) compared active and historic nest sites in KZN and found that there was a higher probability of Wattled Cranes breeding at a site with good natural grassland and wetland coverage within a kilometre radius. They also chose wetlands with high soil penetrability, water depth and vegetation height, and avoided sites of high disturbance. Wojtaszekova et.al. (2008) quantified habitat conditions necessary for continued breeding by Wattled Cranes in KwaZulu-Natal, South Africa.

Through the partnership between the Zoological Society of London (ZSL) and the Endangered Wildlife Trust's (EWT) African Crane Conservation Programme (ACCP) (formerly the South African Crane Working Group (SACWG)) in the Darwin Initiative project - Integrating Crane Conservation with Sustainable Habitat Utilisation - quantified site assessments (QSA) are currently being

completed for each of the Wattled Crane nest sites in the country. Land use attributes and threats (e.g. power lines) around each site will be qualified and quantified.

2. Gain a clear understanding of how fast wetlands are lost in total and in terms of Wattled Crane requirements (deducing the historical rate of change).
 - a) Delineate the entire region of Wattled Crane breeding sites that meet the five broad criteria used by the KwaZulu-Natal Nature Conservation Services in their Strategic Environmental Assessment (already carried out for DWAF).
 - b) Map and compare wetland distribution from time series remotely sensed data (aerial photography; satellite imagery) during the 1970s, 1980s and late 1990s. This would include changes in surrounding land-use, to help with the identification of the cause of the decline in breeding pairs and their breeding sites (a land cover exercise).
 - c) The product would indicate the percentage, rate and cause of this loss.

All Wattled Crane nest site data have been given to Ezemvelo KZN Wildlife and to the Mpumalanga Tourism and Parks Association for conservation planning.

- 3a. Complete a risk assessment of all breeding sites using the following actions.
 - a) Rate the causes of wetland loss (refer to list of 12 future threats to wetlands in the Wattled Crane breeding region above).
 - b) Develop a check sheet or methodology to assess the risk to wetlands in order of priorities that will direct the actions of the person concerned with the welfare of the Wattled Crane.
 - c) Survey the wetlands and classify them according to the risks to them.

Working for Wetlands (WfWet) is a joint initiative of the departments of Environmental Affairs and Tourism (DEAT), Agriculture (DoA) and Water Affairs and Forestry (DWAF). WfWet is housed within the South African National Biodiversity Institute (SANBI). Projects focus on the rehabilitation, wise use and protection of wetlands in a manner that maximises employment creation, creates and supports small businesses and transfers relevant and marketable skills to beneficiaries. They have launched a National Wetlands Inventory in an attempt to determine the extent, distribution and condition of South Africa's wetlands.

The EWT –ACCP (formerly SACWG) continues to contribute to the National Wetlands Inventory. In addition, they are members of the Provincial Wetland Forums where wetland concerns and issues are raised and also where priority wetlands for consideration for rehabilitation as part of the WfWet are considered. The EWT's involvement in this will increase over the next 3 – 5 years.

- 3b. Develop an action plan to reduce the risk at “high risk” sites – thereby ensuring that they are not lost.

This would have to be site specific and should include the following:

- a) Stake-holder involvement
- b) Publicity and awareness and education
- c) Appropriate intervention
- d) Incentives and or law enforcement

The EWT has full time field officers in all Wattled Crane areas in South Africa. A significant amount of time is spent with landowners, discussing the cranes and their habitat, and on the farms where the cranes are found during monitoring activities.

Conservation Plans or C-Plans have been produced for both Mpumalanga and KwaZulu-Natal (KZN) by the relevant provincial conservation authorities. Wattled Cranes are included in both of these, and play a particularly important role in KZN's C-Plan. C-Plans highlight areas of critical importance either due to high biodiversity or critical biodiversity and are based on an irreplaceability index.

The Biodiversity Stewardship Programme is a relatively new initiative and is active within KZN through the Ezemvelo KZN Wildlife and in Mpumalanga through the Mpumalanga Tourism and Parks Association. As a starting point, focal areas for the programme in each Province are concentrated in areas that have a high irreplaceability index. It is often here that Wattled Cranes are found. In partnership with the relevant Provincial authority in the Biodiversity Stewardship Programme, EWT will be working to secure Wattled Crane sites through this programme.

4. Survey all wetlands that fall within the area delineated under Task 2 above, and assess them for breeding suitability. Then classify these wetlands according to their suitability and risk (acquired from task 3).

This focuses on establishing the potential carrying capacity, performing the following:

- a) Check list / methodology for site suitability.
- b) Survey wetlands and assess for suitability, and grade into excellent-good-moderate-poor-no good.
- c) Overlay this information with risk assessment.
- d) Prioritize findings from this data into excellent and low risk sites, etc.
- e) Develop action plans to encourage breeding of Wattled Cranes at the site –attract the birds (possible suggestions - duck pellets and decoy).
- f) It is essential to identify other good quality wetlands for a buffer.

There were approximately 100 Wattled Crane nests in the 1980s in KZN and 31 in Mpumalanga. There are now only 81 nest sites in KZN and 4 in Mpumalanga.

5. To heighten the awareness of the plight of the Wattled Crane using a publicity and awareness programme.

Using the following:

- a) General public
- b) Landowners
- c) Land users
- d) Decision makers: Transitional Local Councils, Catchment Management Associations, provincial government, regional councils
- e) Conservation authorities, especially managers
- f) NGOs and working groups
- g) Large corporate bodies

Through the following actions:

Mass Media campaign

Target group communication and individuals – this must be championed and co-ordinated (EWT - ACCP)

Revitalise local initiatives including conservancies, Crane Custodians, etc; the results of the above proceeding should be incorporated into their goals

Landowner awareness has continued over the years with regular meetings and interactions with landowners by the EWT and also Ezemvelo KZN Wildlife. Crane Custodian boards, through the EWT, are still being presented to landowners who make a significant contribution to crane conservation.

A media strategy is in place for the EWT around crane conservation and targets both farmers and the broader public.

DISTRIBUTION AND HABITAT WORKING GROUP - 2000

In 2000 this group examined the history of the Wattled Crane, its habitat characteristics and management, minimum area requirements, food selection and energetics, breeding biology and the establishment of a single database.

1. Document the decline of the Wattled Crane. This will include description of the ancestral range (the Type Specimen came from the Western Cape) through to the modern fragmentation of the remaining habitat.

The decline of the Wattled Crane and the description of its ancestral range were documented in detail in the briefing document put together for the Wattled Crane PHVA.

2. Create a model of potential habitat for the Wattled Crane; by overlaying environmental data sets on Wattled Crane localities its environmental tolerances can be measured. Extrapolation pinpoints areas outside the known range that may yet harbour cranes or be amenable to management for cranes.

Preliminary Ecological Niche Modelling for the Wattled Cranes in South Africa has been completed by the EWT, as part of the Darwin Initiative project - Integrating Crane Conservation with Sustainable Habitat Utilisation. Once completed, the information will be published in a peer reviewed journal. Significantly, the model has shown, correctly, where Wattled Cranes occurred in the past but no longer occur, e.g. the Western Cape where the type specimen was collected and also in the Karoo.

3. Determine the biophysical characteristics of Wattled Crane nest sites. Detailed accounts of many wetlands are already published. Multivariate comparison of current Wattled Crane sites with abandoned sites and all other documented wetlands should identify vital components.

Wojtaszekova (2008) compared active and historic nest sites in KZN and found that there was a higher probability of Wattled Cranes breeding at a site with good natural grassland and wetland coverage within a kilometre radius. They also chose wetlands with high soil penetrability, water depth and vegetation height, and avoided sites of high disturbance. Wojtaszekova et.al. quantified habitat conditions necessary for continued breeding by Wattled Cranes in KwaZulu-Natal, South Africa.

Through the partnership between the Zoological Society of London (ZSL) and the EWT - ACCP in the Darwin Initiative project - Integrating Crane Conservation with Sustainable Habitat Utilisation - quantified site assessments (QSA) are currently being completed for each of the Wattled Crane nest sites in the country. Land use attributes and threats (e.g. power lines) around each site will be qualified and quantified.

4. Determine optimum management for Wattled Crane habitat. Data on burning, grazing and water level regimes can be related to crane presence and breeding success.

No progress has been made on this.

5. Determine minimum area requirements for Wattled Cranes. The measurements required are of nesting wetlands, foraging ranges of breeding pairs and floating ranges of non-breeders.

McCann and Benn (2006) reported that Wattled Cranes had an average home range size of 16.64 km², comprising primarily open natural grassland, but often including temporary irrigated and dry land cultivated agriculture. The wetland constituted only 2.3% of the home range.

6. Investigation of hatching failure of full term eggs. Failure of eggs to hatch is not a serious problem, but needs monitoring, for example to detect onset of infertility.

Limited information has been collected during the monitoring of two egg clutches and the collection of second eggs for the Wattled Crane Recovery Programme. The second egg is only collected once the first egg has hatched. Any infertile eggs, whether first or second, would therefore be recorded, but the reason for that has not been investigated.

7. Analyse chick productivity as a function of rainfall and other climatic factors. Losses from purely climatic causes need quantification in order to detect and monitor losses from other sources.

The data, i.e. hatching and fledging success have been collected annually, and climatic data can be obtained. No analyses have been completed.

8. Investigate the role of predation in chick productivity. About half of hatched chicks die before fledging, most from unknown causes. The role of predators needs quantification and methods of reducing chick loss may then become apparent.

No progress has been made on this.

9. Determine the diet and energy requirements of the Wattled Crane. Very little is known of food selection, nor of how essential harvest leftovers are for non-breeders. Captive studies will be used to supplement observations in the wild.

A nutritionist at the Johannesburg Zoo has developed a nutritional plan for the captive Wattled Cranes in the Wattled Crane Recovery Programme. No progress has been made in the wild on this.

10. Central database establishment. It is essential that not only all field data be assembled in one database, but that it also contains a complete bibliography.

The EWT has a central, fully operational database for all crane information. This was developed as part of the Darwin Initiative Project - Integrating Crane Conservation with Sustainable Habitat Utilisation.

A crane bibliography was completed in June 2008. A copy of every paper or article in the bibliography has been made and each is coded back to the bibliography. These have all been scanned in and will now be linked directly to the bibliography for easy electronic access.

THREATS WORKING GROUP - 2000

In 2000 this group was tasked with assessing the threats to the Wattled Crane Population – excluding habitat.

1. There is a proposal to ESKOM to proactively fit mitigating measures to power lines in the vicinity of 36 Wattled Crane nests. We recommend that this is extended to the other nest sites as well as the areas utilised by the non-breeding flocks.

Proactive marking of all of the power lines in this proposal was completed. Any new crane collisions are investigated and recommendations are sent through the EWT - Wildlife and Energy Programme (WEP), who in turn recommended action to Eskom. All Wattled Crane incidences are addressed as a matter of priority. Therefore both reactive and proactive action is ongoing.

2. Reduce the mortality caused by fences, by reducing the disturbance around the nest site and making landowners and inhabitants on the farm aware of the problem

Fences pose a minimal threat to Wattled Cranes and no mortalities of Wattled Cranes have been reported since the 2000 PHVA. Two chicks though have been caught up in fences and were released back into the wild.

3. Accepting that there is a need for the use of agrochemicals, there is a definite requirement to reduce the misuse of these chemicals.

No reports of poisoned Wattled Cranes have been received since the 1999 poisoning instance of the Wattled Cranes released in Dullstroom that were poisoned in Middelburg. The EWT - Wildlife Conflict Mitigation Programme (WCMP) continues its involvement with landowners and also the broader public around agrochemical use.

4. The reduction of the illegal exploitation of Wattled Cranes through education and awareness programmes as well as prosecution.

No reports of the illegal removal of Wattled Cranes from the wild have been received since the PHVA workshop in 2000.

5. Establish an effective network of informants and an efficient reporting procedure to determine the effects of threats on the population in terms of mortality rates and increase the rate of effective reporting of mortalities

The EWT has full time field officers in each of the Wattled Crane areas. Any recorded injury or mortality is investigated and an incident report filled out. These data are captured in the database. Although not yet completed for Wattled Cranes, age specific mortality rates have been estimated for Blue Cranes in the Overberg using Capture Mark Recapture.

CAPTIVE POPULATION WORKING GROUP - 2000

In 2000 this group assessed the validity and need for a supplementation (release) programme and a captive Wattled Crane breeding programme.

1. Supplementation: Can a supplementation program play a significant role in the long-term survival of the wild South African population of Wattled Cranes?

Based on the outcomes of the Vortex modelling, the following recommendations were made in 2000:

- Discontinue the supplementation programme for the next 5 years
- Focus on building the captive programme for the next 5 – 8 year
- Review and revise the Wattled Crane Recovery Team, strategy, roles, ownership and resource allocation
- Develop a mechanism for biannual review of strategy in the light of continuing research into all aspects of Wattled Crane conservation

The last release of Wattled Cranes occurred early in 2000, prior to the PHVA. In the eight years since the PHVA, the Wattled Crane Recovery Programme was totally revised and the building of a sustainable and genetically viable captive population focused upon. Although the captive population is not yet productive, efforts are being made to change this, through training in crane artificial insemination (AI), improved husbandry, the construction of a dedicated facility for pairing & breeding Wattled Cranes and close observations of behavioural patterns. The captive population is also very close to reaching the size recommended by the PHVA and hence a supplementation programme is now under consideration.

It was also noted that the success of a supplementation programme depends on improved knowledge of the wild population with respect to:

- Hatch and fledge rates of wild birds
- Future availability of breeding habitat
- Density dependence effects
- Age class structure
- Factors impacting size of non-breeding flock
- Movements
- Threats

The hatch and fledge rates of Wattled Cranes are monitored annually by EWT Field Officers, and hence an improved understanding is being obtained. The unique colour ringing project in which all chicks are caught and ringed just prior to fledging, has improved our understanding of movements, age specific mortality rates and will provide an improved understanding of the age class structure of the wild population. The threats to the cranes, and injuries and mortalities are recorded and assessed on an ongoing basis.

All historical nest sites for Wattled Cranes have been included in the C-Plans for both Mpumalanga and KwaZulu-Natal, and play a significant role in identifying irreplaceable areas.

2. Captive breeding: Is a South African captive breeding programme necessary?

This was answered in the affirmative following the Vortex modelling of the supplementation programme in 2000. The group supported the existence of a captive breeding programme for 2 reasons:

1. To serve as a genetic reservoir in the case of catastrophic extinction of birds in the wild.
2. To provide birds for a supplementation programme if required in the future.

Recommendations of the group in 2000

- Replace 2 females in the captive flock (improper sexual imprinting may prevent these individuals from reproducing).
- Keep all wild, second eggs collected in 2000 as captive stock.
- Review and redirect resources for the current supplementation programme.
- Examine the role of the current isolation rearing facility, which includes the role of Mpumalanga Parks Boards' continued participation; resources; personnel; and logistics of transport of chicks in light of the shift in focus from the supplementation programme to building a captive flock.
- Identify alternative isolation rearing facilities at the KwaZulu-Natal Crane Foundation (KZNCF) / Treehaven / Umgeni River Bird Park.
- Hold workshop to determine KZNCF / SACWG roles in light of the PHVA recommendations.
- Arrange a workshop to review logistics and strategy of maintaining of captive flock issues including: Ownership/directorship of programme, Memorandum of participation and terms and conditions thereof and management protocols, Identification of additional facilities and holding space, A biannual review of the captive breeding programme as research continues into all aspects of crane conservation, Investigate alternative housing of U.S. birds and non-productive adults, It is recommended that the U.S. birds be maintained in pens less suitable for breeding and that other potential uses for them are identified (e.g. used for educational display, foster incubator/parent role, disposition to other captive breeding programmes).

After 5 years, remodel the contribution that a supplementation programme would make to the wild population based on conditions in the wild. If review indicates supplementation would make a significant contribution, resources could be redirected after 3 years into a limited supplementation programme to further refine release techniques.

The Wattled Crane Recovery Programme (WCRP) is coordinated by Jeanne Marie Pitman of the Johannesburg Zoo (JHB Zoo), in a partnership agreement between the Johannesburg Zoo, the EWT, the African Association of Zoos and Aquaria (PAAZAB) and Ezemvelo KZN Wildlife. An advisory group advises on technical aspects and strategy of the WCRP. All participating captive facilities are required to sign an MoU detailing the nature of the programme, and are expected to follow a set of guidelines and protocols that have been developed.

The occurrence of avian Tuberculosis (TB) found at Treehaven resulted in the facility to be non-suitable for isolation rearing either for captivity or for release. Birds were reared in isolation for captivity with Mark Finnemore. Unfortunately, this ended when he passed away. Johannesburg Zoo is currently rearing all chicks for the captive programme, in a facility specifically built for the purpose.

Remodelling of the contribution that supplementation would make to the wild population has not taken place.

3. Genetics

Recommendations to:

- Conduct further genetics research to clarify the relationship of Wattled Crane populations
- Consulting geneticists (Ken Jones and Dr. Paulette Bloomer) should meet / communicate to decide upon future strategy, costs, and feasibility of sample collection and analysis
- The captive breeding team should regularly review new information emerging from the genetics studies to determine appropriate management strategies.

Taylor (2007) has shown that microsatellite markers developed for Blue Cranes could be used for Wattled Cranes as well. These assist with the identification of individual cranes and can also be used to test parentage.

Desire Dalton, at the National Zoological Gardens, has completed a genetic relatedness study on the Wattled Cranes currently in captivity. This information will guide future decisions on pairings required in the captive population.

No further genetic studies have been completed to clarify the relationship between the South African birds and those further north. This is primarily due to the costs involved in capture operations in other countries.

4. Alternative methodologies

Recommendations to:

- Explore cryopreservation of sperm to determine its feasibility and potential contribution to Wattled Crane conservation.
- Monitor development of egg or embryo freezing technology for birds (not available at present).
- Do not pursue translocation of adult birds from within the South African population. It was decided that this technique would not be supported by the relevant conservation authorities and is inappropriate at this time.

Translocation has not been considered.

Prioritisation of the projects identified during the PHVA (2000) workshop

Towards the end of the 2000 workshop, the priority projects identified by the different working groups were accumulated and were subjected to a pair wise ranking system by all workshop participants in order to priority rank each project. The following table lists all the projects and

their respective voting tally and rank, and include a column outlining whether the action has been completed or not.

| Rank | Project / Action | Progress made since 2000 PHVA |
|------|--|---|
| 1 | Develop an accurate description of what constitutes viable Wattled Crane habitat - must include breeding habitat and foraging habitat with correct nutrition. | Completed for breeding habitat |
| 2 | Develop an action plan to reduce the risk at "high risk" sites – thereby ensuring that they are not lost. | Ongoing |
| 3 | Determine the biophysical characteristics of Wattled Crane nest sites. | Completed |
| 5 | Survey and classify all wetlands that fall within viable Wattled Crane distribution, according to their suitability and risk. | Ongoing for all active Wattled Crane sites |
| 5 | Gain a clear understanding of how fast wetlands are lost in total and in terms of Wattled Crane requirements (deducing the historical rate of change) | Not yet commenced |
| 6 | Complete a risk assessment of all breeding sites. | Completed |
| 7 | Age-specific mortality has an important influence on the population trajectory. Current data has been shown to be inadequate, resulting in the need for the accurate determination of age-specific mortality rates, and the causes of those mortalities. | Completed and ongoing collection of data |
| 8 | Determine the diet and energy requirements of the Wattled Crane throughout its annual cycle. | Completed for captive birds. Not yet commenced for wild |
| 9 | Determine minimum area requirements for Wattled Cranes throughout its annual cycle. | Completed |
| 10 | A project has been established within ESKOM to proactively fit mitigating measures to power lines in the vicinity of 36 Wattled Crane nests. It is recommend that this project be extended to the other nest sites throughout its South African breeding range, as well as to those areas utilised by the non-breeding flocks. | Completed within KZN |
| 11 | Establish an effective network of informants and an efficient reporting procedure to determine the effects of threats on the population in terms of mortality rates and increase the rate of effective reporting of mortalities. | Completed and ongoing |
| 12 | To heighten the awareness of the plight of the Wattled Crane using a publicity and awareness programme. | Ongoing |

| Rank | Project / Action | Progress made since 2000 PHVA |
|------|--|--|
| 13 | Accepting that there is a need for the use of agrochemicals, there is definite requirement to reduce the misuse of these chemicals. | Ongoing |
| 14 | Develop and maintain a central database for all crane related information. | Completed and ongoing |
| 15 | Develop and build a captive Wattled Crane population over the next 5 – 8 years, and then reviewing the supplementation and release program. | Done |
| 16 | VORTEX modelling has demonstrated that the age of first reproduction has an influence on population performance. Therefore, it is important to determine the age of first reproduction accurately and precisely. | Data are being collected annually in this regard through ring re-sightings |
| 17 | There is currently major uncertainty as to the age of reproductive senescence. VORTEX modelling has demonstrated that the older the age of senescence, the more positive the scenario for the population. Therefore, it is important to determine the age of reproduction senescence accurately and precisely. | Data are being collected annually in this regard through ring re-sightings |
| 18 | The reduction of the illegal exploitation of Wattled Cranes, through education and awareness programmes as well as prosecution. | Ongoing |
| 19 | Reduce the mortality caused by fences, by reducing the disturbance around the nest site and making landowners and inhabitants on the farm aware of the problem. | Ongoing |
| 20 | Pursue viable and cost effective methods of further investigating the genetics of potential sub-species populations. | Not yet commenced |
| 21 | Explore alternative emerging technologies as support for guarding against extinction, e.g. translocation and cryopreservation. | Not yet commenced |

Group reports from the PHVA review (2009)

The structure of the groups was changed slightly for the review of the PHVA carried out in 2009. The previous structure from the 2000 PHVA workshop of working in four main areas was retained but the focus of two of the groups was changed. On the 17th March the delegates worked in three groups, the focus areas being; a 'Threat' working group (as in the 2000 PHVA), however the 'Land-use Patterns' and 'Habitat & Distribution' working groups from the 2000 PHVA were restructured to reflect actions and so the delegates worked within 'Conservation

Action' and 'Research' working groups to review the tasks that had been previously developed by the 'Land-use Patterns' and 'Habitat & Distribution' working groups in 2000 .

The 18th March 2009 was devoted entirely to a Wattled Crane Recovery Programme Supplementation Planning Workshop, which covered the issues of the Captive Population Working Group from the 2000 PHVA. The full report of this day which was published separately can be found in the appendix of this document; however a summary is included here.

The reports from these four working groups are below.

RESEARCH WORKING GROUP - 2009

Group members: Cynthia Chigangaidze, Brent Coverdale, Desire Dalton, Mike Jordan, Kirsten Oliver, Jeanne Marie Pitman and Tiawanna Taylor.

Land Use Patterns

1. Develop an accurate description of what constitutes viable Wattled Crane habitat - must include breeding habitat and foraging habitat with correct nutrition.

a) What constitutes an ideal site?

Information has focussed on actual nesting sites, and breeding home range size, rather than whole home range utilisation.

The Conservation Action Working Group (see below) defined the area to be assessed as a 'Pair Site Area' (PSA); this concept was similar in principle to what is being termed a breeding home range here by the Research Group.

Action: *Review and identify gaps in the research, increase information on the utilisation of foraging areas of the breeding home range. EWT to coordinate*

b) Survey existing breeding sites

Action: *Determine if McCann's work has been incorporated into Wojtaszekova's thesis work, if not then review McCann's work. Look at seasonal fluctuations. EWT to coordinate*

c) Survey abandoned and potential breeding sites

Action: *Review McCann's work and determine areas where it is deficient. EWT to coordinate*

d) & e) Analyse data and describe ideal characteristics

Already determined in each of the previous actions above.

2. Gain a clear understanding of how fast wetlands are lost in total and in terms of Wattled Crane requirements (deducing the historical rate of change).

Delineate breeding sites

a) This relates to wetlands which occur within the broad ecological habitat range of Wattled Cranes. This now corresponds to Kirsten's ecological niche modelling map

Action: **Review the EKZN Wildlife criteria, Incorporate into KZN c-plan and extend to all provincial c-plans where Wattled Cranes occur. Relate this to Wattled Crane home range. Review habitat change work done by McCann. EWT to coordinate**

b) Map and compare wetland distribution changes

Use the identified niche sites to map and compare loss rather than looking at total wetlands.

4. Survey all wetlands that fall within the area delineated under Task 2 above, and assess them for breeding suitability. Then classify these wetlands according to their suitability and risk a) check list.

Action: **Create checklist incorporating information that is already available (identified in Land use Patterns task 1). Incorporating the risks assessed in task 3a. EKZN Wildlife to create checklist**

Distribution and Habitat

1. Document the decline of the Wattled Crane. This will include description of the ancestral range (the Type Specimen came from the Western Cape) through to the modern fragmentation of the remaining habitat.

Research completed & no actions recommended.

2. Reduce the mortality caused by fences, by reducing the disturbance around the nest site and making landowners and inhabitants on the farm aware of the problem

This is potentially linked to data from the Land Use Patterns task 1

Action: **Research to be completed. EWT to coordinate**

3. Determine the biophysical characteristics of Wattled Crane nest sites. Detailed accounts of many wetlands are already published. Multivariate comparison of current Wattled Crane sites with abandoned sites and all other documented wetlands should identify vital components.

Research completed & no actions recommended.

4. Determine optimum management for Wattled Crane habitat. Data on burning, grazing and water level regimes can be related to crane presence and breeding success.

Data are not available for the affects of detailed land use on Wattled Crane, this may be possible for protected sites but this only covers a few nesting sites. It may be possible to monitor sites in the future and engage with landowners, but this is very labour intensive.

5. Determine minimum area requirements for Wattled Cranes. The measurements required are of nesting wetlands, foraging ranges of breeding pairs and floating ranges of non-breeders.

Action: ***Compare between the QSAs and the work of McCann & Benn. Also consider fragmentation as well as total areas (this is included in the work of McCann & Benn). The slope of the terrain may also be important in affecting the suitability of the areas for Wattled Crane. EWT to complete***

6. Investigation of hatching failure of full term eggs. Failure of eggs to hatch is not a serious problem, but needs monitoring, for example to detect onset of infertility.

Action: ***Monitoring of all nests compared to just those with two egg clutches is required and post-mortem of eggs that do not hatch to be carried out. JHB Zoo veterinary dept. to coordinate, EWT to provide technical support on incubation***

7. Analyse chick productivity as a function of rainfall and other climatic factors. Losses from purely climatic causes need quantification in order to detect and monitor losses from other sources.

This was deemed very important for modelling.

Action: ***More regular aerial surveys are required. Compare chick survival from collected nests vs. Non-collected nests. Collate existing data from Brent, Kevin, and Andre and analyse trends in success of two egg nests. This data would be very useful for informing climate change models. EWT to coordinate***

8. Investigate the role of predation in chick productivity. About half of hatched chicks die before fledging, most from unknown causes. The role of predators needs quantification and methods of reducing chick loss may then become apparent.

This was deemed no longer relevant to the PHVA and so removed from the review!

9. Determine the diet and energy requirements of the Wattled Crane. Very little is known of food selection, nor of how essential harvest leftovers are for non-breeders. Captive studies will be used to supplement observations in the wild.

Action: ***Collate and publish existing results of the captive studies of the chick rearing diet. Getting information on wild birds can be difficult but would lend itself to a student project. Information on wild diets would be useful for preparing the hand-reared chicks for release. Stomach samples from any dead birds may be useful as would faecal analysis from wild birds. JHB Zoo nutritionist to collate and publish***

Additional research priorities

The following additional research priorities were identified by the Research Working Group for attention. It was felt that a short summary of each of these research topics should be produced

in order to assist in sourcing funding and to facilitate institutions/supervisors to allocate projects to students.

Action: **Prepare a short summary of each of these research topics.** EWT to coordinate preparation of these summaries

- Evaluation of the effectiveness of awareness programmes
- Floater flock
- Habitat fragmentation, (McCann & Benn (2006) partly covers this)
- Comparisons of breeding sites in the different provinces.
- Social dynamics
- Radio tracking techniques, use of VHF and PTT satellite tracking on cranes
- Data logging on nests to record disturbance
- Collecting of Biological Samples – For genetics, diseases affecting wild Wattled Cranes. Use of filter paper pin prick, museum samples
- Habitat utilisation, especially of non-breeding birds
- Roosting sites
- Climate change, especially influence on hydrology
- Crane Friendly fencing

CONSERVATION ACTION WORKING GROUP - 2009

Group members: Doug Burden, Ursula Franke, Bill Howells, Athol Marchant, Kevin McCann, Andre Rossouw, Ian Rushworth and Nic Shaw.

Land use Patterns

3a. Complete a risk assessment of all breeding sites

It must include wetland and surrounding habitat (too much emphasis on wetland alone). Definition of the broader area under consideration required (Pair site area, PSA) – breeding wetland (including all alternative breeding sites) and foraging area of chick to fledging (defined as 1 km buffer from breeding wetland edge).

Action: **Develop assessment sheet for assessment of each PSA (i.e. criteria).** EWT to develop

Action: **Assess all relevant PSAs.** EWT to assess

Risk assessment of PSAs through the developed assessment sheet/criteria will not duplicate QSAs as this process will pick up on more than just habitat use and threats such as power-lines and roads near nest sites. The PSAs will also pick up on potential future land use changes e.g. dam application, mining, or other planned land use changes as the land owner will be involved in the assessment process.

Action: **Analysis and recommendations for prioritization of sites (action plan).** Prioritize by (a) site and (b) risk factor. EWT to analyse and make recommendations

- 3b. Develop an action plan to reduce the risk at “high risk” sites – thereby ensuring that they are not lost.

Action: **Annual implementation and review meeting with relevant stakeholders i.e. provincial conservation agencies (also DCOs), conservation NGOs, EWT, etc. to draw up Action Plan for relevant sites for each year (This will lead to a Forum).** EWT to coordinate

Refer to information from: Stewardship programmes, Expanded Public Works Program, Invasive Alien Species Program, W4Wetlands, Working on Fire, Mondi Wetlands Project, Environmental education programmes, provincial conservation priorities, etc.

Action: **Re-assessment of PSA risk assessments.** EWT to coordinate

4. Survey all wetlands that fall within the area delineated under Task 2 above, and assess them for breeding suitability. Then classify these wetlands according to their suitability and risk

Action: **Risk assessment of “suitable” unoccupied wetlands (based on research work) NB. unoccupied wetlands as used above includes both historic sites and unoccupied sites.** EWT to coordinate

The use of decoys as suggested under Task 4, part e, was not considered relevant.

5. To heighten the awareness of the plight of the Wattled Crane using a publicity and awareness programme.

Much has already been done concerning this task and the extension function currently being performed is viewed as being extremely effective but the following additional actions were recommended.

Action: **Increased field worker presence in KZN – extension function (equals one dedicated Wattled Crane field worker).** EWT to action

Action: **Increased communication and information sharing between field workers and provincial conservation agency (e.g. EKZN Wildlife DCOs) when field workers conduct land owner / site visits. Need an MoU between EWT and provincial parties to make communication lines clearer and an inter-regional EKZN Wildlife meeting/forum with DCOs and their bosses.** EWT to action

Action: **Maximize media coverage by utilizing events e.g. supplementation.** EWT to action

Action: **Resource sharing (bibliography, website, newsletters, Indwa, research papers, counts / census results) between stakeholders required.** EWT to coordinate

Distribution and Habitat

4. Determine optimum management for Wattled Crane habitat. Data on burning, grazing and water level regimes can be related to crane presence and breeding success.

Action: ***Collation of available literature and expert knowledge into Management Guideline Manual (Best management practices) for land owners and managers, the manual to include (i) crane biology and (ii) management guidelines covering aspects such as recommended fencing. EKZN Wildlife to produce guidelines***

10. Central database establishment. It is essential that not only all field data be assembled in one database, but that it also contains a complete bibliography.

A database has been partially developed as part of the Darwin Initiative project, but actions are required to improve its function.

Action: ***Integration of database into provincial conservation agency databases and vice versa. EWT to action***

Action: ***Field worker training and access to database needed. EWT to develop***

Action: ***Electronic bibliography with scanned documents and links required. EWT to produce***

Additional conservation actions required

The following additional conservation actions were identified by the Conservation Action Working Group for attention.

Monitoring

- Wattled Crane population monitoring: annual statement of Wattled Crane status for each province. *EWT to coordinate annual monitoring*
- Land use change monitoring: update of land transformation layer and analysis specifically for Wattled Cranes. *EWT to action*
- Breeding productivity monitoring:
 - (i) Review current productivity monitoring methods. *EKZN Wildlife to review*
 - (ii) Implement monitoring procedure and integrate into Risk Action Plan development. *EWT to implement*
 - (iii) Web cam pilot site project. *Hlatikulu Crane & Wetland Sanctuary*
- Coordinate the ringing and re-sighting monitoring: standardise ringing & re-sighting protocol and increase awareness of ringing and reporting information to all stakeholders. *EWT to coordinate.*

THREATS WORKING GROUP - 2009

Group members: Michelle Barrows, Osiman Mabhachi, Thapelo Maseramule, Helena Mattison, Glenn Ramke, Tanya Smith and Stephen van der Spuy.

1. There is a proposal to ESKOM to proactively fit mitigating measures to power lines in the vicinity of 36 Wattled Crane nests. We recommend that this is extended to the other nest sites as well as the areas utilised by the non-breeding flocks.

Thirty six of the sixty eight known active Wattled Crane nests have had power lines marked with flappers within the specified buffer around the nest site.

A number of actions were considered outstanding from this task.

Action: ***Evaluate the remaining 32 known nest sites to determine whether or not new lines exist within the buffers (desktop initially, to highlight targeted nests).*** EWT to coordinate

Action: ***Reevaluate the 36 nest sites at which mitigation has been fitted to look at incidences of flapper failure; this should feed into the larger risk assessment process.*** EWT to coordinate

Action: ***Mark power lines in areas utilised by the floater flocks, prioritising foraging and flocking areas first for marking (these should be higher priority ABOVE potential breeding sites and historic sites):*** EWT to coordinate

Action: ***Ensure the proactive marking of power lines adjacent to any potential, rehabilitated or active breeding sites as they become known (especially in Mpumalanga and Eastern Cape), and try to incorporate Wattled Crane information into the Eskom forward planning of power lines.*** EWT to coordinate

2. Reduce the mortality caused by fences, by reducing the disturbance around the nest site and making landowners and inhabitants on the farm aware of the problem

Awareness with farmers and farm workers is ongoing, although further research into crane friendly fencing would be useful, from the perspective of both decreasing fence entanglements but also looking at the impacts of excluding chicks from foraging areas.

3. Accepting that there is a need for the use of agrochemicals, there is a definite requirement to reduce the misuse of these chemicals.

Actions such as the 'Africa Stockpiles Programme' and increasing awareness amongst farmers and farm workers are ongoing to address these issues.

4. The reduction of the illegal exploitation of Wattled Cranes through education and awareness programmes as well as prosecution.

Action: ***Increase and improve liaison with permitting officers.*** EWT to coordinate

5. Establish an effective network of informants and an efficient reporting procedure to determine the effects of threats on the population in terms of mortality rates and increase the rate of effective reporting of mortalities.

This is ongoing and no additional action was deemed necessary.

Additional threats identified and actions required

The following additional threats were identified by Threats Working Group for attention, and actions are suggested.

Fire

- Increase communication between farmers with Wattled Cranes on their land and fieldworkers with regards to planned burning. The possibility of either temporary removal of eggs or chicks or postponed burning. *EKZN Wildlife & EWT*
- The construction of fire breaks around wetlands / nest sites as a precautionary measure. *EKZN Wildlife & EWT*
- Increase the reporting of uncontrolled fires in order to plan for the future. *EKZN Wildlife & EWT*

Disease

- Dead birds: obtain as much information as possible (field workers) and develop protocols (JHB Zoo), include the both Blue Crane and Grey Crowned Crane. *JHB Zoo veterinary dept. to develop the protocol*
- Biological sampling of chicks during ringing activities. *JHB Zoo veterinary dept. to develop the protocol*
- All samples to be submitted to JHB Zoo for sampling.

Loss of Genetic diversity

It is difficult to sample and know whether the threat exists, however consider sampling to gain better understanding of long term impacts. The genetics of different Wattled Crane populations should be better understood to determine differences in populations for translocations.

Disturbance

Research into the effects of adults leaving eggs and improve the awareness amongst landowners and farm workers of the potential impacts of disturbing incubating or brooding Wattled Cranes.

Lead Poisoning

Cranes are curious and regularly pick up small objects, consider investigating the impacts of lead shot on crane morbidity and mortality.

Land Ownership changes

Ensure that extension workers keep updated on land claims and changes in ownership in order to engage with new land owners of current or potential Wattled Crane sites.

Climate Change

Consider investigating the impact of climate change on hydrology, especially the impacts upon chick survival.

WATTLED CRANE RECOVERY PROGRAMME SUPPLEMENTATION WORKSHOP - 2009

The full report from this workshop can be found in the appendix to this document. The following is a brief summary of the work that was conducted on the 18th March 2009.

Rather than report back on the issues raised by the original 'Captive Population Working Group' of the 2000 PHVA, the Supplementation workshop held in 2009 used the IUCN 'Guidelines for Reintroduction' (1995) as the basis of its agenda and the delegates formed into groups to address various parts of the guidelines' recommendations. There were groups on; Disease Monitoring & Health Care, Legal & Socio-economic issues, Project Planning and Supplementation (release) Activities. The main recommendations from each of these four groups are listed below, for further details on these please refer to the full report contained within the appendix.

Disease Monitoring & Health Care Group

- Develop intensive veterinary preventive medicine and pre-release screening protocols for potential release candidates.
- Devise a schedule for health monitoring and disease testing.
- Publish normal biological values for Wattled Cranes.
- Include contingency plan for screening out infected candidates & quarantining and retesting potentially-infected release candidates before release.
- Investigate all health regulations concerning transport of birds between provinces.
- Investigate any health regulations concerning the release of wildlife in the province where supplementation will occur.
- Determine a strategy (i.e. vaccination etc.) to prevent exposure of released stock to disease agents which may be present at the release site (and absent at the source site) and to which they may have no acquired immunity.
- Include a strategy for intervention post-release if necessary.
- Should a release candidate become ill or injured, determine where the bird would be housed and how medical care would be provided
- Develop PM protocol for mortalities of released birds.

Legal & Socio-economic issues Group

- Land reform (restitution and redistribution) – this is seen as a significant future constraint, whereby landownership will change, resulting in possible land-use change. Liaise with DLA to inform them of the WCRP and the value of specific properties for this programme (recommended that this is done as part of the broader liaison by EKZN Wildlife with DLA regarding biodiversity conservation in the province).

- Increase awareness of District Conservation and Community Conservation Officer staff in EKZN Wildlife regarding Wattled Crane conservation, the WCRP, supplementation sites and what they should do (landowner liaison, Wattled Crane sightings, floater flock sightings, etc.). This may include Bird club members and Honorary Officer networks.
- Prior to release environmental education is required with local Farmers Association and rural communities (targeting all landowners). Use the local media to publicise the WCRP (include this in the media strategy). This will have the benefit of facilitating the flow of information on sightings and mortalities after release.
- All participants and facilities must ensure that they are ToPS regulations compliant.
- All WCRP facilities must adhere to the EKZN Wildlife 'Norms and Standards' (Ex situ standards).
- Develop and implement a Rapid Risk Assessment Tool for assessing specific release sites.
- Due to the potential for the flock to move over short periods of time, it is recommended that the floater flock roost sites and movement patterns be determined as best as possible in order to identify several potential release sites. The Risk Assessment will then be carried out at each of these potential release sites in order to minimize potential risks before release happens.

Project Planning Group

- Gain an understanding of the flocks into which birds will be introduced (demography/sex ratios etc)
- Disease is a bigger issue when you are supplementing, so need a thorough understanding of diseases/potential disease in both the flocks and the individuals to release-covered in Disease Monitoring and Health Care
- The second egg is often a smaller egg, therefore are we supplementing with weaker individual birds? What are the factors involved in second eggs; genetic, nutritional, habitat quality, selecting for birds that lay two eggs etc.
- Sex ratio – need to look at first egg sex, so need to either collect shells or collect blood on ringing. Look at linking ringed chicks to second eggs collected from the same clutch to compare sexes.
- Which egg hatches when there are two eggs and only one hatches; which egg has a higher fertility and hatchability?
- Post-release monitoring should be carried out on both birds and the ecosystem (biodiversity).
- Very research based; need to establish protocols for all actions and project briefs (these will go to field workers).
- Publish journal articles and present at conferences.
- Add all second egg collection information into the database and link to nest sites.
- Ideas and research proposals should be passed through a research and ethics group for comment.
- Develop clear aims and mission of the WCRP.

- The supplementation programme should include indicators of duration and the end goal; this should involve a review process and time-lines.
- Monitor, understand and risk assess floater flocks and the area in which they move and feed flock data into Provincial C-plans to gain support and establish mitigation strategies to reduce risk to flocks.
- Collate and analyse data on flocks and their habitats and the time of year of flocking.
- Establish potential for Stewardship on areas used by Wattled Cranes.
- Develop a media and marketing strategy (what messages, what aims, protocols attached, funding) involving all three main marketing groups from EWT, JHB Zoo, EKZN Wildlife, and get marketing individuals to attend the WCRP AGM.
- Create links between all the relevant organizations websites (there is also a WCRP website now).
- Establish a clear idea of project costs and put in place a funding strategy (what, how, budget, financial planning, allocations) and a funding coordinator/s.
- Develop a review and audit process, both internally and externally. Develop a pro-forma standardised report that can just be filled in at regular, defined intervals and produce quarterly reports or at minimum an annual report (possibly more regularly to keep in line with funder requirements).
- Investigate using the project to build capacity in Africa by job creation for local communities (can also be useful for securing external funding) and involving African interns/students in the project.
- Establish terms and conditions/ground rules for external researchers' involvement and data sharing and recognition for the collection of data etc.

Supplementation (release) Activities

- Document an overview of previous crane introductions and supplementations conducted worldwide.
- Investigate the possibility of egg collection in Mpumalanga and Eastern Cape and include the logistics and training of field staff (currently only for KZN).
- Put post removal monitoring of nest and first chick in place once harvest of the second egg has occurred.
- Develop a rolling internship or Masters' programme linked to the project.
- Check protocols for post release monitoring with EKZN Wildlife.
- Develop a release strategy (would include all aspects of chick raising, releasing, monitoring, to feeding supplementation after release etc.).
- Consider parent rearing of chicks in future for release.
- Investigate whether an EIA will be needed for building of the isolation rearing facilities; also ensure it is registered under new EKZN Wildlife legislation.
- Investigate using VHF radio telemetry for tracking of the released Wattled Cranes.

References

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**Appendix 1 -
Full report of the Wattled Crane Recovery Programme (WCRP) Supplementation Planning Workshop**



Summary of the Wattled Crane Recovery Programme Supplementation Planning Workshop

Two Supplementation Planning workshops have taken place, one on May 12th-13th 2008 and the second on March 18th, 2009 to develop a plan for the supplementation of isolation-reared fledglings into existing wild Wattled Crane populations in South Africa. Delegates from eleven institutions participated in the workshops forming a multidisciplinary team. Recommendations from the first workshop were incorporated into an Excel Worksheet and used as a basis for further discussion in the second workshop. Herewith is a summary of the recommendations from the second Supplementation Planning Workshop.

The IUCN Reintroduction Specialist Group *Guidelines for the Reintroduction* formed the agenda for both Supplementation Workshops. It is important to note the following points from the guidelines:

- These guidelines are intended to act as a guide for procedures useful to re-introduction programmes and do not represent an inflexible code of conduct. Many of the points are more relevant to re-introductions using captive-bred individuals than to translocations of wild species. Others are especially relevant to globally endangered species with limited numbers of founders. Each re-introduction proposal should be rigorously reviewed on its individual merits.
- It is important that the Guidelines are implemented in the context of IUCN's broader policies pertaining to biodiversity conservation and sustainable management of natural resources. The philosophy for environmental conservation and management of IUCN and other conservation bodies is stated in key documents such as "Caring for the Earth" and "Global Biodiversity Strategy" which cover the broad themes of the need for approaches with community involvement and participation in sustainable natural resource conservation, an overall enhanced quality of human life and the need to conserve and, where necessary, restore ecosystems.

Disease Monitoring and Health Care

2. Availability of suitable release stock

Prospective release stock must be subjected to a thorough veterinary screening process before shipment from original source

1. What specific additional actions are needed to complete the recommendation? Elaborate on current suggestions if deemed necessary.

1. Develop intensive veterinary preventive medicine and pre-release screening protocols for potential release candidates.
2. Devise a schedule for health monitoring and disease testing.
3. Publish normal values for Wattled cranes
 - a. Write specific pre-release protocol, both preventative medicine and pre-release screening with time-frames MB
 - b. Liaise with Dr York at MDS re TB testing; Avian malaria – PCR test Robert Fleischer; Avian influenza – Deltammune?; Paramyxovirus MB
 - c. Test captive population
 - d. Logistics re health tests – Alan / MB /JM

2. What organization(s) could take responsibility for the actions?

JHB ZOO

3. Who within the organization could take responsibility for what action?

MB / JM

4. What staffing, facilities or equipment if any will be needed?

Scales, stethoscope, blood sampling supplies, swabs, microscope etc

5. When should each action be completed by?

End 2009 – protocol written; liaison re lab tests

Arrival of chicks - Equipment / supplies

3. Availability of suitable release stock

Any animals found to be infected or which test positive for non-endemic or contagious pathogens with a potential impact on population levels, must be removed from the consignment, and the uninfected, negative remainder must be placed in strict quarantine for a suitable period before retest. If clear after retesting, the animals may be placed for shipment.

1. What specific additional actions are needed to complete the recommendation? Elaborate on current suggestions if deemed necessary.

1. Include contingency plan for screening out infected candidates and quarantining and retesting potentially-infected release candidates

- a. Develop protocols/flowchart for different scenarios including retesting of other birds – action depends on particular problem and might involve treating the crane on site or transporting it to JHB Zoo (unlikely to return)
- b. Check out TOPS/permitting issues re movement of birds / samples

2. What organization(s) could take responsibility for the actions?

JHB ZOO / Legal team

3. Who within the organization could take responsibility for what action?

MB - flowcharts

5. What staffing, facilities or equipment if any will be needed?

Veterinary supplies, crates / transport

6. When should each action be completed by?

Protocols by end 2009

4. Availability of suitable release stock

Stock must meet all health regulations prescribed by the veterinary authorities of the recipient country and adequate provisions must be made for quarantine if necessary.

**1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.**

1. Investigate all health regulations concerning transport of birds between provinces.
2. Investigate any health regulations concerning the release of wildlife in the province where supplementation will occur.
 - a. Group does not know of any such regulations but needs absolute confirmation

2. What organization(s) could take responsibility for the actions?

Alan to investigate

3. Who within the organization could take responsibility for what action?

Alan

4. What staffing, facilities or equipment if any will be needed?

5. When should each action be completed by?

End 2009

5. Planning, Preparation and Release Stages

Appropriate health and genetic screening of release stock, including stock that is a gift between governments.

1. What specific additional actions are needed to complete the recommendation?

Elaborate on current suggestions if deemed necessary.

- a. Sample birds for DD – genetic screening and MHC testing – 0.5ml EDTA – add to protocol
- b. No genetic diseases of concern currently
- c. Initially mainly chicks from 2nd egg collections
- d. When captive born chicks released genetic management of more importance

2. What organization(s) could take responsibility for the actions?

JHB ZOO / Alan / NZG

3. Who within the organization could take responsibility for what action?

MB / JM / AS

4. What staffing, facilities or equipment if any will be needed?

Blood sampling supplies

5. When should each action be completed by?

2010

6. Planning, Preparation and Release Stages

Appropriate veterinary measures as required to ensure health of released stock throughout the programme. This is to include adequate quarantine arrangements, especially where founder stock travels far or crosses international boundaries to the release site.

1. What specific additional actions are needed to complete the recommendation?

Elaborate on current suggestions if deemed necessary.

- a. Not currently relevant as chicks hatched, reared and released locally
- b. When captive reared chicks from Johannesburg may need to revise protocol

7. Planning, Preparation and Release Stages

Health screening of closely related species in the re-introduction area.

Recommendations from Workshop 1 for reference: 1. Dr. Michelle Barrows to devise a study to determine what diseases and parasites occur in similar species in the area. 2. MB to determine what testing is needed. 3. MB to write protocol for sample collection for study. 4. Locate, revise and distribute EWT CC protocols for PM and sample collection. 5. EWT CC or KZN Biodiversity Programme fieldworkers to collect samples (blood, faeces and cloacal cultures) from all crane fledglings ringed in KZN. 4. EWT CC fieldworkers to conduct gross PM on all crane casualties in KZN and preserve tissue in formalin 5. MB to find funding for disease

study. 6. Determine what further training is needed for sample collection. 7. Consider using EWT CC banked samples for disease testing-last samples collect 2006. 8. utilize frozen cane carcasses. 9. Transportation of samples WCG has a courier - link via DHL?

1. What specific additional actions are needed to complete the recommendation?

Elaborate on current suggestions if deemed necessary.

- a. Training for fieldworkers to take samples
- b. Sample waterfowl killed by hunters
- c. Logistics re sample processing / storage
- d. Literature review of diseases in sympatric species
- e. Contact local rehabilitation centre (FreeMe) to see if they are willing to save samples from waterfowl mortalities JM

2. What organization(s) could take responsibility for the actions?

MB to devise protocols and find funding

AS to investigate source of hunted ducks / sample collection

TT storage / processing of samples at UKZN. NB small centrifuge 1.5ml

MB literature review

3. Who within the organization could take responsibility for what action?

4. What staffing, facilities or equipment if any will be needed?

Freezer / centrifuge – at UKZN; sampling supplies

5. When should each action be completed by?

8. Planning, Preparation and Release Stages

If release stock is wild-caught, care must be taken to ensure that: a) the stock is free from infectious or contagious pathogens and parasites before shipment and b) the stock will not be exposed to vectors of disease agents which may be present at the release site (and absent at the source site) and to which it may have no acquired immunity.

1. What specific additional actions are needed to complete the recommendation?

Elaborate on current suggestions if deemed necessary.

Not relevant at present

9. Planning, Preparation and Release Stages

If release stock is wild-caught, care must be taken to ensure that: a) the stock is free from infectious or contagious pathogens and parasites before shipment and b) the stock will not be exposed to vectors of disease agents which may be present at the release site (and absent at the source site) and to which it may have no acquired immunity.

What specific additional actions are needed to complete the recommendation? Elaborate on current suggestions if deemed necessary.

1. Determine a strategy (i.e. vaccination etc.) to prevent exposure of released stock to disease agents which may be present at the release site (and absent at the source site) and to which they may have no acquired immunity

Chicks will be locally reared and hopefully will be exposed to relevant local pathogens before release

1. What organization(s) could take responsibility for the actions?
2. Who within the organization could take responsibility for what action?
3. What staffing, facilities or equipment if any will be needed?
4. When should each action be completed by?

10. Planning, Preparation and Release Stages

If vaccination prior to release, against local endemic or epidemic diseases of wild stock or domestic livestock at the release site, is deemed appropriate, this must be carried out so as to allow sufficient time for the development of the required immunity.

1. What specific additional actions are needed to complete the recommendation?

Elaborate on current suggestions if deemed necessary.

- a. Possibilities include botulism vaccine (HSN1 / PMV)
2. What organization(s) could take responsibility for the actions?
3. Who within the organization could take responsibility for what action?
4. What staffing, facilities or equipment if any will be needed?
5. When should each action be completed by?

11. Planning, Preparation and Release Stages

Monitoring the health of individuals, as well as the survival, is important; intervention may be necessary if the situation proves unforeseeably unfavourable.

What specific additional actions are needed to complete the recommendation? Elaborate on current suggestions if deemed necessary.

1. Include a strategy for intervention if necessary.

2. Should a release candidate become ill or injured, determine where the bird would be housed and how medical care would be provided.

- a. Options include rearing facility / Hlatikulu / JHB zoo
- b. Develop flow chart

2. What organization(s) could take responsibility for the actions?

Flowchart - MB

- 3. Who within the organization could take responsibility for what action?
- 4. What staffing, facilities or equipment if any will be needed?
- 5. When should each action be completed by?

June 2010

12. Post Release Activities

Collection and investigation of mortalities.

- 1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.

Develop PM protocol for mortalities of released birds

- a. PM protocol as before
- 2. What organization(s) could take responsibility for the actions?
- 3. Who within the organization could take responsibility for what action?
- 4. What staffing, facilities or equipment if any will be needed?
- 5. When should each action be completed by?

13. Post Release Activities

Interventions (e.g. supplemental feeding; veterinary aid; horticultural aid) when necessary.

What specific additional actions are needed to complete the recommendation? Elaborate on current suggestions if deemed necessary.

- 1. Determine a strategy for intervention if needed
 - a. Flowchart as no 11
- 2. What organization(s) could take responsibility for the actions?
- 3. Who within the organization could take responsibility for what action?
- 4. What staffing, facilities or equipment if any will be needed?
- 5. When should each action be completed by?

Legal and Socio-economic issues

14. Evaluation of supplementation/re-introduction site

A change in the legal/ political or cultural environment needs to be ascertained and evaluated as a possible constraint

- o "Site" is defined as rural KZN
- o Need to identify the important Wattled Crane floater flock properties (review the WC floater flock data) and incorporate these areas into C-plan

- 1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.

- o Land reform (restitution and redistribution) – this is seen as a significant future constraint, whereby landownership will change, resulting in possible land-use change.
- o Action – liaison with DLA to inform them of the WCRP and the value of specific properties for this programme (recommended that this is done as part of the broader liaison by EKZNW with DLA regarding biodiversity conservation in the province).

- 2. What organization(s) could take responsibility for the actions?

- o EKZNW

- 3. Who within the organization could take responsibility for what action?

- o Bill Howells to write to CEO to ensure EKZNW has a good working relationship with DLA,

- 4. What staffing, facilities or equipment if any will be needed?

- o N/A

- 5. When should each action be completed by?

- o End May 2009

15. Establishment of policies on interventions

Development of conservation education for long-term support

**1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.**

- Increase awareness of District Conservation and Community Conservation Officer staff in EKZNW regarding Wattled Crane conservation, the WCRP, supplementation sites and what they should do (landowner liaison, Wattled Crane sightings, floater flock sightings, etc.). This may include Bird club members and Honorary Officer networks.

2. What organization(s) could take responsibility for the actions?

- EWT CC
- EKZNW – through the Inter-regional Districts Forum

3. Who within the organization could take responsibility for what action?

- Kerryn Morrison
- Bill Howells

4. What staffing, facilities or equipment if any will be needed?

- N/A

5. When should each action be completed by?

- By end 2009 (initial introduction of WCRP to DCOs)

16. Establishment of policies on interventions

Involve local people in the programme where possible.

**1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.**

- Prior to release – brief environmental education is required with local Farmers Association and rural communities (targeting all landowners). Use the local media to publicise the WCRP (include this in the media strategy).
- This will have the benefit of facilitating the flow of information on sightings and mortalities after release.

2. What organization(s) could take responsibility for the actions?

- EWT CC

3. Who within the organization could take responsibility for what action?

- KZN fieldworker (no fieldworker, no release)

4. What staffing, facilities or equipment if any will be needed?

- Funding required for KZN fieldworker

5. When should each action be completed by?

- Dependent of the employment of a fieldworker, and must happen pre-release.

17. Planning, Preparation and Release Stages

Approval of relevant government agencies.

**1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.**

No further actions required – refer to Planning workshop (all existing actions agreed on)

2. What organization(s) could take responsibility for the actions?

3. Who within the organization could take responsibility for what action?

4. What staffing, facilities or equipment if any will be needed?

5. When should each action be completed by?

18. Socio-Economic and Legal Requirements

A thorough assessment of attitudes of local people to the proposed project is necessary to ensure long term protection of the re-introduced population, especially if the cause of species' decline was due to human factors (e.g. over-hunting, over-collection, loss or alteration of habitat).

**1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.**

At least 10 years of solid field work have been conducted in KZN, and positive attitudes exist by landowners to crane conservation. Continuing environmental education under EWT CC and BEEP, and no further action is required. It was also recommended that the

KZN fieldworker interact with farmers and farm workers on an ad hoc basis to inform them of the programme or gauge their attitude towards the programme.

2. **What organization(s) could take responsibility for the actions?**
EWT CC and BEEP
3. **Who within the organization could take responsibility for what action?**
KZN fieldworker
4. **What staffing, facilities or equipment if any will be needed?**
KZN fieldworker
5. **When should each action be completed by?**

19. Socio-Economic and Legal Requirements

In the case of migratory/mobile species, provisions should be made for crossing of international/provincial boundaries.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.

No further action to be taken, but linkages with the Mpumalanga and Eastern Cape conservation agencies should be maintained and should be informed with the EWT CC fieldworkers of the programme.

2. **What organization(s) could take responsibility for the actions?**
EWT
3. **Who within the organization could take responsibility for what action?**
EWT CC fieldworkers
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

20. Socio-Economic and Legal Requirements

Re-introductions are generally long-term projects that require the commitment of long-term political support.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.

Political support exists in terms of the legislation, and EKZNW have a legal mandate for biodiversity conservation. This links back to Section 14.

2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

21. Socio-Economic and Legal Requirements

Socio-economic studies should be made to assess impacts, costs and benefits of the re-introduction programme to local human populations.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.

It is apparent that very few costs or benefits exist for local people in terms of the WCRP, and is therefore seen as not applicable.

22. Socio-Economic and Legal Requirements

Supplementation/Re-introduction must take place with the full permission and involvement of all relevant government agencies of the recipient or host country. This is particularly important in re-introductions in border areas, or involving more than one state or when a re-introduced population can expand into other provinces or territories.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.

This has already been done

23. Socio-Economic and Legal Requirements

The policy of the country to supplementation/re-introductions and to the species concerned should be assessed. This might include checking existing provincial, national and international legislation and regulations, and provision of new measures and required permits as necessary.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.
 - o EWT CC must ensure that all participants and facilities are ToPS compliant
 - o All WCRP facilities must adhere to the EKZNW Norms and Standards (Ex situ standards)

2. What organization(s) could take responsibility for the actions?

- o JHB Zoo, EWT CC and EKZNW

3. Who within the organization could take responsibility for what action?

4. What staffing, facilities or equipment if any will be needed?

- o Funding is required for all ToPS permits

5. When should each action be completed by?

- o By 30 June 2009

24. Socio-Economic and Legal Requirements

The programme should be fully understood, accepted and supported by local communities.

**1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.**

Same as Section 16

2. What organization(s) could take responsibility for the actions?

3. Who within the organization could take responsibility for what action?

4. What staffing, facilities or equipment if any will be needed?

5. When should each action be completed by?

25. Socio-Economic and Legal Requirements

Where the security of the supplemented/re-introduced population is at risk from human activities, measures should be taken to minimize these in the re-introduction area. If these measures are inadequate, the re-introduction should be abandoned or alternative release areas sought.

**1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.**

- o Develop and implement a Rapid Risk Assessment Tool for assessing specific release sites

Due to the potential for the flock to move over short periods of time, it is recommended that the floater flock roost sites and movement patterns be determined as best as possible in order to identify several potential release sites. The Risk Assessment will then be carried out at each of these potential release sites in order to minimize potential risks before release happens.

2. What organization(s) could take responsibility for the actions?

- o WCRP, EWT CC

3. Who within the organization could take responsibility for what action?

- o Development - WCRP
- o Implementation - KZN fieldworker

4. What staffing, facilities or equipment if any will be needed?

- o KZN fieldworker resources

5. When should each action be completed by?

- o Dependent on the determination of release site – if release is due to take place in February / March 2011, then Risk Assessment needs to be done by October 2010.

Project Planning

26. Feasibility study and background research

An understanding of the effect the re-introduced species will have on the ecosystem is important for ascertaining the success of the re-introduced population.

- Adding to an existing flock to not as harsh as establishing a new population

**1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.**

- a. Gain an understanding of the flocks into which birds will be introduced (demography/sex ratios etc)
- b. Disease is a bigger issue when you are supplementing, so need a thorough understanding of diseases/potential disease in both the flocks and the individuals to release-covered in Disease Monitoring and Health Care

- c. 2nd egg is a smaller egg – are we supplementing with weaker individual birds? What are the factors involved in 2nd eggs – genetic, nutritional, habitat quality, selecting for birds that lay 2 eggs etc.
- d. Sex ratio – need to look at 1st egg sex, so need to either collect shells or collect blood on ringing.
- e. Look at linking ringed chicks to 2nd eggs collected from the same clutch – compare sexes.
- f. Which egg hatches when there are two eggs and only one hatches – which egg has a higher hatchability
- g. Post-release monitoring on both birds and ecosystem (biodiversity)
- h. Very research based - need to establish protocols for all actions - Project briefs (these will go to field workers) – EWT to produce.
- i. Scientific Advisory Crane working group
- j. Publish journal articles, present at conferences
- k. Add all 2nd egg collection information into the database (Kevin and Kirsten) – tie to nest sites
- l. Research and Ethics group in EWT – run ideas and research proposals through this group

Note: Impact on actual ecosystem = minimal, but impact on actual wild population could be more significant

2. **What organization(s) could take responsibility for the actions?**
 - a. EWT should take responsibility for this and should be approved by scientific advisory board.
3. **Who within the organization could take responsibility for what action?**
4. **When should each action be completed by?**
 - a. Work is ongoing

27. Feasibility study and background research

Detailed studies should be made of the status and biology of wild populations (if they exist) to determine the species' critical needs. For animals, this would include descriptions of habitat preferences, intraspecific variation and adaptations to local ecological conditions, social behaviour, group composition, home range size, shelter and food requirements, foraging and feeding behaviour, predators and diseases.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.

Refer to actions already completed/covered in PHVA – specifically under research section.

28. Evaluation of supplementation/re-introduction site

Identification and elimination, or reduction to a sufficient level, of previous causes of decline: could include disease; over-hunting; over-collection; pollution; poisoning; competition with or predation by introduced species; habitat loss; adverse effects of earlier research or management programmes; competition with domestic livestock, which may be seasonal.

Quite often this can be quite a sticky problem – understanding reasons for decline in numbers etc. Wattled Crane populations have stabilised and are increasing by perhaps 1 per year. Need to be sure we can justify releasing birds when the population is no longer declining and increasing slightly.

One justification is to decrease chance of extinction while the natural population is increasing slowly. Could be a kick-start. Could use project as a research initiative – PR around release could increase awareness and submission of information from the public.

Idea of the project as rehabilitation rather than supplementation – taking eggs that would otherwise have died and giving them a second chance – might be considered more favourably by the public.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.
 - a. Many of these will be covered by threats section of PHVA.
2. **What organization(s) could take responsibility for the actions?**
 - a. See PHVA
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

29. Planning, Preparation and Release Stages

Identification of short- and long-term success indicators and prediction of programme duration, in context of agreed aims and objectives.

Evaluation of success – very related to aims, therefore need to determine short-term and long term aims in order to establish success. When some of the longer-term aims don't work, can still recognise some successes from the activity. Need small, measurable, testable aims as well as the broader ones. Need to have an end goal in mind. At what point will you stop collecting 2nd eggs? Set some goals and then have measured review timelines.

1. What specific additional actions are needed to complete the recommendation?

Elaborate on current suggestions if deemed necessary.

- a. Develop clear aims and mission of WCRP (Done by advisory group)
- b. Include indicators of duration and the end goal
- c. Set up review process/time-lines

2. What organization(s) could take responsibility for the actions?

3. Who within the organization could take responsibility for what action?

4. What staffing, facilities or equipment if any will be needed?

5. When should each action be completed by?

30. Choice of release site and type

The re-introduction/ supplementation area should have assured long-term protection (whether formal or otherwise).

1. What specific additional actions are needed to complete the recommendation?

Elaborate on current suggestions if deemed necessary.

- a. Collate and analyse data on flocks and their habitats, time of year of flocking... - Kirsten
- b. Monitor, understand and risk assess floater flocks and the area in which they move – KZN field officer
- c. Establish mitigation strategies to reduce risk to flocks – Field officer
- d. Feed flock data into Provincial C-plans to gain support in the larger – Kirsten
- e. Information to go to DCO for those specific areas – for effective monitoring
- f. Establish potential for Stewardship – Kevin McCann

2. What organization(s) could take responsibility for the actions?

3. Who within the organization could take responsibility for what action?

4. What staffing, facilities or equipment if any will be needed?

5. When should each action be completed by?

31. Establishment of policies on interventions

Public relations through the mass media and in local community

Discussion of branding – do we want to promote it as the WCRP or the other four organisations. Need to develop protocols for recognition of major role players and other partners. Collaborative approach is very important as a funding tool, but at the same time media may not want hundreds of names attached to the project.

MoU's can state that at each media event, article, published paper, each organisation will be included.

1. What specific additional actions are needed to complete the recommendation?

Elaborate on current suggestions if deemed necessary.

- a. Develop media and marketing strategy (what message, what aims, protocol attached, funding) – 3 marketing groups from EWT, JHB Zoo, KZNWild
- b. Local community – EWT-FO's and DCO's
- c. Create links between the relevant websites (there is also a WCRP website now)
- d. Get all marketing individuals from the four organisations to attend AGM

2. What organization(s) could take responsibility for the actions?

3. Who within the organization could take responsibility for what action?

4. What staffing, facilities or equipment if any will be needed?

5. When should each action be completed by?

32. Planning, Preparation and Release Stages

Approval of relevant land owners

Release will be onto somebody's land – need to consider all communication etc.

As a result of post release monitoring there will be quite intensive activity on land and interaction/engagement with landowners

1. What specific additional actions are needed to complete the recommendation?

Elaborate on current suggestions if deemed necessary.

- a. Link with 30
- b. Communication, engage with landowners – FO's and DCO's, person doing post-release monitoring

2. What organization(s) could take responsibility for the actions?

3. Who within the organization could take responsibility for what action?

4. What staffing, facilities or equipment if any will be needed?

5. When should each action be completed by?

33. Planning, Preparation and Release Stages

Coordination with national and international conservation organizations.

Already in place

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

34. Planning, Preparation and Release Stages

Securing adequate funding for all programme phases.

Project just beginning to address funding issues – virtually no project secures funding prior to the project starting. This is a costly exercise and funding needs to be over a longer term basis (18 months at least). Consider how you name the project (4 organisations) – need to coordinate

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.
 - a. Establish project costs
 - b. Put in place a funding strategy (what, how, budget, financial planning, allocation) – Kerry and Jeanne-Marie
 - c. Establish funding coordinator/s (which organisation to drive) – Kerry and Jeanne-Marie
 - d. Audit of project
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

35. Post Release Activities

Continuing public relations activities, including education and mass media coverage.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.
 - a. Feeds into 31
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**

5. **When should each action be completed by?**

36. Post Release Activities

Decisions for revision, rescheduling, or discontinuation of programme where necessary.

Part of the advisory review process

Consider what will happen if all the birds die after release – review meeting will probably just be brought forward

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.
 - a. Feeds into 29 in terms of revising the project
 - b. Development of a review process – both internal advisory board and with external
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

37. Post Release Activities

Evaluation of cost-effectiveness and success of re- introduction techniques.

Point clarified: Post –release activities refers to the activities which should occur directly after the release of animals into the wild.

Part of review project, but would be good to do an annual report – evaluation of success. Other reports as required will feed off this report.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.
 - a. Develop a pro-forma standardised report that can just be filled in at regular – defined intervals
 - b. Produce quarterly reports or at minimum an annual report (possibly more regularly to keep in line with funder requirements)
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

38. Socio-Economic and Legal Requirements

Re-introductions are generally long-term projects that require the commitment of long-term financial and political support.

Links into 34

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.
 - a. Job creation for local communities – can also be used to get external funding
 - b. Get interns/students involved in the project
 - c. Build capacity in Africa
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

39. Post Release Activities

Regular publications in scientific and popular literature.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.
 - a. Develop a Scientific Advisory Board
 - b. Use of EWT-Cranes scientific post and use of crane advisory board
 - c. Establish terms and conditions/ground rules for external researchers involvement and
 - d. Ensure facts given out are uniform -
 - e. Related to data sharing and recognition for the collection of that data etc.
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

Additional: Update MoU's – refer to strategies

Data sharing agreements

Genetic funding from National Zoological Gardens

Supplementation Activities

40. Previous Re-introductions

Wide-ranging contacts with persons having relevant expertise should be conducted prior to and while developing re-introduction protocol.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary. **40.1 IUCN** (Jeanne Marie) (Time line: ongoing) **40.2 ICF** (Kerryn, Jeanne Marie) (Time line: ongoing) **40.3 UK** (Kerryn) (Time line: ongoing) **New Action:** Document overview of previous crane introductions and supplementations conducted worldwide. (Jeanne Marie, Helena) (Time line: Dec 2009)
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

41. Availability of suitable release stock

Removal of individuals for re-introduction must not endanger the captive stock population or the wild source population. Individuals should only be removed from a wild population after the effects of translocation on the donor population have been assessed, and after it is guaranteed that these effects will not be negative.

*Make distinction between supplementation and re-introduction: at last workshop we agreed that we are doing supplementation.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary. **41.1** (i) Additional action to ensure new KZN field worker is properly trained. (EWT, Andre) (Time line: May 2009) (ii) Protocol needs to be drawn up for egg collection (for the information NOT to be lost) to be included in field worker manual. (Andre) (Time line: end May 2009) **New Action a:** Possibility of egg collection in Mpumalanga and Eastern Cape and include the logistics and training of field staff (currently only for KZN). (Jeanne Marie, Kerryn) (Time line: ASAP) **New Action b:** Put post removal monitoring of nest and first chick in place (Kerryn, Andre) (Time line: May 2009) **41.2** Do not feel translocation of individuals is relevant. **41.3** Ensure that there is proper record keeping and that necessary samples are collected and sent to JHB zoo. (Jeanne Marie) (Time line: ongoing)
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**

4. What staffing, facilities or equipment if any will be needed?
5. When should each action be completed by?

42. Availability of suitable release stock

Stock must be guaranteed available on a regular and predictable basis, meeting specifications of the project protocol.

1. What specific additional actions are needed to complete the recommendation? Elaborate on current suggestions if deemed necessary. **42.1** Redo modelling – logistical during first couple of years, thereafter better data can be used and model should be revisited continuously (Kerryn) (Time line: Dec 2009) **42.2** AI (Jeanne Marie) (Time line: ongoing) **42.3 & 42.4** Training (Jeanne Marie) (Time line: ongoing, still improving technique) **42.5** Breeding centre (Jeanne Marie) (Time line: in progress, have enough money to build 6 breeding pens – phase 1, Dec 2009 - need R3.5 million to complete pens and support complex – phase 2, middle 2011) **42.6** Breeding stock (Jeanne Marie) (Time line: dependent on completion of breeding centre) **42.7** Heterozygosity (Kerryn, Jeanne Marie, Desire) (Time line: Dec 2009 (modelling) and genetics ongoing)
2. What organization(s) could take responsibility for the actions?
3. Who within the organization could take responsibility for what action?
4. What staffing, facilities or equipment if any will be needed?
5. When should each action be completed by?

43. Post Release Activities

Demographic, ecological and behavioural studies of released stock must be undertaken.

1. What specific additional actions are needed to complete the recommendation? Elaborate on current suggestions if deemed necessary. **43.1** Employ student (Kerryn) (Time line: Nov 2010 – student must be sourced; Mar/Apr 2011 – release) **New Action a:** Develop rolling internship or masters programme (Kerryn) (Time line: mid 2011) **New Action b:** check protocols for post release with KZNWildlife (Bill, Brent, Jeanne Marie) *Define minimum post release monitoring!
2. What organization(s) could take responsibility for the actions?
3. Who within the organization could take responsibility for what action?
4. What staffing, facilities or equipment if any will be needed?
5. When should each action be completed by?

44. Establishment of policies on interventions

Determination of release strategy (acclimatization of release stock to release area; behavioural training - including feeding, group composition, number, release patterns and techniques; timing).

1. What specific additional actions are needed to complete the recommendation? Elaborate on current suggestions if deemed necessary. **44.1** Develop release strategy (would include all aspects of chick raising to releasing to feeding supplementation after release etc.) *Refer to 40 – new action (Jeanne Marie, Kerryn, WC advisory board, WCRP) (Time line: Mar/Apr 2010) **New Action a:** Distribute above document to Universities to source student (Kerryn) (Time line: July 2010) **New Action b:** Consider parent rearing of chicks in future (Jeanne Marie) (Time line:?)
2. What organization(s) could take responsibility for the actions?
3. Who within the organization could take responsibility for what action?
4. What staffing, facilities or equipment if any will be needed?
5. When should each action be completed by?

45. Establishment of policies on interventions

Professional training of individuals involved in the long-term programme

1. What specific additional actions are needed to complete the recommendation? Elaborate on current suggestions if deemed necessary. **45.1** Either conduct training through JHB Zoo or ICF or employ experienced person (Jeanne Marie) (Time line :?) * Potentially employ person from JHB zoo full time(from egg collection to release point) (Steven) **45.2** (Kerryn) (Time line: ongoing) **45.3** (Jeanne Marie) (Time line: ongoing)
2. What organization(s) could take responsibility for the actions?
3. Who within the organization could take responsibility for what action?
4. What staffing, facilities or equipment if any will be needed?
5. When should each action be completed by?

46. Planning, Preparation and Release Stages

Creation of an isolation-rearing site

1. What specific additional actions are needed to complete the recommendation? Elaborate on current suggestions if deemed necessary. **46.** Will be addressed on site on Friday. (Jeanne Marie, WCRP committee) (Time line :?) **New Action:** Will EIA be needed for building of facilities (Jeanne Marie, Kevin McCann) (Time line :?) **New Action:** Facility to register as captive rearing facility under new EKZNW legislation () (Time line Oct 2009 :)
2. What organization(s) could take responsibility for the actions?
3. Who within the organization could take responsibility for what action?
4. What staffing, facilities or equipment if any will be needed?
5. When should each action be completed by?

47. Planning, Preparation and Release Stages

Design of pre- and post- release monitoring programme so that each re-introduction is a carefully designed experiment, with the capability to test methodology with scientifically collected data.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary. [47. Covered in 40 and 44 above.](#)
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

48. Planning, Preparation and Release Stages

Development of transport plans for delivery of stock to the country and site of re-introduction, with special emphasis on ways to minimize stress on the individuals during transport.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary. [48.1 No longer relevant because chicks would not be transported long distances \(rearing site in KZN\). Already have protocol in place for transport of chicks and adults so will use this.](#)
[48.2 Completed](#) [48.3 Noted](#)
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

49. Planning, Preparation and Release Stages

The welfare of animals for release is of paramount concern through all these stages.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary. [49. Note: address in 44 above \(breeding strategy\) and also covered in 48.](#)
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

50. Post Release Activities

Post release monitoring is required of all (or sample of) individuals. This most vital aspect may be by direct (e.g. tagging, telemetry) or indirect (e.g. spoor, informants) methods as suitable.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary. [50.1 – 50.3 Refer to 43](#)

and 44 above. [50.4 Refer to Project Planning Group New Action: Investigate using VHF radio telemetry for tracking released birds \(Kerryn\) \(Time line: Dec 2009\)](#)

2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

51. Post Release Activities

Study of processes of long-term adaptation by individuals and the population.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary. [51. Refer to 43 above](#)
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

52. Previous Re-introductions

Thorough research into previous re-introductions of the same or similar species.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary. [52.1 Covered in 40 above.](#)
[52.2 Covered in 40 and 44 above.](#)
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**

53. Release of captive stock-Rearing conditions

Most species of mammal and birds rely heavily on individual experience and learning as juveniles for their survival; they should be given the opportunity to acquire the necessary information to enable survival in the wild, through training in their captive environment; a captive bred individual's probability of survival should approximate that of a wild counterpart.

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary. [53.1 Covered under 40 above.](#) [53.2 Change to "good flock fidelity" \(flocking behaviour\) i.e. the fidelity of the juvenile to the flock vs. the rearing site Literature search on this topic \(Mike Jordan to inform\) \(Time line :?\)](#) [53.3 Covered under 40 above.](#) [53.4 Must be included under 44.](#) [53.5 Must be covered under 43.](#)
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**

5. When should each action be completed by?

Multidisciplinary Approach

54. Planning, Preparation and Release Stages

Construction of a multidisciplinary team with access to expert technical advice for all phases of the programme.

1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.

The WCRP is managed by an advisory board made up of government personnel, conservation NGO, a zoo association, zoos, veterinary personnel, and private animal breeders with a full range of suitable expertise.

2. What organization(s) could take responsibility for the actions?
3. Who within the organization could take responsibility for what action?
4. What staffing, facilities or equipment if any will be needed?
5. When should each action be completed by?

55. Multidisciplinary approach

A re-introduction requires a multidisciplinary approach involving a team of persons drawn from a variety of backgrounds. They may include; government personnel, they may include persons from governmental natural resource management agencies; non-governmental organisations; funding bodies; universities; veterinary institutions; zoos (and private animal breeders) and/or botanic gardens, with a full range of suitable expertise.

1. What specific additional actions are needed to complete the recommendation?
Elaborate on current suggestions if deemed necessary.

A multi-disciplinary approach is already in place.

Program Partners: The management of the WCRP is carried out by the Johannesburg Zoo, in partnership with KZN Wildlife, EWT and PAAZAB and under the direction of an Advisory Board. It was agreed that additional Partnerships should be reserved for institutions carrying out a significant role in the programme. If eggs are to be collected in any Province, that Province could be invited to be a partner in the Programme. All others will fall into categories of participants, affiliates, or donors.

Participants: Consist of captive management facilities that assist the WCRP with housing and breeding of the captive flock. The participants are bound by an MoU and required to follow strict captive management protocols as well as all legislative requirements. Captive management facilities include zoos, bird parks, sanctuaries and private breeders.

Affiliates (Current): World Association of Zoo's and Aquariums (WCRP is a WAZA branded conservation project), IUCN Reintroduction Specialist Group (WCRP is a member of RSG), International Crane Foundation: Advice and Technical assistance

Universities: Universities are involved when specific scientific investigation is needed. The National Zoological Gardens (Research department) a branch of the National Research Foundation and associated universities are involved with the genetic management of the ex situ breeding flock.

Veterinary Institutions: Dr. Michelle Barrows, senior veterinarian and manager of the Johannesburg Zoo's veterinary department oversees all the medical issues for the programme.

Funding: Funding is sought through grant making trusts, corporations, conservation funding organizations and private individuals.

2. What organization(s) could take responsibility for the actions?
3. Who within the organization could take responsibility for what action?
4. What staffing, facilities or equipment if any will be needed?
5. When should each action be completed by?

56. Multidisciplinary approach

Team leaders should be responsible for coordination between the various bodies.

1. What specific additional actions are needed to complete the recommendation?

Need to consider potential team leaders who can drive various aspects of the Supplementation Project i.e. Disease Monitoring and Health Care (MB) Project planning (JM & KM?) Legal and Socio-economic issues (K McCann, Brent Coverdale?) Supplementation Activities (JM & HM?)

2. Elaborate on current suggestions if deemed necessary.
3. What organization(s) could take responsibility for the actions?
4. Who within the organization could take responsibility for what action?
5. What staffing, facilities or equipment if any will be needed?
6. When should each action be completed by?

57. Multidisciplinary approach

Provision should be made for publicity and public education about the project.

[Links into 31](#)

1. **What specific additional actions are needed to complete the recommendation?**
Elaborate on current suggestions if deemed necessary.
2. **What organization(s) could take responsibility for the actions?**
3. **Who within the organization could take responsibility for what action?**
4. **What staffing, facilities or equipment if any will be needed?**
5. **When should each action be completed by?**