



**International Embryo Transfer Society**  
Parent Committee on Companion Animals,  
Non-Domestic & Endangered Species  
**(CANDES)**  
Report to the IETS Board of Governors  
1 June 2005

## **Report from the Open Meeting (9 January 2005)**

### **Subcommittee Meetings**

Due to snowstorms causing airport closures, Chairman Loskutoff was unable to make it to Copenhagen in time for the Subcommittee meetings held on Friday evening, 7 January 2005 at the Radisson SAS Falconer Hotel. Bill Holt substituted in her absence. Overall, there were relatively few members present at the Subcommittee meetings and it was noted at the open meeting that alternative time slots should be carefully reviewed for holding the Subcommittee meetings at future IETS annual conferences to improve attendance. All four Subcommittees combined into one group for the Friday meeting (see Appendix 1 for the minutes from the joint Subcommittee meeting and thanks to Rebecca Krisher and the attending Subcommittee Chairs for compiling and editing these minutes).

### **Reports from the Subcommittees**

Research Subcommittee (Co-Chairs: Rebecca Krisher & Monique Paris)

The Resource Manual on the IETS CANDES website currently contains 21 protocols (98 pages). Strategies were discussed as to how to increase participation in protocol submission. A goal was set to challenge each Taxon Leader to submit one new protocol every six months. It was suggested that abstracts be included along with peer-reviewed journal articles for studies demonstrating the application of the protocols. Taxon Leaders are still needed for fish, birds and marine mammals. It was also noted that a statement be included on the Resource Manual emphasizing the importance of acknowledging the originator of any protocol used in published studies. Finally, the Research Subcommittee will work more closely with the Technology Subcommittee to identify and prioritize areas of research needed in CANDES.

Technology Subcommittee (Co-Chairs: Damien Paris & Philip Damiani)

It was emphasized that a closer union with the Research Subcommittee will help to expand further the objectives of this Subcommittee. More effort will be made to increase the postings on the supplier's list on the IETS CANDES website. Additional information that would be useful to include on the website include: a thorough bibliography containing headings of various ART procedures followed by species in which the procedures have been applied (along with references) as well as a database of abstracts that may not be available using standard search methods.

## Regulatory Subcommittee (Co-Chairs: Justine O'Brien & Linda Penfold)

The list of countries on the CANDES website for which information on import and export regulatory requirements for biomaterials has been increased to 12, with the recent addition of the United Arab Emirates. The existing regulatory information templates were checked by CANDES resource contacts in mid-2004 to ensure the information is current - no changes were required. A main priority of this Subcommittee is to keep the website regulatory information current and accurate. Resource contacts will be contacted in mid-2005 to collect the next template update information. Regulatory information is still required for the UK - need to identify a willing resource contact. It will be helpful to look into the extent of use of the website regulatory information by determining the numbers of hits/downloads per month or quarter.

## Health & Safety Subcommittee (Co-Chairs: Bill Holt & Naida Loskutoff)

A successful workshop was held in Omaha in 2003 to develop tools for conducting comparative risk assessments for disease outbreaks when transporting biomaterials versus live animals. A draft copy of the report and workbook resulting from that workshop can be found on the IETS CANDES website. This Subcommittee recognizes that a closer association is necessary with the CANDES Regulatory Subcommittee and this will be discussed at the 2005 mid-year meeting of the Subcommittee chairs in July. Furthermore, more work is needed to develop a more "user-friendly" method for conducting comparative risk assessments as well as how to assist regulatory officials to make more logical, educated decisions when issuing permits for biomaterial transport. It was, therefore, decided to dedicate one day of the mid-year meeting in July 2005 to focus on this issue and to invite guest officials who work for international regulatory agencies.

## **Other Business**

To attract more interest and participation in the CANDES Committee, it was suggested that an exhibition booth be set up at the next IETS conference (need to check with the IETS Board of Governors if the fees can be waived). It was also suggested that related organizations, whose links can now be found on the CANDES website, be asked to create similar links to the CANDES website.

## **2005 Mid-Year Meeting**

Since there have been new appointments for Subcommittee Chairs and the CANDES Secretary as well as the fact that many of the original goals of the Committee have now been met or in progress, it was decided to hold a small mid-year working meeting to re-group and plan out future objectives and activities of the CANDES Committee. The meeting will be held on July 9, 2005 and will be hosted by Dr. Linda Penfold of the White Oak Conservation Center in Yulee, Florida. Owing to the fact that more work is needed to follow-up the workshop held in 2003 in Omaha on biomaterial transport and disease risks, it was also decided to dedicate one day (July 10, 2005) to further discuss and develop the tools to conduct such scientifically-based analyses. To assist and facilitate the process, officials from international regulatory agencies will be invited to attend as guests to participate in the

discussions. The Henry Doorly Zoo is sponsoring the travel expenses and accommodations for the two day mid-year CANDES meeting.

### **CANDES Website Updates for 2005**

In addition to the updates summarized by the Subcommittees, other suggestions included: a recording of the numbers of visits to assess the interest in the website and a method for the submission of questions that can be submitted and sent to the parent committee members for answers and/or discussion.

### **2006 Symposium**

The Third International Symposium on Assisted Reproductive Technology for the Conservation and Genetic Management of CANDES will be held on 29 July 2006 in conjunction with the 39<sup>th</sup> annual conference of the Society for the Study of Reproduction (SSR) in Omaha, Nebraska. The program for the 2006 symposium can be seen in Appendix 2 and will be posted on the IETS CANDES website. The abstracts from the oral presentations will be included in the proceedings from the SSR conference. Abstracts for poster presentations will be accepted; however, authors of poster presentations must register for both the SSR conference as well as the satellite symposium – authors of accepted abstracts can have their posters displayed during the poster sessions for both events.

Respectfully Submitted,

***Naida M. Loskutoff***, Chairman of the IETS CANDES Parent Committee

## **Appendix 1**

### **CANDES Joint Working Meeting 17:00 – 21:00, Friday 7<sup>th</sup> January 2005 Radisson SAS Falconer Hotel, Copenhagen, Denmark**

Bill Holt chaired the committee, due to the fact that Naida Loskutoff's flight was delayed. All four committees combined into one group for the working meeting. Seven members and one guest were present: Phil Damiani, Morne De La Rey, Roslyn Elliott, Bill Holt, Rebecca Krisher, Reuben Mapletoft, Damien Paris and Monique Paris (see Appendix 1 for affiliations and contact details).

Discussion of a possible working meeting in South Africa in 2005 to consider potential research programs for SA and review CANDES progress. Possible dates were discussed. It was thought that only chairs would attend. The best months for those present were thought to be June, July or August. The next wildlife symposium is to be held in conjunction with SSR, consisting of a one-day program on the 29th July 2006.

### **Health and Safety Subcommittee**

A successful meeting was held in Omaha in 2003. Sample situations were modeled using a software program to assess risk. The follow up meeting at White Oak did not occur. The software modeling system used is called Precision Tree. In this program, risks and decisions can be input at each step of the decision making process. The program then calculates overall risk probabilities. Critical checkpoints include probabilities of disease transmission. Precautions taken to decrease the probability of disease transmission are taken into consideration in the program. This software was thought to be very appropriate. More follow up work needs to be done.

One of the questions is how to get the results/risk probabilities to the people making decisions? Could help governments make educated decisions. OIE has scientifically set standards. Individual governments must make the decision to follow the assessments or not. Must get comfortable with the science. It is important in this regard to use the program and show that it works. Must apply it to already used and known scenarios. It was emphasized that Precision Tree can be used as a general tool for assessing risks.

### **Regulatory Subcommittee**

Justine O'Brien sent notes, as she was not able to be here. Templates have been checked and there are no changes. New information has been added to the website mid 2004, specifically for the United Arab Emirates. In the future, the question is how to keep the site updated, current and accurate. There is also still a need to identify a contact in the UK. Bill Holt suggested that he would be contacted by the regulatory subcommittee to give information/contact details on this. Also, the subcommittee would like to determine the number of hits on the site.

## **Research Subcommittee**

An update on the resource manual was given by Monique Paris and Rebecca Krisher. There are now 21 protocols in the resource manual. We discussed alternative ways to continue to add protocols. One problem is that investigators seem willing to contribute but do not send materials. We thought it was probably just a low priority in busy peoples schedules. Damien Paris raised the point that there was very little incentive for researchers to disclose their 'secret recipes' to the greater scientific community with no obvious benefit, and concluded that it would be more likely that already published protocols would be more easily offered by contributors. Morne De La Rey offered to contribute his protocols for rare cattle breeds. It was suggested that we ask Naida to plug the need for more new protocols in her speech to the general IETS members on the 11<sup>th</sup>.

In reference to the resource manual, it was suggested that we emphasize acknowledgement of sources in resulting publications as an incentive for investigators to contribute their protocols. It was decided to put greater emphasis on this point on the website. In addition, we will ask the taxa leaders as a goal to contribute 1 protocol every 6 months, so at least 2 new protocols per year get added for each taxon.

A suggestion was made to put together an abstract/manuscript database for this purpose. When someone is looking for a protocol, if the specific protocol is not in the resource manual online, the abstract database could be searched. If a reference was found containing the desired protocol, the person in need could contact the authors directly to ask for the protocol. This was discussed and thought to be a good idea. Rebecca and Monique will begin to compile the database over the next several months. Those who have an endnote database of CANDES species said they could contribute to this effort.

In addition, we would like to track users of the resource manual on the website. The suggestion was put forward to ask users to register before they could access the manual. Everyone could register and access with no charge, but it would allow us to see who was using the resource, and might encourage investigators to acknowledge contributors. Rebecca will ask Naida if this is possible to add to the website.

Several taxa leaders are still needed. Fish: Boris Dzuba was suggested, he had already expressed interest but needs to be approached officially. Birds: Suggestions included Juan Blanco (Spain), someone from Audobon Institute (USA) because of their interest in AI in cranes (Meghan or Jeff Vicaro), Graham Martin working on emu/ostrich reproduction (Australia), Stephen from the International Crane Foundation and Graham Bushhardt (Dundee, UK). Marine mammals: Todd Robeck could be approached again, or someone from Australia who is studying seals (Simon Goldsworthy, John Arnould, Steve Johnson).

The second objective of the research subcommittee was addressed. This objective has as its goal a compilation of emphasis areas that are high priority for research in conservation of CANDES species. We need to be sure there is a not a personal bias involved in this 'list', but that it reflects real IUCN needs. It was proposed to make a big list then prioritize. Reuben Mapletoft questioned whether CANDES was actually the most qualified body to prioritize a list of key species for research? It was also discussed why this list was important, if we should

continue with this objective, and what would be the outcome. Would anyone use the list? Given the breadth of species covered by CANDES it was suggested that our efforts would be spread too thinly if we set about trying to prioritize areas of ART research without first assessing what has already been achieved in CANDES and their domestic counterparts. Reuben Mapletoft recommended that the Research and Technology committees need to review their objectives, making them more focused and more achievable. It was decided that our approach would be to compile a list/database of known technologies already successfully developed in both domestic and CANDES species. We hope that as an outgrowth of this list/database of known technologies (more likely currently used in closely related species), the pressing needs for new ART technology and species in which there is a deficit of these technologies will become evident. The list will thus be categorized by ART technology not by taxa. It was realized that this is a significant overlap with the Technology subcommittee's goals, and that the 2 committees could work together to achieve this common objective, each with a slightly different focus. We want the list to correlate with the protocol resource manual of the Research Subcommittee and at the same time relate to the top 10 list of priority technologies for development proposed by the Technology Subcommittee. Phil Damiani has already compiled an extensive Endnote library of abstracts to this effect and Bill Holt has recently reviewed the actual success rates of some of these technologies in CANDES. It was proposed that individual members would initiate literature searches on specific ART areas as follows:

Damien: semen collection, semen and testicular/epididymal tissue cryopreservation and AI

Rebecca: oocyte collection, IVM and IVC

Phil: cloning, IVF and ET?

Monique: superovulation, oocyte & embryo cryopreservation, and xenotransplantation.

The inclusion of endocrinology was discussed and it was decided that inclusion would make it too vague. The aim is for each member to establish an abstract database and compile a list of species in which each technology has been successful, prior to the working meeting in South Africa. At that meeting, individual lists based on bibliographies will be integrated into one list during the working meeting in SA. Further work on this objective will be to assess the relative success rates of each technology for a given species as well as develop an integrated abstract/reference database that would be searchable by users of the CANDES website.

## **Technology Subcommittee**

The goals and focus of the committee were reiterated. The committee has compiled a list of established ART suppliers whose equipment has been adapted and/or used in CANDES species. This list is on the website. Some updates and further companies are needed and members were urged to forward these details to Damien Paris. Also the cloning statement is now on the website. A priority list of novel technologies for development has been put together. More suggestions are needed to expand and define it. This list is also on the website. It was thought that the generation of the ART technology list/database of current successes proposed above may complement this novel technology priority list and provide further guidance as to areas of deficiency. It may also highlight some of the work that is currently underway to address these priorities in CANDES. Other areas in which the

Technology Subcommittee could focus was highlighted by Damien Paris that included the development of an information network containing:

- Database of experts in technology (e.g. researchers, diagnostic labs, suppliers of ART equipment)
- Database of experts in taxa reproduction (e.g. researchers, breeders, zoos) – possible overlap with AZA Repro SAG
- Database of unique CANDES biophenomena (e.g. embryonic diapause, sperm pairing, prolonged sperm storage)

In light of previous comments by Reuben Mapletoft to focus on achievable goals, it was considered appropriate to focus effort on the generation of the ART technology list/database of current successes in domestic and CANDES species in conjunction with the Research Subcommittee.

At the end of the subcommittee reports, we discussed the need to bring members into the subcommittee work. We would like members to get more involved as currently the bulk of the workload falls on the chairs. The time of the working meetings at IETS was discussed as a possible deterrent, in that many members may not come early to IETS. We would like to be more visible within IETS, and have the working meeting scheduled after the official start of the actual IETS conference to boost attendance and participation. It was suggested that in Kyoto, we try to get a wildlife session on the program. Reuben will find out who is chair of the program. In addition, the idea of a pre/post conference symposium during the IETS conference in Orlando was discussed.

Meeting Adjourned.

### **List of Attendees:**

<u>Name</u>	<u>Institute</u>	<u>E-mail</u>
Philip Damiani	Genetics Savings and Clone	<a href="mailto:p.damiani@savingsandclone.com">p.damiani@savingsandclone.com</a>
Morne De La Rey	Embryo Plus, South Africa	<a href="mailto:morne@embryoplus.com">morne@embryoplus.com</a>
Rose Elliott*	Institute of Zoology, London	
Bill Holt	Institute of Zoology, London	<a href="mailto:bill.holt@ioz.ac.uk">bill.holt@ioz.ac.uk</a>
Rebecca Krisher	Purdue University	<a href="mailto:rkrisher@purdue.edu">rkrisher@purdue.edu</a>
Reuben Mapletoft	University of Saskatchewan	<a href="mailto:reuben.mapletoft@usask.ca">reuben.mapletoft@usask.ca</a>
Damien Paris	University of Glasgow	<a href="mailto:D.Paris@bio.gla.ac.uk">D.Paris@bio.gla.ac.uk</a>
Monique Paris	University of Glasgow	<a href="mailto:m_wolvekamp@hotmail.com">m_wolvekamp@hotmail.com</a>

## Appendix 2

### **The Third International Symposium on Assisted Reproductive Technology (ART) for the Conservation and Genetic Management of Companion Animals, Non-Domestic and Endangered Species (CANDES)**

Saturday, 29 July 2006, Omaha's Henry Doorly Zoo Wild Kingdom Pavilion

In association with the 39<sup>th</sup> annual conference of the Society for the Study of Reproduction, Omaha, Nebraska

- 8:00 – 8:15 Welcome
- 8:15 – 8:45 Preservation of Gonads and Xenografting as a Tool for Gamete Recovery in CANDES (Monique Paris, University of Glasgow, UK and Katarina Jewgenow, Institute for Zoo Biology and Wildlife Research, Germany)
- 8:45 – 9:15 The Production of Designer Gonadotropins for Use in ART with CANDES (Elliott Bedows, University of Nebraska Medical Center, USA)
- 9:15 – 9:45 Sperm Sorting Technology for Use with ART in CANDES (Justine O'Brien, Busch Entertainment Corporation; University of Sydney, Australia)
- 9:45 – 10:15 Metabolism and Embryo Culture Tools to Improve the Success of Gamete Rescue in CANDES (Rebecca Spindler, Toronto Zoo, Canada)
- 10:15 – 10:45 Break
- 10:45 – 11:15 Cloning Technologies – Advances Since the Dolly Phenomenon (Philip Damiani, Genetic Savings and Clone, USA)
- 11:15 – 11:45 Cloning and Heteroplasmy – What's the Concern? (Gabriela Mastromonaco, University of Guelph, Canada)
- 11:45 – 12:15 The Development and Use of Embryonic Stem Cells in CANDES (Steve Baran, University of Washington, USA)
- 12:15 – 13:15 Lunch
- 13:15 – 13:45 Comparative Disease Risks Transporting Embryos and Semen Versus Live Animals (Linda Penfold, White Oak Conservation Center, USA)
- 13:45 – 14:15 Disinfection Procedures for Semen Contaminated with Microbes and Viruses (Naida Loskutoff, The Bill & Berniece Grewcock Center for Conservation and Research, USA)



- 14:15 – 14:45 Capitalizing on Sperm Competition and Diversity; What Makes a Good Sperm (William V. Holt, Zoological Society of London, UK)
- 14:45 – 15:15 Break
- 15:15 – 15:45 Unique Male Reproductive Strategies in CANDES (Damien Paris, University of Glasgow, UK)
- 15:45 – 16:15 Unique Female Reproductive Strategies in CANDES (Rebecca Krisher, Purdue University, USA)
- 16:15 – 16:30 Concluding Remarks
- 16:30 – 18:00 Poster Session
- 18:00 – 23:00 Reception with SSR Delegates