Darwin Initiative – Final Report

Darwin project information

Project Reference	17-020
Project Title	Enhancing the Elephant Trade Information System to guide CITES policy
Host country(ies)	Zimbabwe
UK Contract Holder Institution	University of Reading
Host Country Partner Institution(s)	TRAFFIC East/Southern Africa
Darwin Grant Value	£ xxx
Start/End dates of Project	1 September 2009 – 30 September 2012
Project Leader Name	Dr Fiona M Underwood
Report Author(s) and date	FM Underwood, RW Burn, T Milliken January 2013

1   Project Background

This project aims to enhance and ensure the long-term sustainability of the Elephant Trade Information System (ETIS), a global monitoring system under CITES to support decision making for elephant conservation. Major achievements are:

- An enhanced global open-source database of illegal ivory seizures with:
    - improved data entry and reporting facilities;
    - a new secure on-line capability (with training materials) for CITES Management Authorities (CMAs) to submit and access their records directly to increase their participation in ETIS;
- An improved analytical framework to produce smoothed and bias-adjusted simple indicators of illegal ivory trade activity;
- Standard Operating Procedures to ensure long-term operational sustainability.

2   Project support to the Convention on Biological Diversity (CBD)

This is a CITES focused project.

ETIS was mandated by the CITES Parties under Resolution Conf 10.10, and this project was specifically designed to help CITES meet its aims and objectives for a robust ivory trade monitoring system. In this regard, this project assists ETIS in providing evidence and analysis of trends in the illegal ivory trade to CITES. The most recent assessments of the ETIS data on illegal ivory trade developments have been the comprehensive analysis for the 16th meeting of CITES Conference of the Parties (CoP16) and two update reports for the 61st and 62nd meetings of the CITES Standing Committee; none of these reports could have been produced without the outputs of this project, in particular the development of indicators of trends in the illegal ivory trade.

The CITES Secretariat has been consulted on several aspects of this project and regularly kept informed of its progress. In the future, the Secretariat will help to implement aspects of the on-line database system, specifically the validation process for access to the system by individuals representing the CMAs of the Parties. On another front, the CITES Technical Advisory Group for ETIS has been informed and advised on many aspects of the project as detailed in section 6.

Although the host country partner is based in Zimbabwe, the host countries for this project represent all elephant range states in Africa and Asia. Indeed, as seizures of elephant ivory and other products can potentially occur in any of the 175 Parties to CITES, all CITES Parties are engaged in this project.

The project was showcased at a special event at the 62nd meeting of the CITES Standing Committee at which all CITES Parties were invited to attend and at the 4th African Elephant Meeting, convened by the CITES Secretariat, to inform elephant range States of the work achieved through this project and invite feedback.

Furthermore, the project aims to increase the capacity of CMAs to participate in ETIS by the development of on-line database software and training material to use this software. Ten CMAs from African Elephant Range States have been trained in the use of this new software; the programme has been demonstrated to countless others. The new software will be launched once translation of the software into French is complete; the intention is that this system will be up and running well before CoP16.

3   Project Partnerships

Project Partnerships

The project has been led by the Dr Fiona M. Underwood (FMU) at the University of Reading (UoR) with Mr Robert W Burn (RWB) as principal technical lead. The project partner is TRAFFIC East/Southern Africa (TESA) and their lead contact is Mr Tom Milliken (TM) who serves as the Director of ETIS and TRAFFIC global elephant conservation lead. Mrs Louisa Sangalakula (LS) who manages the ETIS database for TESA is also involved. TRAFFIC is the world's largest wildlife trade monitoring network and works in close collaboration with the CITES Secretariat to support the Convention. TRAFFIC's international headquarters are in Cambridge, U.K., whilst TESA is based in Harare, Zimbabwe.

The project was devised jointly with all project staff and arose out of a long-term collaboration between RWB, whilst working at the UoR, and TESA to develop ETIS since 1997. This successful engagement led to the recognition that a serious investment of resources was required to ensure the future sustainability of ETIS beyond the core individuals who have sustained its operation to date. The existence of a long-term collaboration has been a major strength in the project, providing a firm historical rooting and technical understanding of ETIS and allowing all staff to be involved in project planning and decision making from the outset.

A key challenge has been the time required to develop and build the new database. This was partly because we were able to include additional capabilities in the database, making it on-line and accessible to CITES Management Authorities, which had not been overtly planned for when writing the proposal. In addition, the database work was contracted out and because of different expectations of the subcontractors and the Darwin team, RWB, who had specific responsibility for the database development, became a co-developer. This led to RWB's time being more committed to this activity than expected; as originally envisaged, he was also to have operational oversight of the whole project plus time to develop the analytical framework. Adaptive management necessitated FMU taking over more operational responsibilities of the project, including more involvement in database development. Furthermore, both the sub-contractors and TESA were over-committed during this period with the result that further inputs of time were required by the UoR team to ensure project completion.

Although the initial database development was led by the UoR, with consultation and discussion with TESA, over time TESA have become more involved in the development and management of the new database and now, at the end of this project, TESA have full responsibility for the database and its future development. TESA have also been responsible for the development of the SOPs and the training from the start of the project. The development of the analytical framework was the responsibility of the UoR.

A particular achievement of the project has been that it has enabled the whole Darwin project team to become much clearer on the issues regarding the use of illegal ivory seizures data to learn about trends in the illegal ivory trade.

<u>Other Institutional Collaboration:</u>

The project has strengthened its link with the other global monitoring system for elephants under CITES known as Monitoring the Illegal Killing of Elephants (MIKE). At all joint meetings of the MIKE-ETIS Technical Advisory Groups during the course of this project (3 in total), the Darwin project has been presented and discussed as a formal agenda item. Solid endorsement of the project has resulted, and the integration and joint use of expertise and resources discussed and shared – such as a number of subsidiary databases, and a workshop assessing the drivers of illegal killing and illegal trade in ivory.

For the project to be successful, we have worked closely with the CITES Secretariat. Regular reports to the CITES Secretariat have been made at the annual CITES Standing Committee meetings through its MIKE-ETIS Sub-group and at the 15th Conference of the Parties in 2010. Active engagement of the CITES Secretariat has been required with regard to the project. The CITES Secretariat has: (1) provided a CITES endorsed web address for the on-line database; (2) agreed to play the important role of vetting and approving on-line data providers; and (3) agreed that the Terms and Conditions for the use of the database are appropriate. With their support it was also possible to arrange a showcase event of this project, and demonstrate the database, at the 62nd Standing Committee in Geneva, in July 2012.

All African and Asian elephant range states stand to benefit from this project. Direct engagement with the African Elephant Range states was obtained via the UNEP African Elephant meetings – in Nairobi, 2010 and 2012, where this project was described and discussed. The on-line database system was also presented to Asian elephant range States at a meeting of the MIKE Sub-regional Steering Committee meeting for Southeast Asia.

4. Project Achievements

The main achievements of this project , ETIS Phase II, are described in section 1 – the database, analytical framework, standard operating procedures and capability for increased participation in ETIS by CITES Parties – and will help CITES meet its objectives, as described in section 4.1 below.

4.1 Impact: achievement of positive impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

When this project was developed the log-frame's final goal was to support the implementation of the objectives of CITES. The sub-goal was that CITES policy is effective in significantly reducing global illicit trade in African and Asian elephant ivory.

This project has developed ETIS Phase II to ensure its long-term sustainability and to improve its ability to provide strong evidence to CITES on trends and patterns in the illegal ivory trade so as to assist CITES in decision making on elephants.

The new database provides TESA with mechanisms for more effective data entry and retrieval, data quality control and enhanced analysis and reporting of illegal ivory trade data. This enables ETIS to provide more relevant, accurate and pertinent information to CITES more rapidly.

The new on-line capability of the database provides CMAs with new mechanisms for reporting illegal ivory seizures to ETIS and reviewing and receiving any data that relates to their country on demand. In addition, country reports, previously produced once every two years, can be easily generated whenever required, including graphical representations of the data. Secure access to ETIS data may also enhance the investigative performance of law enforcement agencies, especially developing countries where information management is often poorly executed. It is expected that these facilities will increase participation of the CITES Parties in ETIS and lead to an increase in the quality and quantity of illegal ivory seizure records, thus providing a more accurate picture of the illegal ivory trade. Increased awareness on illegal ivory trade is also anticipated.

The new analytical framework provides more detail and nuance on patterns and trends in the illegal ivory trade. Looking at illegal ivory trade through the prism of weight classes by ivory type (raw and worked) effectively brings to life the underlying dynamics operating on both the supply and demand sides of trade. The roles and relationships of and between individual countries in the illicit ivory trade is far more vivid as a result of the Transaction and the Weight Indices that have been developed pursuant to this project. The production of simple indicators should assist CITES in understanding illegal ivory trade patterns clearly so that specific policy responses that address key dynamics or problematic countries can be considered and implemented. The generation of more robust results using peer-reviewed methods scales up acceptance for ETIS internationally and shields critical findings from political dilution and inaction.

With an increased and improved information base, CITES specifically, and the global conservation community more generally, are more informed about the illegal ivory trade and thus more able to make decisions to curb illegal trade and support elephant conservation.

4.2 Outcomes: achievement of the project purpose and outcomes

This project achieved its purpose and successfully delivered its outcomes. In all respects, delivery of ETIS Phase II has enhanced sustainability and greatly improved the operational integrity governing the collection, management, analysis and reporting of elephant product seizure data. Moreover, transparency and accountability with the CITES Parties moves to a new era in which access to the most up-to-date ETIS data relevant to their country is soon to be a reality. More robust analytical results serve to ensure that ETIS fulfils its promise of delivering accurate results on ivory trade patterns, highlighting countries and trade routes most heavily implicated in the illicit trade.

In more specific terms, ETIS Phase II software is now operational and TESA are using the software independently. They have entered over 1,000 new records and independently produced a major report to the 62nd meeting of the CITES Standing Committee – this is a major step forward as previously statisticians were required to assist in the production of a report of this calibre. Further, TESA staff can now rapidly respond to a broad range of queries on technical issues that previously needed external consultation to adequately answer. Assisting CITES Parties by rapidly assessing and packaging data for their benefit is now a part of the daily operation of the ETIS system. TESA staff are more empowered than ever before to move forward with ETIS with confidence and mindful purpose.

A new analytical framework to reduce biases inherent in the seizures data has been developed and applied to ETIS data to produce trends over time and identify countries and territories most heavily implicated in illicit ivory trade. The results of this analysis have formed the core elements of the ETIS report to CITES CoP16, and the report is available on the CITES website. This document will be presented as a formal agenda item at the March 2013 meeting in Bangkok, Thailand. Although it is premature to assess the reactions of the CITES Parties, the document does provide the key evidence to underpin and inform debates at the meeting regarding trade in elephant products.

Standard Operating Procedures have been developed and are being used to manage ETIS. The SOPs are being written up and this will be seen as a "live" iterative document that will be periodically augmented to reflect future developments in ETIS. Developing and documenting the mechanics of key procedures and the rationale underlying definitions and decisions concerning a wide range of operational aspects of ETIS not only serves to create a culture of continuity and sustainability, but also transparency and accountability for the system. These SOPs serve the purpose of filling a major gap in the operation of ETIS.

The new database software includes the capability for all CITES Management Authorities to enter and access their data on-line all of the time. Making ETIS data available to designated individuals in each country affords an immediate and permanent feedback loop with the Parties. It is our expectation that this will improve participation of the Parties in ETIS as they are not just 'giving' data, but actually getting something back whenever they need it. The software is poised and ready for its official launch once translation into French is completed.

4.3 Outputs (and activities)

The outputs identified in the logical framework were achieved.

Output 1: ETIS Phase II software, developed, installed and in use

The new database software has been developed and installed and is now in use by TESA. To improve sustainability, it has been written using open-source software. Details of the capability of this database are provided in section 4.5. The existing ETIS database was fully reviewed, as was the information required when submitting an illegal ivory seizure record. Some fields were identified as obsolete, whilst others had new fields added. Existing records (all 17,000 of them) were updated to meet the new requirements. Additional staff were recruited to assist the ETIS Administrator in this task. Use of the database is described in section 4.2 above.

Output 2: Improved analytical framework for assessing and reporting trends of illicit trade in ivory adopted and implemented

The analytical framework has been completely revised to take advantage of recent developments in statistical methods. In particular, a method to reduce the biases inherent in seizures data has been developed. Indicators (Weights Index and Transactions Index) of the trends in illegal trade have been produced and used in reporting to CITES. Details of the new analytical framework are provided in section 4.5. Papers have been written and are being prepared for submission to peer-review journals.

Output 3: Enhanced measures for supporting the long-term sustainability of ETIS in place and functioning

Standard Operating Procedures (SOPs) have been developed and are in use. These procedures follow the flow of data from the occurrence of a seizure to the production of reports and analyses. New procedures for data quality control have been developed, including the writing of an R program to carry out a series of automated statistical checks. Procedures for managing the records entered by CMAs directly into the database have also been introduced. The SOPs are being written up and now form a substantial document. Because of the additional time taken to develop the database, a further round of internal revision is required before they can be submitted to external testing and review. Additional funding has been found to ensure this work is completed.

Output 4: National CMAs' capacity for tracking and reporting illegal trade in elephant products in fulfilment of CITES requirements for participation in ETIS enhanced

We have improved the capability of CMAs to report to CITES. Our solution to this was much more ambitious than we had initially conceived at the time the proposal was written; originally it was to provide further training of the existing system and for the new database to remain a system accessible only by the TESA staff. However, we decided that the new database software should be on-line and accessible to CITES-approved Data Providers. Details of this capability are described in section 4.5. Because of this major change, we focused on creating new training material specifically a new on-line module on how to use the new on-line database. This will be made available to CITES Parties via the resource section of the on-line database and in training events. A workshop was held that used the new training module to train 12 people from 10 CITES Parties to use the new database

4.4   Project standard measures and publications

Technical achievements:

The software enables CITES-approved CMAs (known as Data Providers) to directly enter and access seizure records and enables TESA staff (the ETIS System Administrator) to carry out sophisticated summaries for reporting to CITES. Particular features of the database are described below with SA or DP initials describing whether the capability is for the System Administrator – based in TESA – or the CITES approved Data Providers:

Data Entry:

- Multiple data entry mechanisms for CMAs – including direct entry into the on-line database for CITES-approved Data Providers (DP)

- Ability to upload multiple records at once using Excel Template (SA and DP)

- Ability to translate records submitted by a CMA using their standard reporting template into the ETIS Excel Template to directly upload into ETIS – previously each record had be re-entered into the database (SA)

Data Management:

- Mechanism to manage and validate records submitted by DPs to check for duplicates (SA)

- Comprehensive procedures for data quality control (SA)

- Audit log (SA)

Reporting:

- Rapid and bulk production of country reports (previously it could take several hours to produce one report) and make available on-line to CITES-approved Data Providers (SA)

- Production of a number of detailed summary statistics required for particular reporting summaries (SA)

- Downloading of sets of ETIS records and additional R programs to create additional summaries of these records (SA)

- Ability to access data on-line and download (DP)

- Ability to download additional resources, reports and training resources on-line (DP)

Additional Features:

- Capability to operate in English, French and Spanish (CITES official languages) once translations have been provided (DP)

- DropBox capability for sharing files and resources (SA)

- Subsidiary database – management, updating and retrieval of information (SA)

- Installation of a mini-server in the TESA office to act as a buffer between the ETIS SA's computer and the remote server on the internet – the idea is to smooth the work-flow with an unreliable internet connection. The server was purchased by project funds. (SA)

Scientific achievements:

The development by UoR of the completely revised analytical framework. The framework uses Bayesian hierarchical latent variable models (BHLVMs) to identify and model important sources of bias in illegal ivory seizures data. Key features of the analytical framework include:

- New bias-adjusting methods to account for variable seizure and reporting rates by individual countries over time

- Better smoothing of bias-adjusted estimates of trends

- Disaggregation of the data to consider separate trends for raw and worked ivory seizures in three weight classes (less than 10kg, 10kg to less than 100kg, at least 100kg).

- Production of a Transactions Index – estimating the relative smooth bias-adjusted trend in number of illegal ivory trade transactions over time, between countries and ivory classes

- Production of a Weights Index estimating the relative smooth bias-adjusted trend in the total weight of illegal ivory over time

These methods have been written up as two publications – a methods paper and a results paper – and are being prepared for submission to peer-reviewed journals.

Furthermore, the methods have been presented in presentations at the Royal Statistical Society Annual Conference 2012 and in seminars at the University of Reading, the University of Bath and Imperial College (Feb 2013).

We are not aware of any other statistical methodological development for reducing the biases in seizures data (of any illicit product) to learn about trends in illicit trade. We hope that the methods we developed here not only prove useful for understanding the illegal ivory trade, but could also be applied to data on seizures of other wildlife products and other illicit goods, such as drugs.

4.6 Capacity building

There were a number of different areas where capacity building of TESA, in particular the ETIS administrator has been provided. First, the new ETIS database software is managed by TESA and has required the ETIS administrator to learn lots of new skills to run this effectively. In addition to learning a new system for carrying out existing tasks, the new software produces a greater collection of reports of illegal ivory seizures data than previously. Furthermore data can be entered into the software in a number of new ways, including the use of Excel templates, and supplementary data for use in data analysis is also now entered into the database. Because the database is online and CMAs will be able to enter their own records directly into ETIS, there is a further requirement for the ETIS administrator to manage these records and interactions with the CMAs. Second, the whole process by which ETIS obtains records, quality controls them and produces outputs was overhauled and updated thus requiring further training in these areas.

Capacity building for learning to use the new database was achieved by ensuring that TESA staff were fully involved in the development of the new database software. TESA provided input into the new software design and tested and helped refine the database; in this process they learnt how to operate the various parts of the system. Detailed capacity building on both the database, and general operational procedures was provided by visits by UoR to TESA and followed up by Skype and email support.

Furthermore, the responsibility for the management of further development of the ETIS software has passed to TESA. There were many discussions between TESA staff and UoR during the main development about the best way forward and this has been noted and discussed. The software developers used a program called Assembla for project management of the new database software and the whole Darwin project team learnt to use this during the development of the software. Thus, TESA staff are fully able to continue to interact with the software developers in the future to ensure its long-term development and support.

In addition to increasing the capacity of TESA staff, one of the objectives of the project was to improve the capacity of CITES Management Authorities to participate in ETIS. This was directly tackled by the development of the on-line capability of the ETIS software to enable CMAs the ability to enter and access their seizure records on-line. The database software therefore has extensive on-line help, written by TESA, on how to use the system. In addition, a new training module has been developed and tested and will be made available to CMAs. A training course for 10 Africa Elephant range states was carried out in September 2012 which used this new training module.

Evidence that TESA staff now have capacity are that TESA have: (1) used the database to independently enter over 1,000 new records in a much shorter time than would have been possible using the old database; (2) produced reports to CITES 62nd Standing Committee using the new database; (3) written much of the content of the SOPs; (4) continued working with the developers to further improve the ETIS database beyond the scope of this project; and (5) played a major role in developing and giving the training workshop to CMAs.

4.7 Sustainability and Legacy

Sustainability

A key focus of this project is to make ETIS sustainable so that at the end of the project there is a continuing mechanism for data collection and management. Other outputs provide standard methodologies for the producing pre-determined reports and analyses, especially for CITES reporting purposes and for individual countries.

A particular concern that motivated the project was that the previous ETIS was dependent on only three individuals – all of whom have been involved in the current project. An aim of the project was to remove this dependence in ETIS Phase II.

To that end, the database has been developed in an open-source software framework, and standard operating procedures have been produced to ensure that ETIS operations can continue independently of the existing Darwin project team. These standard operating procedures will include the statistical programs required to produce indicators for reporting to CITES, as well as all procedures that the TESA office follows. Furthermore, analytical methods will be documented in peer-reviewed literature and thus available for the scientific community as a whole.

Legacy

The whole project has focused on providing new software, procedures, training and analytical methods for ETIS. Hence we expect all outputs to endure at least as long as CITES requires ETIS and provide a strong foundation for further development.

The open-source database is essential to the operations of ETIS and has already been vital for meeting ETIS' requirements to report to CITES at COP16. Further developments of the ETIS database, both for the ETIS administrators and the CMAs have already been discussed. TRAFFIC has already found some funding for some small updates to the system and to ensure on-going support by the developers as roll-out of the on-line capability is launched. TRAFFIC is actively seeking funding for future developments.

The launch in the next couple of months of the on-line capability of the database to enable CMAs to access and enter their data on-line is a new departure for ETIS and is a major legacy of the project. In particular TRAFFIC have sought additional funding to translate the database into French to enable Francophone and Anglophone CITES Parties to actively participate in the launch. We expect participation by CMAs in this new system to increase over the next few years as internet access improves. Countries without good internet access will also benefit by improved methods of reporting seizures to ETIS – using Excel templates – and the ability for TESA to provide rapid reports when requested. The development of the training module explaining how to use the on-line database facilities will form part of the legacy in using the system. The importance of this improved and rapid on-line access has been demonstrated by the very favourable reviews as described in section 5.

The analytical methods developed in this project provide a new approach to accounting for biases in seizures data. We are already discussing with holders of records of seizures of other wildlife products how the methods could be adapted for other species. In addition, the methods developed here can be further refined.

The SOPs describe the procedures that TESA need to follow to manage ETIS and ensure that it can continue independently of existing staff. The SOPs will be maintained as a live document and adapted as the system changes. Some additional funding is available and further funding is now being sought for a thorough review and testing of the SOPs by TRAFFIC International staff and for a professional layout of the document.

TRAFFIC continues its efforts to fundraise for ETIS. During the course of this project, the U.S. Fish and Wildlife Service's Elephant Conservation Fund and China's International Fund for Elephant Conservation have agreed to provide funding for the operation of ETIS. Another proposal that would provide funding to both MIKE and ETIS is currently being vetted by the European Union. In each of these proposals the Darwin Initiative work has been described. With the completion of this Darwin Initiative project, TRAFFIC will engage in other fundraising activities that directly build upon aspects of this project to make further improvements and affect other innovations.

The capital equipment bought for the project remains with TESA as this is required for the future running of ETIS.

Partners will keep in touch. A major aim of the project was that the current staff, in particular the statisticians would not be required for routine use and reporting of ETIS data. This objective has been achieved and so less communication between UoR and TESA is expected on these issues, although in the short-term we are providing support on particular issues if required. However, there is interest in building on the analytical framework developed here to address other questions that CITES has, in particular the identification of trade routes and the role of CITES decisions in trends in the illegal ivory trade.

5 Lessons learned, dissemination and communication

Lessons learnt:

The database development was very challenging and took longer than expected. A difficulty was that ETIS needed to remain operational and had reporting requirements whilst the new system was being developed. The first issue was that there was a six-month backlog of records that built up because the old database was obsolete and the new database not quite ready. Once it became available, TESA were required to dedicate their time to entering the new records. One aspect of the database development that was not foreseen was the depth of the involvement of the UoR team in the software development, to the extent that the contracted developers saw our team as "co-developers" rather than clients. In the event, this way of working was quite effective – we simply had not planned for it.

Another lesson was that human resources had to sometimes be diverted away from other aspects of the project because major reports were required (comprehensive analyses to CoP15 and, CoP16 and update reports to the 61st and 62nd CITES Standing Committee meetings). These reports required considerable time from the TESA staff, and, for CoP16, the UoR team as well. Although the CoP16 and Standing Committee 62 reports were excellent vehicles for testing out the new analytical framework, other aspects of the project suffered slightly – in particular the time available for writing up the SOPs was somewhat limited.

The idea of making the whole of the analytical framework to be a fully automated system not requiring interventions from statisticians, was somewhat too ambitious. That said, the stand-alone functionality of ETIS Phase II is greatly improved and although technical statistical inputs will be required from time to time, much more can be accomplished without them than with the old system.

Dissemination:

So far, the project achievements have been disseminated to the media, policy makers, CITES Management Authorities, conservationists, scientists working in conservation and statisticians via:

1) Presentations about the new on-line database and the project as a whole to:

     a) Policy makers, conservationists and scientists at the CITES 62nd Standing Committee launch event

     b) African Elephant Range State delegates at UNEP 4th African Elephant Meeting

     c) Future Data Providers from ten African Elephant Range States at a training workshop on how to use the new ETIS database

     d) Future Data Providers from nine Asian Elephant Range States at a MIKE Sub-regional Steering Committee Meeting for South East Asia

     e) MIKE-ETIS Technical Advisory Group Meetings (2009, 2010, 2012)

     f) MIKE-ETIS Subgroup of the CITES Standing Committee (2011, 2012)

2) Presentations on the analytical framework:

     a) Talk at the Royal Statistical Society Annual Conference (2012)

     b) Invited seminar to statisticians at Bath University (2012)

     c) Seminar to statisticians and mathematicians at University of Reading (2012)

d) Poster to scientists and policy makers at Planet under Pressure (2012)

e) Poster to statisticians at Time for Causality Workshop (2012)

3) Reports on the results of applying the analytical framework to ETIS data to:

a) CITES 62nd Standing Committee (2012)

b) CITES 16th Conference of the Parties (CoP16)

c) U.S. Fish and Wildlife Service (2012)

d) German Ministries for Environment, Development Cooperation and GIZ and KfW (2012)

e) CITES Stakeholder consultative elephant meeting in Brussels (2012)

4) Updates published in Pachyderm regarding progress of the Darwin Initiative – for those working in elephant conservation

5) Press releases by TRAFFIC International and University of Reading regarding

a) the Standing Committee event

b) the report to COP16

6) A leaflet describing the new database and distributed at the showcase event at the 62nd Standing Committee

7) Dr Underwood has a twitter account and webpage where she announces press releases and reports

Future Dissemination

The launch of the global database for use by CMAs will be a major dissemination point for the project; a CITES notification of the Parties will be distributed and both the University of Reading and TRAFFIC International will provide press releases.

Further dissemination of the statistical methods and results by additional peer-reviewed papers and presentations will be carried out. The Royal Statistical Society has requested an article on the analytical methods for their popular "Significance" journal and have discussed the possibility of a meeting on the topic at their headquarters. We are also talking with the University of Reading Press Office about further publicity.

We also hope to write an article for the Darwin Newsletter and to produce a brief website on the project outcomes.

5.1 Darwin identity

The Darwin Initiative has been specifically acknowledged in all work that it has funded with respect to this project. In all presentations listed in section 5 above (items 1,2 and also 6), both the logo and an acknowledgement of the Darwin funding was given. All reports listed in section 5 above acknowledge the funding of the Darwin Initiative in the work.

Outputs of the project have included the logo and acknowledgement of Darwin funding. Specifically the Darwin logo has been included:

1) Alongside logos for TRAFFIC International, University of Reading and CITES in the footer for the new ETIS on-line database (etis.cites.org). In addition, under the legal notices for this project it states:

The development of this database was funded by United Kingdom Government's Department of Environment, Food and Rural Affairs (Defra) pursuant to a Darwin Initiative grant with the University of Reading in collaboration with TRAFFIC.

2) In the new training module and in the letter inviting participants to the training workshop in South Africa 2012.

3) In the ETIS Standard Operating Procedures Manual acknowledgements of the Darwin funding and logos are given.

The Darwin Initiative Project has been presented as a distinct project with a clear identity with specific objectives. However, in the long-term because it is enhancing an existing information system, ETIS, it will be viewed as part of this project.

The host countries in this case are all CITES Parties that are elephant range states. These countries will be aware of this project via the database where as stated above the Darwin logo is found and in presentations described above which include the logo.

6 Monitoring and evaluation

<u>Major changes in project design</u>

The most major change in the project design was the fact that the new database software included the capacity for CMAs to enter and access their data directly on-line. In the long-term this better enables us to meet the fourth output of the project – enhanced capability of CMAs to participate in ETIS. However, in the short-term, that is the length of this project, this participation could not be observed because the time was spent on developing the new software and training material, which is due to be launched in early 2013.

<u>Monitoring</u>

External monitoring of the project was carried out by two groups:

1. The ETIS Technical Advisory Group

We met with the ETIS TAG at each physical meeting (3 in total) to present the current status of the project, to seek advice and present particular items for approval. In addition, TM corresponded with the TAG seeking comments and approval for specific items – in between these meetings to ensure that the project was not delayed without this correspondence. The ETIS TAG members all reviewed the analysis presented to CITES CoP16, which in effect constituted a peer-review function and resulted in endorsement of the analytical framework that underpinned the analysis. A final summary of the achievements of this project has been sent to the TAG.

2. Our Project Monitoring Group (Prof EJ Milner-Gulland, Mr Rognvald Smith, Dr Sara Oldfield)

We met with the PMG three times during the course of the project – after 6 months, 18 months and at the end of the project. Their comments during the project helped us think through a number of issues regarding particular aspects of the project. At our final presentation their main comment was that the project seems to have been successful in delivering what it set-out to do and we should investigate the possibility of the methods being of use in other illegal goods, for example the illegal timber trade;.

<u>Evaluation of our work:</u>

We received evaluations from the TAG and the PMG regarding specific items which helped us further develop our analytical framework and database in particular – this feedback is noted in TAG minutes. The TAG also reviewed our report to CoP16 and along with comments regarding some improvements to the project we received positive feedback – for example "Another excellent piece of work." "As usual, the report was excellent" "As ever, an extremely thorough, fascinating and convincing report."

Our COP16 report was also reviewed by TRAFFIC through their final clearance process. Of particular note was their enthusiastic support of the analytical framework: "Overall, a great piece of work — I like the new analyses in particular".

The beta version of the ETIS database was extensively tested. Testers feedback again, helped us improve the database and were generally very positive – for example "This is a very good initiative, and will be of great benefit to Parties. It would be good to begin discussions on how to link this data with other CITES data, etc." "This is a fantastic on-line database"

Feedback on the final database was obtained from presentations of the database software at UNEPs 4th African Elephant Meeting, the event at CITES' 62nd Standing Committee and the training workshop. This feedback was very positive. For example: "A very nice training workshop because in two days I learned a lot of vital things that are useful to perform my job better in the future" "Very participatory and informative". In addition, this feedback also provided suggestions of where the next round of developments could be focused.

In addition, our analytical framework was presented to a number of statistical audiences. These were all encouraging in their responses and raised questions that led us to further clarify our methods when writing up. The overall impression given was that we had undertaken was comprehensive in tackling the issues that arose.

6.1 Actions taken in response to annual report reviews

Only one point was raised in the review of the first annual report (09/10). This issue was addressed in the following annual report. All reviews were discussed with our partners.

7 Finance and administration

7.1 Project expenditure

Budget Line	Budget	Expenditure	Variance	Explanation
Overheads	XXX	XXX	XXX	
Travel & Subsistence	XXX	XXX	XXX	Travel paid from other budgets to account for increase in programmer costs *.
Operating Costs	XXX	XXX	XXX	Reduced budget for training workshop & to account for increased programmer costs *, and no printing of SOPs.
Capital Equipment	XXX	XXX	XXX	Reduction in computing equipment to account for increased programmer costs
Other Costs – Programmer for database development	XXX	XXX	XXX	Increased cost as permitted and explained in change request form*
Salaries	XXX	XXX	XXX	
Fiona Underwood	XXX	XXX	XXX	
Bob Burn	XXX	XXX	XXX	
Tom Milliken	XXX	XXX	XXX	
Total	XXX	XXX	XXX	

Changes in the budget are mainly due to the budget for software development (once VAT is included) being more than originally budgeted for. Hence there has been a reduction in a number of other parts of the budget.

Capital Equipment: Printer/Scanner (825), Laptop (2000), Desktop (1000), Server (black box) (905), Computer Parts (384), UPS (912).

7.2 Additional funds or in-kind contributions secured

Financial contributions that served to advance outputs of and publicity for this project included:

- Translation of ETIS Action Toolkit into Thai, Burmese – USD3,000

- Funds for the ETIS analysis – USD12,000

- Costs of travel to TAGs (FMU/BB – Apr 2012) - (USD3,000)

- Consultancy for workshop assessing drivers of illegal killing of elephants and illegal trade in ivory (December 2010) - USDXXX

- Costs of travel to CITES Standing Committee Meetings (TM Aug 2011) – USD2,800

- Costs of travel to CITES Standing Committee Meeting (TM July 2012) - USD 2,800

- Consultancy to produce leaflet on Darwin Initiative Project for CITES Parties – USD3,000

Funds to continue with aspects of the project have been found and include (1) translation of the database into French (USD1,900); (2) on-going support and improvement of the database software (USD5,000); (3) editing, review, layout of SoPs (approximately USD9,000).

Staff Costs

TESA Staff Costs

Over the last three years, TESA's Louisa Sangalakula (the ETIS System Administrator) spent at least 33% of her time working on this project, which is valued at USDXXXX over the life of the project. Her time was entirely covered by the core TESA budget.

University of Reading staff costs

Over the course of the project about 13% of the project leader (Fiona Underwood) was paid for, but she spent at least twice this on the project, most of which was in the final year of the project. This is valued at over £XXXX on salary alone

In Kind accommodation

Accommodation for both FMU and RWB in Zimbabwe and TM in Reading on some trips (in total about 20 days) was offered by the other.

7.3 Value of DI funding

Apart from the initial investment to design the original database system, ETIS has never benefitted from funding to support further technical development. The methods used for assessing the ETIS data have also never benefitted from a protracted period of exploratory analysis and modelling to perfect the statistical outputs. Until this project, most resources had been directed at basic management and operational functions and production of the CITES-mandated reports. Without this Darwin funding it would not have been possible to:

1. develop the new database system with its capacity for improved and increased reporting and its on-line facilities for all countries to enter and access their own data;

2. assess the entire ETIS system critically to improve data collection, management and feedback services to the CITES Parties;

3. develop a new thorough analytical framework, with methods that we hope could be adopted for understanding seizures of other illicit goods; and

4. to develop the training resources to assist countries using the on-line ETIS facility.

Annex 1   Report of progress and achievements against final project logframe for the life of the project -

Project summary	Measurable Indicators	Progress and Achievements over life of the project
Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.		This project ensures the long-term, sustainability of ETIS, mandated by CITES Resolution Conf 10.10 and the project has outlined the long-term direction of ETIS.
Purpose Development of ETIS Phase II: Enhanced and sustainable collection, management, analysis and reporting of seizure data for the Elephant Trade Information System (ETIS) to monitor illicit trade in ivory as mandated by CITES.	a) ETIS Phase II database operational by end of project. b) Analytical framework is in place. c) Standard Operating Procedures adopted by TESA. d) Improved reporting of seizures in majority of targeted countries.	a) The database is operational, approved by the MIKE-ETIS TAG, and has enabled TESA to enter data and produce major reports to CITES and other bodies without support from other technicians. b) The analytical framework is in place and applied to ETIS data. The results of this analysis have been presented in a report to the 16th Conference of the Parties and have been approved by the TAG. c) Standard Operating Procedures are in place and being used to manage ETIS. The SOPs are now seen as a "living" iterative piece of work that will periodically be augmented as the ETIS develops further. d) The on-line database accessible to all CITES Management Authorities has been developed and is close to launch (once translation into French is complete). A training module on its use has been developed. This provides a mechanism for countries to improve their participation in ETIS.
Output 1 1. ETIS Phase II software program developed, installed and in use.	1a. New database designed and functional specification written. 1b. Available software platforms reviewed and evaluated. 1c. Software developed. 1d. Software installed and in use. 1e. Train TESA staff in use of software.	1a. Database designed and functional specification written, reviewed by TESA and accepted by the MIKE-ETIS TAG 1b. Available software platforms reviewed and evaluated in report – submitted for 2009/10 Annual Report 1c/d Software developed, installed and in use. It has been demonstrated to and approved by the TAG. 1e. Staff have been trained in the use of the software and are now using it independently. Over 1,000 new records have been entererd into the new database using all the different available formats as appropriate. TESA

Project summary	Measurable Indicators	Progress and Achievements over life of the project
		used the database to produce all of the data summaries and graphics in the report to the 62nd CITES Standing Committee without recourse to outside assistance from statisticians as had previously been the case. Further reports, for example country reports, have also been produced as requested, and various queries of these data have been done that previously were not possible to do. Furthermore, TRAFFIC staff have trained potential users of the system (see activity 4.4)
Activity 1.1 Review existing database software.		Completed by RWB and revised after receiving comments from TESA in 1st FY
Activity 1.2 Prepare functional specification of new database.		Completed and approved by the TAG and used when tendering for software developers. It defines the final software that has been developed
Activity 1.3 Evaluate available software platforms.		Completed in consultation with software developers. Ruby on Rails platform was chosen
Activity 1.4 Design and produce the software.		An alpha test version was completed in March 2011 and a beta test version in December 2011
Activity 1.5 Install and test the software.		Software was installed on a dedicated secure server and was tested both internally by the Darwin project team and externally by potential users of the system and the CITES Secretariat. Reports from 12 testers around the world were received. These were generally very positive and provided important feedback to improve the system.
Activity 1.6 Revise the software.		The software was revised based on the feedback provided and signed off as completed with regard to the Functional Specification under this project. The database is installed on a TRAFFIC server and available at the CITES-approved web address etis.cites.org
Activity 1.7 Train TESA staff in using the new software.		Staff have been trained in the use of the software as it develops and are using it operationally as described under Output 1e above.
Output 2. 2. Improved analytical framework for assessing and reporting trends of illicit trade in ivory adopted and implemented.	2a. Methodology for future analysis to produce bias-adjusted indicators of illegal ivory trade developed and tested.	(2a) Methodology has been developed and used to analyse ETIS data. Methodology has been presented to the 5th meeting of the ETIS Technical Advisory Group (TAG) and approved. Two papers have been written and are in the process of being submitted to peer-reviewed journals

Project summary	Measurable Indicators	Progress and Achievements over life of the project
	2b. Recommendations drafted for a reporting framework and indicators to assist CITES in policy making. 2c. Recommendations for country specific reports developed. 2d. Software tools for reporting developed. 2e. TESA staff trained in use of reporting tools.	2b) Reporting framework and indicators have been identified – Transactions Index and Weights Index. Reporting framework has been used to produce the ETIS report to CITES 16th Conference of the Parties which was reviewed and approved by the TAG prior to submission to the CITES Secretariat. 2c) Country specific reports have been developed and approved by the TAG and demonstrated and approved by African Elephant range States at the 4th African Elephant meeting (UNEP). The database and the reporting framework were also demonstrated to: CITES Secretariat, CITES Parties attending the 62nd Standing Committee; future Data Providers from 10 African Elephant range States at a training workshop (activity 4.4) and to CITES authorities in 9 Asian Elephant range states at a MIKE Sub-regional Steering Committee for Southeast Asia. 2d) Software tools for reporting are integrated into the new database software. In particular a number of statistical reports can now be produced by the database. To implement the bias adjustment R programs have been written and documented for statisticians to use. Other programs have been integrated into the system for rendering weight values into "raw ivory equivalent" terms. 2e) TESA staff have used the reporting tools to produce all of the report to the 62nd CITES Standing Committee and to assist particular countries with specific queries about the data.
Activity 2.1 Choose indicators and summar measures for ETIS outputs and identify variables (both in the ETIS database and from secondary sources) that contain information about them; identify sources of bias		Completed. Sources of bias and relevant variables have been identified and data obtained.
Activity 2.2 Analyse existing data to evaluate statistical methods for producing bias-adjusted indicators.		Methodology has been developed and applied to ETIS data.
Activity 2.3 Design the new ETIS reporting framework.		Reporting framework has been designed and implemented in ETIS' report to CITES 16th Conference of the Parties
Activity 2.4 Write two papers on methodology to submit to peer-reviewed journals.		Papers have been written and are in the process of being submitted for peer-review.
Activity 2.5 Write software for producing the indicators.		Software has been written to produce indicators.

Project summary	Measurable Indicators	Progress and Achievements over life of the project
Output 3. Enhanced measures for supporting the long-term operational sustainability of ETIS in place and functioning.	3a. Standard Operating Procedures (SOPs) for use of ETIS framework. 3b.TESA staff trained in use of ETIS SOPs.	3a) SOPs have been developed. A first draft of the SOPs manual has been produced and a second round of revision is in process before submission to internal and external review including the TAG. Additional funding has been found to fund this. 3b) TESA are now using the SOPs to produce ETIS reports as listed in Output 2 above.
Activity 3.1 Analyse and review all ETIS operations.		This was completed in FY1.
Activity 3.2 Draft a Manual of Standard Operating Procedures (SOPs).		This activity together with 3.3 and 3.4 occurred simultaneously as much of the SOPs content was written as the new database software was developed
Activity 3.3 Revise the Manual in the light of Output 1.		See comment under activity 3.2
Activity 3.4 Submit SOPs to TAG and revise as required.		The structure of the SOP document was approved by the TAG in April 2012. SOPs require a further round of revision before submitting to the TAG for approval. We view the SOPs as a living document that will continue to be revised and updated as ETIS progresses.
Activity 3.5 Train TESA staff in use of SOPs.		Training was carried out by UK team for some parts of the SOPs on visits and via Skype. Further training has been carried out by TESA staff writing the SOPs themselves.
Output 4. National CITES Management Authorities capacity for tracking and reporting illegal trade in elephant products in fulfilment of CITES requirements for participation in ETIS enhanced.	4a. Priority elephant range States where training most needed identified. 4b. Review and update existing training materials. 4c. Training programmes undertaken. 4d. Report on training written and submitted to TAG.	This project has been more ambitious with respect to this output than the original indicators stated here. In particular, it is not just that the training materials for using ETIS have been updated. More importantly, the new database software (Output 1) was designed to change the way in which CITES Management Authorities (CMAs) can participate in ETIS. The software enables CMAs online access to the database so they can access their data and enter new records directly into the database. Previously CMAs submitted their records and asked for reports of their data from the ETIS administrator This new facility will be launched in early 2013 once translation of the database into French has been completed. 4a) Priority Range States were identified for training under the matched funding.

Project summary	Measurable Indicators	Progress and Achievements over life of the project
		4b) A new module was produced in English on how to use the new database software. In addition, the ETIS toolkit was translated into other languages.
		4c) Under the matched funding China, Thailand and Cameroon were trained in 2010-2011. Using Darwin Initiative funding a training event was carried out in September 2012 to train 12 CMA staff from 10 African Elephant range states in the use of the new database. Feedback on the training and new system was very positive but no statistics on reporting are yet available because the system has not yet been launched.
Activity 4.1 Identify range states with greatest need of training.		High, medium and low priority countries were identified as detailed in the first annual report.
Activity 4.2 Review existing training materials.		An in-house review of ETIS training materials – the ETIS Action Toolkit was conducted. It was proposed that the existing ETIS Action Toolkit was translated into Thai (under the matched funding) to assist in meeting Ouput 4a. A new module on the use of the new database was proposed.
Activity 4.3 Produce training materials.		The new module on the use of the new database has been completed and approved by the TAG.
Activity 4.4 Undertake training in key countries.		A 2.5 day training course for 12 staff from 10 African Elephant Range states was carried out in South Africa. This training course tested out the new module in the ETIS Action Toolkit on how to use the new ETIS database for entering and accessing their countries data.
Activity 4.5 Prepare training report and present to TAG.		A brief report on the training was submitted to the TAG.

Annex 2 Project's final logframe, including criteria and indicators

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal: CITES policy is effective in significantly reducing global illicit trade in African and Asian elephant ivory.	a) Vulnerable elephant populations stabilised. b) Declining trend in illegal trade in ivory. c) Reduction in illegal killing of elephants for ivory.	a) African Elephant Database (IUCN/SSC African Elephant Specialist Group); National elephant status reports in elephant range States. b) ETIS reports (TRAFFIC). c) MIKE reports (CITES Secretariat).	
Purpose Development of ETIS Phase II: Enhanced and sustainable collection, management, analysis and reporting of seizure data for the Elephant Trade Information System (ETIS) to monitor illicit trade in ivory as mandated by CITES.	a) ETIS Phase II database operational by end of project. b) Analytical framework is in place. c) Standard Operating Procedures adopted by TESA. d) Improved reporting of seizures in majority of targeted countries.	a) Validation and approval of ETIS Phase II, database, analysis and reporting, by TAG. b) Comprehensive ETIS analyses presented and accepted at CITES Conference of the Parties. c) Changes in staff do not inhibit operation of ETIS. d) Seizure reporting rates to ETIS improved and gaps in historical data filled.	The mandate for ETIS remains in effect. CITES support for ETIS TAG continues CITES Management Authorities remain engaged and strive to improve performance

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Outputs 1. ETIS Phase II software program developed, installed and in use.	1a. New database designed and functional specification written. 1b. Available software platforms reviewed and evaluated. 1c. Software developed. 1d. Software installed and in use. 1e. Train TESA staff in use of software.	1a. Functional spec. reviewed by TESA and accepted by TAG. 1b. Report on likely sustainability of each option. 1c/d. Installation tested; report on its use prepared by ETIS operator and validated by TAG members. 1e. TESA staff independently using software.	
2. Improved analytical framework for assessing and reporting trends of illicit trade in ivory adopted and implemented.	2a. Methodology for future analysis to produce bias-adjusted indicators of illegal ivory trade developed and tested. 2b. Recommendations drafted for a reporting framework and indicators to assist CITES in policy making. 2c. Recommendations for country specific reports developed. 2d. Software tools for reporting developed. 2e. TESA staff trained in use of reporting tools.	2a. Methodology approved by TAG and paper submitted for publication. 2b. Recommendations accepted by TAG 2c. Recommendations accepted by TAG and positive feedback from elephant range states. 2d. Software installed and tested. 2e. TESA staff produce CITES and country reports.	TAG accepts the recommendations on methodology.
3. Enhanced measures for supporting the long-term operational sustainability of ETIS in place and functioning.	3a. Standard Operating Procedures (SOPs) for use of ETIS framework. 3b.TESA staff trained in use of ETIS SOPs.	3a. SOP manual approved by TAG and used by TRAFFIC. 3b. Performance evaluation of staff demonstrate effective use of SOPs.	

Project summary	Measurable Indicators	Means of verification	Important Assumptions
4. National CITES Management Authorities capacity for tracking and reporting illegal trade in elephant products in fulfilment of CITES requirements for participation in ETIS enhanced.	4a. Priority elephant range States where training most needed identified. 4b. Review and update existing training materials. 4c. Training programmes undertaken. 4d. Report on training written and submitted to TAG.	4a. Assessment reports from ETIS highlight elephant range States and other key countries with poor law enforcement effort ratios. 4b. Final training materials produced in appropriate languages. 4c. Rate of reporting seizures to ETIS by target countries improves following training; law enforcement effort ratio improves; backlog elephant seizure data submitted to ETIS. 4d. Training Report accepted by TAG.	4a. CITES Management Authorities embrace training and include cross-sectoral law enforcement authorities as participants. 4b. Suitable trainers with requisite language skills identified and engaged for training events.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Activities (details in workplan)			

1.1 Review existing database software.

1.2 Prepare functional specification of new database.

1.3 Evaluate available software platforms.

1.4 Design and produce the software.

1.5 Install and test the software.

1.6 Revise the software.

1.7 Train TESA staff in using the new software.

2.1 Identify indicators and data required for them.

2.2 Analyse existing data to evaluate statistical methods for producing bias-adjusted indicators.

2.3 Design the new ETIS reporting framework.

2.4 Write two papers on methodology to submit to peer-reviewed journals.

2.5 Write software for producing the indicators.

3.1 Analyse and review all ETIS operations.

3.2 Draft a Manual of Standard Operating Procedures (SOPs).

3.3 Revise the Manual in the light of Output 1.

3.4 Submit SOPs to TAG and revise as required.

3.5 Train TESA staff in use of SOPs.

4.1 Identify range states with greatest need of training.

4.2 Review existing training materials.

4.3 Produce training materials.

4.4 Undertake training in key countries.

4.5 Prepare training report and present to TAG.

Project summary	Measurable Indicators	Means of verification	Important Assumptions

Monitoring activities:

Indicator 1: Visits by UK partners to work with host region partners in assessing (a) the new system, and (b) the effectiveness of staff.

Indicator 2: Presentation of methodological ideas for scrutiny in scientific and other technical forums, both in UK and the host region.

Indicator 3: On-going monitoring by TESA Director of development and adoption of SOPs by TESA staff.

Indicator 4: Feedback from trainees after each training event; regular recording of ETIS indicators that measure participation and law enforcement effort.

Annex 3 Project contribution to Articles under the CBD – not provided as this project relates to CITES not CBD

Annex 4 Standard Measures

Code	Description	Totals (plus additional detail as required)
Training Measures		
4d	Number of training weeks for postgraduate students	24 weeks – two UK MSc projects supervised
6a	Number of people receiving other forms of short-term education/training (ie not categories 1-5 above)	12
6b	Number of training weeks not leading to formal qualification	0.5
7	Number of types of training materials produced for use by host country(s)	1 – training module to be added to the ETIS Toolkit describing how to use the system. This will be available on the on-line database when it has been launched and will be made available to all 175 CITES Parties via a CD in the future
Research Measures		
8	Number of weeks spent by UK project staff on project work in host country(s)	16
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	1 – the revised ETIS database
Dissemination Measures		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	1 completed – showcase event at the CITES 62nd Standing Committee; 1 upcoming CITES CoP16
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	3 ETIS TAG meetings; 2 CITES Standing Committee meetings; two CITES Conferences of the Parties; 1 MIKE Sub-regional Steering Committee meeting; 1 African Elephant Dialogue meeting; 1 UN stakeholder consultative meeting; 3 government seminars (U.S., Germany, Sweden);
15c	Number of national press releases or publicity articles in UK	2 by both University of Reading and TRAFFIC International
17b	Number of dissemination networks enhanced or extended	1 – CITES Parties interactions with ETIS
18a	Number of national TV programmes/features in host country(s)	BBC Panorama ivory trade programme discussed ETIS issues but not the Darwin project directly.

Code	Description	Totals (plus additional detail as required)
19a	Number of national radio interviews/features in host country(s)	Radio interviews broadcast in Australia, Canada, France, Germany, Sweden, South Africa and U.S discussed results of the ETIS analysis based on the Darwin Initiative work, but did not mention the Darwin Initiative project directly.
Physical Measures		
20	Estimated value (£s) of physical assets handed over to host country(s)	£XXX+ database software
23	Value of additional resources raised for project	Approximately XXX USD and XXX GBP – see Section 7.2
Other Measures used by the project and not currently including in DI standard measures		
	Number of papers submitted for publication to peer reviewed journals	2 – one has been submitted to a major science journal and been rejected (not suitable for their audience) and now awaiting response from pre-submission enquiry. Second is to be submitted shortly

Annex 5 Publications

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
ETIS database	The Elephant Trade Information System website	TRAFFIC, Cambridge, U.K.	Not publicly available although the front page can be found at etis.cites.org	None
CITES 62nd Standing Committee Report	Status of Elephant Populations, Levels of Illegal Killing and the Trade in Ivory: A report to the CITES Standing Committee	SC62 Doc. 46.1 Annex	http://www.cites.org/eng/com/SC/62/E62-46-01.pdf	None
CITES COP16 document	The Elephant Trade Information System (ETIS) and the Illicit Trade in Ivory: A report to the 16th meeting of the Conference of the Parties to CITES	CoP16 Doc. 53.2	http://www.cites.org/eng/cop/16/doc/E-CoP16-53-02-02.pdf	None
Press release	TRAFFIC/UoR – Standing Committee	TRAFFIC, Cambridge, U.K.	http://www.traffic.org/home/2012/7/26/statisticians-help-fight-against-increasing-illegal-ivory-tr.html	None
Press release	TRAFFIC/UoR – new report	TRAFFIC, Cambridge, U.K.	http://www.traffic.org/home/2012/12/20/new-report-confirms-major-surge-in-ivory-smuggling-in-2011.html	None
Leaflet*	ETIS On-line!	TRAFFIC, Harare, Zimbabwe	TRAFFIC P.O. Box CY 1409 Causeway, Harare Zimbabwe	None
Pachyderm 47: January-June 2010	ETIS update number three: Progress in the implementation of the Elephant Trade Information System – Tom Milliken, Louisa Sangalakula	IUCN/SSC African Elephant Specialist Group, Nairobi; Kenya	The Editor, *Pachyderm* P.O. Box 68200 – 00200 Nairobi, Kenya Website: http//:pachydermjournal.org	None
Pachyderm 48: July-December 2010	ETIS update number four: Progress in the implementation of the Elephant Trade Information System – Tom Milliken, Louisa Sangalakula	IUCN/SSC African Elephant Specialist Group, Nairobi; Kenya	The Editor, *Pachyderm* P.O. Box 68200 – 00200 Nairobi, Kenya Website: http//:pachydermjournal.org	None

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Pachyderm 49: January-June 2011	ETIS update number five: Progress in the implementation of the Elephant Trade Information System – Tom Milliken, Louisa Sangalakula	IUCN/SSC African Elephant Specialist Group, Nairobi; Kenya	The Editor, Pachyderm P.O. Box 68200 – 00200 Nairobi, Kenya Website: http//:pachydermjournal.org	None
Pachyderm 50: July-December 2011	ETIS update number six: Progress in the implementation of the Elephant Trade Information System – Tom Milliken, Louisa Sangalakula	IUCN/SSC African Elephant Specialist Group, Nairobi; Kenya	The Editor, Pachyderm P.O. Box 68200 – 00200 Nairobi, Kenya Website: http//:pachydermjournal.org	None

Below I list items that are not publicly available but we are submitting as additional evidence of our work. Please do not publish this list in the final document on the web or make the submitted items available

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Additional notes
Letter*	Official letter to the ETIS TAG from Tom Milliken, TRAFFIC (2013)	This is the final letter sent to the TAG summarising the project outputs.
Abstract*	Bayesian modelling of seizures data reveals large increase in the illegal ivory trade, Underwood FM, Burn RW, Milliken T (2012)	Abstract of "Results" paper submitted to Science – rejected as not of broad enough interest to their readership. Pre-submission enquiry is now being written to Nature. This is evidence of output 2 in addition to the CITES CoP16 report listed in the table above.
Abstract*	Modelling the illegal ivory trade using Bayesian hierarchical latent variable models, Underwood FM, Burn RW (2013)	Abstract of the "Methods" paper being developed for submission to the Journal of the Royal Statistical Society, Series A (Statistics in Society). This is evidence of output 2 in addition to the CITES CoP16 report listed in the table above.
Manual*	ETIS Standard Operating Procedures: RW Burn, FM Underwood, L Sangalakula, T Milliken, (2013)	Contents and Preface included as evidence of Output 3 (the overall document is currently over 100 pages).
Training Module*	ETIS Action Toolkit Module 8 ETIS Online. TRAFFIC International (2012)	This is a large pdf (over 6MB). However I have included it because it not only provides evidence of Output 4 but also gives many screenshots of the database (Output 1 and Output 4) thus providing excellent examples of how the new database looks and operates.
Report*	ETIS Training Workshop for East and Southern Africa, Milliken T, Sangalakula L (2013)	Report on the training workshop (Activity 4.4) in South Africa

Annex 6 Darwin Contacts

Ref No	17-020
Project Title	Enhancing the Elephant Trade Information System to Guide CTIES Policy
UK Leader Details	
Name	Dr Fiona M Underwood
Role within Darwin Project	Project Leader
Address	Department of Mathematics and Statistics, University of Reading
Phone	
Email	
Other UK Contact (if relevant)	
Name	Mr Robert Burn
Role within Darwin Project	Project Partner
Address	119 Northcourt Avenue, Reading, Berks. RG2 7HG
Phone	
Email	
Partner 1	
Name	Mr Tom Milliken or Louisa Sangalakula
Organisation	Traffic Eastern and Southern Africa
Role within Darwin Project	Project Partner
Address	Physical: 10 Lanark Street, Belgravia, Harare, Zimbabwe Postal: c/o WWF-ZW, P.O. Box CY 1409, Causeway, Harare, Zimbabwe
Fax	
Email	