Darwin Initiative Annual Report

Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders: it is expected that this report will be about 10 pages in length, excluding annexes

1. Darwin Project Information

Project Reference	17019
Project Title	Developing Wildlife Forensic Capacity for ASEAN biodiversity conservation
Host Country/ies	UK (host), Malaysia, Thailand.
UK contract holder institution	TRACE Wildlife Forensics Network
Host country partner institutions	TRAFFIC South East Asia
Other partner institutions	ASEAN-WEN PCU (Association of South East Asian Nations Wildlife Enforcement Network Programme Coordination Unit).
Darwin Grant Value	£205,750
Start/end dates of project	01/09/2009 – 31/08/2012
Reporting period (eg Apr 2010 – Mar 2011) and number (eg Annual Report 1, 2, 3)	01/04/2011 – 31/03/2012 Annual Report 3
Project Leader name	Dr Ross McEwing, TRACE WFN
Project website	www.asean-wfn.org
Report authors, main contributors and date	Dr Jennifer Mailley (Project Manager), Dr Ross McEwing and Dr Rob Ogden (Directors of TRACE), Dr. Bill Schaedla (TSEA) Date: 30 /04/ 2012

2. Project Background

Project context

CITES (the Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora) aims to control the level of trade in specific species deemed as endangered, to ensure that exploitation of wildlife is sustainable. CITES is a voluntary agreement and not itself law. Signatory nations are required to implement national laws which enact CITES.

The ASEAN region is a hub for the illegal export, import and re-export of CITES protected species (TRAFFIC 2008). All ten ASEAN nations are signatories to CITES. The suitability of national laws which action CITES and the *implementation* of these laws varies greatly across the ASEAN region (Shepherd and Nijman, 2008). One reason for ineffective implementation is the absence of facilities which enable enforcement agencies to routinely identify which species are present in a shipment (import or export), and therefore whether the shipment contravenes CITES. The ability of a country to effectively enforce CITES legislation directly supports the broader aim of biodiversity conservation, which under the Convention on Biological Diversity (CBD) is international obligation for member states.

Problem addressed

Practical enforcement of national laws which implement CITES is currently seriously hampered in the ASEAN region by a lack of experience and capacity in wildlife crime investigation. Gathering evidence for successful prosecutions is problematic, one key issue being the accurate and robust identification of illegally traded animal and plant parts, derivatives, or trace evidence. Enforcement officers at airports, seaports, land-boundaries and within protected

areas need to be able to identify the species and sometimes the geographic origin of specimens. When morphological identification (by eye) is not possible, forensic tests can be used. While analytical techniques and equipment used in wildlife forensics already exist in a number of ASEAN countries, there is a need for these to be supplemented through additional research and implemented within a coordinated forensic framework.

Project aims

This project seeks to increase the ability of South East Asian (ASEAN) nations to use forensic science in the investigation and prosecution of offences which contravene CITES. It will improve the ability of ASEAN nations to enforce national level conservation legislation (which supersedes and actions CITES) and therefore better comply with CITES / CBD obligations.

Project location

The project is being implemented in two priority ASEAN countries, Malaysia and Thailand. The project is managed locally from the office of TRAFFIC South East Asia, Kuala Lumpur, Malaysia, with executive management from TRACE in Edinburgh, UK.

References

Shepherd, C. R. and Nijman, V. (2008): *Pet freshwater turtle and tortoise trade in Chatuchak Market, Bangkok, Thailand.* TRAFFIC Southeast Asia, Petaling Jaya, Malaysia

TRAFFIC, (2008). What's Driving the Wildlife Trade? *A Review of Expert Opinion on Economic and Social Drivers of the Wildlife Trade and Trade Control Efforts in Cambodia, Indonesia, Lao PDR and Vietnam.* East Asia and Pacific Region Sustainable Development Discussion Papers. East Asia and Pacific Region Sustainable Development Department, World Bank, Washington,

3. Project Partnerships

Structure of ASEAN Wildlife Forensics Network (ASEAN-WFN)

The lead UK institution, TRACE Wildlife Forensics Network, works in close partnership with the two host country partners:

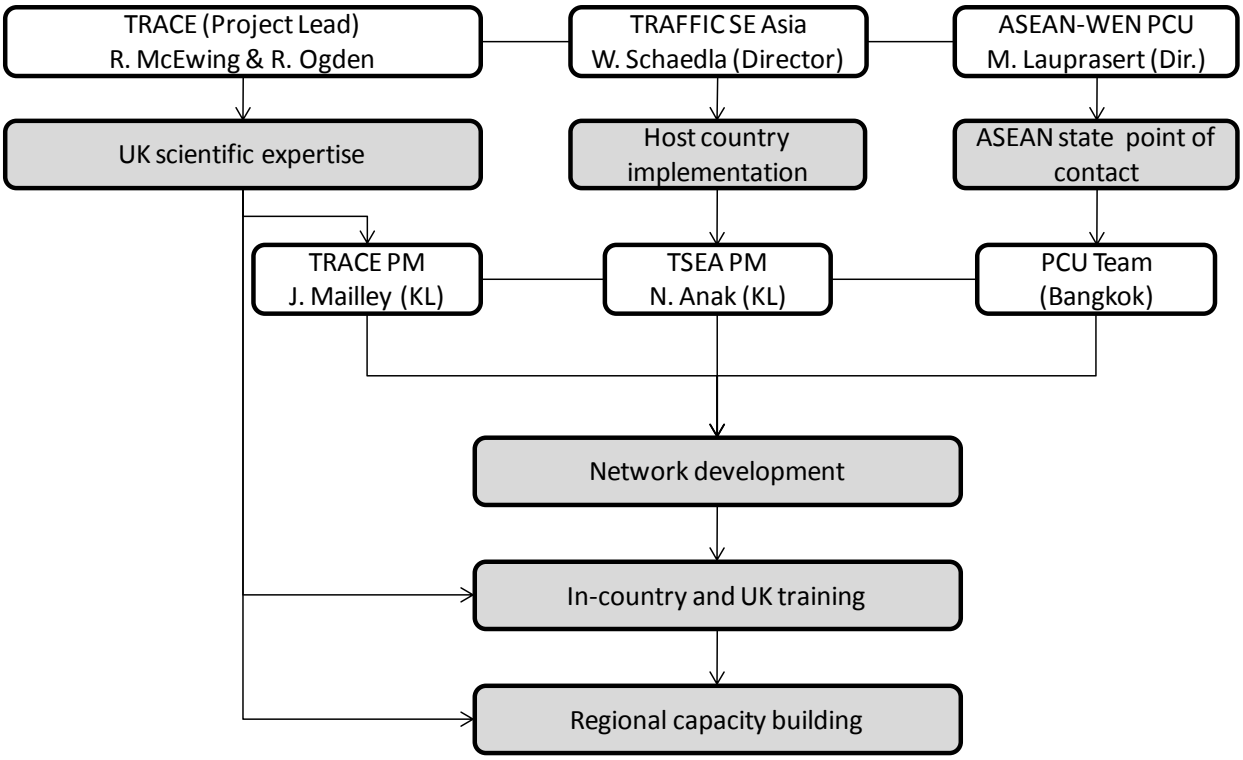
TRAFFIC South East Asia (TSEA) located in Kuala Lumpur Malaysia, and

The ASEAN-WEN PCU (Association of South East Asian Nations' Wildlife Enforcement Network Programme Coordination Unit) located in Bangkok, Thailand.

TRACE Wildlife Forensics Network are the project lead and a full time Project Manager (PM) was hired for the time period October 2009- September 2010. The PM has been employed part-time for the third year of the project (September 2011- August 2012), reflecting the increased scientific activities (carried out by Dr Ross McEwing and Rob Ogden) and associated decrease in logistics and networking as the project focus turns to continued scientific support for ongoing criminal investigations.

The project team

Feedback from the first Darwin Annual Report requested a pictorial representation of the relationships and responsibilities of the overall project. The diagram below aims to answer this request: TRACE Wildlife Forensics Network, directed by Dr Rob Ogden and Dr Ross McEwing, have overall responsibility for project delivery as project lead. The PM, Dr Jen Mailley, is an employee of TRACE WFN. Dr Mailley is assisted by an employee of TRAFFIC South East Asia, Ms Noorainie Awang Anak. They receive scientific support from Drs Ogden and McEwing of TRACE, and support with activities such as setting up the training course from experienced staff within the TSEA office. The ASEAN-WEN PCU (Association of South East Nations Wildlife Enforcement Network Programme Coordination Unit) provided support in the form of contact with CITES experts ('focal points') of each ASEAN country. The role of focal points is to pass information and requests for information to networks of relevant people within their respective country, and to consider policy level issues such as the formal adoption of the ASEAN-Wildlife Forensics Network established under this Darwin project.



4. Project Progress

Please note, the start date and end dates for this project are offset from the Defra financial year, therefore this third annual report is not the final report. The project ends on 31st August 2012.

4.1 Progress in carrying out project activities

Key:
MI= Measurable indicator.
MV= means of verification.
Activity= activity as scheduled in the project workplan.

Output 1: National wildlife forensic units following approved forensic protocols.

MI: Laboratory facility operational in each country with trained staff in place.

MV: Physical existence of forensic units and staff. Auditing of procedures.

Activity 1.1: Assessment of current facilities and staff in each country.

Time scale: Months 1 to 6.

The laboratory facilities within Malaysia and Thailand were assessed and reported on in the first Annual Report. Since that report, a number of sources have been used to gather further information on the overall picture of wildlife forensic facilities in the ASEAN region. These were reported in the attachment 'Needs Analysis.doc' in Annual Report 2. The Needs analysis has been updated during year 3 and this is reported under Output 3.

Activity 1.2: Implementation of laboratory systems for supporting forensic analysis.

Time scale: Months 7 to 30.

During the second year of the project key three activities were initiated under Activity 1.2 which have each been built upon in Year 3. The three activities were:

i) Provision of software (Geneious™, for recording, storing, and sharing DNA sequence data). During year 3 the continued use of Geneious™ by laboratory scientists has been mentored by TRACE Technical Director Dr Ross McEwing, to cement the initial training given in Kuala Lumpur in 2010 on the first training course.

ii) Provision of standard laboratory forms (for standardising procedures across individuals within laboratories and across laboratories within the region). During year 3 laboratories in Malaysia and Thailand have implemented the use of standard laboratory forms when performing routine casework tracking, analysis and progress recording. This constitutes a significant step forwards in improving laboratory procedures, minimising the risk of errors and miscarriages of justice.

iii) Strategic advice to host countries Malaysia and Thailand regarding wildlife forensics capacity development and systems design. During year 3 both Malaysia and Thailand have taken on board to some extent the advice given by Drs McEwing and Ogden in the letters of recommendation produced during the start of year 2.

Specifically, Thailand has continued to develop its dedicated wildlife forensics laboratory, WIFOS, having invested in infrastructure, equipment and staff (See Annex 3 – Supporting Photographs). The lab was officially opened in December 2010 and our year 2 Annual report listed as a risk the possibility that the laboratory would be underdeveloped if it was moved to a site distant from the HQ of Thailand's key wildlife investigations agency, DNP. During year 3 the laboratory has become operational, more securely entrenched in Thailand's routine enforcement actions and the risk of relocation now appears minimal. However this progress has required continued close support from TRACE staff working in the lab in Bangkok and this need is likely to continue for some time.

Malaysia has also followed the advice of TRACE experts by investing in their lead forensic geneticist to undertake a PhD. This will further his career and academic standing, making it more likely that the laboratory will be 'gazetted' as recognised by the Malaysian courts as suitable for giving expert witness testimony. The TRACE team are monitoring the progress of cases which the lab has processed with a view to giving general advice on likely questions to be asked in a court of law, for when the Malay geneticists are asked to give testimony. There does not exist in Malaysia an officially recognised course for expert witnesses, and so the advice of experienced scientists is important.

In addition to the two host countries, TRACE have provided direct support to the development of wildlife forensic capacity in Indonesia, through the validation of tiger DNA profiling systems. The project team have also visited laboratories in Vietnam, to assess the feasibility of establishing wildlife DNA forensic capacity in Hanoi.

Details of the science involved in these activities and the specific forensic tests developed are reported under Activity 3.2

Output 2: Trained wildlife forensic technicians, researchers and field officers.

MI: A minimum of 3 national wildlife staff and 3 lab staff trained in each country.

MV: Course certificates obtained by trainees; trainee feedback.

Activity 2.1: Training: Provision of specialist training in collection and identification of evidence.

Activity 2.2: Training: Provision of specialist training in laboratory methods.

Original timescale: months 7 to 9. Revised timescale: months 10 to 12.

Together activities 2.1 and 2.2 constituted the 1st Training Workshop carried out in 2010 and were completed and then reported in Annual Report 2.

During year 3 the number of enforcement officers trained in evidence collection and identification was further increased when the PM, Dr Jen Mailley, was invited to train 25 Vietnamese officers for one day in December 2011. The event occurred in Ho Chi Minh City, and was largely hosted by the Vietnamese authorities. The approach by the Vietnamese CITES

Management Authority to TRACE WFN requesting the delivery of training, and providing funds to cover the activities, demonstrated a level of proactivity and commitment by the Vietnamese authorities, as well as recognition of TRACE's integration within the region. A photograph of enforcement officers searching mocked-up luggage seeded with illegally smuggled items (See Annex 3 – Supporting Photographs). The event also opened the opportunity for further discussions with the Southern CITES Management Authorities about ongoing needs in Vietnam.

Activity 2.3: Training: Training of host country staff in the UK

UK based training was successfully completed. Four scientists attended the 3-week long advanced training programme hosted by TRACE WFN in Edinburgh. Both Indonesia and Malaysia funded the participation of a scientist each, in addition to the two scientists funded by the Darwin budget. This signifies the level of government interest in and commitment to this project, and means that project deliverables in terms of match-funding and, more pragmatically, person-hours of lab-based training were exceeded. Scientists were trained in how to convert research tools into forensic techniques, with tiger and rhino being used as example species . Both subjects address activity 3.2, the development of key forensic tools to address identified priorities. The outcomes of the training included a paper co-authored by TRACE and the four scientists, which describes a novel method for determining the gender of tigers using DNA. The paper is attached in Annex 3 as a PDF titled, ''McEwing et al 2011 *Panthera tigris* molecular sexing".

In addition to direct forensic training, the participants now constitute the core of the scientific network within the project. This event therefore fostered further collaborations for research and casework independent of TRACE, helping to build the network and ensure its sustainability beyond the project.

Output 3: A body of research highlighting regional forensic needs and delivering scientific resources for applied use.

MI: Production of a Needs Analysis Report.

MI: A series of forensic analysis protocols addressing key issues.

Activity 3.1: Research: Needs Analysis for wildlife forensic identification tools.

Timescale: Months 1 to 9.

The Needs Analysis was completed in line with the log frame and reported in our 2nd Annual Report (Needs Analysis_final.doc). During year 3, an updated Needs Analysis was produced and shared with the NGO FREELAND who are focused mainly on Thailand. The updated Needs Analysis is attached as "Darwin ASEAN WFN Needs Analysis.pdf". Under the USA funded ARREST Programme, FREELAND aim to increase the wildlife forensics capacity of some ASEAN nations including Thailand. Therefore to avoid duplication of effort and perhaps more importantly confusion on the ground, TRACE WFN decided to openly share their findings with a gentleman's agreement that FREELAND would reciprocate with feedback on their planned activities and the outcomes of their work.

Activity 3.2: Research: Development of key forensic tools to address identified priorities.

Timescale: Months 7 to 32.

Together with the scientific training delivered in Year 1 in Kuala Lumpur, the key wildlife forensic scientists in Thailand, Malaysia and Indonesia have at the end of Year 3 been trained in the specific techniques listed below. Many of these allow the scientists to develop novel tests when necessary, and importantly to develop a research technique into a validated forensic technique - one that is good enough to withstand scrutiny by a defence scientist and in court.

Additional laboratory-based training in the ASEAN region was given to Thailand, Malaysia and Indonesia when Drs Rob and Ross visited the ASEAN region in October 2012. The in-country laboratory-based training and work on live case work are ongoing and exceed project goals.

Scope of training delivered to address identified priorities:

1. Specialist DNA extraction techniques from elephant ivory, rhino horn, faecal samples and from bone
2. PCR optimisation techniques
3. Primer design for species specificity
4. Primer design for degeneracy
5. Primer design for sexing mammals
6. Using Geneious™ software for sequence analysis and quality checking
7. DNA sequencing analysis, theory and practice
8. Creating validated sequence databases for Geneious™ software
9. Developmental validation requirements for DNA profiling systems
10. Genemapper™ software training
11. Microsatellite analysis theory and practice
12. Statistical interpretation of genetic data for forensic typing / profiling

Activity 3.3: Research: Creation of a species reference collection of DNA samples for shared use.

Timescale: Months 7 to 32.

The species database has been designed and produced, according to the intended timescale. The aim of the database is to overcome the constraints on sample movement among countries, by allowing electronic sequence data generated from reference samples in country to be shared among all ASEAN members. Authenticated reference sequence data are a vital component of wildlife DNA forensic work.

Database development has largely been undertaken in Year 3, beginning with a consultation process involving TRAFFIC Southeast Asia and the host country scientists to examine the most pressing trade enforcement issues and converting these into forensic genetic questions. This led to a list of target species for which reference sequence data was widely required. The database was designed and constructed in MS Access to allow scientists to contribute data that directly linked to known reference samples held by ASEAN member institutions (summary attached in Annex 3 as 'Species Database Overview.pdf').

At the present time, the database is being populated with reference sample information and sequence data. The database will be handed over to the host country partners, with the necessary training, at the July 2012 training workshop event.

Output 4: A framework of inter-agency cooperation for incorporating forensic analysis into illegal trade investigations.

MI: Attendance at inter-agency seminars and development of multi-agency approaches.

MV: Seminar reports. Documented agreements between agencies.

Activity 4.1: Interagency Cooperation: Seminar attendance at key project meetings.

Timescales: Months 4 to 6, 10 to 12, 34 to 36.

These activities were progressed in October 2011 when Drs Rob Ogden and Ross McEwing visited South East Asia. A meeting was held in Thailand to discuss the wildlife forensics policy of the Department for National Parks (DNP), where the need for coordination between local agencies and internationally between laboratories was discussed (see "Thai WIFOS policy meeting agenda.pdf"). Support from the Deputy Director of the DNP was given to advance the

project in future cases where CITES permits were needed for sample movement between laboratories.

As part of the same trip, RO and RM also visited Vietnam and met with the CITES Management Authority and government laboratories (within the CITES SA), as well as key local NGOs. These meetings were all very fruitful and stemmed from the continued interest and enthusiasm of the Vietnamese authorities to develop wildlife forensic capacity – further work in Vietnam is needed to deliver increased forensics capacity to meet their stated needs (see "Vietnam letter of support.pdf").

A meeting with the ASEAN-WEN Secretariat was held in October 2011. The ASEAN-WEN may formally endorse and 'adopt' the ASEAN Wildlife Forensics Network, and the Secretariat has invited JM and RM to attend the annual ASEAN-WEN meeting in Singapore, May 2012, to discuss the practicalities of this process. The October meeting was also attended by representatives of the NGO Freeland, who have recently been granted USAID funding to support ASEAN-WEN, the umbrella organization and Darwin Initiative project partner.

The project team were invited to inform Interpol of their activities with a 40 minute slot at the Interpol Wildlife Crimes Working Group forum held in Bangkok, February 2012 (See Annex 3 – Supporting Photographs). The talk delivered was well received with verbal compliments from attendees, and reached a large audience of regional and international wildlife enforcement personnel.

Additionally, the PM was invited to attend meetings in Thailand in early 2012 when the issue of illegal elephant trade was high on the political agenda of Thailand. The PM attended and advised the NRESCD on how a database of captive elephant DNA might enable checks to be made of captive breeding claims. It is not yet apparent whether this advice was taken on board.

Output 5: A regional network of wildlife forensic expertise for sharing protocols, samples and data.

MI: Central accessible online forum for sharing information.

MI: Electronic database of available reference samples in the region.

MV: Access and number of hits to online forum and database.

Activity 5.1: Network coordination: Identification of all regional stakeholders.

Timescale: months 1 to 3.

As reported in the first annual report, all key regional stakeholders with a role in enforcing CITES have been identified. Furthermore, following the 1st Workshop, continued presence in the region and attendance at Interpol, the project team now has personal contacts within many of the key enforcement authorities and agencies with scientific capacity. The UK training cemented the core scientific element of the network, bringing together again the scientists from Malaysia, Thailand and Indonesia.

Activity 5.2: Network coordination: Establishment of online networking forum.

Timescale: months 4 to 12.

This activity progressed in time with the log frame and was reported in our second annual report. Following the 1st Workshop in 2010, Members have been able to email each other using the Googlegroup email, and the web site continues to be available as a repository for project news and requests for information. The website is at www.asean-wfn.org

Activity 5.3: Network coordination: Project launch and interim workshops.

Timescales: Project launch workshop months 4 to 6.

As reported in the first annual report, the project launch was completed in October and November 2009 in Thailand and Malaysia respectively, on time with the log frame.

Activity 5.4: Network coordination: Regional conference on wildlife forensics

Timescale: Months 34 to 36. This activity has been started in line with the log frame. As of early April 2012, all stakeholders have been informed of the intent to hold this workshop in Thailand in July 2012. The PM is to visit Thailand in April or May 2012 to finalise some logistical details with the Thai authorities before formal invitations to this event can be sent. The outcome of the event will be reported in the final report to Darwin.

Output 6: Broad dissemination of project results.

MI: Publication of project case study and conference proceedings.

MI: Peer-reviewed research publications.

MI: National press coverage overseas and UK

Activity 6.1: Press and Publicity: Design of a three year publicity plan.

Months 1 to 3.

Completed – see Annual Report 1..

Activity 6.2: Press and Publicity: Coverage of project workshops and regional conference.

Time scale: Months 4 to 6, 21 to 24, and 34 to 36.

Activity 6.3: Press and Publicity: Incidental press releases.

Timescale: Months 6 onwards.

The 2011 UK training was publicised via a television broadcast on ITV news in June 2012.

In early 2012, Dr Jen Mailley was interviewed and filmed along with Malaysian laboratory staff, for a documentary by National Geographic on the illegal wildlife trade in Malaysia. This is due to air in early 2013 so the precise content is not yet known, but the approach by Nat Geo suggests the importance given to this project in increasing Malaysia's wildlife forensic capacity.

The fact that the project is now heavily focused on supporting live criminal investigations means that press releases describing ongoing work are rarely appropriate. Only after a case has gone to court and a verdict handed down is it safe to publicise the results of any DNA testing. In recent months, TRACE communicated with FREELAND to remind them of the risks of miscarriages of justice associated with premature publicity, when FREELAND released news of the seizure of two tiger cubs in a case which TRACE WFN are still supporting the Thai WIFOS laboratory.

Specialist awareness of the project has been disseminated via the publication of the peer-reviewed journal on a novel tiger sexing methodology (reported above), and the Interpol presentation delivered by JM in February 2012, as reported above.

General awareness of the project and the training progress has been disseminated via a series of publications listed below:

- The CFS Bulletin of the Jill Dando Institute of Crime Science at University College London, which is disseminated to a broad range of forensic specialists (Annex 3 "CFSBulletinJanuary 2012.pdf".
- Articles in two of Darwin's Newsletters, in 2011 and 2012 (attached in Annex 3 as "Darwin News 2010-2011.pdf" and "Darwin News2012-02.pdf)
- An article in TRAFFIC bulletin (see Annex 3 "traffic_pub_bulletin_23_2.pdf").

4.1 Progress towards project outputs

A key focus of this third year has been to support the use of forensic analysis in ongoing wildlife crime investigations in the region. Therefore at a macro level the project purpose 'To provide the ability for host countries to undertake coordinated wildlife forensic analysis for CITES enforcement in the ASEAN region' is being met. In the Malaysian wildlife forensics laboratory, a total of 101 cases involving 1205 samples were processed between April 2011 and March 2012, an increase of around 80% from the previous year; while in Thailand, the newly established WIFOS laboratory processed 26 cases involving 124 samples during the same period. These results are a fantastic achievement for the laboratories concerned and provide a powerful demonstration of project progress.

At a micro level, the outputs which together constitute the capacity building, support and coordination which enable the case work to be carried out have been reported on above and are also reported in Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2011-2012.

A synopsis of the progress is as follows:

Output 1 (National wildlife forensic laboratories following approved forensic protocols):

- Further training of staff in country and in UK
- Adoption of SOPs (standard operating procedures within laboratories)
- Needs analysis updated & shared with another NGO working in the wildlife forensics.

Output 2 (Trained wildlife forensic technicians, researchers and field officers)

- Mostly already completed in Years 1 and 2 but..
- Further scientific training (in UK and host countries), and
- Further enforcement training (in Vietnam)

Output 3 (A body of research highlighting regional forensic needs and delivering scientific resources for applied use)

- Needs analysis updated and shared with other relevant stakeholders.
- SOPs adopted; novel tiger sexing technique developed by the network and published in peer reviewed academic journal.

Output 4 (A framework of inter-agency cooperation for incorporating forensic analysis into illegal trade investigations)

- Advice sought & provided for Thailand WIFOS lab at October policy meeting.
- Attendance and presentation at Interpol February 2012.
- Invitation to attend Thailand elephant database meetings January 2012.
- Invitation to attend ASEAN-WEN annual meeting in May 2012
- Regional visits by RO & RM; frequent coordination with ASEAN-WEN PCU by JM.

Output 5 (Regional network of wildlife forensic expertise for sharing protocols, samples & data).

- Already established via the website in Years 1 and 2.
- The core scientific network was cemented during the 3 week UK specialist training.
- This core will be further strengthened and the network expanded during the final regional seminar to be reported on in the final report.

Output 6 (Broad dissemination of project results)

- Publications in forensic bulletin CFS; in Darwin newsletter (x2); in TRAFFIC bulletin and in peer reviewed academic journal; broadcast of UK training on ITV; interview of Dr Mailley and Malay scientists for National Geographic (due to be broadcast in 2013).

4.2 Standard Measures

Table 1 Project Standard Output Measures

Established codes	Description	Yr 1 Total	Yr 2 Total	Yr 3 Total	Yr 4	Total to date	Number planned for this reporting period	Total planned from application
4D	Number of training weeks provided		29 (1 week for 29 people)	23		52	N/A	N/A
6A	Number of people to receive education/ training not already covered:		50	25		75	N/A	N/A
7	Number of types (not volume) or training material to be used in host country.		4 (physical kits; web based lectures; hard copy lectures; hard copy practical guides)	4 (physical sampling kits; sample submission forms; laboratory protocols; data analysis protocols)		7	N/A	N/A
8	No of weeks to be spent by UK project staff in host country	13	26	17		56	N/A	N/A
9	Number of species/habitat management plans (refers to advice to host countries re. forensics policies)	0	0	2		2		
10	Number of individual field guides/manuals to be produced to assist work related to species identification: this is shared with TSEA and the 9 refers to the 9 different translations of TSEA's Species guides.		9	0		9	N/A	N/A
11A	Number of papers to be published in peer reviewed journals		1	1		1	N/A	N/A
14B	Number of conferences/seminars/ workshops **attended** at which findings from Darwin project work will be presented/ disseminated (this refers to		0	0		1	N/A	N/A

	Interpol in Bangkok 2012)							
15A	No of press releases in host countries	1	1			2	N/A	N/A
15C	No of national press releases in UK	1	1			2	N/A	N/A
17A	No of dissemination networks to be **established** (refers to ASEAN-WFN)		1	0		1	N/A	N/A
16A 16B 16C	Number of newsletters to be produced Estimated circulation of each newsletter in the host country(ies) Estimated circulation of each newsletter in the UK	0	0	4 >3500 total- via web		4 >3500 total, via web	N/A	N/A
18A	Number of national TV programmes/features in host country(ies) (refers to Astro Arwani TV)		1	0		1	N/A	N/A
19B	Number of national radio interviews/features in UK		1	1		1	N/A	N/A
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)		Software £3000	Primers - £2000		5000		
New measures	No. of launch conferences organised and attended in host countries	2	0			2		

Table 2 Publications

Type (eg journals, manual, CDs)	**Detail** (title, author, year)	**Publishers** (name, city)	**Available from** (eg contact, website)	**Cost £**
Academic journal	Molecular sexing of tigers, Panthera tigris. McEwing et al, 2012.	Conservation Genetic Resources.	DOI 10.1007/s12686-011-9529-x	Free from TRACE
UK Forensics network newsletter	Wildlife Forensics in South East Asia. CFS Bulletin Issue 2 January 2012; University College London.	JDI Centre for the Forensic Sciences.	http://www.ucl.ac.uk/forensic-sciences/newsletter	Free to access
Darwin newsletter	Darwin News 2011-10 and 2012-02.	UK Darwin Initiative	http://darwin.defra.gov.uk/publications/	Free to access
TRAFFIC Bulletin Vol 23 No2.	News from the ASEAN Wildlife Forensics Network. April 2011; p64.	TRAFFIC International	http://www.traffic.org/bulletin/	Free- circulated via web to >3000 readers.

4.3 Progress towards the project purpose and outcomes

The project purpose is stated in the logical framework as 'To provide the ability for host countries to undertake coordinated wildlife forensic analysis for CITES operations in the ASEAN region'. The purpose is currently being fulfilled - each host country laboratory is utilising wildlife forensic techniques to investigate CITES offences. The increased number of cases passing through the labs (discussed above) demonstrates a real increase in the use of forensic techniques in wildlife crime enforcement. The assumptions within the log-frame, namely 'Continued government support for CITES enforcement initiatives' and 'Maintenance of ASEAN country cooperation' still hold true and have, if anything, been strengthened during the lifetime of the project. The measurable indicators are still relevant and have been collected and presented within this report (Malaysia 101 cases, 1205 samples processed, 80% year on year increase; Thailand 26 cases, 124 samples processed, year 1 of lab operation). The time delay on conversion to prosecutions due to the speed of court proceedings limit the quantification of actual prosecutions – it is hoped that initial data will be available by the end of the project.

4.4 Progress towards impact on biodiversity, sustainable use or equitable sharing

As discussed in annual reports 1 and 2, the long term effects of this project will be to increase the number of individuals successfully brought to justice for offences violating CITES regulations. At this time, many cases are being processed but relatively few trials will be completed by the end of the project. At present therefore, the best indicator of the likely impact of decreasing biodiversity loss due to illegal trade, is to assume that a proportion of the cases being processed will result in positive convictions, and that these will disrupt the illegal wildlife trade, remove certain criminals from the field and have a deterrent effect on other would-be wildlife criminals. A more comprehensive assessment of biodiversity impact will be made at the end of the project.

5. Monitoring, evaluation and lessons

Much of the monitoring and evaluation is already discussed above. The PM has ongoing responsibility for checking that key deliverables and outputs are on track, while Dr Ross McEwing has responsibility for coordinating and overseeing much of the casework currently being processed. The TRACE team have been in regular contact via skype and email with each other; with the ASEAN-WEN PCU and associated management via email and formal letters as well as seminar attendance, and with the regional scientists via email, phone, skype and face to face communications during regional visits and the UK specialist training.

In terms of lessons learned, it is reasonable to state that there have been fewer issues arising this year due to the lessons learned from previous years on the project. Communications ahve been more effective, expectations have been better managed and activities have been more focussed. If anything should be taken from the past year it is the reinforcement of the practical difficulties generated by CITES controls that limit the movement of evidential and reference samples among countries. This has been a constraint on the development of international casework collaborations within the region, where, for example, an Indonesian laboratory offering to support a Thai prosecution for tiger laundering was ultimately unable to do so as the Indonesian import permit for the samples could not be issued in time. Increasing awareness of these issues within CITES MAs and/or increasing the use of Scientific Licences are continued objectives for the project.

Taken as a whole, the outputs have each contributed to the overall goal by setting the stage on which forensic testing can be carried out. Each output therefore remains valuable and a valid indicator of achievement. For example, the updated Needs analysis aims to minimise the risk of duplication of effort between NGOs and confusion of the personnel involved in receiving wildlife

forensics training; the publication of the novel sexing methodology for tigers in a peer reviewed article demonstrates how the ASEAN scientists can work together, but more importantly it signifies that the methodology is accepted by the academic community and is therefore less open to criticism in a court of law; the presentation at Interpol increased awareness for the project to a broad international community and expanded the impact of the ASEAN Wildlife Forensics Network.

6. Actions taken in response to previous reviews (if applicable)

Darwin informed the project team that the second annual report, submitted in April 2011, was not formally reviewed. Therefore there are no responses to a review which the team can provide in this yearly report. Instead, the team has maintained contact with the Darwin/ LTS management with regard to the issues flagged above such as the alterations to the species of focus; the return of the PM Jen Mailley to the region, and the processes for applying for follow-on funding.

7. Other comments on progress not covered elsewhere

The species focus outlined in the initial application has changed. As outlined in the second annual report, the anticipated focus on pangolin, ramin and turtles has changed to pangolin ramin, tigers and now rhinoceros. This list of target species has evolved following the results of the initial needs assessment and the recent surge in rhino poaching in southern Africa, in which horn is being exported to or through SE Asia. The aim is always to respond to the needs of the range states. The changes have been the subject of change-request application and approval.

The funding from USAID to Freeland to maintain support for the ASEAN Wildlife Enforcement Network (a DI project partner and umbrella organization for the forensics network) can be viewed as a double-edged sword. While the continuation of funding to increase wildlife enforcement capacity in the ASEAN region is very much needed, Freeland do have a limited remit to address forensic issues, potentially overlapping with the DI project. The coordination of activities between the Darwin funded TRACE and US funded Freeland projects is necessary to avoid duplication of effort, confusion and branding competition. The Darwin project team have openly communicated their findings from years 1 and 2 of the Darwin project in the hope that a norm of sharing relevant information is established. There is a slight risk of a 'donor overlap' but the team are working hard to ensure that Freeland are fully aware of the range of regional needs which still exist upstream (enforcement) and downstream (judiciary) of the laboratory stages of the forensic process. There is certainly sufficient regional need in the field of wildlife forensics for there to be enough space for multiple parties to operate; ideally in a fully coordinated manner.

8. Sustainability

Several events of the past year have indicated that this project has established a recognised body of forensic experts in the region and that their capacity is valued. In Malaysia, the number of cases passing though the laboratory has increased, the authorities have funded additional scientific training in the UK and a PhD studentship for their lead wildlife forensic scientist. In Thailand, the WIFOS laboratory has become the forensic focal point in many investigations and is receiving additional investment by Thai authorities in terms of equipment and staff. The increase in casework in both labs signifies an increase in awareness among active enforcement officers and their superiors who approve requests for work.

The fact that the TRACE team has been invited to advise on or participate in key regional meetings at policy and management level signify that past promotion of the project is working, and that the 'bottom up' approach of proving expertise and value by carrying out casework is a success. The events signifying the level of recognition of the team are:

- Thailand's Wildlife Forensic Policy Meeting in October 2011

- Thailand's invitation to advise on the possibility of a national elephant DNA database.
- Vietnam's invitation to deliver additional training in Ho Chi Minh City in December 2011, and Letter of Support concerning developing VN's forensic capabilities further.
- Invitation to attend and present at Interpol, Bangkok 2012.
- Invitation to attend and present at the ASEAN-WEN annual meeting, Singapore, 2012.

Project sustainability operates at two levels: i) the scientific capacity of the experts and ii) the policy level decision-making and support that affects forensic working processes and impact. The scientific capacity as it stands is vastly increased compared to that observed at the start of the project. Thus success has been achieved. However, ongoing mentoring is needed to ensure the continued application of high quality work, especially when novel scenarios are encountered. At the policy level, evidence of the integration of the labs into routine operations is apparent from the increase in the number of cases submitted.

Evidence of government commitment to the continued increase in wildlife forensics capacity can be seen from the investment in staff and resources in both the Malay and Thai laboratories. Specifically, the investment by Thailand in an entirely new, fuully-staffed laboratory, and the investment in Malaysia in new equipment and in the PhD enrolment of a key geneticist, suggest that the policy makers assume that wildlife forensics will continue to have an important role to play in the medium to long-term future.

The exit strategy has always been to formally incorporate the ASEAN Wildlife Forensics Network into the ASEAN Wildlife Enforcement Network, the umbrella organisation and DI project partner that oversees regional wildlife crime enforcement. This strategy still holds and we hope that this transition will be formally agreed at the annual ASEAN-WEN meeting in Singapore at the end of May. This move will cement the communication structures and reporting procedures relating to wildlife forensics within ASEAN-WEN and also enable the website and database to be transferred. However TRACE is also considering developing the scientific exit strategy, so that the wildlife forensic scientists trained under the project also have regional support available from the human forensic science community. To this end we are exploring the possibility of creating a wildlife working group within the Asian Forensic Science network that is already established in the region.

TRACE does plan to apply for post-project funding to enable a variety of additional activities identified during the project to be undertaken:

- Expand the focus of scientific training from Thailand and Malaysia to include Vietnam, Indonesia and possibly Myanmar.
- Beyond the reference sequence database for species identification, develop DNA profile databases for tigers in Thailand, Malaysia and Vietnam. These would provide a system for distinguishing captive bred from wild caught animals in zoos and for identifying the individual tigers from captive sources entering the illegal traded tiger parts and derivatives.

9. Dissemination

Dissemination is discussed under Output 6. As mentioned, press releases are rarely appropriate while live casework is ongoing. Instead dissemination of relevant information this year has been to scientists, enforcement officers and their management via the network already established. One slight issue is that this has minimised public promotion of Darwin in the host countries but it is anticipated that once there is a successful prosecution in court, that will be the time to overtly promote the project and its success.

10. Project Expenditure

Table 3 project expenditure <u>during the reporting period</u> (1 April 2010 – 31 March 2011)

Item	**Budget** (please indicate which document you refer to if other than your project application or annual grant offer letter)	**Expenditure**	**Variance/ Comments**
Staff costs specified by individual			
Overhead costs			
Travel and subsistence			
Operating costs			
Capital items/equipment (specify)			
Others: Consultancy			
Others (please specify)			
TOTAL			

* Minor budget changes affecting these lines, agreed with LTS in two change requests, dated January 2012

11. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum).

I agree for LTS and the Darwin Secretariat to publish the content of this section

In December 2011 the CITES Management Authority of Vietnam invited TRACE Wildlife Forensics Network to contribute to specialist training for wildlife enforcement officers. Although not a host country on the current Darwin Initiative, Vietnam are part of the ASEAN Wildlife Forensics Network that the project has established and so the TRACE team were delighted to be asked to provide their expertise. The event was a great success with 25 enforcement officers trained to the collect forensic DNA evidence for illegal wildlife trade investigations, alongside learning more traditional morphological methods of species identification. In addition to signifying how the Darwin-funded project was becoming recognised across Southeast Asia, the opportunity to train a dedicated and enthusiastic group is seen as another step towards empowering individual countries to tackle wildlife crime. [photo of event in Annex 3]

In February 2012, ASEAN Wildlife Forensics Network project manager, Dr Jen Mailley, presented at Interpol's Wildlife Crime Working Group in Bangkok. Talking to around a hundred international enforcement professionals, the content of the talk highlighted project progress and successes. The project has seen a new and dedicated wildlife forensics laboratory opened in Thailand; much progress and investment in a similar facility in Malaysia; commitment from Indonesia in training its own specialist scientists using TRACE expertise; and the publication by the core scientific network of an academic peer reviewed article describing their development of a novel tiger DNA test. Malaysia's laboratory is now processing 80% more wildlife forensic DNA cases (crimes) than in the previous year, while Thailand has to date processed some 26 cases in its first year of operation. With the outcome of several court cases expected later this year, the coming months promise to reveal the impact of regional forensic capacity on wildlife law enforcement.

Annex 1: Report of progress and achievements against Logical Framework

Project summary	Measurable Indicators	Progress and Achievements April 2011 - March 2012	Actions required/planned for next period
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.To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve.* Sub-Goal: An effective, coordinated regional network of wildlife forensic expertise exists to support enforcement of CITES regulations through a combination of quality assured investigative processes and the capacity to develop and apply new identification tools.		*UK specialist training delivered.* *Needs analysis updated and disseminated.* *Involvement in policy level decisions in Thailand (host country).* *Additional training requested and delivered in Vietnam.* *Additional training and mentoring delivered in-country.*	*(do not fill not applicable)*
Purpose To provide the ability for host countries to undertake coordinated wildlife forensic analysis for CITES enforcement operations in the ASEAN region.	Future illegal trade investigations utilise forensic techniques. Increased number of illegal wildlife trade prosecutions.	As above, for goal/ subgoal.	Advise regional nations on how best to increase forensic cooperation (share facilities). Continue to mentor and support scientists in laboratory techniques
Output 1. National wildlife forensic units following approved forensic protocols.	Laboratory facility operational in each country with trained staff in place.	**Progress: Malaysia processing 80% more cases (crimes) than previous year: Thailand have processed 26 cases in a brand new and dedicated facility which was opened as a direct result of this project. Indonesia have adopted standard procedures and are coordinating with Malay and Thai scientists.**	
Activity 1.1: Capacity Building: Assessment of current facilities and staff in each country (Log frame timescale Months 1 to 6).		Progress: Completed and reported in annual reports 1 and 2.	
Activity 1.2: Capacity Building: Implementation of laboratory systems for supporting forensic analysis (Log frame timescale Months 7 to 30).		Progress: Standard operating procedures now adopted in Malaysian, Thai and Indonesian laboratories. Ongoing support will develop the range of techniques for which standard procedures are used for the entire duration of the project.	

Output 2. Trained wildlife forensic technicians, researchers and field officers.	A minimum of 3 national wildlife staff & 3 lab staff trained in each country.	Progress: Quota of scientists trained exceeded in Thailand; met in Malaysia; exceeded in Indonesia. Quota of enforcement staff trained exceeded in host countries (Malaysia and Thailand); exceeded further in Vietnam.
Activity 2.1: Training: Provision of specialist training in collection and identification of evidence (Revised timescale: Months 10 to 12)		Progress: Complete. 1st training workshop delivered and excellent feedback received.
Activity 2.2: Training: Provision of specialist training in laboratory methods		Timing, progress and next steps are as above for Activity 2.1.
Output 3. A body of research highlighting regional forensic needs and delivering scientific resources for applied use.	a. The production of a needs analysis report. b. A series of forensic analysis protocols addressing key issues	Progress: Needs Assessment Completed; then updated in year 3. Findings have (a) been shared with other relevant NGO (Freeland) and (b) have driven the prioritisation of the techniques for which standard operating procedures are adopted by the host country laboratories; and (c) has driven the development of a novel species reference database.
Activity 3.1: Research: Needs analysis (by species and problem) for wildlife forensic identification tools (Timescale: Months 1-9)		Progress: Needs Assessment Completed.
Activity 3.2 Research: Development of key forensic tools to address identified priorities (Timescale: Months 7-32)		Progress: Project team have identified priority cases and problems to pursue, based on the Needs Analysis. These were incorporated into the UK training programme and are constantly being pursued via ongoing technical support to live casework (lab testing).
Activity 3.3: Research: Creation of a species reference collection of DNA samples for shared use. (Timescale: Months 7-32)		Progress: Database is designed and an Access skeleton exists. Database is to be populated by host countries before the project end.
Output 4: A framework of inter-agency cooperation for incorporating forensic analysis into illegal trade investigations.	Attendance at inter-agency seminars and development of multi-agency approaches.	Progress: Attendance at key seminars has continued throughout the project. Formal approaches to wildlife forensics will be signed if the ASEAN-WEN adopts the Wildlife Forensics Network after its annual meeting in May 2012.
Activity 4.1: Inter-Agency Cooperation: Seminar attendance and networking at key project meetings (Timescale: Months 4-6, 10-12, 34-36)		Progress: See above paragraph.
Output 5: A regional network of wildlife forensic expertise for sharing protocols, samples and data.	a. Central, accessible online forum for sharing information. b. Electronic database of available reference samples in the region.	Progress: Website operational and acts as a repository for key materials. Core network of scientists established and communication via email, skype and face to face visits maintained throughout year 3. Database designed and to be populated imminently.

Activity 5.1: Network Coordination: Identification of all regional stakeholders (Timescale: Months 1-3)		Progress: all major stakeholders identified and all regional CITES MAs engaged with the project.
Activity 5.2: Network Coordination: Establishment of online networking forum (Timescale: Months 4-12)		Progress: website is developed, members forum is functioning.
Activity 5.3: Network Coordination: Project launch and interim workshops (Timescale: Months 4 to 6)		Progress: project launch workshops completed.
Output 6: Broad dissemination of project results	Publication of project case study and conference proceedings. Peer-reviewed research publications. National press coverage -O/S & UK	
Activity 6.1: Press and Publicity: Design of a three year publicity plan (Timescale: Months 1-3)		Progress: Completed in year 1..
Activity 6.2: Press and Publicity: Coverage of project workshops and regional conference (Timescale: Months 4-6)		Progress: Completed in Yr 1.
Activity 6.3: Press and Publicity: Incidental press releases (Timescale: Months 7 to 33)		Progress: Year 3 saw 4 newsletter/ bulletin articles in specialist press (e.g. TRAFFIC bulletin); the PM interviewed and filmed for national Geographic (to be aired in 2013); and the UK training publicised on ITV. These are in addition to one academic publication in a peer reviewed journal, describing a novel method for genetically determining the gender of tiger samples.

Annex 2 Project's current Gantt chart

	Activity	Months	Year 1				Year 2				Year 3			
			1	2	3	4	1	2	3	4	1	2	3	4
1.1	Capacity Building: Assessment of current facilities and staff in each country	3	■	■										
1.2	Capacity Building: Implementation of laboratory systems for supporting forensic analysis	6			■	■	■	■	■	■	■	■		
1.3	Capacity Building: Joint preparation of funding applications for ongoing support	3										■	■	■
2.1	Training: Provision of specialist training in collection & identification of evidence (Thailand)	1											■	
2.2	Training: Provision of specialist training in laboratory methods (Malaysia)	1				■								
2.3	Training: Training of host-country staff in the UK	4								■				
3.1	Research: Needs analysis (by species and problem) for wildlife forensic identification tools	3	■	■	■									
3.2	Research: Development of key forensic tools to address identified priorities	12			■	■	■	■	■	■	■	■	■	
3.3	Research: Creation of a species reference collection of DNA samples for shared use	12			■	■	■	■	■	■	■	■	■	
4.1	Inter-Agency Cooperation: Seminar attendance at key project meetings	1		■						■				■
5.1	Network Coordination: Identification of all regional stakeholders	1	■											
5.2	Network Coordination: Establishment of online networking forum and website	2		■	■	■								
5.3	Network Coordination: Project launch workshop, interim workshop	2		■						■				
5.4	Network Coordination: Regional conference on wildlife forensics	1												■
6.1	Press and Publicity: Design of a three year plan	0.2	■											
6.2	Press and Publicity: Coverage of project workshops and regional conference	1		■						■				■
6.3	Press and Publicity: Incidental press releases	0.5			■	■	■	■	■	■	■	■	■	

Annex 3 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

All .pdfs are appended to the end of the main report:

CFSBulletinJan2012.pdf

Darwin ASEAN WFN Needs Nov 2011_final

Darwin News 2011-10.pdf

Darwin News 2012-02.pdf

McEwing et al 2011 *Panthera tigris* molecular sexing.pdf

Species database overview.pdf

Supporting photographs.pdf

Thai WIFOS policy meeting agenda.pdf

Traffic_pub_bulletin_23_2.pdf

Vietnam letter of support.pdf

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Y
Is your report more than 5MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	Y
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Y
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	Y
Have you involved your partners in preparation of the report and named the main contributors	Y
Have you completed the Project Expenditure table fully?	Y
Do not include claim forms or other communications with this report.	