

Report on the Implementation of the First Multimodular Session of the Course in Environmental and Wildlife Criminalistics



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I. BACKGROUND

At the 2005 meeting of the Trilateral Committee for Wildlife and Ecosystem Conservation and Management, the co-chairs of the Enforcement Working Group, otherwise known as the North American Wildlife Enforcement Group (NAWEG) agreed to embark on a three-year initiative aimed at building capacity for wildlife inspectors in Mexico. The North American Working Group on Environmental Enforcement and Compliance Cooperation—a Council-created working group of the Commission for Environmental Cooperation of North America (CEC)—identified and suggested the implementation of this initiative in its scope of work. The CEC incorporated this initiative in its Strategic Plan for 2005–2010 and supported it through its project on Strengthening Wildlife Enforcement in North America.

As a first step in the implementation of this initiative, an analysis-and-assessment-of-needs study was conducted in 2006–2007 to identify and prioritize needs, topics and activities to be addressed in a training program so that it could cover a comprehensive array of themes of interest. Once that first step was completed, the NAWEG co-chairs met in February 2008 to agree on the course format, module content, and the ways in which Canada and the United States would contribute to this effort. At that time, Mexico announced the possibility that the course would be accredited and officially recognized by the Mexican National Institute for Penal Sciences (*Instituto Nacional de Ciencias Penales—Inacipe*) and by Mexican Secretariat of Public Service (*Secretaría de la Función Pública*).

The NAWEG co-chairs decided that the course would consist of eight modules, seven of them made available online through the Profepa website and the remainder requiring physical attendance and incorporating on-site presence for a practical test. It was also decided that an institution other than Profepa would manage course grading and evaluation results. As part of its role in this process, the CEC took responsibility for identifying a consultant who could assist in the pedagogical development of course methodology, materials and its implementation, the Center for Legal and Environmental Studies (*Centro de Estudios Jurídicos y Ambientales, A.C.—CEJA*).

By the summer of 2008, the NAWEG co-chairs had reviewed and adjusted the course methodology and its implementation plan. In June 2008, the co-chairs met in Veracruz, Mexico, to complete the planning stage of the course by September 2008. As a result of this effort, Mexico's Secretariat of Public Service recognized the contents of this course as part of professional training program for wildlife inspectors (*Servicio Civil de Carrera*) and decided that the curriculum of the course would be included among the technical capacities necessary for filling the position of inspector. Inacipe's technical board reviewed the course contents and decided that completing this course would result in official accreditation, one of the mechanisms for qualifying as a wildlife criminalistics expert. Once the course was adjusted and arrangements completed, the first cohort of students began the course in November 2008, finishing it in March 2009. The CEC 2009 Operational Plan provided an opportunity to document the experiences from this initial exercise.

II. OBJECTIVE OF THIS REPORT

The objective of this report is to document experiences and lessons learned from the planning, implementation and assessment of the accredited wildlife training course and to identify opportunities and challenges for this and future training efforts designed to enhance capacity building among the Parties.

III. REPORT METHODOLOGY

The methodology used to prepare the report includes the following components:

- Review and analysis of course evaluations offered by participants
- Analysis of participants' grading outcomes in each training course module
- Documentation of observations made by the Profepa General Wildlife Bureau and the National Institute of Penal Sciences

IV. FIRST MULTIMODULAR SESSION OF THE COURSE IN ENVIRONMENTAL AND WILDLIFE CRIMINALISTICS

a. COURSE FORMAT

The pedagogical design of this course included:

- 1) Development of an ad hoc topical structure in line with needs and salient points identified in the needs analysis assessment study conducted in 2007.
- 2) Participation of key governmental agencies that could give accreditation to the course.
- 3) Identification of a group of experts capable of coaching participants in practical issues.
- 4) Determination of the appropriate teaching methodology.
- 5) Refinement of the candidates' profiles.

The course was built-up under a "blended learning format," i.e., using information and communication technologies (ICTs) to develop e-learning modules and *ad hoc* tools and materials for the onsite module. The online teaching methodology was based on learning materials developed primarily in Microsoft PowerPoint, due to its features that allow simultaneous use of text, images, audio and graphics to cover the different learning styles. The PowerPoint presentations were complemented by required and elective reading materials. The last module was based on field activities and background reading materials.

The last module also featured lectures by the following experts:

- Alejandro Ferro Negrete, Deputy General Director, CEJA
- Francisco Javier Sánchez Molina, Environmental Law Specialist and CEJA consultant
- Alejandro Angulo Carrera, Specialist and analyst on environmental crime and representative of the CEJA-Bajío office
- Gabriel Calvillo Díaz, Director, Attorney at law, specialist in environmental offenses.

The grading criteria—core elements of the course—were based on reports, exercises and tests. The final examination was administered by Inacipe.

The percentage assigned to each grading criterion was as follows:

- Reading and exercises, 20%
- Quizzes, 20%
- Field practice, 20%
- Final examination, 40%

b. MATERIALS AND CONTENTS

Contents

The course topics were organized as follows:

Module 1–Wildlife forensic sciences

- 1.1. Concepts of forensic science
- 1.2. Purpose of wildlife forensic sciences
- 1.3. Wildlife investigatory methods
- 1.4. Principles of field criminalistics

Module 2–Techniques and methods for identifying species of wild flora and fauna

- 2.1 Species regulated by Semarnat
- 2.2 Identification of species included in CITES and NOM-059-SEMARNAT-2001

- 2.3 Identification of hunting trophies and furs
- 2.4 Identification of wild mammals
- 2.5 Identification of wild flora species
- 2.6 Identification of wild birds

Module 3–Wildlife management

- 3.1 Normative framework for conservation and protection of wildlife
- 3.2 Legal basis for wildlife procedures
- 3.3 Legal origin and transport of wildlife
- 3.4 CITES Treaty
- 3.5 Possession of wildlife as pets and birds of prey
- 3.6 Wildlife trade

Module 4–Forensic techniques for investigating wildlife offenses

- 4.1 Introduction to forensic analysis
- 4.2 Forensic zoology
 - 4.2.1 Biological analysis of evidence
 - 4.2.2 Non-biological analysis of evidence
 - 4.2.3 DNA analysis
- 4.3. Collection and presentation of evidence
- 4.4. Considerations for shipment of evidence
- 4.5. Analysis of genetic fingerprints
- 4.6. Legal requirements for accusation

Module 5–Geographic Information Systems in the investigation of wildlife offenses

- 5.1 Basic concepts of cartography
- 5.2 Utility of GPS
- 5.3 Investigation methodology for wildlife offenses
- 5.4 Collection and processing of geographic information for crime investigation
- 5.5 Introduction to ArcView 3.x

Module 6–Forensic work, evidence and accreditation of administrative and criminal evidence pertaining to wildlife

- 6.1 Field and expert criminalistics, as means of uncovering evidence
- 6.2 Accreditation of administrative and criminal evidence as an assumption of field and expert criminalistics work
- 6.3 Distinction between source of evidence, means of proof and evidence
- 6.4 Assessment of evidence
- 6.5 Study of relevant jurisprudence and theses

Module 7–Preparation of an expert's Wildlife Forensic Report

- 7.1 Field investigation
- 7.2 Non-field study
- 7.3 Structure of an expert's report
- 7.4 Study of jurisprudential theses regarding probative value of the expert's report
- 7.5 Writing an expert's report

Module 8–Field operations in investigation of wildlife offenses

- 8.1 Planning of wildlife inspection
- 8.2 Collection of field information
- 8.3 Analysis and assessment of evidence and information
- 8.4 Elements of an expert's report

Materials

Materials were prepared exclusively for supporting the development of the identified topics and sub-topics and included PowerPoint presentations, articles, graphics, tables and schemes, along with electronic information available online, such as journal articles, excerpts from books, videos, etc. These materials and related activities are described in the following table (Table 1):

Table 1

Module	Material	Activities
<p>M1. Wildlife forensic sciences</p> <p><i>Instructor: Alejandro Angulo Carrera</i></p>	<p>Supporting materials prepared by the instructor:</p> <ul style="list-style-type: none"> - PowerPoint presentations covering the topics: <ol style="list-style-type: none"> 1.1. Concepts of forensic sciences 1.2. Purpose of environmental forensic sciences 1.3. Wildlife investigation methods 1.4. Principles of field criminalistics - Arrival at the crime scene: initial response and integration of the forensic report. - List of offenders. <p>Complementary readings:</p> <ul style="list-style-type: none"> - Application of criminalistics in Mexico. University of the Federal District (<i>Universidad del Distrito Federal</i>). <Criminalistica.com.mx> and <Criminalistic.org> – “<i>Criminalística de México</i>” page (17 January 2008). - R. Bar, Aníbal, <i>Investigación científica e investigación criminalística</i>. <Criminalistica.com.mx> and <Criminalistic.org> – “<i>Criminalística de México</i>” page (2 March 2007). 	<p>Students were asked to develop a criminal profile and a summary of readings.</p>
<p>M2. Techniques and methods for identifying species of wild flora and fauna</p> <p><i>Instructor: Antero Carmona Omaña</i></p>	<p>Supporting materials prepared by the instructor:</p> <ul style="list-style-type: none"> - PowerPoint presentations covering the topics: <ol style="list-style-type: none"> 2.1. Species regulated by Semarnat 2.2. Identification of species included in CITES and <i>NOM-059-SEMARNAT-2001</i> 2.3. Identification of hunting trophies and furs 2.4. Identification of wildlife mammals 2.5. Identification of wild flora species 2.6. Identification of wild birds <p>Complementary readings:</p> <ul style="list-style-type: none"> - Environment Canada and <i>Colegio de Baie-Comeau</i>. CITES Identification guide-Birds (<i>Guía de identificación de CITES-Aves</i>). - Environment Canada and <i>Colegio de Baie-Comeau</i>. CITES Identification guide-Crocodiles (<i>Guía de identificación de CITES-Cocodrilos</i>). - Environment Canada and <i>Colegio de Baie-Comeau</i>. CITES Identification guide-Hunting trophies (<i>Guía de identificación de CITES-Trofeos de caza</i>). 	<p>Students were asked to complete the following learning activities:</p> <ul style="list-style-type: none"> - Sub-topic 2.1: Questionnaire on species regulated by Semarnat and a summary of PowerPoint presentation - Sub-topic 2.2: Questionnaire on identification of species included in CITES and NOM-059- SEMARNAT-2001, and a summary of PowerPoint presentation - Sub-topic 2.3: Exercise on identifying furs and hunting trophies - Sub-topic 2.4: Exercise on identifying mammals - Sub-topic 2.5: Exercise on identifying flora specimens - Sub-topic 2.6: Exercise on identifying birds

Module	Material	Activities
<p>M3. Wildlife management</p> <p><i>Instructor: Antero Carmona Omaña</i></p>	<p>Supporting materials prepared by the instructor:</p> <ul style="list-style-type: none"> - PowerPoint presentations covering the topics: <ol style="list-style-type: none"> 3.1. Normative framework for conservation and protection of wildlife 3.2. Legal basis for wildlife procedures 3.3. Legal origin and transport of wildlife 3.4. CITES Treaty 3.5. Possession of wildlife as pets and birds of prey 3.6. Wildlife trade <p>Complementary readings:</p> <p>Angulo Carrera, Alejandro. <i>La nueva visión de la Procuración de Justicia ambiental en vida silvestre.</i></p>	<p>Students were asked to write a summary of Chapter X of the General Wildlife Act.</p>
<p>M4. Forensic techniques for investigating wildlife offenses</p> <p><i>Instructors: Dr. Héctor Zepeda López Leandro David Soriano García</i></p>	<p>Supporting materials prepared by the instructor:</p> <ul style="list-style-type: none"> - PowerPoint presentations covering the topics: <ol style="list-style-type: none"> 4.1. Introduction to forensic analysis 4.2. Forensic zoology 4.3. Collection and presentation of evidence 4.4. Considerations for shipment of evidence 4.5. Analysis of genetic fingerprints 4.6. Legal requirements for accusation <p>Complementary readings:</p> <ul style="list-style-type: none"> - Work, Thierry W., <i>Manual de necropsia de aves marinas para biólogos en refugios o áreas remotas.</i> US Geological Survey, National Wildlife Health Center, Hawaii Field Station. 2000. - Work, Thierry W., <i>Manual de necropsia de tortugas marinas para biólogos en refugios o áreas remotas.</i> US Geological Survey, National Wildlife Health Center, Hawaii Field Station. 2000. <p>Complementary material:</p> <ul style="list-style-type: none"> - Video on conducting autopsies. January 1999. 	<p>Students were asked to provide a summary of an autopsy (presented in video); a review of PowerPoint presentations and complementary readings, writing a document that describes how to maintain and manage samples collected in a laboratory autopsy.</p>
<p>M5. Geographic Information Systems in the investigation of wildlife offenses</p> <p><i>Instructor: Miguel Martínez Tapia</i></p>	<p>Supporting materials prepared by the instructor:</p> <ul style="list-style-type: none"> - PowerPoint presentations covering the topics: <ol style="list-style-type: none"> 5.1. Basic concepts of cartography 5.2. Utility of GPS 5.3. Investigation methodology for wildlife offenses 5.4. Collection and processing of geographic information for crime investigation 5.5. Introduction to ArcView 3.x. - Complementary presentation developed with examples for module sub-topics. <p>Complementary readings:</p> <ul style="list-style-type: none"> - Carrión M., Fernando, <i>La geografía del delito. Ciudad Segura,</i> Programa Estudios de la Ciudad, Flacso-Ecuador, 2007. - Hernando Sanz, Felipe, <i>Eclecticismo y diversidad en la geografía del crimen y la delincuencia en el cambio de siglo,</i> Universidad Complutense de Madrid, 2006. 	<p>Students were asked to write a summary of the complementary readings.</p>

Module	Material	Activities
	<p>- Contreras Carvajal, Claudio, <i>Sistemas de Información Geográfica y el control de delitos en el espacio: el caso de la comuna de Santiago</i>.</p>	
<p>M6. Forensic work, evidence and accreditation of administrative and criminal evidence pertaining to wildlife</p> <p><i>Instructor: Gabriel Calvillo Díaz</i></p>	<p>Supporting materials prepared by the instructor:</p> <ul style="list-style-type: none"> - PowerPoint presentations covering the topics: <ul style="list-style-type: none"> 6.1. Field and expert criminalistics, as means of uncovering evidence 6.2. Accreditation of administrative and criminal evidence as an assumption of field and expert criminalistics work 6.3. Distinction between source of evidence, means of proof and evidence 6.4. Assessment of evidence 6.5. Study of relevant jurisprudence and theses <p>Complementary readings:</p> <ul style="list-style-type: none"> - Article 192 of the <i>Amparo Law (Ley de Amparo)</i>. - Chapter IX "Legal value of proof" in the Sixth Chapter of the Federal Code for Criminal Procedures (<i>Título Sexto del Código Federal de Procedimientos Penales</i>). - Chapter IX "Assessment of proof" in the Fifth Chapter of the Federal Code for Civil Procedures (<i>Título Quinto del Código Federal de Procedimientos Civiles</i>). 	<p>As a learning activity, students were asked to complete an exercise of making associations between columns, and to write a summary on the complementary readings.</p>
<p>M7. Preparation of an expert's Wildlife Forensic Report</p> <p><i>Instructores: Gabriel Calvillo Díaz, LL.M. Alejandro Angulo Carrera</i></p>	<p>Supporting materials prepared by the instructor:</p> <ul style="list-style-type: none"> - PowerPoint presentations covering the following topics: <ul style="list-style-type: none"> 7.1. Field investigation 7.2. Non-field study 7.3. Structure of an expert's report 7.4. Study of jurisprudential theses on the value of the expert's report in a court of law 7.5. Writing an expert's report <p>Complementary readings:</p> <ul style="list-style-type: none"> - <i>Tesis y jurisprudencia: Análisis de la prueba pericial.</i> - <i>Tesis y jurisprudencia: Dictámenes periciales dogmáticos. Carecen de valor probatorio.</i> - <i>Tesis y jurisprudencia: Prueba pericial.</i> Interpretation of Article 324 of the Federal Code for Criminal Procedures (<i>Código Federal de Procedimientos Penales</i>). 	<p>Students were asked to complete exercises (matching columns), and summarizing different readings.</p>

c. CALL FOR PARTICIPATION

The call for participation was issued to Profepa officials on 1 April 2008, identifying the objective of the training exercise and giving the profile for prospective students and the time for the development of the eight modules (Annex 1).

d. COURSE DATES

The course started in November 2008 and concluded in March 2009. It comprised a total of 128 hours of instruction, distributed throughout eight modules.

e. PARTICIPATING INSTITUTIONS

Mexican agencies and organizations:

Several Mexican governmental agencies and a private organization participated in the implementation and assessment of this exercise:



Inacipe. Mexico's National Institute for Penal Sciences promotes the training of public employees at the federal Attorney General's office and in state public attorney's offices and tribunals. It is also a prestigious institution for graduate studies in the country. Its assets include a renowned center for scientific research in the area of penal sciences and a highly respected publishing house in Mexico and in Spanish-speaking countries.



Profepa. The *Procuraduría Federal de Protección al Ambiente* (Office of the Federal Attorney for Environmental Protection) is the institution charged with enforcing and enhancing environmental compliance in order to increase the nation's sustainable development.

Profepa's responsibilities include monitoring compliance with legal provisions, safeguarding the interests in the population in the area of the environment, working for compliance with environmental legislation, and punishing individuals and businesses that violate environmental statutes and regulations.



CEJA. The goal of the Center for Legal and Environmental Studies is to advance sustainable economic and social development in Mexico by increasing societal awareness and citizen participation in environmental management. The CEJA encourages society to balance development with conservation of natural resources and the environment.



The mission of the Secretary of Public Service (*Secretaría de la Función Pública—SFP*) is to consolidate an honest, efficient and transparent government. Its 2020 vision is based on public participation and trust, and its priorities include the articulation of professional, efficient and effective governmental structures.



The National Polytechnic Institute, **IPN** (*Instituto Politécnico Nacional*), is an innovative, flexible, learning-focused institution, a leader in public technological education in Mexico, with legal capacity and its own assets. As a self-governing institution, IPN focuses on the generation, dissemination, and transfer of quality knowledge, with seamless and efficient management processes, deriving broad social recognition from its contributions to national development, and with a strategic position in both national and international environments related to knowledge generation and distribution.

Foreign/International Agencies

The US Fish and Wildlife Service, through its Office of Law Enforcement, and the Enforcement Branch of Environment Canada participated in this effort.

The Commission for Environmental Cooperation, through its Program for Law Enforcement and Compliance, accompanied this effort.

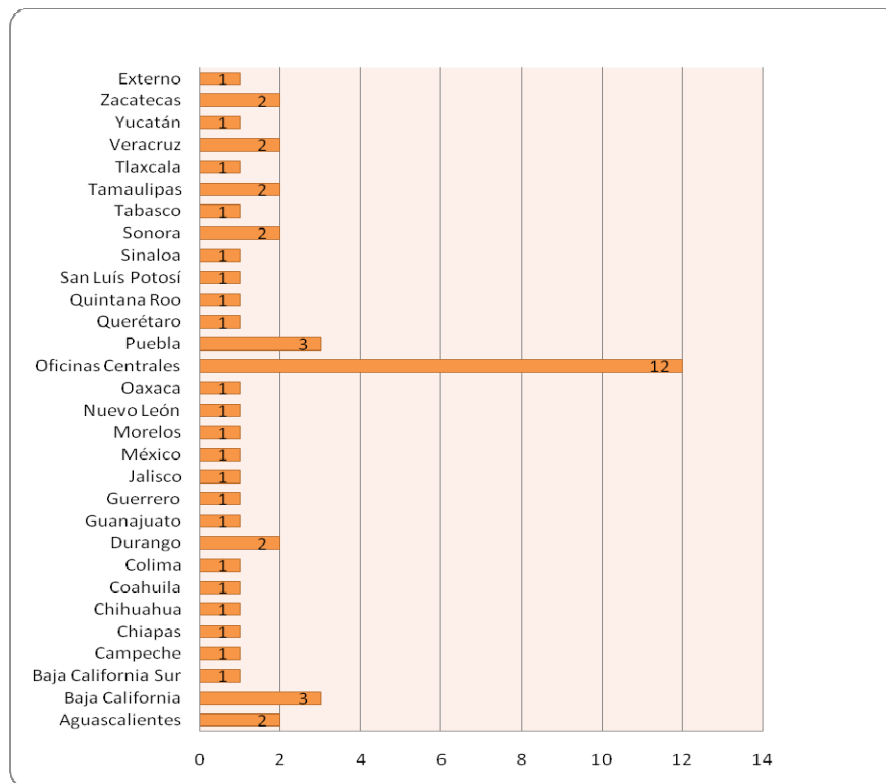


f. STUDENTS

Students registered

A total of 51 participants responded to the call for participation, representing the Profepa central office and of its offices in every state (Figure 1):

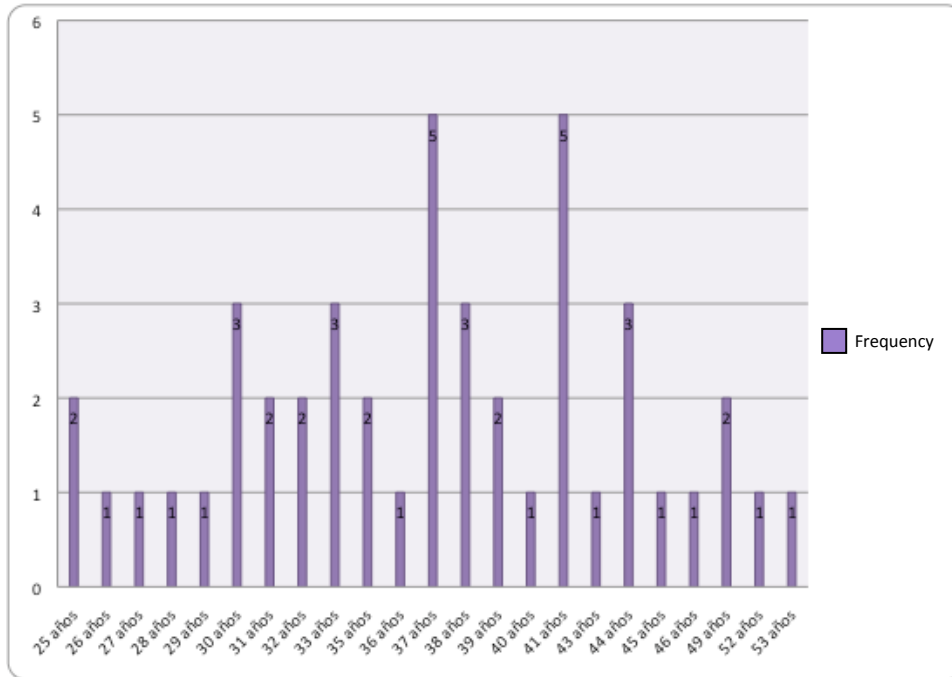
Figure 1. Distribution of persons registered, by Profepa Office



Student population

Of the 51 registrants for the course, 45 participants (88 percent of the initial student population) completed it successfully. Of these 45, 17 were women and 28 were men. The average age of the participants was 37; the youngest participants were 25 and the eldest participant was 53 (Figure 2).

Figure 2. Population age



Student age distribution (number participants/year of age)

g. EVALUATIONS

The following criteria were used for evaluation purposes:

- Reading and exercises, 20%
- Quizzes, 20%
- Field practice, 20%
- Final examination, 40%

Readings and exercises: Readings, both required and elective, were an integral part of each lesson and module. Exercises provided an opportunity to reinforce the information presented in the readings.

Quizzes: At the end of each module, a quiz was given to measure how well students had mastered the information presented.

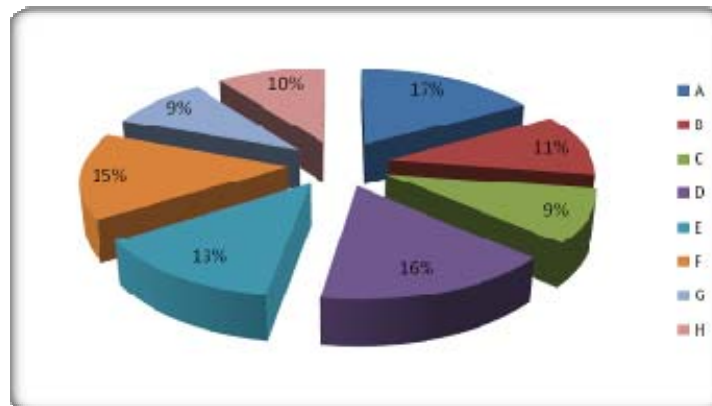
Field practice (report): Participants were asked to prepare a report applying information, methods, techniques and general knowledge from the training course.

Final examination: An in-person final exam at the Inacipe campus in Mexico City was required for all students. The exam consisted of 120 multiple-choice questions, organized by topic in the following manner (Table 2 and Figure 3):

Table 2. Relationship of the structure of final exam with the course structure by topic

MODULE		Questions per module
A	Wildlife forensic sciences	20
B	Techniques and methods for identifying species of wild flora and fauna	13
C	Wildlife management	11
D	Forensic techniques for investigating wildlife offenses	19
E	Geographic Information Systems in the investigation of wildlife offenses	16
F	Expert work, evidence and accreditation of administrative and penal offenses pertaining to wildlife	18
G	Preparation of an expert's wildlife forensic report	11
H	Field practice in the investigation of wildlife offenses	12
TOTAL		120

Figure 3. Distribution of topics covered on the final exam



Results obtained

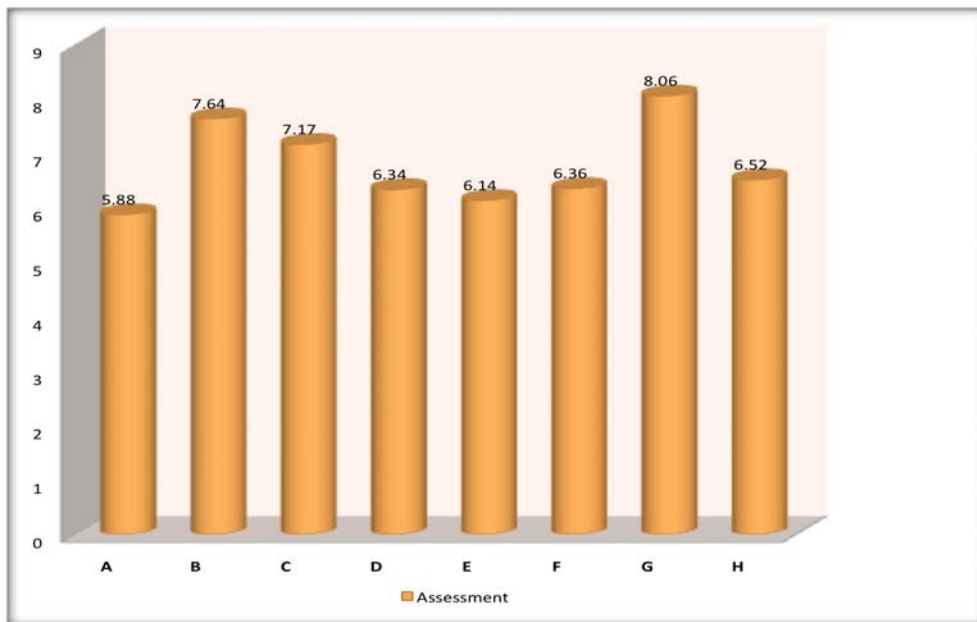
The overall mean for the final exam was 7.95 (10 maximum).

The mean result for each of the modules is shown below (Table 3). The distribution of the average scores obtained for each module and the mean standing are depicted in Figures 4 and 5.

Table 3. Average scores by module, final exam

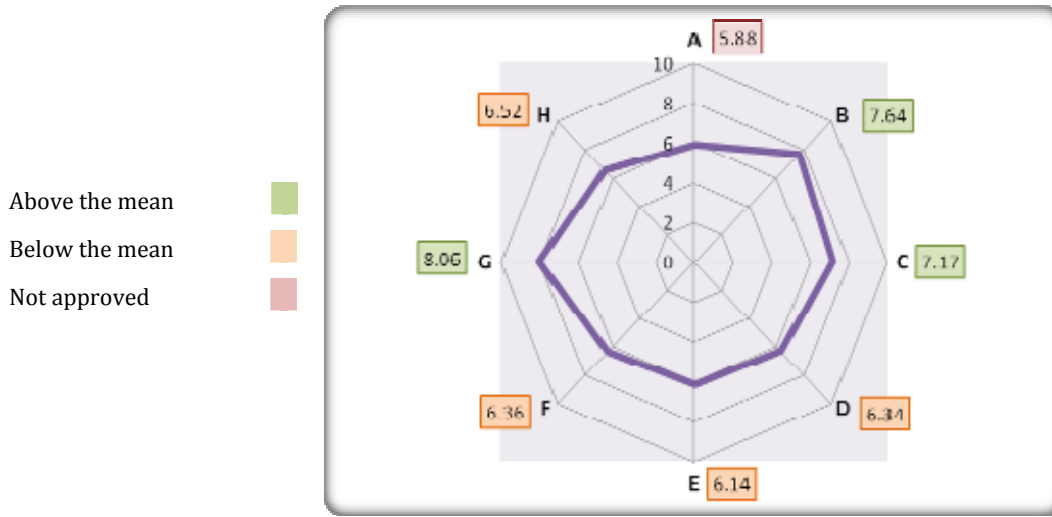
MODULE		AVERAGE
1	Wildlife forensic sciences	5.88
2	Techniques and methods for identifying species of wild flora and fauna	7.64
3	Wildlife management	7.17
4	Forensic techniques for investigating wildlife offenses	6.34
5	Geographic Information Systems in the investigation of wildlife offenses	6.14
6	Expert work, evidence and accreditation of administrative and criminal evidence pertaining to wildlife	6.36
7	Preparation of an expert's Wildlife Forensic Report	8.06
8	Field operations in investigation of wildlife offenses	6.52

Figure 4. Average scores by module, final exam



[Note: Modules 1-8 are indicated by letters A-H in these figures.]

Figure 5. Distribution of averages according to the mean Assessment-Rating



The results obtained by participants in each of the points established as evaluation criteria are as follows (Table 4):

Table 4. Averages applying percentages established in evaluation criteria

Students	Final examination/ Inacipe	Exercises and readings	Expert Report	Quizzes	Final evaluation
S1	5.4	9.5	10	9.6	8.0
S2	6.9	7.8	10	7.4	7.8
S3	6.9	9.0	10	9.6	8.5
S4	6.1	0.7	10	1.7	4.9
S5	7.8	8.6	10	8.3	8.5
S6	6.3	8.4	10	9.9	8.2
S7	8.8	9.2	10	9.7	9.3
S8	6.9	7.0	10	7.0	7.6
S9	6.3	7.8	10	9.1	7.9
S10	5.8	9.2	10	8.7	7.9
S11	8.1	9.9	10	10.0	9.2
S12	4.8	8.8	10	9.0	7.5
S13	7.3	7.9	10	9.7	8.4
S14	7.8	9.6	10	9.9	9.0
S15	6.1	9.2	10	8.0	7.9
S16	6.3	9.6	10	9.1	8.3
S17	7	9.8	10	10.0	8.8
S18	5.6	7.5	10	8.9	7.5
S19	7.4	9.3	10	9.6	8.7
S20	5.1	9.4	10	8.3	7.6
S21	6.7	8.9	10	7.9	8.0

Students	Final examination/ Inacipe	Exercises and readings	Expert Report	Quizzes	Final evaluation
S22	6.8	9.0	10	8.0	8.1
S23	6.6	9.8	10	7.9	8.2
S24	4.5	8.0	10	8.1	7.0
S25	6.9	9.7	10	9.9	8.7
S26	6.8	7.8	10	9.3	8.1
S27	6.3	10	10	9.6	8.4
S28	7.3	9.6	10	8.9	8.6
S29	6.3	9.8	10	8.9	8.2
S30	6.7	9.5	10	8.6	8.3
S31	6.5	9.6	10	9.7	8.5
S32	6.5	8.9	10	9.0	8.2
S33	7	9.6	10	9.1	8.5
S34	6.8	8.9	10	8.4	8.2
S35	6	3.2	10	2.9	5.6
S36	5.6	9.1	10	8.6	7.8
S37	8.3	8.8	10	9.1	8.9
S38	7.6	8.6	10	9.0	8.6
S39	7	2.6	10	5.0	6.3
S40	-	9.1	10	9.0	5.6
S41	5.2	1.7	10	3.9	5.2
S42	6.6	8.4	10	9.7	8.3
S43	7.6	9.0	10	9.1	8.7
S44	6.8	9.7	10	10.0	8.7
S45	7.6	9.9	10	10.0	9.0

h. FEEDBACK

It is important for all educational programs to be evaluated by the team involved in its implementation and especially by the students taking it. Questionnaires completed at the end of each module were designed to supply feedback on the various aspects of the training. Also, participants were asked about their expectations of the content and the amount of time allotted for each module. Impressions of instructor performance were also part of these evaluations (see Evaluation Questionnaire in Annex 2).

GENERAL EVALUATION OF MODULES BY PARTICIPANTS

Results obtained from the general course evaluations are the following:

Module 1	Number of respondents				
	A lot	Somewhat	A little	Not at all	No opinion
1. Improved my capacities in understanding and analyzing criminalistics in the area of wildlife.	18	8			
2. Contributed with sufficient tools for me to work in this area.	16	10			
3. Helped me to express my concerns and ideas.	12	12	2		
4. Inspired me to devote professional/personal pursuits to wildlife issues associated with criminalistics.	19	7			
5. Fulfilled my expectations in terms of contents and time allotted to this module.	11	12	3		

Additional observations and comments by participants, with regard to Module 1:

- Generally speaking, the course contents were well worth it. We didn't know the presenter until now. It would be good to have a more interactive presentation of the course, taking advantage of the benefits offered by current technology. I think it would be good in the future to offer a course by region, so that inspectors can prepare their inspection reports with more detail and professionalism, related to the place where events occurred, and representing this location on a map so that the accidents occurring at a certain site can be well characterized and marked at appropriate points on the report. To achieve this, a short course on geodesy and topography is necessary. Without necessarily becoming experts in this area, it would be possible to improve the way that the places where events occur are represented in the inspection reports. Right now, there aren't any homogenous criteria, and not even a procedures manual for drawing a sketch or a map. It is really a shame to see how a good piece of work can be wasted because of not knowing how to or not being able to represent works or damages to ecosystems—something that is very important for better follow-up on administrative procedures, and especially in the case of procedures involving environmental impact and federal zones.
- A little more time is necessary.
- More time is needed to read and complete the exercises indicated.
- It seems to me that the topic is rather extensive for the amount of time and the material we were provided with.
- There should be more interaction with the instructor. Maybe videoconferences would be a good tool.
- The high level of the course is acceptable.
- The exercises must be explained better. Some are impossible to understand.
- The material and methodology are very useful.
- Course materials are very good, very clear and easy to understand. What could be improved a bit are the readings. They are very interesting, but a bit difficult to read because of the quality of the copies printed.
- The PDF documents entitled "*Criminalística en México*" and "*Investigación científica*" were somewhat illegible. The Excel files have a predetermined configuration that does not allow an answer to be input.
- The information is interesting. The only thing is to explain more clearly what must be done in the exercises, and perhaps to select some more legible and understandable readings.

Module 2	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Improved my capacities in understanding and analyzing criminalistics in the area of wildlife.	23	6			
2. Contributed with sufficient tools for me to work in this area.	22	7			
3. Helped me to express my concerns and ideas.	17	6	3	1	
4. Inspired me to devote myself to wildlife issues associated with criminalistics.	20	9			
5. Fulfilled my expectations in terms of contents and time allotted to this module.	15	12	2		

Additional observations and comments by participants, with regard to Module 2:

1. I think that this module in particular should be a bit more didactic so the identification guidelines can be used. Also, the importance of the correct identification of specimens, parts and/or derivatives should be linked as a tool in environmental criminalistics in the wildlife area.
2. In my opinion, the time allotted for reading all the materials and completing the exercises was not enough. Some materials must be read more than once in order to understand them and to be able to complete the corresponding exercises.
3. Internet links could be included for accessing keys to species identification.
4. A lot of practice is necessary to be able to identify the wide variety of wild animals and plants.
5. More time is needed to do the exercises.
6. Add new contents and emphasize aspects of identification of specimens, products and/or by-products.
7. This course allows us to efficiently develop expertise in wildlife criminalistics and in identifying specimens of wild animals and plants.
8. More interaction between the professor and student is necessary.
9. This topic is very interesting because it explains how to prepare an expert's report. It is important to provide the necessary elements to judges and the Federal Attorney's Office.
10. Unfortunately, this course involves a great deal of information that must be reviewed carefully, and the amount of time allotted is inadequate.
11. The information contained in this module is very interesting and is very useful for the inspection activities carried out in Profepa. A lot of homework was required, but the topics covered were also extensive. The only thing needed is to use photographs with clearer images to simplify the task of identification.

Module 3	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Improved my capacities in understanding and analyzing criminalistics in the area of wildlife.	11	6	2		
2. Contributed with sufficient tools for me to work in this area.	14	3	2		
3. Helped me to express my concerns and ideas.	11	6		1	1
4. Inspired me to devote myself to wildlife issues associated with criminalistics.	11	7	1		
5. Fulfilled my expectations in terms of contents and time allotted to this module.	12	5	1	1	

Additional observations and comments by participants, with regard to Module 3:

1. It is necessary to comment on the decentralization of wildlife in the Northern Border States and what the expectations are for the Southern States.
2. All the topics related to wildlife legislation and management were addressed.
3. The topic covered is very broad.
4. When I read the texts in Modules 2 and 3, I understood some things that I was doing incorrectly in my professional activity, but I analyzed them and investigated them so I could expand my understanding. Thank you.
5. The topics covered are very general and all inspectors should have a perfect understanding of them.
6. This course allows us to prepare an expert's report efficiently on wildlife criminalistics and to learn about wildlife management.

Module 4	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Improved my capacities in understanding and analyzing criminalistics in the area of wildlife.	17	2			
2. Contributed with sufficient tools for me to work in this area.	16	3			
3. Helped me to express my concerns and ideas.	12	4	1		2
4. Inspired me to devote myself to wildlife issues associated with criminalistics.	15	3			1
5. Fulfilled my expectations in terms of contents and time allotted to this module.	13	4	1		

Additional observations and comments by participants, with regard to Module 4:

1. The information is adequate and of good quality, however, practice is necessary for reinforcing the knowledge.
2. This module requires practice.
3. It seemed like a very interesting topic; however, there was very little time to analyze the supporting materials.
4. Excellent module.
5. As in the prior modules, practice is a fundamental element in this topic since the topic of wildlife is only one part of the many different activities that inspectors must address.

Module 5	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Improved my capacities in understanding and analyzing criminalistics in the area of wildlife.	15	7	3		
2. Contributed with sufficient tools for me to work in this area.	15	6	4		
3. Helped me to express my concerns and ideas.	12	6	2	3	2
4. Inspired me to devote myself to wildlife issues associated with criminalistics.	17	4	4		
5. Fulfilled my expectations in terms of contents and time allotted to this module.	14	6	3	2	

Additional observations and comments by participants, with regard to Module 5:

1. Due to the complexity of the topic, it would have been beneficial to have direct personal attendance [of the instructor] at some of the practical lessons.
2. The module has been written with technical language that is unclear and not well expressed by the professor. The exercises are not very understandable nor are their purposes clear. The module exam is anti-pedagogical, with errors that may be apparent or intentional, prompting insecurity in contributing the correct answer since it is not clear what the question is. The module is not self-explanatory or practical for learning online; there are problems in opening up files, and they are not correctly explained.
3. It is important to develop a practical part of the course in which, by completing exercises, we could work from georeferences to the introduction of data in a GIS [program]. This would clearly allow us to better learn about this type of tool and would help us in preparing expert reports.
4. Unfortunately, not all of us working in Profepa offices have the possibility of downloading and obtaining information programs by internet to conduct this type of cartographic expert reports, due to lack of access to information.
5. The module contents are complete. However, the course should be offered with the physical presence of the presenter to be able to clear up doubts.
6. If everyone would have had the possibility of accessing the ArcView 3.x programs or any Geographic Information System [GIS] used by Profepa, all the objectives would be fulfilled.
7. The topic is a very good one, but as in the previous ones, it is necessary to study it more intensively.
8. The topic is new for me, and I found it extremely interesting. I learned more than I can put in practice in my everyday work.
9. With the topics addressed in this module, I expanded my knowledge of the use of geographic information systems to be included in expert cartographic reports.
10. The readings are interesting but are very theoretical and not very practical. The guidelines for preparing summaries of readings and for “exercises” are not precise.
11. I was unable to open up a file to complete an exercise, and I also feel a little more detailed explanation was needed since the topic is very complex.
12. The contents are good. However, this topic needs to be addressed with practical examples since the GIS systems are not easy to understand if you don’t have the necessary program to use them. Consequently, I think everything was too theoretical, and I don’t think those who are new to GIS systems learned much from this module.
13. I would have liked reading materials related to environmental matters.
14. The contents presented in this module are very useful, enabling expert reports to be written in a more effective way, locating the area where the offense was committed in spatial terms. It was not clearly explained what we were supposed to do in the exercises. The readings were interesting, but somewhat confusing... As for the topics addressed, they should be explained in a practical manner, to learn how to use the Arc View, for example.

Module 6	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Improved my capacities in understanding and analyzing criminalistics in the area of wildlife.	14	5			
2. Contributed with sufficient tools for me to work in this area.	16	2	1		
3. Helped me to express my concerns and ideas.	12	6	1		
4. Inspired me to devote myself to wildlife issues associated with criminalistics.	14	4	1		
5. Fulfilled my expectations in terms of contents and time allotted to this module.	16	3			

Additional observations and comments by participants, with regard to Module 6:

1. The topic is too extensive to understand it completely.
2. The course is focused on basic aspects of legislation that, as experts, we should take into consideration.
3. This module in particular was a bit complicated since highly technical legal terms were used.
4. Legal language is very complicated for me, and thus the course was difficult for me, especially in terms of the concepts.
5. This is a topic with terms that are completely new for me. It was very interesting, although I had to work hard to understand it.
6. The topics were interesting, even if you're not a lawyer. The legal terms presented are frequently used in Profepa administrative procedures, so it is important to learn about them to be able to address matters in a comprehensive way (both technically and legally).

Module 7	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Improved my capacities in understanding and analyzing criminalistics in the area of wildlife.	17	4			
2. Contributed with sufficient tools for me to work in this area.	17	4			1
3. Helped me to express my concerns and ideas.	15	5			1
4. Inspired me to devote myself to wildlife issues associated with criminalistics.	14	7			
5. Fulfilled my expectations in terms of contents and time allotted to this module.	17	3			1

Additional observations and comments by participants, with regard to Module 7:

1. Excellent course. I thought this one was the best of all of them [the modules]. It was concise and clear, and the amount of homework we were required to complete was not excessive. Congratulations!!
2. Very well written and presented.
3. I am grateful to the presenters for addressing this topic since it has helped me develop a good expert report in wildlife or environmental aspects of my professional work. The ideas presented in this module have helped me to better understand things and to resolve problems accurately through an expert report presented before a Judge or the Federal Attorney's Office.
4. This module has been very interesting and illustrative. The best of all the modules.
5. The information provided in this module is very good, but a great deal of practice is necessary in order to be able to prepare expert reports.

EVALUATION OF INSTRUCTOR PERFORMANCE BY PARTICIPANTS

The results obtained from the evaluations of course instructors (professors) are as follows:

Module 1

Alejandro Angulo Carrera	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Demonstrated knowledge on topic.	23	3			
2. Responded to questions and/or doubts raised.	14	1	3	1	7
3. Helped me to understand the topics in this module.	20	6			
4. I would take another class with this instructor.	20	4			1

Additional observations and comments regarding the instructor (professor) made by participants:

1. I think that more contact between the professor and students is needed, since I've sent in my work but haven't received any response. More clarity is needed on how to complete Exercise No. 1 because it's confusing and there are no instructions provided.
2. The topics addressed in this module have contributed new knowledge that can be applied in the activities carried out in the inspection of natural resources. However, it is necessary to include the methodology used in environmental criminalistics in some of the training courses given to personnel involved in natural resources inspection. This would make it possible to have more precise data that would be useful either in carrying out administrative procedures and in the case an environmental offense is established.
3. In my opinion, the material prepared shows very low research quality. Even the way the readings have been written is terrible. I think the readings used and presentations given should be of high quality.
4. I thought the module was very good since this is the first time I've seen criminalistics brought down to earth and applied directly to wildlife problems. Previously, criminalistics experts did not address the area of wildlife, or at least they looked at us as if we were strangers for wanting to link criminalistics to this field.
5. The instructor has knowledge of this topic, and I am pleased I have been able to take this course since it will be useful to me. I hope we will continue to benefit from his assistance.
6. I want to sincerely congratulate the instructor because the exercises clearly demonstrate a great deal of preparation on his part and demonstrate the importance of the capacities we need to have in observing and synthesizing—not only for preparing expert reports, but generally in our area of work and personal level. The Criminal Profile exercise reveals the instructor's concern and dedication to this topic, and demonstrates how we can obtain information that will help us not only in resolving problems, but also extends to the planning of the actions we carry out in our work.
7. The presenter was available and was involved in the module, resolving doubts raised and responding to emails.

Module 2

Antero Carmona Omaña	Number of respondents				
	A little	Somewhat	A little	Not at all	No opinion
1. Demonstrated knowledge on topic.	24	4			1
2. Responded to questions and/or doubts raised.	13	3	1	2	10
3. Helped me to understand the topics in this module.	24	4	1		
4. I would take another class with this instructor.	25	1	2		1

Additional observations and comments regarding the instructor (professor) made by participants:

1. The module is very good. There is a lot of homework. I know exercises are very important, but it's a bit intense because of the work we need to accomplish in Profepa. As for the guidelines, they are very good, but a great deal of practice and close observation is necessary. The foundations for the task of identification are provided. I really learned a lot and the course is very good.
2. What is lacking is more direct communication.
3. I think that more attention should have been given to topics such as identifying Mexican specimens and highlighting the important taxonomic groups. It is important to learn about the animals included in CITES, but this course is on wildlife, and what we address in our daily work is Mexico's flora and fauna.
4. The instructor has knowledge and experience in this topic. I'm pleased to be one of those taking this course, due to the high quality of the material and what I have been able to learn so far. I hope to continue.
5. The presenter responded to homework and is very knowledgeable about the topics.

Module 3

Antero Carmona Omaña	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Demonstrated knowledge on topic.	15	3	1		
2. Responded to questions and/or doubts raised.	6	2	1	1	9
3. Helped me to understand the topics in this module.	14	3	2		
4. I would take another class with this instructor.	14	3	1	1	

Additional observations and comments regarding the instructor (professor) made by participants:

1. I think the instructor needed to have structured the module in order to move from the general to the specific, using the CITES international context as a starting point. It is clear that this convention proposed the foundations for establishing legal frameworks more true to reality, and to bring the course to the national level, to the Ministry, to Profepa and to the states. While very decentralized, it is important to look at what their experience has been and perhaps analyze or recuperate what has been positive and what should not be repeated.

Module 4

Leandro David Soriano García	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Demonstrated knowledge on topic.	17	2			
2. Responded to questions and/or doubts raised.	10	2			6
3. Helped me to understand the topics in this module.	17	2			
4. I would take another class with this instructor.	16	2			1

Additional observations and comments regarding the instructor (professor) made by participants:

1. More communication was needed
2. I requested information from the presenters, and they responded with great care, helping me to resolve the doubts I had.
3. Topics very well explained by the presenter.
4. This module was very interesting, practical and complete.

Module 5

Miguel Martínez Tapia	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Demonstrated knowledge on topic.	20	5			
2. Responded to questions and/or doubts raised.	13	1		1	10
3. Helped me to understand the topics in this module.	16	5	3		1
4. I would take another class with this instructor.	16	5		2	2

Additional observations and comments regarding the instructor (professor) made by participants:

1. The geographer has many capacities for this course, but there are some problems that prevent adequate explanations and learning of the material. I believe most of us want to learn from this course and to make the best use of the little time we have to dedicate to it.
2. I would like for this topic, which is more technical, not to be self-taught, with a teacher present during the classes, preferably.
3. I wish the topic would be broader.
4. When asked for help, he resolved the doubts I had and he was very pleasant.
5. My appreciation for having helped me clear up some doubts that came up during the exercise on cartographic expert reports.
6. The presenter is very knowledgeable on this topic; however, [he could use] a little more interaction with the inspectors for making the best use of all the knowledge he could share.
7. He is very knowledgeable on the topics.
8. The information is interesting and clear.

Module 6

Gabriel Calvillo Díaz	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Demonstrated knowledge on topic.	18	1			
2. Responded to questions and/or doubts raised.	10	1			8
3. Helped me to understand the topics in this module.	15	4			
4. I would take another class with this instructor.	16	1			2

Additional observations and comments regarding the instructor (professor) made by participants:

1. This module helped me to understand part of the work I carry out as an inspector in the courts and in the Federal Attorney's Office, so it was very helpful for me.
2. The legal topics presented are very interesting; however, for those of us who aren't lawyers, the terminology used is complicated.

Module 7

Alejandro Angulo Carrera, Gabriel Calvillo Díaz	Number of respondents:				
	A lot	Somewhat	A little	Not at all	No opinion
1. Demonstrated knowledge on topic.	18	1			1
2. Responded to questions and/or doubts raised.	11	1			8
3. Helped me to understand the topics in this module.	16	4			
4. I would take another class with this instructor.	15	4			1

Additional observations and comments regarding the instructor (professor) made by participants:

1. Excellent course. I think this one was the best of all the modules. It was concise and clear, and homework assignments were not excessive.
2. Very well written and presented.
3. This module was very interesting and illustrative.
4. The information provided in this module is very good, but a great deal of practice is necessary in order to prepare experts' reports.

COMMENTS AND REFLECTIONS FROM INSTITUTIONS

To obtain comments and insights from representatives of the institutions participating in the Course, interviews were conducted with Javier Enrique Sosa Escalante, General Director of Inspection of Wildlife, Marine Resources and Coastal Ecosystems (*Director General de Inspección y Vigilancia de Vida Silvestre, Recursos Marinos y Ecosistemas Costeros*) at Profepa and Gabriela A. Rosales, Inacipe Training Director.

Each interview included of five questions designed to elicit comments and impressions about the course (Annex 3).

The information obtained from the interviews was analyzed and classified as either pedagogical or institutional in nature. Results from the two interviews are summarized in the following table.

CATEGORY	INDICATOR	RESULTS
Pedagogical	General impressions	<ul style="list-style-type: none"> ▪ It is important to continue to offer this course in order to train certified wildlife criminalistics experts and highly-trained personnel. ▪ It is necessary to strengthen training in the area of inspection and investigation of wildlife violations and crimes and in lines of research on environmental violations. ▪ It is absolutely necessary to build capacities in participants to integrate evidence from criminal acts into their work. ▪ Students expressed willingness and interest to participate, and the participating institutions and organizers provided their support on an ongoing basis.
	Areas of improvement	<p>The following areas of improvement were identified:</p> <ul style="list-style-type: none"> ▪ In the academic area, the proposal is to incorporate personnel who have appropriate professional training and who transmit knowledge and experience in the area of wildlife. ▪ In the pedagogical area, the proposal is to reinforce the topics in which participants demonstrated low results.
	Proposals	<p>In the academic area, the proposals are the following:</p> <ul style="list-style-type: none"> ▪ It is very important and would be very interesting to have instructors from the United States and Canada. ▪ It is absolutely necessary to conduct training like workshops and/or conferences in the areas in which low performance was detected. <p>Regarding the course's structure, methodology and characteristics, some points associated with participants are proposed:</p> <ul style="list-style-type: none"> ▪ It would be interesting to generate exchanges in the field. ▪ Regarding course admission, the application of a prior evaluation should be established as a requirement. ▪ It is important to generate academic incentives and motivation mechanisms for those who complete the course. ▪ It is absolutely necessary to establish a line of action for following up with participants who have received training and accreditation so they can share their academic and job experiences.

CATEGORY	INDICATOR	RESULTS
		Some general proposals are the following: <ul style="list-style-type: none"> It would be very important and interesting to create a series of protocols for the implementation of national and trilateral intelligence groups and to exchange information regarding wildlife trafficking.
Institutional	Challenges	The institutional challenges identified are the following: <ul style="list-style-type: none"> Promote the course more actively among Profepa inspectors. Work towards accrediting all wildlife inspectors within a period of two years. Increase the quality of service provided by Profepa federal inspectors. Promote the creation of regional training sites for implementing a specific training model. Incorporate videoconferences as a support tool in training.
	Training opportunities	The areas detected as training opportunities are as follows: <ul style="list-style-type: none"> Wildlife offenses. Wildlife trafficking. Proof and evidence of criminal acts. Investigative lines on environmental offenses. Forensic techniques. Environmental criminalistics in the area of wildlife. Geographic Information Systems in the investigation of wildlife offenses. Administrative and criminal expert work, evidence, and accreditation in the area of wildlife.

i. AREAS OF IMPROVEMENT IDENTIFIED

Using results from the final course evaluation and comments made by participants as points of reference, improvements were identified in four fundamental categories in the online course.

Each category has a series of indicators for describing improvements that can be made in the course, as demonstrated in the following tables:

PEDAGOGICAL CATEGORY In this category, the course structure and methodology were evaluated.	Descriptor
1. Objectives	<ul style="list-style-type: none"> Clear writing of module objectives. Clear writing of learning objectives.
2. Contents	<ul style="list-style-type: none"> Definition of topics to be covered, in line with module objectives.
3. Activities	<ul style="list-style-type: none"> Design of activities, in line with topic and contents. Design of interactive activities supported by ICTs.
4. Materials	<ul style="list-style-type: none"> Selection of suitable materials, in line with topic and educational modality.
5. Evaluations	<ul style="list-style-type: none"> Design of evaluations, in line with topics reviewed in each module.
6. Language	<ul style="list-style-type: none"> Use of clear, suitable language in contents, materials, activities, etc., taking into consideration the profile of the group for which the course is designed.

<u>TECHNICAL CATEGORY</u> In this category, inputs (supporting material) used in the course were evaluated.	Descriptor
1. Quality of materials	<ul style="list-style-type: none"> ▪ Appropriate structure of materials presented in PowerPoint. ▪ Appropriate presentation of material, in relation to topics covered.
2. Support materials	<ul style="list-style-type: none"> ▪ Appropriate relationship between images, schemes, information tables, etc. with contents. ▪ Quality of audio material. ▪ Quality of images and electronic reading materials. ▪ Including internet links to find information and assistance.

<u>MANAGEMENT CATEGORY</u> The way the course was conducted was evaluated in this category.	Descriptor
1. Communication tools	<ul style="list-style-type: none"> ▪ Use of tools for improving communication among stakeholders participating in the online course. ▪ Efficient use of asynchronous communication tools. ▪ Including synchronous communication tools.
2. System	<ul style="list-style-type: none"> ▪ Programmatic maintenance of virtual classroom for its adequate functioning (downloading materials, communicating with instructor, carrying out learning activities, accessing services available in virtual classroom, etc.).

<u>USABILITY CATEGORY</u> The design and functionality of the site where the course is located was evaluated in this category.	Descriptor
1. Virtual Classroom.	<ul style="list-style-type: none"> ▪ Quick navigating in virtual classroom. ▪ Clear, suitable design. ▪ Clear instructions for activities.

V. RECOMMENDATIONS FOR FUTURE SESSIONS

Recommendations for each of the categories for analysis used in the course evaluation are listed below for future sessions of the Course in Environmental and Wildlife Criminalistics.

Mentioned in each category are the factors of attention used to develop the recommendations for improving the course.

<u>PEDAGOGICAL CATEGORY</u>	Factors of attention	Recommendations
1. Objectives 2. Contents 3. Activities 4. Materials 5. Evaluations 6. Language	<ul style="list-style-type: none"> ▪ 7.95 average obtained in final evaluation. ▪ Comments resulting from general module evaluations. ▪ Comments resulting from evaluations regarding instructors' performance. 	<ul style="list-style-type: none"> ▪ Restructuring learning objectives. ▪ Restructuring learning activities. ▪ Incorporating dynamic activities that can be supported by technological tools in widespread use on the Internet. ▪ Use of material available on Internet. ▪ Recommendations for reading materials (lists of publications, newspapers and periodicals, etc.) ▪ Designing evaluations that can be supported by technological tools in widespread use on the Internet. ▪ Designing guidelines for instructors on the design of online courses.

<u>TECHNICAL CATEGORY</u>	Factors of attention	Recommendations
1. Quality of materials 2. Support materials	<ul style="list-style-type: none"> ▪ Comments made by participants in general module evaluations. ▪ Comments made consistently in evaluations regarding instructors' performance. 	<ul style="list-style-type: none"> ▪ Improving materials prepared by instructors. ▪ Using guidelines for developing PowerPoint presentations. ▪ Including electronic materials. ▪ Searching for materials of higher visual and audio quality (better resolution).

<u>MANAGEMENT CATEGORY</u>	Factors of attention	Recommendations
1. Communication tools 2. System	<ul style="list-style-type: none"> ▪ Comments made by participants in general module evaluations. ▪ Comments made consistently in evaluations regarding instructor's performance. 	<ul style="list-style-type: none"> ▪ Including Discussion Forums in learning modules. ▪ Including group activities, using tools available on the Internet such as Wikis, Blogs and distribution lists. ▪ Creating rules for instructors and participants, for the efficient use of asynchronous communication tools. ▪ Reviewing the state of the classroom on an ongoing basis.

<u>USABILITY CATEGORY</u>	Descriptor of area	Recommendations
1. Virtual Classroom	<ul style="list-style-type: none"> ▪ Comments made by participants in general module evaluations. 	<ul style="list-style-type: none"> ▪ Improving virtual classroom, incorporating programming and design elements for better functioning.

VI. CHALLENGES AND OPPORTUNITIES FOR FUTURE TRAINING EXPERIENCES

Challenges

The implementation of the course and the analysis conducted for this report show the following challenges for future implementation of this course and, perhaps, for other training exercises:

1. Complying pedagogically with the design of an online course. Coherence among learning objectives, contents, learning activities and evaluations.
2. Providing training for specialists in the area of wildlife as well as for instructors for online courses.
3. Incorporating more technological elements in the course.
4. Achieving the certification of a larger group of Profepa inspectors.
5. Creating high-quality training to enable inspectors to improve their job performance.

Opportunities

Using the table of averages from the final exam (Table 4) as a point of reference, the areas of opportunity for training are primarily as follows:

- Improve environmental forensic science in the area of wildlife

- Increase the application of criminalistics in the field
- Improve or enhance the use of Geographic Information Systems in the investigation of wildlife offenses
- Enhance the use of forensic techniques for investigating wildlife offenses
- Improve the level of expert work, evidence gathering and handling, and accreditation of administrative and criminal evidence in the area of wildlife

There is also an opportunity to follow a “train the trainer” approach in criminalistics relating to wildlife taking advantage of successful candidates from these and following experiences in the implementation of the multi-module sessions.

VII. CONCLUSIONS

Based on the experience gained and academic results achieved by offering this course, the following conclusions can be made:

- It is extremely important to maintain continuity in the institutional program for capacity building in wildlife legislation enforcement. This academic course is important in strengthening the capacities of Profepa’s inspectors, who are dedicated to caring for and looking after the country’s wildlife.
- It seems necessary to work toward ongoing improvement in the institutional training program and its replication in other areas. In the future, this type of course can be extended to various areas of Profepa’s work, including wastes, environmental impact, and others.
- While the results of this first course offering were satisfactory, with successful completion by 88% of participants, the course can be improved. [The student evaluations pointed out several areas that are important to address in effecting such improvements.] It is also important that the completion percentage continues to improve and that more people become certified as experts in environmental criminalistics and wildlife.
- Obtain recognition of these courses toward inspector certification and enhance the institutional program with training courses in specialized areas such as CITES, management and containment of wild animals, investigative and intelligence methods, species identification, information systems application and forensic capacities.
- Publish a Manual for Preparing Wildlife Expert Reports (*Manual de Elaboración de Dictámenes Periciales en Materia de Vida Silvestre*) as an instrument for standardizing procedures and protocols at the national level.
- Add new training areas in joint Canada-US-Mexico training programs.
- Create forums within training programs for exchanging knowledge and experiences in the inspection, surveillance and investigation of wildlife trafficking.
- Identify new priorities in North American regional cooperation in wildlife protection.

VIII. ANNEXES

ANNEX 1. CALL FOR PARTICIPATION



OFFICE OF THE FEDERAL ATTORNEY FOR ENVIRONMENTAL PROTECTION
(*PROCURADURÍA FEDERAL DE PROTECCIÓN AL AMBIENTE*)



OFFICE OF NATURAL RESOURCES (*SUBPROCURADURÍA DE RECURSOS
NATURALES*)

BUREAU OF WILDLIFE, MARINE RESOURCES AND COASTAL ECOSYSTEMS (*DIRECCIÓN
GENERAL DE INSPECCIÓN Y VIGILANCIA DE VIDA SILVESTRE, RECURSOS MARINOS Y
ECOSISTEMAS COSTEROS*)

CALL FOR PARTICIPATION

To Natural Resources inspectors in the Office of the Federal Attorney for Environmental Protection, to register for the course, for training and certification in specific technical capacities of Professional Career Service.

EXPERTS IN ENVIRONMENTAL CRIMINALISTICS AND WILDLIFE

The Federal Attorney for Environmental Protection has been mandated to guarantee the enforcement of environmental justice in an efficient, transparent and fair manner. With the aim of fulfilling this mandate, the strengthening of technical-professional capacities is considered a component that will facilitate fighting impunity and organized crime and bringing legal certainty to citizens. Therefore, the Bureau of Wildlife, Marine Resources and Coastal Ecosystems, under the jurisdiction of the Office of Natural Resources, will implement an institutional training program for strengthening the enforcement of environmental legislation, and this program will help to consolidate the granting of justice in the area of wildlife. The three-year program has a goal of training 99 experts.

Also, the North American Program for Cooperation in the Enforcement of Environmental Legislation which, through the North American Wildlife Law Enforcement Group (NAWEG), acknowledges that the enforcement of wildlife legislation is an essential element for the conservation, protection, sustainable use and expansion of wild flora and fauna. Also, it is indicated that the enforcement of laws is conferred to the government inspectors and officials responsible for monitoring and compliance, and they must receive appropriate, ongoing training for anticipating, identifying and fighting the illegal activities associated with wildlife species.

On the basis of the above, this Program will benefit from the cooperation of the North American Commission for Environmental Cooperation, Environment Canada, United States Fish and Wildlife Service and the National Institute of Criminal Sciences (*Instituto Nacional de Ciencias Penales*). Starting this year, Profepa will begin the first course for training and certifying 33 inspectors in the specific technical capacity as Experts in Environmental Criminalistics and Wildlife.

Participants will complete eight theoretical-practical modules offered in a combination of virtual and required physical attendance modalities, in line with the following:

1. OVERALL GOAL:

Educate wildlife criminalistics experts, certified in the inspection and investigation of wildlife violations and crimes.

2. SPECIFIC OBJECTIVES:

- Provide training in using support materials for identifying wildlife species regulated by Semarnat.
- Provide training in reviewing, analyzing and validating documentary evidence related to wildlife use and management, and legal compliance in the terms and conditions specified in environmental legislation.
- Increase capacities in wildlife inspection through knowledge and application of techniques in forensic analysis.
- Provide training in the use and application of Geographic Information Systems (GIS) in the preparation of crime mapping, cartographic reports and spatial representation of the crime scene.
- Provide training in seeking, analyzing and assessing evidence and evidence for the accreditation of wildlife violations and crimes.
- Provide training in the structure and sections included in a technical-expert report, in order to be able to prepare such a report.
- Provide training in the application of theoretical-conceptual knowledge and technical tools in field operations related to wildlife inspection and surveillance.

3. MODULES:

1. Wildlife forensic sciences

2. Techniques and methods for identifying species of wild flora and fauna

3. Wildlife management

4. Forensic techniques for investigating wildlife offenses

5. Geographic Information Systems in the investigation of wildlife offenses

6. Expert work, evidence and accreditation of administrative and criminal evidence pertaining to wildlife

7. Preparation of expert's Wildlife Forensic Report

8. Field operations in investigation of wildlife offenses

4. REQUIRED PROFILE:

Education

University degree in Sciences with focus on Biology, Ecology, Agronomy, and Veterinary or specialization in Zootechnics, Natural Resources, and Forestry Engineering, and

Technical Knowledge:

- i. Normative framework that regulates wildlife conservation and protection.
- ii. Technical and expert reports on wildlife and/or forestry.
- iii. Environmental legislation on wildlife.
- iv. Knowledge in identifying wildlife species.
- v. Experience in wildlife inspection and surveillance activities.
- vi. Knowledge in using computer programs (Word, Excel, Internet).
- vii. Basic use of GPS receivers.

Work experience:

- A minimum of three years in positions associated with the inspection and surveillance of natural resources.
- Capacity and experience in coordinating inspection and surveillance activities.
- Background in preparing expert reports on wildlife.

Requirements:

- a) Applicants must present a letter of commitment from their regional office, with the regional office’s commitment to facilitating the training and the necessary resources for the inspector to complete all of the modules. This letter should be approved by the regional Deputy Delegate for Natural Resources.
- b) Applicants must present a letter explaining their interest in taking the course and their commitment to completing all the activities and completing evaluations established for the training course.
- c) Applicants must complete 100% of the evaluations and attend the eight course modules.
- d) Applicants must have access to computer equipment, software and an Internet connection and must have a mastery of technological tools such as MS Office (Word, Excel, Power Point), an Internet browser (Explorer or Netscape), and email.
- e) Applicant must send Application for Registration and Participant Registry form.

<p>DURATION: 120 hours (7 modules in virtual modality and 1 practical module)</p> <p>DATE: Applications and participant registration will be accepted from 1 April to 30 June 2008. Course begins in September 2008.</p> <p>REGISTRATION: limited to 33 inspectors.</p>	<p>PRESENTERS:</p> <p>National Institute of Criminal Sciences (<i>Instituto Nacional de Ciencias Penales</i>)</p> <p>Semarnat-Bureau of Wildlife (<i>Dirección General de Vida Silvestre</i>)</p> <p>Environment Canada</p> <p>United States Fish and Wildlife Service</p> <p>PGR-Unit Specializing in Investigation of Crimes Against the Environment and Addressed in Special Laws (<i>Unidad Especializada en Investigación de Delitos contra el Ambiente y Previstos en Leyes Especiales</i>)</p>
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SEND APPLICATIONS FOR REGISTRATION, WITH DOCUMENTATION ATTACHED, TO THE FOLLOWING EMAIL:
jgonzalez@profepa.gob.mx

1 APRIL 2008
NATURAL RESOURCES OFFICE (SUBPROCURADURÍA DE RECURSOS NATURALES)
COORDINATION:
BUREAU OF WILDLIFE, MARINE RESOURCES AND COASTAL ECOSYSTEMS (*DIRECCIÓN GENERAL DE INSPECCIÓN DE VIDA SILVESTRE, RECURSOS MARINOS Y ECOSISTEMAS COSTEROS*)
ALEJANDRO ANGULO CARRERA
General Director
JOEL GONZÁLEZ MORENO
Director of Wildlife Inspection

ANNEX 2. EVALUATION QUESTIONNAIRE

ENVIRONMENTAL EXPERTS COURSE

COURSE IN ENVIRONMENTAL AND WILDLIFE CRIMINALISTICS

EVALUATION QUESTIONNAIRE

EVALUATION PROCEDURES

With the aim of evaluating and improving the **Course in Environmental and Wildlife Criminalistics**, the following questionnaire was distributed among students, and includes:

- A) General module evaluation; and
- B) Evaluation of instructor's performance.

Students should mark only one option in the field of responses with a checkmark or an "X."

A) GENERAL MODULE EVALUATION:

<i>In general, Module 1:</i>	A lot	Some-what	A little	Not at all	No opinion
1. Improved my capacities in understanding and analyzing environmental criminalistics in the area of wildlife.					
2. Contributed sufficient tools for me to work in this area.					
3. Helped me to express my concerns and ideas.					
4. Provoked my interest to devote time to wildlife issues associated with criminalistics.					
5. Fulfilled my expectations in terms of contents and the amount of time assigned to this module.					
6. Additional observations and comments:					

B) EVALUATION OF INSTRUCTOR'S PERFORMANCE:

<i>Alejandro Angulo Carrera:</i>	A lot	Some-what	A little	Not at all	No opinion
1. Demonstrated knowledge on topic.					
2. Responded to questions and/or doubts raised.					
3. Helped me to understand the topics in this module.					
4. I would take another class with this instructor.					
5. Additional observations and comments:					

NOTE: The questionnaires are to be distributed at the end of the module and after being filled out correctly will be turned in to the course coordinator. All answers are confidential (students will not be required to fill in their names). The answers will be given to the instructors for their information after the course has been COMPLETED. Students should therefore feel absolutely free to express their opinions and to make additional comments.

ANNEX 3. RESULTS FROM INTERVIEWS

Javier Enrique Sosa Escalante (Profepa)

1. *What are your impressions of the course in general?*

I believe that educating environmental criminalistics experts, especially certified in the inspection and investigation of wildlife violations and crimes, is fundamental, since highly-trained personnel are needed to strengthen the lines of investigation on environmental violations and to include evidence of criminal acts. I therefore consider it to be extremely important that this course continues.

2. *What would be some areas for improvement identified in the course?*

I would say academic areas, particularly with regard to integrating instructors from the United States and Canada, to transmit their knowledge on fighting illegal trafficking of wildlife species.

3. *What recommendations would you make to improve the course?*

- There should be an evaluation required for being accepted into the course.
- Including instructors from the United States and Canada.
- Including some type of mechanism for field exchange.
- Establishing incentives for the top five or ten students, who would have the opportunity to travel to the United States or Canada to exchange experiences.
- Developing mechanisms for motivating those completing the course and actions for following up with them.
- Developing or implementing a model for replicating the experiences through participation by Accredited Inspectors.

4. *In line with your impressions and experience in the course, what would be some challenges in the area of training for the participating institutions?*

To promote the course with each of its inspectors and to succeed in having each one of them become accredited within a two-year period, since this would improve and elevate the quality of service provided by Profepa federal inspectors.

5. *What would be some areas of opportunity for future training experiences?*

Procedures and protocols should be established for implementing national and trilateral intelligence groups, as well as for exchanging information on wildlife trafficking. The objective would be to diminish this activity.

Gabriela A. Rosales (Inacipe)

1. What are your impressions of the course in general?

It was clear that students as well as organizers found the course interesting. The institutions involved in the course provided ongoing support.

2. What would be some areas for improvement identified in the course?

- Environmental criminalistics in the area of wildlife
- Forensic techniques for investigating wildlife crimes and violations
- Geographic information systems in the investigation of wildlife crimes and violations.
- Administrative and criminal expert work, evidence and accreditation in the area of wildlife.

3. What recommendations would you make to improve the course?

To provide specialized training in the areas of opportunity detected, to reinforce knowledge with workshops and conferences for identifying errors made.

4. In line with your impressions and experience in the course, what would be some challenges in the area of training for the participating institutions?

One of the most important challenges would be to bring together experts at a particular site to attend training sessions together. This would facilitate total feedback. Videoconferences are an indispensable tool; however, training with the physical presence of instructors and students is critical.

5. What would be some areas of opportunity for future training experiences?

If regional training sites could be implemented, this would be very good for the institution. This would make it possible to develop a specific training model, in one-day sessions or in workshops. The area of opportunity that we could foresee in the future is a training scheme. If we lack a good program with adequate topics and logistics, training will perhaps not be as successful as anticipated.