



Commission for Environmental Cooperation



Collaboration to support sustainable trade of tarantulas in North America: Findings of the Tarantula Trinational Trade and Enforcement Workshop



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List of Abbreviations and Acronyms

CEC	Commission for Environmental Cooperation
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
Cluni	<i>Clave Única de Inscripción al Registro Federal de las Organizaciones de la Sociedad Civil</i> [Federal Register of Civil Society Organizations; Mexico]
Conabio	<i>Comisión Nacional para el Conocimiento y Uso de la Biodiversidad</i> [National Commission for the Knowledge and Use of Biodiversity; Mexico]
DGVS	<i>Dirección General de Vida Silvestre</i> [General Directorate for Wildlife; Mexico]
ECCC	Environment and Climate Change Canada
ECEC	E. Cooper Environmental Consulting
Ecosur	El Colegio de la Frontera Sur [The South Border College; Mexico]
EU	European Union
INTERPOL	International Criminal Police Organization
IUCN	International Union for Conservation of Nature
LGVS	<i>Ley General de Vida Silvestre</i> [General Law of Wildlife; Mexico]
NGO	Non-governmental organization
NOM-059	Mexican Official Standard NOM059-SEMARNAT-2010 [Mexico]
PIJAC	Pet Industry Joint Advisory Council
PIMVS	<i>Predios o Instalaciones que Manejan Vida Silvestre en forma confinada, fuera de su hábitat natural</i> [Property or Facility that Manages Wildlife in a confined way, outside their natural habitat]
PNUD-Biofin	<i>Programa de Naciones Unidas para el Desarrollo- Iniciativa para la Financiación de la Biodiversidad</i> [United Nations Development Programme- Initiative for the Financing of Biodiversity]
Profepa	<i>Procuraduría Federal de Protección al Ambiente</i> [Federal Attorney for Environmental Protection; Mexico]
Sagarpa	<i>Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación</i> [Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food; Mexico]
Semarnat	<i>Secretaría de Medio Ambiente y Recursos Naturales</i> [Secretariat of Environment and Natural Resources; Mexico]
Senasica	<i>Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria</i> [National Service of Health, Safety and Agroalimentary Quality; Mexico]
SHCP	<i>Secretaría de Hacienda y Crédito Público</i> [Ministry of Finance and Public Credit; Mexico]
UMA	<i>Unidad de Manejo para la Conservación de Vida Silvestre</i> [Management Units for the Conservation of Wildlife; Mexico]
UNAM	<i>Universidad Nacional Autónoma de México</i> [National Autonomous University of Mexico]
UNEP-WCMC	United Nations Environment Programme World Conservation Monitoring Centre
USFWS	United States Fish and Wildlife Service
WED	Wildlife Enforcement Directorate (of ECCC)

Abstract

The Tarantula Trinational Trade and Enforcement Workshop was organized by the Commission for Environmental Cooperation in response to the recommendations of the CEC publication *Sustainable Trade in Tarantulas: Action Plan for North America*. The workshop was held in Guadalajara, Jalisco, Mexico, from 27 February to 2 March 2018. The workshop was organized into three separate sessions. The first two days of the workshop consisted of the Trinational Trade Session. The following two days included two concurrent meetings: a Law Enforcement Closed Session, and an IUCN Red List Assessment Session. The Trinational Trade Session included 16 presentations in nine topics related to the conservation and sustainable trade in North American species of tarantulas that are included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. In addition, group discussions were held on the challenges and opportunities for promoting legal, sustainable and traceable trade in tarantulas through local community involvement, and on implementing the outstanding recommendations from the tarantula action plan. The workshop participants also visited the Management Unit for the Conservation of Wildlife (UMA) *Tarántulas de México*. The IUCN Red List Assessment Session was held to generate expert feedback for a new assessment of the tarantula species listed on CITES. The Enforcement Closed Session allowed participants from enforcement agencies to confidentially discuss smuggling methods, intelligence driven enforcement and tarantula trafficking.

Executive Summary

In 2017, the Commission for Environmental Cooperation (CEC) published *Sustainable Trade in Tarantulas: Action Plan for North America*—an action plan for promoting legal, sustainable and traceable trade in North American tarantula species that are listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). These species were referred to as the “priority tarantulas.” The action plan concerned 16 species of tarantulas and proposed 18 recommendations for improving cooperation among North American stakeholders, government policies that promote captive-breeding and sustainable trade in Mexico, collection of biological and trade information, conservation and enforcement.

In 2017, the CEC and the project Steering Committee (comprised of representatives of the CITES Authorities and government experts of Canada, Mexico and the United States) prioritized the following recommendations from the action plan:

- Coordinate a workshop to assess the conservation status of priority tarantulas for inclusion in the International Union for Conservation of Nature (IUCN) Red List and provide information that can be used to update the Mexican Official Standard NOM-059-SEMARNAT-2010 (NOM-059) on Mexican species at risk.
- Coordinate a trinational workshop on the trade and identification of the priority tarantulas.
- Develop and distribute a guide to the identification of priority tarantula species.

The CEC and the Steering Committee decided to implement the first two recommendations via a single trinational workshop on tarantula trade.

The *Tarantula Trinational Trade and Enforcement Workshop* was held in Guadalajara, Jalisco, Mexico, from 27 February to 2 March 2018. The workshop was organized with the following objectives:

- Promote stakeholder participation in efforts to support legal, sustainable and traceable trade in North America, consistent with applicable CITES provisions related to trade in tarantulas.
- Identify knowledge gaps and challenges for the development of the IUCN Red List assessment.
- Identify opportunities to promote legal, sustainable and traceable trade in priority tarantulas through engagement with local communities.
- Provide feedback to the draft tarantula identification guide.
- Lay the foundations for intelligence and collaborative enforcement actions to combat tarantula trafficking.

The workshop was organized into three separate sessions: a Trinational Trade Session, a Law Enforcement Closed Session, and an IUCN Red List Assessment Session.¹ The latter two sessions ran concurrently in the last two days of the workshop.

The Trinational Trade Session took up the first two days of the workshop. Forty-four people participated in the session, representing government, academic, civil society and business sectors, including 10 tarantula breeders/dealers from Canada, Mexico and the United States. On the first day of the Trinational Trade Session the participants were provided with a workshop discussion template to assist them in capturing and organizing their input into the group discussions.

¹ Only law enforcement personnel could attend the Law Enforcement Closed Session.

Presentations during the Trinational Trade Session covered the following topics:

Introduction to the priority tarantulas:

- A review of the conclusions and recommendations from the 2017 CEC publication *Sustainable Trade in Tarantulas: Action Plan for North America*.
- The natural history of the tarantula species that are listed on CITES Appendix II, including the distinction between tarantulas and “true” spiders; the taxonomy, distribution, life histories and conservation status of *Brachypelma* tarantulas; and the different life stages of tarantulas.

CITES and tarantulas:

- The history of CITES, how it is structured and functions, the CITES Appendices, the requirements for trade in Appendix II species, sustainable use and conservation.
- An analysis of data compiled from the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) CITES Trade Database on the international trade in priority tarantula species in the years 2007–2016.
 - Almost all tarantula specimens were captive-bred and traded for commercial purposes.
 - The United States imported 66% of all specimens in trade.
 - Mexico exported 34% of the specimens in trade. The European Union exported 44%, including most of the specimens traded since 2014.

Trade and value chain:

- An overview of the conservation and sustainable management schemes established in Mexico, such as the Management Units for the Conservation of Wildlife (*Unidades de Manejo para la Conservación de Vida Silvestre—UMA*) and the Property or Facility that Manages Wildlife in a confined way, outside their natural habitat (*Predio o Instalación que Maneja Vida Silvestre en forma confinada, fuera de su habitat natural—PIMVS*) with specification about how UMAs and PIMVS operate in accordance with a management plan approved by Semarnat, which describes and coordinates activities for the management of wildlife species and their habitats and establishes goals and indicators of success. In addition, Mexico explained the procedures to prove the legal origin of wildlife specimens, parts and derivatives of wildlife and the elements that allow the traceability of movement from the UMA to the final trader.
- A summary of the supply chain for the production and export of *Brachypelma* tarantulas produced via UMAs in Mexico.
- An overview of the global trade of live tarantulas and scorpions, the significant gaps in knowledge as to the extent and impact of this trade, and the impact of social media on legal and illegal wildlife trade.

Presentations by breeders/traders/importers:

- An overview of commercially trading *Brachypelma* tarantulas in Canada, including importing, breeding, marketing and selling tarantulas, opportunities and challenges, and discussion of the Canadian market demand for *Brachypelma* tarantulas.
- An overview of commercially breeding and trading *Brachypelma* tarantulas in Mexico. The reproductive biology of *Brachypelma* tarantulas was reviewed, noting that these species did not mature until they were six to ten years old, and that a female would be fertile for approximately eight years.
- An overview of commercially breeding and trading *Brachypelma* tarantulas in the United States. The US market was discussed, noting that the growing US market, and high demand, keeps the prices high, which also increases the incentive to illegally import specimens.

Sustainable use and community engagement:

- Sustainable use principles were discussed using Mexico's pilot Morelet's crocodile (*Crocodylus moreletii*) ranching project as an example. The presentation covered the system for producing high-quality skins, how the project supports conservation of the species and its habitat, as well as sustainable, legal, traceable use, and the fair and equitable distribution of the benefits derived, particularly to local communities.
- An overview of the Aracneé tarantula breeding center facility and operation, and a discussion of how the facility has engaged with local people, creating local jobs and encouraging the conservation of the local environment.

Tarantula identification

- A review of the morphological characters that may be used to identify the priority tarantula species, the morphological terms used to describe spiders, the difference between *Aphonopelma* and *Brachypelma*, and the features used to forensically confirm a species identification.
- The plans for development of the CEC CITES-listed tarantula identification guide, including the overall concept, proposed organization and structure of the guide, design and production. The workshop participants were invited to provide feedback on the content and design of the identification guide.

During the Trinational Trade Session, the participants were divided into working groups to discuss topics related to the sustainable trade in priority tarantulas. The first topic was on promoting legal, sustainable and traceable trade in tarantulas through local community involvement. The participants came to the following recommendations:

- There is a need for government funding to support the UMAs.
- Some form of certification program for Mexican tarantula breeders would be valuable.
- Activities from existing Tarantula UMAs should be diversified to include management and use of other species.
- There is potential value to linking UMAs to ecotourism.
- Workshops for local communities should be initiated to stimulate interest in tarantula conservation and/or to provide training for locals to assist with tarantula population studies.
- Analyze and use available tools and procedures to revalue the price of tarantulas that are bred in their place of origin.
- Create an association of tarantula breeders in order to have greater control over the legal origin of the specimens.

The second discussion topic was focused on the collaboration and networking opportunities for meeting the outstanding recommendations in *Sustainable Trade in Tarantulas: Action Plan for North America*. This discussion resulted in 30 comments on, and recommendations for implementing nine action plan recommendations. After the Trinational Trade Session, the participants were taken on a tour of the UMA *Tarántulas de México* breeding facility.

The IUCN Red List Assessment Session was facilitated by the Chair of the IUCN Spider and Scorpion Specialist Group. Twenty-six people participated in the session. The purpose of the IUCN session was to generate expert feedback for a new assessment of the tarantula species listed on CITES.

On the first day of the session, the participants were presented with information about the IUCN Red List and the criteria used to assess the conservation status of species. As a group, the participants reviewed and commented on the draft assessment for each species. On the second day, the participants

were split into three working groups and asked to discuss the following topics: tarantula trade, conservation strategy and mapping.

Tarantula trade working group

The trade working group discussed the challenges and possible responses to legal and illegal tarantula trade. The group recorded 45 separate comments on the topic, which were collated into five topics: improving government policy, educating the public, supporting Mexican breeders (UMAs), understanding & combatting illegal trade and understanding legal trade dynamics.

Conservation strategy working group

The group agreed to the following draft vision:

“Support healthy wild populations and sustainable trade of tarantulas, living in suitable habitat across Mexico, with scientifically validated conservation measures and with strong public awareness and community support, making tarantulas a global example and one of the country’s flagship species.”

The group established four goals and 19 activities to support the draft vision, along with the responsible authorities, relevant stakeholders, required resources, an implementation schedule and the expected results.

Mapping working group

The mapping group worked on development of zoogeographic maps for the Mexican *Brachypelma* tarantulas. These maps will be included in the Red List assessments to provide a visual representation of each species’ distribution and will identify threats and conservation priorities. The group discussed the information that would be valuable to include in the maps (e.g. soil type and agricultural use), and identified geographically significant threats to the individual species.

The Enforcement Closed Session of the workshop was open only to law enforcement personnel. Eight people participated, representing five agencies/departments from four countries (Canada, Mexico, United States and United Kingdom). The session included presentations about enforcement in the four countries, followed by group discussions about smuggling methods, intelligence driven enforcement and tarantula trafficking in the trinational environment.

Preface

In 2017, the Commission for Environmental Cooperation (CEC) published five action plans for promoting legal, sustainable and traceable trade in selected North American species that are listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The five action plans were produced under the guidance of the CITES Authorities of Canada, Mexico and the United States.

One of those action plans, entitled *Sustainable Trade in Tarantulas: Action Plan for North America*, concerned 16 species of tarantulas and provided 18 recommendations for improving cooperation among North American stakeholders, government policies that promote captive-breeding and sustainable trade, biological and trade information, conservation and enforcement. The Tarantula Trinational Trade and Enforcement Workshop was held to implement key recommendations of the action plan. This report was supported by the CEC and under the guidance of the CITES Authorities of Canada, Mexico and the United States.

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1. Introduction

In 2017, the Commission for Environmental Cooperation (CEC) published five action plans for promoting legal, sustainable and traceable trade in selected North American parrot, shark, tarantula, timber and turtle taxa that are listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (CEC, 2017a, b, c, d, e). The five action plans were produced under the guidance of a steering committee comprised of the CITES Authorities of Canada, Mexico and the United States.

The tarantula action plan (*Sustainable Trade in Tarantulas: Action Plan for North America*), discussed the impact of trade on tarantula conservation and human livelihoods; challenges to CITES implementation; and summarized information on the distribution, conservation status and trade in 16 tarantula species (referred to as the priority tarantulas). The action plan proposed 18 recommendations for improving cooperation among North American stakeholders, government policies that promote captive-breeding and sustainable trade in Mexico, collection of biological and trade information, conservation and enforcement (CEC, 2017c).

Table 1. Priority tarantula species

Original species name	Updated species name	Common Name
<i>Aphonopelma albiceps</i>	<i>Brachypelma albiceps</i>	Golden redrump tarantula
<i>Aphonopelma pallidum</i>	<i>Aphonopelma pallidum</i>	Mexican grey tarantula
<i>Brachypelma annitha</i>	<i>Brachypelma smithi</i>	Mexican redknee tarantula
<i>Brachypelma auratum</i>	<i>Brachypelma auratum</i>	Mexican flame-knee tarantula
<i>Brachypelma aureoceph</i>	<i>Brachypelma aureoceph</i>	Florida golden chestnut tarantula
<i>Brachypelma baumgarteni</i>	<i>Brachypelma baumgarteni</i>	Mexican orange-beauty tarantula
<i>Brachypelma boehmei</i>	<i>Brachypelma boehmei</i>	Mexican rustleg tarantula
<i>Brachypelma emilia</i>	<i>Brachypelma emilia</i>	Mexican redleg tarantula
<i>Brachypelma epicureanum</i>	<i>Brachypelma epicureanum</i>	Yucatan rustrump tarantula
<i>Brachypelma hamorii</i>	<i>Brachypelma hamorii</i>	Mexican orangeknee tarantula
<i>Brachypelma kahlenbergi</i>	<i>Brachypelma kahlenbergi</i>	New Mexican tarantula
<i>Brachypelma klaasi</i>	<i>Brachypelma klaasi</i>	Mexican pink tarantula
<i>Brachypelma ruhnaui</i>	<i>Brachypelma albiceps</i>	Golden redrump tarantula
<i>Brachypelma schroederi</i>	<i>Brachypelma schroederi</i>	Mexican black velvet tarantula
<i>Brachypelma smithi</i>	<i>Brachypelma smithi</i>	Mexican redknee tarantula
<i>Brachypelma vagans</i>	<i>Brachypelma vagans</i>	Mexican redrump tarantula
<i>Brachypelma verdezi</i>	<i>Brachypelma verdezi</i>	Mexican rose grey tarantula

Sources: (Anon., 2016); Breene (2003); Cheeseman (2016).

Note: The original species names listed in this table are those that were initially selected for this project. The updated species names reflect currently accepted nomenclature. Note that *Brachypelma annitha* is now considered to be synonymous with *Brachypelma smithi*.

In 2017, the CEC initiated a new project, entitled “Supporting Sustainable Trade of CITES Species,” to implement the most trinationally relevant recommendations from the action plans. The following three recommendations from the tarantula action plan were prioritized (CEC, 2018):

- Coordination of a workshop to assess the priority tarantulas for inclusion in the International Union for Conservation of Nature (IUCN) Red List and provide information that can be used to

update the Mexican Official Standard NOM-059-SEMARNAT-2010 (*NORMA Oficial Mexicana NOM-059-SEMARNAT-2010—NOM-059*) on Mexican species at risk.

- Coordination of a trinational workshop on the trade and identification of priority tarantulas.
- Development and distribution of a guide to the identification of priority tarantula species.

The CEC and the Steering Committee opted to implement the first two recommendations via a single trinational workshop on tarantula trade. It was further decided that the trinational workshop would be used to provide feedback for the development of the tarantula identification guide.

The *Tarantula Trinational Trade and Enforcement Workshop* was held in Guadalajara, Jalisco, Mexico, from 27 February to 2 March 2018.

The following objectives were established for the workshop:

- Promote stakeholder participation in efforts to support legal, sustainable and traceable trade in North America, consistent with applicable CITES provisions related to trade in tarantula species.
- Identify knowledge gaps and challenges for the development of the IUCN Red List assessment.
- Identify opportunities to promote legal, sustainable and traceable trade in priority tarantulas through engagement with local communities.
- Provide feedback to the draft tarantula identification guide.
- Lay the foundations for intelligence and collaborative enforcement actions to combat tarantula trafficking.

The workshop was organized into three separate sessions. The first two days of the workshop consisted of a Trinational Trade Session. The following two days included two concurrent meetings: a Law Enforcement Closed Session and an IUCN Red List Assessment Session to generate expert feedback for the assessment of tarantula species listed on CITES.

This report documents the activities and results of the *Tarantula Trinational Trade and Enforcement Workshop*. It is divided into four parts, with this introduction concluding Part 1. Parts 2–4 discuss the Trinational Trade Session, Law Enforcement Closed Session and IUCN Red List Assessment Session, respectively. Annex A provides the full agenda for the workshop and Annex B lists the participants of the workshop. Annex C provides the Community Involvement Working Group Responses.

2. Background

2.1 IUCN

The IUCN was created in 1948 and is composed of both government and non-governmental organizations (NGOs), linking 1,300 member organizations and approximately 10,000 experts. The mission of the IUCN is to “influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable” (IUCN, 2018a).

The IUCN Red List of Threatened Species is maintained by the IUCN Global Species Programme. The purpose of the IUCN Red List is to document and call attention to species that are at risk of global extinction. The IUCN Red List summarizes taxonomic and distribution information, and provides the conservation status of species of plants, fungi and animals. Species are evaluated using a comprehensive system of categories and criteria designed to determine their relative risk of extinction (IUCN, 2018b).

One species of North American tarantula (*Brachypelma smithi*) has been assessed on the IUCN Red List as Near Threatened (WCMC, 1996). However, that assessment was completed in 1996 and probably no longer accurately reflects the status of the species.

2.2 CITES

CITES is an international treaty which was created to ensure that international trade in wild animals and plants does not threaten their survival (CITES, 2017b). As of 1 January 2018, 183 Parties had joined CITES (CITES, 2017a).² Collectively, they are called the Conference of the Parties. CITES is administered by a Secretariat based in Geneva, Switzerland. The Secretariat’s essential role is to help member nations implement CITES (CITES, 1973).

CITES works by regulating the international trade of animals and plants. CITES monitors and regulates international wildlife trade through an international permitting system. Countries grant permits only if particular conditions are met, and these permits must be presented before specimens of species subject to CITES may cross international borders (CITES, 1973).

Species of concern are listed in Appendices I, II and III, each of which sets different restrictions on the international trade in those species. The 16 priority tarantula species that were the subject of *Sustainable Trade in Tarantulas: Action Plan for North America* are listed in CITES Appendix II. Species in Appendix II are not necessarily threatened with extinction, but may become so if their trade is not regulated. Some common species are also listed on Appendix II because they closely resemble CITES-listed species and it is difficult for border control officers to distinguish one species from the other.

Trade in Appendix II specimens requires a CITES export permit issued by the exporting country. Export permits are granted only after the exporting country has made a number of determinations, including a finding that the export will not be detrimental to the survival of the species (a non-detriment finding), and that the specimen was not obtained in contravention of the laws established by that country for the protection of fauna and flora. In the event of re-export (export from a country in which the specimen did not originate), a CITES re-export permit is required. Specimens may be exported without export permits

² The “Parties” are the members of CITES. Historically the Parties were individual States. However, in July 2015 the European Union (EU) became the first Regional Economic Integration Organization (REIO) to become a full member of the Convention (TRAFFIC, 2015).

if the exporting country certifies that the specimens were bred in captivity (CITES, 1973). The definition of “bred in captivity” is provided in Resolution Conf. 10.16 (Rev.) (CITES, 1997).

2.3 Relevant Mexican Acts and Regulations

General Law of Wildlife

The General Law of Wildlife (*Ley General de Vida Silvestre*—LGVS), enacted in 2000, regulates the sustainable use, conservation and management of native animals, plants and habitats, and the protection of species or populations that are at risk. The General Directorate on Wildlife (*Dirección General de Vida Silvestre*—DGVS) of the Secretariat of Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales*—Semarnat) is responsible for implementation of the LGVS (Camarena Osorno, in. litt.).

The LGVS establishes the national policy for wildlife conservation via protection and sustainable use so that both biodiversity and livelihoods are maintained and promoted, and implements CITES in Mexico (DOF, 2000). In addition, the LGVS regulates the incorporation of Management Units for the Conservation of Wildlife (*Unidades de Manejo para la Conservación de Vida Silvestre*—UMAs). The purpose of UMAs is the conservation of natural habitats, populations and species. They may have specific objectives of restoring, protecting, maintaining, recovering, reproducing, repopulating, reintroducing, rehabilitating, exhibiting, or promoting recreation, environmental education and sustainable use of wildlife (DOF, 2000).

Regulations for the General Law of Wildlife

The Regulations for the LGVS (*Reglamento De La Ley General De Vida Silvestre*) enable and implement the LGVS and provide the essential requirements for establishing, managing and operating UMAs (DOF, 2014).

Mexican Official Standard NOM-059-SEMARNAT-2010

The Mexican Official Standards are technical regulations that have been instituted by the Mexican government to establish rules, specifications, processes and activities for preserving the health of people, animals, plants, the environment and natural resources (DOF, 2010). NOM-059 provides the criteria for reviewing and categorizing the conservation status of native Mexican species of animals and plants (DOF, 2010). The management and use of species listed in NOM-059-SEMARNAT-2010 is allowed only under an UMA framework and with a management plan approved by Semarnat.

NOM-059 established four risk categories: Probably Extinct, Endangered, Threatened and Special Protection (DOF, 2010). As of July 2000, capture or sale of native wildlife was prohibited without permits under the LGVS (DOF, 2000, 2014). Three species of tarantula have been listed as Threatened Species: *Aphonopelma pallidum*, *Brachypelma emilia*, and *B. smithi* (DOF, 2010).

3. Trinational Trade Session

3.1. Overview

The Trinational Trade Session took up the first two days of the workshop, and was mainly facilitated by Ernie Cooper of E. Cooper Environmental Consulting (ECEC).

Forty-four people participated in the Trinational Trade Session. Participants came from the government, academic, civil society and business sectors, and included 10 tarantula breeders/dealers from Canada, Mexico and the United States. Eight participants were from Canada, 26 were from Mexico, five were from the United States, and five were from the European Union (EU) (Annex B, Table 8).

Prior to arriving at the workshop venue each participant was sent (via email) copies of the following documents in English and Spanish:

- The workshop agenda (see Annex A of this report).
- A background document entitled “Trade and Conservation of Priority Tarantulas.”
- The Field Site Visit Program for the visit to UMA *Tarántulas de México*.
- A list of the workshop participants.
- A summary of the workshop logistics.
- A workshop discussion template (to assist the participants in capturing and organizing their input into the group discussions).
- A copy of the IUCN Red List Categories and Criteria: Version 3.1, second edition (IUCN, 2012).

Day 1 of the session consisted of 16 presentations on the following nine topics:

- Workshop opening and introduction to the CEC.
- Welcome remarks.
- Introduction and presentation of the workshop agenda.
- CEC project “Supporting Sustainable Trade of CITES Species”.
- Introduction to the priority tarantulas.
- CITES and tarantulas.
- Trade and value chain.
- Presentations by breeders/traders/importers.
- Sustainable use and community engagement.

In addition, Paola Mosig Reidl, Coordinator of the Mexican CITES Scientific Authority, National Commission for the Knowledge and Use of Biodiversity (*Comisión Nacional para el Conocimiento y Uso de la Biodiversidad*—Conabio), and María Isabel Camarena Osorno, *Especialista* CITES, Conabio, facilitated a group discussion on the challenges and opportunities for promoting legal, sustainable and traceable trade in tarantulas through local community involvement.

Day 2 of the session began with two presentations on tarantula identification, and was focused on the development of the tarantula identification guide and soliciting feedback from the participants. This was followed by a group discussion, led by Ernie Cooper, on implementing the outstanding recommendations from the *Sustainable Trade in Tarantulas: Action Plan for North America*. Once the Trinational Trade Session concluded, the participants then were taken on a tour of the UMA *Tarántulas de México* breeding facility.

3.2. Results

Workshop opening and introduction to the CEC

David Donaldson, Head of Unit, CEC officially opened the workshop, offered some introductory remarks and provided a brief introduction to the CEC: its history and mandate.

Welcome remarks

Hesiquio Benítez, General Director of International Cooperation and Implementation, Conabio (*Director General de Cooperación Internacional e Implementación*), welcomed the workshop participants on behalf of Mexico, and discussed the importance of sustainable trade to both conservation and livelihoods.

Introduction and presentation of workshop agenda

Ernie Cooper, the workshop facilitator, briefly reviewed the workshop agenda, facilitated roundtable introductions by the participants, discussed housekeeping issues and introduced the first presenter.

CEC project “Supporting Sustainable Trade of CITES Species”

Georgina O’Farrill, CITES Project Lead, CEC, discussed the new CEC project entitled “Supporting Sustainable Trade of CITES Species,” including the history behind the project and its goals and plans for upcoming activities.

Introduction to the priority tarantulas

Rick West, arachnologist, reviewed the key findings and recommendations from the 2017 CEC publication “*Sustainable Trade in Tarantulas: Action Plan for North America.*”

Jorge I. Mendoza Marroquín, *Instituto de Biología, Universidad Nacional Autónoma de México* (UNAM), reviewed the natural history of the species of tarantulas that are listed on CITES Appendix II. Mr. Mendoza Marroquín discussed the distinction between tarantulas and “true” spiders; taxonomy, distribution, life histories and conservation status of tarantulas in the genus *Brachypelma*. He introduced the term “spiderling” which is commonly used by hobbyists and breeders to refer to early developmental stages of a tarantula. His presentation included photos of the different life stages of tarantulas, and different *Brachypelma* species in their natural habitat.

CITES and tarantulas

Hesiquio Benítez reviewed the history of CITES; how CITES is structured and functions; and the CITES Appendices, emphasizing the requirements for trade in Appendix II species. Mr. Benítez discussed the opportunities for promoting sustainable use of wildlife within the CITES framework, and the benefits of including species in Appendix II of CITES.

Ernie Cooper presented an analysis of data compiled from the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) CITES Trade Database on the international trade in priority tarantula species in the years 2007–2016.

- A total of 39,597 specimens were traded. More than 99% were traded for commercial purposes, and 96% were captive-bred. Less than 1% were wild-caught.
- A total of 16 species were recorded in trade, including: *Aphonopelma albiceps* and 15 species of *Brachypelma*. No trade in *Aphonopelma pallidum* was recorded. *Brachypelma smithi* was the most commonly reported species, accounting for 46% of all specimens. Other species traded in significant numbers included *B. albopilosum*, *B. boehmei* and *B. emilia*.

- Based on reported imports, the United States imported 34,001 tarantulas, accounting for 66% of all specimens in trade. Canada imported 1%. Mexico did not import any specimens.
- Mexico exported 34% of all the specimens in trade. However, the majority of these animals were traded prior to 2014. The EU exported 44% of the specimens traded in 2007–2016, and most of the specimens in trade since 2014. Large numbers of *B. albopilosum* were exported from Nicaragua in 2015 and 2016.
- The United States exported 2% of the specimens traded in 2007–2016. Canada exported 5%, but exported more different species (12) than any other individual country.

Trade and value chain

The Deputy Director of Licensing, Registers and Intensive Use, Directorate of Wildlife (Subdirector de Gestión de Licencias, Registros y Aprovechamiento Intensivo de la Dirección General de Vida Silvestre; DGVS- Semarnat), Antonio de Jesús García Bernal, presented the strategy to promote biodiversity conservation and wildlife sustainable management through UMAs and PIMVS in Mexico. Mr. García Bernal provided detailed information on the following topics:

- The general and specific goals of the UMA scheme.
- The differences between UMAs that keep wildlife in captivity and those that manage specimens in the wild.
- A related scheme entitled Property or Facility that Manages Wildlife in a confined way, outside their natural habitat (*Predio o Instalación que Maneja Vida Silvestre en forma confinada, fuera de su habitat natural*—PIMVS), and the differences between an UMA and a PIMVS.
- The requirements for UMA and PIMVS management plans.
- Types of use (extractive and non-extractive).
- Documentation required to demonstrate the legal origin of wildlife specimens, parts and derivatives in Mexico.
- The different UMA and PIMVS projects that manage tarantula species.

Gerardo García Beltrán, Owner, UMA *Aracnofilia*, gave a short presentation that summarized the supply chain for the production and export of *Brachypelma* tarantulas produced via UMAs in Mexico. Mr. García Beltrán discussed the required steps and bureaucratic requirements for legally producing and exporting tarantulas from Mexico.

Carol Fukushima, IUCN, University of Helsinki, discussed the global trade of live tarantulas and scorpions, and the significant gaps in knowledge as to the extent and impact of this trade. Dr. Fukushima reviewed the impact of social media on legal and illegal wildlife trade, and provided a detailed overview of a project being initiated at the Finnish Museum of Natural History, University of Helsinki, to survey the global trade of live tarantulas and scorpions through a comprehensive social media survey.

Presentations by breeders/traders/importers

Martin Gamache, Owner of Tarantula Canada, discussed his experiences in commercially breeding and trading *Brachypelma* tarantulas in Canada. Mr. Gamache discussed the history and operation of his business and reviewed the Canadian market for tarantulas. He provided a detailed review of his sales, including the numbers of animals purchased and compared his in-store, show and internet sales results. He further discussed importing, breeding, marketing and selling tarantulas in Canada. Mr. Gamache noted that two species of *Brachypelma* (*B. albopilosum* and *B. cf. vagans*) were amongst his 20 best-selling tarantula species in 2017, and that *Brachypelma* comprised approximately 10% of all his tarantula sales in 2017. Mr. Gamache also showed a short video of his facility.

José Rodrigo Orozco Torres, Director of *Tarantulas de México*, discussed commercially breeding and trading *Brachypelma* tarantulas in Mexico. Mr. Orozco Torres discussed the reproductive biology of

Brachypelma tarantulas, noting that these species did not mature until they were six to ten years old, and that a female would only have approximately eight fertile years, producing eight egg sacs each containing 100 to 1,200 eggs. Mr. Orozco Torres reviewed the species that he houses at his facility and summarized his breeding and exporting experiences. He stressed his concern about the illegal collection and trade of Mexican tarantulas, noting that he founded his operation specifically to provide legal specimens to reduce the market for specimens taken from the wild.

Joey Mugleston, owner of the Great Basin Serpentarium in the United States, provided an overview of his facility and summarized his personal experience with breeding tarantulas. Dr. Mugleston noted that in 2018 he expects to produce 8,000–10,000 tarantulas of different genera (not just *Brachypelma*). He noted that the demand for tarantulas in the United States is greater than he can produce, and that he gets many requests for *Brachypelma* specimens. He explained that the growing US market, and high demand, keeps the prices high, which also increases the incentive to illegally import specimens. He further recommended that the process to obtain CITES permits in Mexico can be simplified to make it easier to import new bloodlines to ensure the longevity of breeding stock and to help reduce the incentive to illegally import *Brachypelma* from Mexico or Europe.

Sustainable use and community engagement

Hesiquio Benítez discussed sustainable use principles using the Mexican Morelet's crocodile ranching project as an example. Mr. Benítez reviewed the concept of sustainable use as a conservation tool both from a general perspective, and its specific application to the Morelet's crocodile. He discussed in detail Mexico's pilot Morelet's crocodile ranching project which has established an integrated system for producing high-quality *C. moreletii* skins, and is supporting conservation of the species and its habitat, as well as sustainable, legal, traceable use. The project ensures fair and equitable distribution of the benefits derived from all actors in the productive chain, particularly the local communities.

Juan Sanchez Hinojosa, the CEO of the *Aracneé* tarantula breeding center, gave an overview of the facility and its operation, and discussed the advantages of hiring local people. He noted that by enlisting local help, he has personnel available seven days a week. During the tarantula mating season, workers go out at night to reassure their neighbors that the spiders are harmless and contribute to the local food chain. Plus, the workers are aware of the regulations enacted by the Federal Attorney for Environmental Protection (*La Procuraduría Federal de Protección al Ambiente—Profepa*) and Semarnat, and are familiar with the local authorities (police and military). The end result is that good safe jobs have been created for local people who are able to personally invest in the conservation of their local environment. Mr. Sanchez Hinojosa showed the participants an entertaining video of a school group visiting *Aracneé*.

Roundtable discussion on promotion of legal, sustainable and traceable trade in tarantulas through local community involvement

The workshop participants were divided into three working groups and asked to consider the following two questions:

- Provide ideas or recommendations to encourage the participation of local communities in legal, sustainable and traceable tarantula trade.
- Provide ideas or recommendations on how to maximize both the conservation of wild populations of tarantulas and the associated benefits that local communities can obtain.

The reports from the working groups are provided in Annex C of this report.

Several topics were brought up by two or more working groups. Most notable was the repeated need for government funding to support the UMAs. The groups noted that it is important to invest money to create a profitable commercial tarantula breeding facility, and that economic support would ensure that the UMAs remained genetic reservoirs for future reintroduction projects. Different funding models were

suggested, including government subsidies, small business grants and/or grants similar to those provided by the United States Small Business Administration in the United States. Better funding for UMAs would allow them to hire local workers, and otherwise benefit local communities.

Each working group suggested some form of certification program, although the approaches put forward were somewhat different (and were short on details). The suggestions included creation of a "trusted trader" program, development of an online directory of responsible breeders, and something like a pedigree system to increase the value of specimens.

All three working groups also noted the potential value of linking UMAs to ecotourism.

Two groups recommended workshops for local communities, either in the interest of raising awareness of the ecological benefits of tarantulas and stimulating interest in their conservation; or to provide training so that local individuals could assist with tarantula population studies. This latter idea would generate links between communities and academic, civil and governmental sectors.

Finally, the value of a National Council or Committee of Mexican tarantula breeders was identified. The goals of this council or committee could incorporate integration with local communities as a part of its mandate. Apparently a similar association, focused on synergies between UMAs (not only tarantula breeders), is in the process of being developed.

Tarantula identification

Jorge I. Mendoza Marroquín provided an overview of the morphological characters that may be used by non-specialists for identification of priority tarantula species. Illustration of these characters will form the backbone of the species descriptions to be provided in the CEC CITES-listed tarantula identification guide. In his presentation, Mr. Mendoza Marroquín included a review of the morphological terms used to describe spiders, the difference between *Aphonopelma* and *Brachypelma*, and a discussion of features used to forensically confirm a species identification.

Ernie Cooper discussed the plans for development of the CEC CITES-listed tarantula identification guide, including the overall concept, proposed organization and structure of the guide, design and production. He provided examples of design elements and explained the timeline for the project.

The workshop participants were invited to provide feedback on the content and design of the identification guide. Many good comments were provided, and the design of the guide was subsequently revised to incorporate suggestions. Printed copies of different versions of the identification guide's front cover were made available. The participants were invited to review them and initial their favorite. This feedback will be used to help determine the final cover design.

Roundtable discussion on collaboration and networking opportunities for meeting the outstanding recommendations in "Sustainable Trade in Tarantulas: Action Plan for North America"

Ernie Cooper reviewed the outstanding recommendations from the CEC tarantulas action plan—those recommendations for which CEC funding was not available. The participants were divided into three working groups and presented with a series of 10 bullets that summarized the outstanding recommendations. They were then asked to discuss collaboration and networking opportunities for implementing these recommendations. The participants were invited to choose which recommendations they wished to discuss, and the approach they wished to take. Working group feedback was received on nine recommendations (Table 2).

Workshop conclusions

Ernie Cooper reviewed the key discussion points of the workshop. He noted that it was worrisome that Mexican *Brachypelma* populations continued to decline despite UMAs supplying captive-bred tarantulas

to the North American market. He suggested that in-situ conservation activities must be prioritized if these species are to be conserved.

Ernie Cooper turned the facilitation of the workshop back to David Donaldson. The participants were shown a new CEC video that had been produced to promote the “Supporting Sustainable Trade of CITES Species” project. The video uses tarantula trade to highlight the problem of illegal trade on wild populations, and the role of CITES and sustainable trade in conserving species. The video was very well received and initiated a rousing round of applause. The video can be found at www.cec.org/trinational_cites. Mr. Donaldson offered some final words and brought the Trinational Trade Session of the workshop to a close.

Table 2. Participant comments on action plan outstanding recommendations

Action plan recommendation	Working group comments
1. Support research on the populations, habitats, distribution and biology of priority tarantulas.	<ul style="list-style-type: none"> a. There is a lack of program funding; there are few tarantula experts in academia and few opportunities for graduate students to join University staff. b. Conabio could look for opportunities to fund research on tarantula taxa in order to strengthen CITES implementation. c. Strengthen the link between academia and local communities. Local people could be trained to monitor tarantula populations. Local communities could also provide accommodation and other assistance to researchers. d. Non-governmental organizations, businesses and private individuals interested in the conservation of wild species should be approached for funding support. e. The USFWS International Affairs' Program could be approached for funding (current emphasis is combating wildlife trafficking). f. UNAM should host an international meeting on tarantula biology in 2–3 years.
2. Prioritize environmental impact studies on the Mexican Pacific coast and institute infrastructure and road construction projects that minimize habitat loss and degradation.	<ul style="list-style-type: none"> a. Roads have been developed without consideration of the danger traffic poses to migrating male tarantulas. During hurricanes and floods females also migrate and are at risk from traffic. Mitigation or adaptation projects are needed. b. Wildlife bridges and/or corridors and implementing regulations could be established to reduce tarantula deaths due to traffic. c. Demographic studies are required to identify critical migration routes. d. Construction projects should be designed with consideration of tarantula behavior. e. Establish protected natural areas that include tarantulas. f. Use tarantulas as a flagship species. Establish a marketing approach for tarantulas, starting in Mexico City and Guadalajara.
3. Mexico should promote domestic and international trade by streamlining administrative processing times and respecting the permit issuance times prescribed by law.	<ul style="list-style-type: none"> a. Improve the response times by Mexico's CITES authorities to requests for export permits. b. Develop and distribute a guide with information on the procedures for registering an UMA or PIMVS, and on applying for usage authorization and permits for import, export and re-export. c. Establish a working group that includes government agency officials, breeders, exporters and importers to develop protocols or guidelines for acquiring permits and streamline processing. d. Organizing a workshop in Mexico supported by PIJAC to address permit streamline in Mexico e. The Mexican government should conduct a review of the applicable legislation and processes, capacity, and issuance times to identify areas for improvement.
4. The Government of Mexico should collaborate with tarantula breeders to develop a system for certifying the origin of specimens used in UMA breeding programs.	<ul style="list-style-type: none"> a. Breeders and other experts should develop the specific criteria for evaluating and gaining certification. b. Once standards have been developed, a third-party certification scheme could be developed.

<p>5. Mexican breeders, in collaboration with the government of Mexico, academia and NGOs, should develop management guidelines for intensive and semi-intensive commercial production of tarantulas.</p>	<p>a. Breeders could form a tarantula breeders association, which could develop husbandry, handling and transporting guidelines.</p>
<p>6. Tarantula researchers, in collaboration with the Government of Mexico, NGOs and local communities, should develop and implement standardized field protocols for monitoring tarantula populations, and establish a database for sharing data.</p>	<p>a. Need to generate information that guides decision-making and public policies regarding in-situ conservation of tarantula populations.</p> <p>b. Population studies should be funded/coordinated by Conabio and linked to NOM-059 evaluations.</p> <p>c. Population studies are long-term projects. For example, a study of <i>B. hamorii</i> would take at least 3 to 5 years.</p> <p>d. Academics should develop a protocol for evaluating tarantula populations.</p>
<p>7. Mexico, academia and NGOs should support studies designed to determine the feasibility and impact of introducing captive-bred tarantulas into the wild.</p>	<p>a. Develop non-binding guidelines and protocols for reintroduction of tarantulas by UMAs.</p>
<p>8. Tarantula researchers and breeders should develop and follow guidelines for the capture, handling and transportation of wild tarantulas, so as to reduce unnecessary injury and death to wild tarantulas when being taken or studied in their environment.</p>	<p>a. Guidelines exist for the collection of parental material.</p> <p>b. Standardized protocols for handling specimens need to be developed.</p>
<p>9. Develop and maintain a shared database of domestic and international experts who may be contacted to assist enforcement officers to identify tarantula specimens and respond to illegal trade.</p>	<p>a. Create an online forum of tarantula experts that Profepa and Customs officers can send photos of specimens to and seek identification and other assistance. This should include a telephone directory for quick contact.</p> <p>b. Authorities of Canada, Mexico and the United States, and diverse experts could provide support in different sub fora, some of which could be restricted to law enforcement personnel.</p> <p>c. This forum could be hosted on the CEC website.</p> <p>d. Authorities need access to experts that have no conflict of interest (i.e. are not involved in commercial trade).</p>

Note: The text in this table is as received with some minor edits for clarity, where needed.

Site visit to the UMA Tarántulas de México

The workshop participants visited the site of *Tarantulas de México*, the first UMA established to breed native tarantula species. The UMA was established in 2002 to provide a legal source of Mexican tarantulas as an alternative to smuggling and illegal trade. *Tarantulas de México* is located on private property in Guadalajara, very close to the *Bosque de la Primavera* Biological Reserve.

J. Rodrigo Orozco Torres, the owner of *Tarantulas de México*, welcomed the workshop participants and explained the history and operation of the facility.

Tarantulas de México consists of a single building, with three separate rooms. One room houses the adult specimens (mainly *Brachypelma*) that are used for breeding. The second room houses the juvenile tarantulas that are produced. Each juvenile is kept in a separate container that is labeled with the species and UMA registration number. The third room is used for culturing different insects that are fed to the tarantulas housed in the facility.

Mr. Orozco Torres personally toured the workshop participants through the facility, introduced the different species and explained in detail his methods for keeping and breeding tarantulas. In the adult specimen room he showed the participants how to safely pick-up and hold a tarantula. Participants were invited to hold a very docile specimen of *Brachypelma smithi*.

4. IUCN Red List Assessment Session

4.1. Overview

The IUCN Red List Assessment Session started on day three of the workshop and was facilitated by Pedro Cardoso, Chair of the IUCN Spider and Scorpion Specialist Group.

Twenty-six people participated in the IUCN Red List Assessment Session, including four representatives of the IUCN Spider and Scorpion Specialist Group. Seventeen participants were from Mexico and four were from each of Canada, the United States, and the EU (Annex B, Table 7). The preliminary IUCN assessment results are provided in Table 3.

Table 3. Preliminary results of IUCN assessment of CITES-listed tarantula species

IUCN Assessment	Justification*	Species
Data Deficient (DD)	There is inadequate information to make a direct or indirect assessment of its risk of extinction based on its distribution and/or population status.	<i>Brachypelma andrewi</i>
		<i>Brachypelma aureocephs</i>
		<i>Brachypelma sabulosum</i>
		<i>Sericopelma angustum</i>
		<i>Sericopelma embrithes</i>
Least Concern (LC)	Has been evaluated against the criteria and does not qualify as Critically Endangered, Endangered, Vulnerable or Near Threatened.	<i>Aphonopelma pallidum</i>
		<i>Brachypelma albiceps</i>
		<i>Brachypelma albopilosum</i>
		<i>Brachypelma emilia</i>
		<i>Brachypelma epicureanum</i>
		<i>Brachypelma fossorium</i>
		<i>Brachypelma kahlenbergi</i>
		<i>Brachypelma vagans</i>
Near Threatened (NT)	Has been evaluated against the criteria and does not qualify as Critically Endangered, Endangered or Vulnerable—but is close to qualifying for or is likely to qualify for a threatened category in the near future.	<i>Brachypelma auratum</i>
		<i>Brachypelma klaasi</i>
		<i>Brachypelma smithi</i>
		<i>Brachypelma verdezi</i>
Vulnerable (VU)	Meets any of five established criteria and is facing a high risk of extinction in the wild. The criteria for Vulnerable are based on population size, geographic ranges and/or at least a 10% probability of extinction within 100 years.	<i>Brachypelma hamorii</i>
Endangered (EN)	Meets any of five established criteria and is facing a very high risk of extinction in the wild. The criteria for Endangered are based on population size, geographic ranges and/or at least a 20% probability of extinction within 20 years or five generations.	<i>Brachypelma baumgarteni</i>
		<i>Brachypelma boehmei</i>
		<i>Brachypelma schroederi</i>

*Text adapted from the IUCN Red List Categories and Criteria version 3.1 (IUCN, 2012).

4.2. Results

The first morning of the IUCN Red List Assessment Session was held in plenary to allow law enforcement staff to attend before they moved to the Enforcement Closed Session (the two sessions subsequently ran concurrently). The following presentations were given:

- Pedro Cardoso, Chair, Spider and Scorpion Specialist Group, University of Helsinki, discussed the IUCN Red List and introduced the criteria used to ensure the comparability of assessments across regions and taxa, and how they are applied (focusing on invertebrates).

- Pedro Cardoso and Carol Fukushima presented an IUCN Short Course on Red List Assessment, providing instruction on the IUCN Red List assessment process and how to prepare high-quality Red List assessments.

In the afternoon of the second day, Carol Fukushima presented the draft assessment for each species, and invited roundtable feedback from the participants. This process took the rest of the day and initiated considerable discussion and much new information was compiled for the assessment.

On the second day of the IUCN Red List Assessment Session, the participants were split into three working groups and asked to discuss the following topics: tarantula trade, conservation strategy and mapping.

Tarantula trade working group

The trade working group discussed the challenges and possible responses to legal and illegal tarantula trade. The group recorded 45 separate comments on the topic, which were collated into five topics: improving government policy, educating the public, supporting Mexican breeders (UMAs), understanding & combatting illegal trade and understanding legal trade dynamics (Table 4).

Table 4. Tarantula trade working group discussion points

Topic	Comments
Improving government policy	Delays in processing applications for CITES permits is a problem in Mexico. It is necessary to speed up this time and identify possible ways to do it.
	Explore the relevance of improving or updating the protocols and guidelines for exporting and importing tarantulas (protocol that guides what needs to be done) [This already exists].
	Mexican producers first need authorization to sell, and then a CITES permit to export. It is necessary to identify possible strategies to expedite these procedures.
	A workshop on permit issuance is needed to allow countries to share experiences that could be used to streamline Mexican permit processing times. In the United States, "master permitting files" are established for certain captive-bred species and streamlines permit issuance for producers of those species. This approach meets the requirements of CITES Resolution Conf. 10.16.
	Communication between Semarnat, Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (<i>Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación—Sagarpa</i>), National Service of Health, Safety and Agroalimentary Quality (<i>Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria—Senasica</i>), Profepa (and in relevant cases, Conabio), with a shared database to speed up the times.
	There are three verification offices for tarantula exportation in Mexico (Cancun, Mexico City and Guadalajara). It is necessary to review if this is adequate or if it is necessary to make changes.
	Animal health certificates are valid for one month (some exceptions apply based on the requirements of the country importing the specimens). It is necessary to take this in consideration during the development of protocols to import and export tarantulas.
	Find ways for researchers to help authorities speed up permit processing times.
	Senasica and Profepa have meetings the first Tuesday of each month; producers/academics could be invited to seek opportunities for improvement.
	Verification between available procedure and law requirements is necessary.
Consider that since 2008, Mexican foreign trade has been the responsibility of the Secretariat of Economy (<i>Secretaría de Economía</i>).	
Educating the public	In the arachnid expos, include public education about what is legal and sustainable and what is illegal and unsustainable.
Supporting Mexican breeders (UMAs)	We need to promote production in Mexico so that the demand for tarantulas is met and illegal trade is avoided.
	Necessary to "educate" buyers/consumers (e.g. the "buyer beware" campaign in airplanes), to look for legal options. Especially new buyers, who do not care where the specimens are coming from.
	Some simple certification scheme to ensure the legal origin of specimens could be implemented.

	Prepare a database with species that are currently in the legal market (including legal producers).
	It would be helpful if the invoice or sales receipt for tarantula specimens specified the development stage of the animal (so that it is not used more than once by illegal traders).
	UMAs could "certify" the specimens they produce as captive-bred.
	Explore the possibility of a certification scheme for tarantula producers, with the aim of streamlining Semarnat, Profepa and Sagarpa procedures. Tarantulas could serve as a pilot project to improve management.
	Explore the possibility of support/promotion of intensive UMAs and PIMVS.
Understanding & combatting illegal trade	Law enforcement authorities have to collaborate more closely and share information about reputable producers/exporters.
	Mexican authorities could report to foreign CITES authorities how many spiderlings will be exported each year; this information can be used to determine when additional specimens are illegally exported.
	Law enforcement authorities should take into account that egg sacs, spiderlings but mostly adult tarantulas can be illegally extracted from their habitat for exportation. However, it should be noted that Semarnat verifies the legal origin of the adult tarantulas that are used for breeding purposes in UMAs and PIMVS (A. Bernal, in.litt).
	The largest illegal trade is through the mail or through online sites. Some companies have specific rules for packaging and shipping animals. It is necessary to collaborate with these companies, if needed, to prevent illegal trade.
	Identify illegal trade on social media and classified sites for spiders/tarantulas. For example, if they are selling specimens for unusually low prices or the sale of endemic species from countries that do not allow exports from the wild (e.g. Brazil, Australia,).
	Illegal traffickers are not specialized in a particular taxonomic groups, but rather they go to the tarantula habitat and take everything they find that is of interest in the market—mammal, reptile or arachnid.
	Focus should be on new species, newly described, difficult to find, rare or endemic, and species that are difficult to reproduce. These are highly coveted in the market and are the most expensive.
	Breeders could coordinate their prices to be lower than those of the black market (which is not easy).
	Reports of illegal trade over social networks should be documented on the CITES website.
	There are no significant penalties or fines for traffickers in Mexico. The penalties provided in the laws should be imposed and jail time should be considered for traffickers (depending on species and conservation status).
	Advise Customs about what is permitted and what is not. For example: in one occasion tarantulas were found in a suitcase, but Customs officers did not asked for permits because they did not knew that they were needed. Assistance is also necessary to identify different species in trade.
Increase attentiveness to strategies used to smuggle: illegal animals are put in boxes first and covered up by the legal animals.	
Understanding legal trade dynamics	Very difficult when dealing with spiderlings to identify the species and determine whether or not a CITES permit is required. For this reason, it is necessary to consider additional information other than the origin.
	An association could be formed to ensure legal origin and transportation of specimens (e.g. the Marine Aquarium Council). This is because there are countries where tarantula specimens are obtained illegally, but upon arrival in those countries, they become "legal" and can now follow their marketing chain (e.g. Czech Republic, Germany, Poland).
	Evaluate the price differences for tarantulas in the market (e.g. US \$7 dollars for European spiderlings in comparison to US \$ 4 dollars for spiderlings coming from Mexico)
	The market is very dynamic and changes seasonally; buyers previously wanted spiderlings, now they prefer to acquire adults. In Mexico, buyers prefer adult specimens; not so in the US.

Note: The text in this table is as received with edits for clarity, where needed.

Conservation strategy working group

The Conservation strategy group was tasked with developing the draft structure of a conservation strategy for the Mexican species of tarantulas that are listed on CITES Appendix II. The group agreed to the following draft vision:

“Support healthy wild populations and sustainable trade of tarantulas, living in suitable habitat across Mexico, with scientifically validated conservation measures and with strong public awareness and community support, making tarantulas a global example and one of the country’s flagship species.”

The group established four goals and 19 activities that could form the backbone of the conservation strategy (Table 5). Each activity was discussed to determine, where possible, the responsible authorities, relevant stakeholders, required resources, an implementation schedule and the expected results.

Table 5. Draft goals and activities for a tarantula conservation strategy

Goals	Activities
In-situ conservation	Define areas with conservation interest
	Support habitat restoration and reforestation
	Establish ecological corridors
	Reduce road mortality through creation of fauna tunnels
Ex-situ conservation	Maintain and support or establish a traceable captive population
	Develop and execute a release plan
Research	Initiate a standardized population monitoring plan
	Conduct local market surveys
	Conduct online market surveys
	Analyze the genetic structure of sub-populations and viable specimen release sites
	Obtain knowledge on habitat preferences
	Study the potential consequences of climate change
	Conduct in-situ reforestation experiments on the effects of critical habitat
	Monitor the effectiveness and success of fauna passages and road tunnels
Public outreach	Increase general awareness about tarantulas, their habitats and conservation problems
	Inform farmers on how to coexist with spiders and change their agricultural practices to be biodiversity friendly
	Reduce illegal trade by disseminating public information on how vulnerable the species are, how long they take to grow, and how rare they are.
	Produce and distribute posters with a free phone number to report to Profepa anyone collecting or trafficking
	Gather more interest from university students

Mapping working group

The mapping group worked on development of zoogeographic maps for the Mexican *Brachypelma* tarantulas. These maps will be included in the Red List assessments to provide a visual representation of each species’ distribution, and will identify threats and conservation priorities. The group discussed the information that would be valuable to include in the maps (e.g. soil type and agricultural use), and identified geographically significant threats to the individual species.

5. Enforcement Closed Session

5.1. Overview

The Enforcement Closed Session was open only to law enforcement personnel from the attending countries. Eight people participated, representing five agencies/departments from four countries (Annex B, Table 8).

The agenda for the Enforcement Closed Session included presentations about enforcement in the four countries, followed by group discussions about smuggling methods, intelligence-driven enforcement and tarantula trafficking in the trinational environment.

The session did not start until after lunch on the third day of the workshop to allow the law enforcement staff to attend the first two presentations of the IUCN Red List Assessment Session. Afterwards, the Enforcement Closed Session and IUCN Red List Assessment Session ran concurrently. The enforcement session was expected to continue through the final day of the workshop. However, the participants were able to cover their respective materials in an expeditious manner and joined the IUCN session on the morning of day four.

5.2. Results

After meeting and sharing information on 1 March 2018, the enforcement representatives from Canada, Mexico, the United Kingdom and the United States reported that they had agreed that trafficking of tarantulas (and other species) would be reduced if countries:

- “Strengthen the exchange of information within the North American region, and including the United Kingdom, in order to improve the monitoring and control mechanisms and subsequently identify points of common interest with the EU, considering the limitations of the national laws on protection of personnel data and information.
- Strengthen the mechanisms of official notification in case of detected illegalities.
- Explore the possibility of creating a secure intelligence exchange platform or gateway to identify hotspot points of entry or priority targets or shipments.
- It is necessary to promote the development of intelligence units for data analysis, which is going to allow its exchange, creation of scenarios and planning of joint actions, with the purpose of preventing illicit acts and efficiently dealing with detected cases.
- Promote the coordination between competent authorities to fight against illegal international trafficking and organized crime, such as INTERPOL [International Criminal Police Organization], to fully utilize the potential of its global notification mechanisms (Factsheets and Ecomessages) and facilitate that information among the authorities responsible for preventing and combating smuggling like the customs authorities.
- Generate more practical training, focused on knowing the mode of operation of illicit activities, identification of value chains, contraband methods and intermediaries; also involving packing/delivery companies and airline companies.”

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Annex A: Workshop Agenda

Tarantula Trinational Trade and Enforcement Workshop Supporting Sustainable Trade of CITES Species

The Westin Guadalajara, Avenida de Las Rosas 2911, 44530
Guadalajara, Jalisco, Mexico

Agenda

As part of the Commission for Environmental Cooperation's (CEC) project Supporting Sustainable Trade of CITES Species, this workshop will gather key stakeholders, IUCN Red list assessment experts, and regulators and law enforcement officers from Canada, Mexico and the United States to strengthen the collaboration for the support of sustainable trade of 16 trinationally agreed tarantula species.

Objectives of the workshop are as follows:

1. Promote stakeholder participation in efforts to support legal, sustainable and traceable trade in North America, consistent with applicable CITES provisions related to trade in tarantula species;
2. Identify knowledge gaps and challenges for the development of the IUCN Red List assessment;
3. Identify opportunities to promote legal, sustainable and traceable trade in priority tarantulas through engagement with local communities;
4. Provide feedback to the draft Tarantula ID guide, and
5. Lay the foundations for intelligence and collaborative enforcement actions to combat tarantula trafficking.

Workshop format:

	Morning		Afternoon	
Day 1	Trinational Trade Session		Trinational Trade Session	
Day 2	Trinational Trade Session		Visit to an <i>Unidad de Manejo para la Conservación de la Vida Silvestre</i> – UMA (Management Unit for the Conservation of Wildlife)	
Day 3			Concurrent sessions	
	IUCN Red List Assessment Overview		Law Enforcement closed session	IUCN Red List assessment feedback session
Day 4	Concurrent sessions		Concurrent sessions	
	Law Enforcement closed session	IUCN Red List assessment feedback session	Law Enforcement closed session	IUCN Red List assessment

	Monday 26 February 2018 Travel day
Day 1	Tuesday 27 February 2018 Trinational Tarantula Trade Session The Westin Guadalajara (<i>Salón Agave</i>) Avenida de Las Rosas 2911, Guadalajara, Jalisco, Mexico
8:45-09:00	Coffee and registration
9:00-9:55	<p>Workshop opening and introduction to CEC (5 min.)</p> <p>1. <i>David Donaldson</i>, Head of Unit, Commission for Environmental Cooperation</p> <p>Welcome remarks (15 min.)</p> <p>2. <i>Hesiquio Benítez</i>, <i>Director General de Cooperación Internacional e Implementación</i>, Conabio</p> <p>Introduction and presentation of workshop agenda (20 min.)</p> <p>3. <i>Ernie Cooper</i>, <i>Workshop Facilitator</i></p> <p>CEC project “Supporting Sustainable Trade of CITES Species” (15 min.)</p> <p>4. <i>Georgina O’Farrill</i>, CITES Project Lead, Commission for Environmental Cooperation</p>
9:55-10:35	<p>Introduction to the priority tarantulas (40 min.)</p> <ul style="list-style-type: none"> • <i>Rick West</i>, arachnologist: Key points from the tarantula action plan (20 min. including question period). • <i>Jorge Mendoza</i>, <i>Director General Arachnida Colección Nacional de Arácnidos, Instituto de Biología UNAM</i>: Natural history of priority tarantula species (20 min. including questions).
10:35-10:50	Coffee Break
10:50-11:30	<p>CITES and tarantulas (40 min.)</p> <ul style="list-style-type: none"> • <i>Hesiquio Benitez</i>: Introduction to CITES including Appendix II provisions (20min. including question period). • <i>Ernie Cooper</i>: Statistics and trends in international tarantula trade for priority species (20 min. including question period).
11:30-12:30	<p>Trade and value chain (60 min.)</p> <ul style="list-style-type: none"> • <i>Antonio de Jesús García Bernal</i>, <i>Subdirector de Gestión de Licencias, Registros y Aprovechamiento Intensivo</i>, Semarnat: Sustainable management units (<i>Unidades de Manejo y Aprovechamiento—UMAs</i>): their concept and legal framework (20 min. including question period). • <i>Gerardo García Beltrán</i>, Owner, <i>UMA Aracnofilia</i>: Overview of supply chain for priority tarantula species (20 min. including question period). • <i>Carol Fukushima</i>, IUCN, University of Helsinki: Global trade of live tarantulas and scorpions: analysis through social media of its impact on wild populations of endangered species (20 min. including question period).

12:30-13:30	<p>Presentations by breeders/traders/importers (60 min.)</p> <ul style="list-style-type: none"> • <i>Martin Gamache</i>, Owner, Tarantula Canada: Commercially breeding and trading tarantulas in Canada (20 min. including question period). • <i>José Rodrigo Orozco Torres</i>, Director, <i>Tarántulas de México</i>: Commercially breeding and trading tarantulas in Mexico (20 min. including question period). • <i>Joey Mugleston</i>, Owner, Great Basin Serpentarium: Commercially breeding and trading tarantulas in the USA (20 min. including question period).
13:30-15:00	<i>Lunch: Salón Rosedal</i>
15:00-15:40	<p>Sustainable use and community engagement presentations (40 min.)</p> <ul style="list-style-type: none"> • <i>Hesiquio Benítez</i>: Sustainable use principles using Morelet’s crocodile ranching project as an example (20 min. including question period). • <i>Juan Sanchez Hinojosa</i>, CEO <i>Aracneé</i>: Local community involvement in the <i>Aracneé</i> tarantula breeding facility (20 min. including question period).
15:40-16:40	<p>Roundtable discussion on promotion of legal, sustainable and traceable trade in tarantulas through local community involvement (facilitated discussion; 60 min.)</p> <ul style="list-style-type: none"> • <i>Paola Mosig Reidl</i>, <i>Coordinadora de la Autoridad Científica CITES</i>, <i>Conabio</i>, and <i>María Isabel Camarena Osorno</i>, <i>Especialista CITES</i>, <i>Conabio</i>: Facilitators.
16:40-16:55	<i>Coffee Break</i>
16:55-17:30	Roundtable discussion continued... (35 min.)
17:30-18:00	<p>Wrap up Day 1 (30 min.)</p> <ul style="list-style-type: none"> • <i>Ernie Cooper</i>: Key discussion points and presentation of Day 2 agenda.
Day 2	<p>Wednesday 28 February 2018 Trinational Tarantula Trade Session The Westin Guadalajara (<i>Salón Agave</i>) Avenida de Las Rosas 2911, Guadalajara, Jalisco, Mexico</p>
08:45-09:00	<i>Coffee and light breakfast</i>
09:00-10:15	<p>Tarantula identification presentations (75 min.)</p> <ul style="list-style-type: none"> • <i>Jorge Mendoza</i>: Overview of the diagnostic characters for identification of priority tarantula species by non-specialists (30 min. including question period). • <i>Ernie Cooper</i>: Outline of the tarantula identification guide (20 min. including question period). • Discussion: Feedback to strengthen the ID guide (25 min.).
10:15-10:30	<i>Coffee break</i>
10:30-12:00	<p>Roundtable discussion: facilitated by <i>Ernie Cooper (90 min.)</i></p> <ul style="list-style-type: none"> • Collaboration and networking opportunities for meeting the outstanding recommendations in “Sustainable Trade in Tarantulas: Action Plan for North America” (60 min.). • Recommendations (30 min.).

12:00-12:30	Workshop conclusions (30 min.)	
	<ul style="list-style-type: none"> • <i>Ernie Cooper</i>: Summary of results, discussion of next steps (25 min.). • <i>David Donaldson</i>: Last words (5 min.). 	
12:30-18:00	Field trip to the UMA <i>Tarántulas de México</i> (boxed lunch)	
19:00-21:00	Group dinner at the Westin Guadalajara hotel (Lobby Bar and Terrace)	
Day 3	Thursday 1 March 2018 The Westin Guadalajara (<i>Salón Agave</i>) Avenida de Las Rosas 2911, Guadalajara, Jalisco, Mexico	
08:45-09:00	<i>Coffee and light breakfast</i>	
09:00-10:00	IUCN Red List Assessment overview (60 min.)	
	<ul style="list-style-type: none"> • Introductions (20 min.) • <i>Pedro Cardoso</i>, Chair, Spider and Scorpion Specialist Group, University of Helsinki: IUCN Red List Assessment experts (40 min. including question period). 	
10:00-10:15	<i>Coffee break</i>	
10:15-12:00	IUCN Short Course (1 hr. 45 min.)	
	<ul style="list-style-type: none"> • <i>Pedro Cardoso</i> and <i>Carol Fukushima</i>: IUCN Short course on Red List Assessment (60 min.) • Discussion and question period (45 min.) 	
12:00-13:30	<i>Lunch: Salón Sabila-Maguey</i>	
Concurrent sessions		
	Law enforcement closed meeting <i>Salón Arrayan</i>	IUCN Red List Assessment session <i>Salón Agave</i>
13:30-15:00	Country enforcement overview presentations w/discussion and question/answer (90 min.) <ul style="list-style-type: none"> • Canada, Mexico, United States (30 min. each) 	IUCN Red List Assessment (90min) <ul style="list-style-type: none"> • Presentation IUCN Red List Pre-Assessment of 16 priority tarantula species (30 min. including question period) • Discussion on development of assessment and data gaps (60 min.)
15:00-15:30	<i>Coffee break</i>	
15:30-17:00	Country enforcement overviews cont. (90 min.) <ul style="list-style-type: none"> • Presentation: Ann Ainslie; Border Force Higher Officer. CITES Team, Outdoor Division Border Force, Heathrow (15 min.). • Discussions (75 min.) 	IUCN Red List Assessment (90 min) <ul style="list-style-type: none"> • Facilitated discussion to provide feedback on tarantula draft Red List assessment; <i>Facilitator: Pedro Cardoso</i>

17:00-17:30	Wrap up enforcement closed session Day 1 (30min.)	Wrap up IUCN Red List Assessment Day 1 (30min.)
Day 4	Friday 2 March 2018 The Westin Guadalajara (<i>Salones Arrayan y Agave</i>) Avenida de Las Rosas 2911, Guadalajara, Jalisco, Mexico	
	Law enforcement closed meeting <i>Salón Arrayan</i>	IUCN Red List Assessment session <i>Salón Agave</i>
08:45-09:00	<i>Coffee and light breakfast</i>	
9:00-11:00	Investigative/enforcement case presentations (Mexico, U.S. and Canada) (120 min.) <ul style="list-style-type: none"> • Focus: tarantula trafficking investigations and unique smuggling methods 	IUCN Red List Assessment (120 min) <ul style="list-style-type: none"> • Facilitated discussion to provide feedback on tarantula draft Red List assessment; <i>Facilitator: Pedro Cardoso</i>
11:00-11:15	<i>Coffee break</i>	
11:15-13:00	Investigative/Enforcement Case Presentations (Mexico, U.S. and Canada) (120 min.) <ul style="list-style-type: none"> • Discussions points: <ul style="list-style-type: none"> - Intelligence driven enforcement in the trinational environment - Tarantula trafficking in the trinational environment 	IUCN Red List Assessment (1 hr. 45 min) <ul style="list-style-type: none"> • Facilitated discussion to provide feedback on tarantula draft Red List assessment; <i>Facilitator: Pedro Cardoso</i>
13:00-14:30	<i>Lunch: Salón Rosedal</i>	
14:30-16:30	Discussion (120 min.) <ul style="list-style-type: none"> • Tarantula trafficking in the trinational environment (90 min.) • Wrap up Enforcement closed session (30 min.) 	IUCN Red List Assessment (120 min) <ul style="list-style-type: none"> • Facilitated discussion to provide feedback on tarantula draft Red List assessment; <i>Facilitator: Pedro Cardoso (90 min.)</i> • Wrap up IUCN Red List Assessment session (30 min.)

Annex B: Workshop Participants

Table 6. Participants in the Trinational Trade Session

Country	Name	Affiliation/Expertise
Canada	Daniel Dillon	Intelligence Analyst, Wildlife Enforcement Directorate (WED), Environment and Climate Change Canada (ECCC)
	David Donaldson	Head of Unit, CEC
	Erika Vanessa Silva	Assistant, CEC
	Ernest Cooper	Consultant/expert, ECEC
	Georgina O'Farrill	Project Lead, CEC
	Marie Claude Rouillard	Communications Coordinator, CEC
	Martin Gamache	Tarantula Canada; tarantula breeder
Mexico	Richard West	Consultant/expert, ECEC
	Aaron Zuñiga Sanchez	PIMVS <i>Crisaor Exóticos</i> , tarantula expert/breeder
	Alonso Alejandro Tolentino	PIMVS <i>Mygalarachne</i> , tarantula expert/breeder
	Antonio de Jesús García Bernal	DGVS-Semarnat
	Carolina Citlalli Carrillo	Profepa
	Eliz Regina Martínez Lopez	Profepa
	Emmanuel Rivera Tellez	Conabio
	Francisco J. Navarrete Estrada	Profepa
	Frida Beatriz Arriaga Cinta	<i>Analista</i> , PNUD/BIOFIN México, NGO
	Gerardo García Beltran	Biologist/breeder/dealer, UMA <i>Arachnofilia</i>
	Gumaro Gabriel Solano Cuéllar	Private tarantula expert/breeder
	Hernan José Jimenez	Profepa
	Hesiquio Benítez	Conabio
	Jorge Alberto Duque Sánchez	DGVS-Semarnat
	Jorge Iván Mendoza Marroquin	Consultant/expert, UNAM and ECEC
	Juan Sánchez Hinojosa	<i>Aracneé</i> , tarantula expert/breeder
	Leticia Albarran Mena	Sagarpa
	Luis Guillermo Muñoz	Conabio
	María Esther Quintero Rivero	Conabio
	María Isabel Camarena Osorno	Conabio
	Oscar Orlando Escobedo Correa	Petco, Private sector
	Paola Mosig	Conabio
	Rodrigo Antonio Medellín Legorreta	<i>Instituto de Ecología</i> , UNAM
Rodrigo Orozco Torres	Breeder/dealer, <i>Tarantulas de Mexico</i>	
Ruth Ramírez Guzmán	Arachnida/ <i>Aracneé</i> , tarantula expert/breeder	
Sol Guerrero	Conabio	
Yann Lucien Hénaut	<i>El Colegio de la Frontera Sur</i> (Ecosur)	
United States	Craig Marder	Millipedes and More, breeder/importer
	Joseph Mugleston	Utah Valley University & Great Basin Serpentarium, breeder/importer
	Robert Likins	Pet Industry Joint Advisory Council (PIJAC), Vice President of Government Affairs
	Rosemarie Gnam	Division of Scientific Authority, USFWS
	Matthew Bendele	Office of Law Enforcement, USFWS, Attaché to U.S. Embassy in Mexico City
International	Ann Ainslie	Border Force Higher Officer, CITES Team, Outdoor Division-Border Force, Heathrow
	Caroline Fukushima	IUCN Spider and Scorpion Specialist Group
	Pedro Cardoso	Chair, IUCN Spider and Scorpion Specialist Group
	Sergio Henriques	IUCN Spider and Scorpion Specialist Group
	Stuart J. Longhorn	Hon. Assoc. Researcher, Oxford University Museum of Natural History (OUMNH)

Table 7. Participants in the IUCN Red List Assessment Session

Country	Name	Affiliation/Expertise
Canada	David Donaldson	Head of Unit, CEC
	Ernest Cooper	Consultant/expert, ECEC
	Georgina O'Farrill	Project Lead, CEC
	Richard West	Consultant/expert, ECEC
Mexico	Aaron Zuñiga Sanchez	PIMVS <i>Crisaor Exóticos</i> , tarantula expert/breeder
	Emmanuel Rivera Tellez	Conabio
	Frida Beatriz Arriaga Cinta	<i>Analista</i> , PNUD/ BIOFIN México, NGO
	Gerardo García Beltran	Biologist/breeder/dealer, UMA Arachnofilia
	Hesiquio Benítez	Conabio
	Jorge Iván Mendoza Marroquin	Consultant/expert, UNAM and ECEC
	Juan Sánchez Hinojosa	<i>Aracneé</i> , tarantula expert/breeder
	Leticia Albarran Mena	Sagarpa
	Luis Guillermo Muñoz	Conabio
	María Isabel Camarena Osorno	Conabio
	Oscar Orlando Escobedo Correa	Petco, Private sector
	Paola Mosig	Conabio
	Rodrigo Antonio Medellín Legorreta	<i>Instituto de Ecología</i> , UNAM
	Rodrigo Orozco Torres	Breeder/dealer, <i>Tarantulas de Mexico</i>
	Ruth Ramírez Guzmán	<i>Arachnida/Aracneé</i> , tarantula expert/breeder
	Sol Guerrero	Conabio
Yann Lucien Hénaut	Ecosur	
United States	Craig Marder	Millipedes and More, breeder/importer
	Joseph Mugleston	Utah Valley University, & Great Basin Serpentarium, breeder/importer
	Robert Likins	PIJAC, Vice President of Government Affairs
	Rosemarie Gnam	Division of Scientific Authority, USFWS
International	Caroline Fukushima	IUCN Spider and Scorpion Specialist Group
	Pedro Cardoso	Chair, IUCN Spider and Scorpion Specialist Group
	Sergio Henriques	IUCN Spider and Scorpion Specialist Group
	Stuart J. Longhorn	Hon. Assoc. Researcher, OUMNH

Table 8. Participants in the Enforcement Closed Session

Country	Name	Affiliation/Expertise
Canada	Daniel Dillon	Intelligence Analyst, WED, ECCC
Mexico	Antonio de Jesús García Bernal	DGVS-Semarnat
	Carolina Citlalli Carrillo	Profepa
	Eliz Regina Martinez Lopez	Profepa
	Francisco J. Navarrete Estrada	Profepa
	Hernan José Jimenez	Profepa
United States	Matthew Bendele	Office of Law Enforcement, USFWS, Attaché to U.S. Embassy in Mexico City
International	Ann Ainslie	Border Force Higher Officer, CITES Team, Outdoor Division-Border Force, United Kingdom

Annex C: Community Involvement Working Group Responses

The following responses were provided by the three working groups that were invited to discuss the challenges and opportunities for promoting legal, sustainable and traceable trade in tarantulas through local community involvement. The text is as received, translated from Spanish (in the case of working groups 2 and 3) and with some minor edits for clarity, where needed.

Working Group 1:

Challenges include:

- Multicultural communities with different attitudes.
- When engaging with indigenous peoples and local communities, a liaison must approach the authorities of the group and get his/her approval first.
- Need to establish a starting point/baseline for traditional knowledge and use of tarantulas in the community in order to set a path forward to a sustainable use of tarantula species.
- Need for government financial incentive and training to set up a breeding facility.
- Need for security and supervision of employees.
- Need for random or 'short notice' UMA inspections to ensure compliance, the well-being of the specimens managed at the UMA, and that the standards set by Semarnat/Profepa are met.

Ideas and recommendations to encourage the participation of local communities in licit, sustainable and traceable tarantula trade:

- Promote production and ecotourism (mixed systems). Involve and target different taxa (not only tarantulas), and multi-activities.
 - Involve local communities.
 - Support habitat conservation.
 - Release species where necessary, with clear objectives and procedures.
- Social media can provoke a snowball effect, including self-promotion and encouraging government support.
- Identify communities willing to participate in pilot projects involving egg sac ranching (similar to the Morelet's crocodile project).

Ideas and recommendations on how to maximize both the conservation of wild populations of tarantulas and the associated benefits that local communities can obtain:

- Promote ecotourism, e.g. photography, trekking, camping; improve infrastructure.
- Develop an information tool kit to share with interested communities—specific to breeding and exporting tarantulas.
- Encourage raising and selling older specimens instead of spiderlings.
- Explore certification systems to increase the value of specimens.
- Promote information on trade to let people know that they are participating in local conservation and sustainable commerce.

Working Group 2:

Ideas and recommendations to encourage the participation of local communities in licit, sustainable and traceable tarantula trade:

- Workshops on benefits, environmental education with the aim of socializing the benefits of tarantulas.

- Demystify.
- Generate empathy with natural resources.
- Integration of fauna within society.
- Ecological benefits associated with the conservation of tarantulas.
- Empowerment.
- Empathy with the communities themselves, and a genuine interest in the conservation of a certain species is developed.
- Ecotourism.
- Economic support for the promotion of UMAs since these will be the genetic reservoirs for future reintroduction projects.
- Turn illegal commerce into legal practices led by local communities.
- Replicate models that have proven to be successful in UMAs. For example, *B. auratum* reproduction is very complicated.
- In the aquarium trade it has been shown that exporters benefit if they are environmentally aware.
- Provision of grants similar to the protocols of the USFWS for the establishment of UMAs.

Ideas and recommendations on how to maximize both the conservation of wild populations of tarantulas and the associated benefits that local communities can obtain:

- It is essential to invest enough resources in order to have commercial tarantula production that is profitable and supports UMAs that are currently working. For example, through government incentives such as subsidies to promote UMAs.
- Dissemination of responsible producers (directory): promote the UMAs on the CEC project website so that they are already certified producers.
- Based on robust parental stocks, there is potential to supply demand in North America, Europe and Asia.
- Since United States is the main importer, Mexico's production can be strengthened to avoid imports from Europe and using in-situ conservation as an added value and to lower production costs.
- It is necessary to create a National Committee of tarantula producers in Mexico, and to incorporate issues of integration of local communities. A Civil Association is in the process of being developed looking also for synergies with other UMAs (fauna and/or flora).
- Consider establishment of a trust fund to support sustainable wildlife production (seed money).
- Small business grants for UMAs' hatcheries, particularly those that have demonstrated the commitment and potential to reproduce tarantulas.
- Found an NGO dedicated to tarantula conservation, properly registered in the Federal Register of Civil Society Organizations (*La Clave Única de Inscripción—Cluni*) and in accordance with legal requirements [such as, the "Foundation for the protection and conservation of the Mexican tarantula" which is led by Juan Sánchez Hinojosa, a participant in the workshop].
- Promote implementation of resolution of ex situ/in situ parental stock with breeders in Europe in compliance with the provisions of CITES. Res. Conf. 13.9 (Promotion of cooperation between Parties with ex situ breeding operations and Parties with in situ conservation programs). Associate it with the IUCN evaluations that derive from the workshop (talk with Germany).

Working Group 3:

- Engagement of local communities in UMAs with programs of work on a variety of management regimes (wildlife and closed cycle facilities) and species.
- Promote “Responsible ranching”: including taking specimens from the wild, reproducing them, obtaining genetic tests, and releasing offspring into the wild.
- Create a "trusted trader" program.
- Conduct population studies; promote collaboration between communities and academic, private, civil and governmental sectors (include training for communities).
- Diversify UMA activities (e.g. linking to ecotourism) and promote the use of more tarantula species other than *Brachypelma*.
- Give added value to specimens by providing certificates of origin.



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