

Certification to support conservation and sustainable use of endangered Mexican cacti



Rolando T. Bárcenas¹ & Julie A. Hawkins²

¹Universidad Autónoma de Querétaro, México
²The University of Reading, U.K.

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Mexico is considered as a megadiversity country where almost 65% of its territory is covered by semi-arid to arid vegetation.

There are five important desert areas in Mexico. The Chihuahuan, Sonoran, Baja Californian, the Queretaroan-Hidalgoan Arid Zone and the Tehuacán Valley.

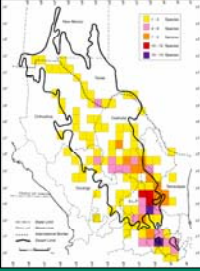
These deserts have a wealth of cacti species and the degrees of endemism are high at the species and generic levels, this is, many taxa are restricted to their limits and some can only be found in two to three populations of several hundred individuals.

There are 1500 spp. and 100 genera of cacti. Mexico has 550 spp. in 50 genera and 78% of the spp. and 73% of the genera are fully Mexican.

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Distribution of endangered cacti species in the Chihuahuan Desert



The Chihuahuan Desert is the largest and most diverse desert in North America but it is also the less studied. 324 spp in 39 gen.

It has been included as one of the 200 global ecoregions by WWF.

The Mexican deserts are vast in area, great in biodiversity but are also vast in economic poverty.

The harsh conditions that have created marvellous species have also created social discrepancies among their inhabitants with few possibilities of development.

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The cacti play an important role in the life of Mexicans.

The Mexican flag has an eagle devouring a serpent standing in an *Opuntia* growing in the middle of a lake.

The peyote plays a central role among several Prehispanic religions in Mexico and south of the United States.

The cacti may also be one of a few resources for people living in the deserts as well as for animals that live among and feed from them.

The cacti are central to the conservation efforts of Mexico as well as an icon of the culture.

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It has been said that the cactus family is one of the most endangered families in the world (Hernández y Bárcenas 2005, 2006).

The family is the target of international and national collectors that pursue the rarest and most valuable individuals of the populations.

Even before a new species is described in science, the populations are devastated and become the objective of illegal collectors and traders.

International trade on Mexican cacti is big business and involves both legal and illegally collected plants.

All the family is included in CITES: 36 taxa in Ap. I and the rest in Ap. II.

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A previous study on the international trade of Mexican cacti, detected the most important places and species traded in the market.

Many of the species traded were the progeny of illegally collected, exported and imported material.

It was also clear "who's who" in the trade of cacti worldwide, as well as the sad and awful situation of the Mexican cacti industry.

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Figure 9. Distribution by country of CDE cacti species with conservation status.

Country	CITES appendix I	CITES appendix II	Non-CITES
USA	45	144	117
UK	38	94	79
GER	22	81	88
SWE	22	57	21
MEX	22	49	21
ITA	22	44	47
SPA	17	41	41
CAN	0	2	2

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National problematic

There is a lack of a solid mechanism to prove with certainty the origin of the individuals either from the field or from registered collections.

There are few inspectors in the country, generally lacking the necessary knowledge on identification, paper work is complex and prosecutions are rare events.

The actual mechanism to control trade in wildlife is centred in a "piece of paper" that can be duplicated, counterfeited and is the origin of the "species laundering" business.

The resources that the Mexican government invest in this war are insufficient, but also, there are no objective mechanisms to fight against illegal trade since a certification scheme is not implemented.

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Previous projects as the "microchip initiative" focused on microchipping individuals in their natural habitats for tracking purposes, but have failed because of the use of X-rays.

Reintroduction efforts after seizures of illegal plants are either impossible if the organization is ethically responsible, or a crime against natural equilibrium since there is no certainty of the origin of the plants.

The best situation is that seized plants end up in collections at botanical gardens or greenhouses but nothing is known about their origin. The majority of the plants die in warehouses and damage at origin is irreversible.

There is a clear and urgent necessity to create a certification mechanism that bridges this gap

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Illegal collectors and traders affect the natural populations and the economy in several profound and sometimes irreversible ways.

On one side, they harm and push populations into extinction either actually - removing all individuals or potentially -reducing genetic variability by just leaving a few plants.

Illegal collectors steal the resources of the community but do not return any benefit. The few people that "collaborates" for a few cents with illegal collectors do not create a sustainable source of income and put in risk the only resources owned by the community and the rest of the country.

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Previous studies have used "visual" methodologies to infer the origin of plants.

1. Degree of stem hydration
2. Development of the roots
3. Damage to epidermal tissue: predators, frost
4. Type of soil where the plant develops
5. Type of container
6. Spine development

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Scientific collections Shift from illegal to legal trade

Training human resources Conservation of resources

Certified material Sustainable use

Stakeholders meetings Fare & equitable share

Development of new applications Compliance of national & international laws

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The proposal
A certification scheme based on the Convention on Biological Diversity (CBD), the CITES, and the NOM.

The project
Genetic characterization of DNA fragments for the molecular certification of endangered Mexican cacti in support of conservation and sustainable use.

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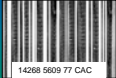
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Fingerprinting
Microsatellites of target species will be developed, selected and tested in order to identify individuals and/or populations of origin in a fingerprinting pilot study.

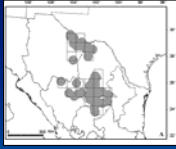


Bar coding
Molecular sequences will be produced and tested in order to explore the potential use of the sequences for bar coding species.




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Known natural populations will be included as well as registered collections from producers and botanical gardens.



Not all the natural populations are known for all the species, but we know that every plant in trade should have come from a registered collection.

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The prospects

The project will provide the mechanism for a fair share for owners of the resources, producers, traders and consumers.

Will provide a mechanism to identify legally propagated individuals.

Will also provide a mechanism for the reintroduction of individuals to their original habitats.

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Stakeholders

Stakeholders met in a two day workshop to discuss the possibilities, necessities and possible problems facing a certification scheme.

Producers, academics and NGO's discussed a possible certification scheme. Some producers were sceptical while others were enthusiastic.

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Stakeholders


Disadvantages: The certified plants to be traded will include a green tax and a certification of origin. This tax will be divided in two ways: one part will go to the project itself to make it self sustainable, and the other part will be destined to the original communities where the plants were collected.

Incentives: Producers that decide to go into the certification scheme will need to "convince" fiscal authorities for a preferential treatment in order to reduce the tax they pay.

Producers will also need to discuss with CITES for a preferential treatment in order to expedite permits for import-export activities as well as to possible reductions in the cost of the permits.

Final consumer: The consumers need to be convinced about the benefits of the green tax in order to preserve their species and to reduce poverty levels in source communities

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Stakeholders

The role of stakeholders: It was clear that a project like this will only be successful if the government supports it, if producers are involved, if communities are the first line of defence against illegal collections.

Also, if the certification scheme is managed by a NGO instead of the government, where it will drown into a sea of protocols and paper work.

The certification centre: It was also agreed that either, a certification scheme should have a main centre of operations or that sub-centres should be created.

The second proposal: Apart of a centre of operations, it was suggested that nurseries could be certified or that plants should be certified, or both.

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Fuentes de información sobre el proyecto de certificación.

Página de internet sobre el proyecto de certificación: www.uaq.mx/ccma

Iniciativa Darwin, DEFRA: www.darwin.gov.uk

Convenio sobre la Diversidad Biológica: www.biodiv.org

CITES: www.cites.org



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