



# **MEXICAN NATIONAL LIVING BAMBOO COLLECTION *EX SITU* CONSERVATION**

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# BAMBOO



# MEXICAN BAMBOO



year 2000  
36 mexican  
species



# *Ex situ* Conservation

Botanical Garden “Francisco Javier Clavijero”

National Collection of Native  
Mexican Bamboo



# WORK MADE



## COLLECTION OF SPECIMENS



# WORK MADE



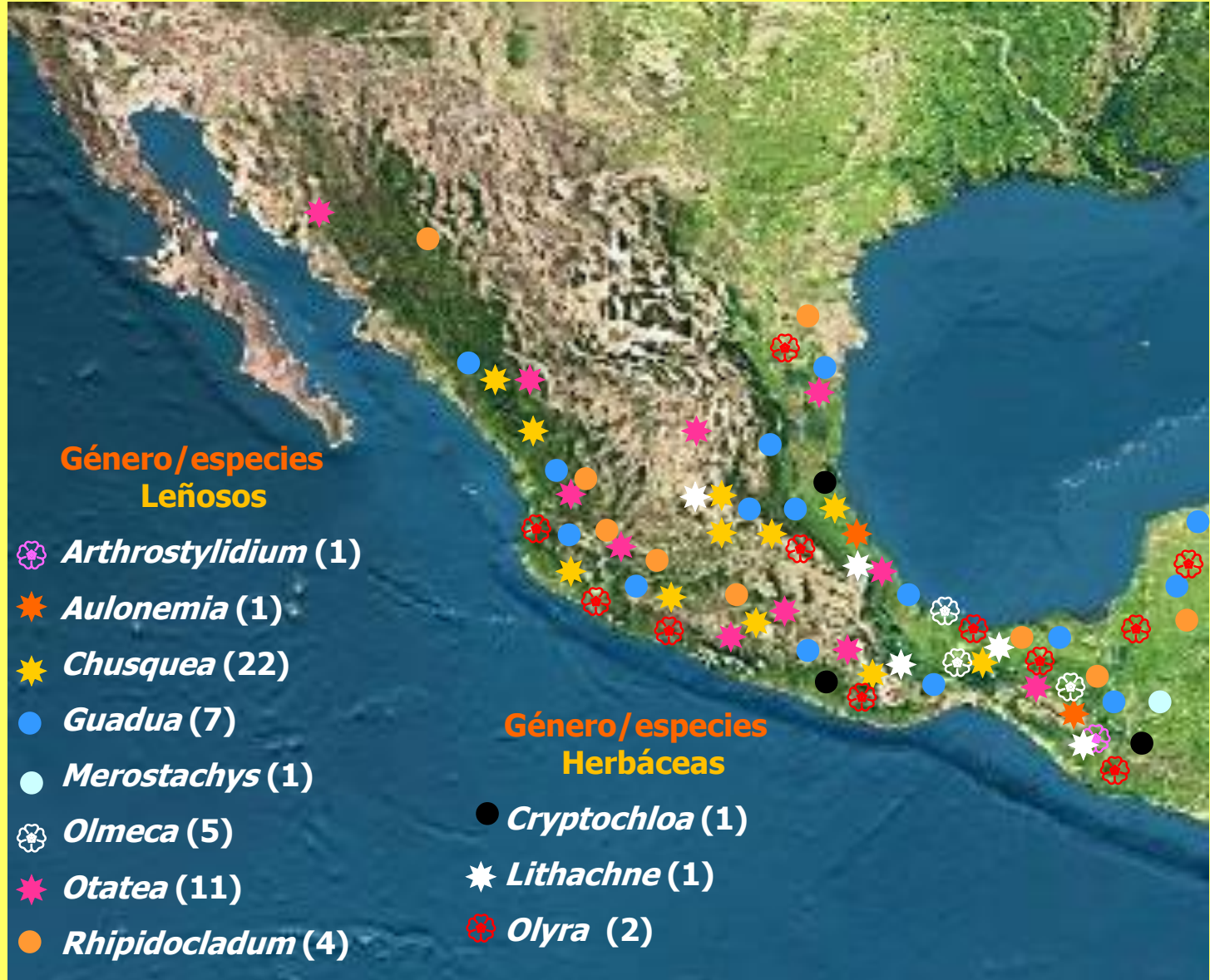
## CURATORIAL ACTIVITIES



# RESULTS

56 species (34 endemic)

## Mexican bamboo distribution



# Bamboo diversity





# Bamboo diversity



# Bamboo uses



# Monte Blanco traditional uses



### List of Mexican bamboo species

| Species   | Endemic | Woody (W) or Herbaceous (H) bamboos | Species in exhibition in the collection | Species in nursery in the collection |
|---|---------|-------------------------------------|---|--------------------------------------|
| 1. <i>Arthrostylidium excelsum</i>                  |         | W                                   | √                                       | √                                    |
| 2. <i>Aulonemia laxa</i> *                          | √       | W                                   |   |                                      |
| 3. <i>Chusquea aperta</i>                           | √       | W                                   | √                                       |                                      |
| 4. <i>Chusquea bilimekü</i>                         | √       | W                                   |   | √                                    |
| 5. <i>Chusquea circinata</i>                        |         | W                                   | √                                       |                                      |
| 6. <i>Chusquea coronalis</i>                        |         | W                                   | √                                       |                                      |
| 7. <i>Chusquea cortesii</i>                         |         | W                                   |   | √                                    |
| 8. <i>Chusquea enigmatica</i>                       | √       | W                                   | √                                       | √                                    |
| 9. <i>Chusquea galeottiana</i>                      | √       | W                                   |   |                                      |
| 10. <i>Chusquea gibcooperi</i>                      | √       | W                                   | √                                       |                                      |
| 11. <i>Chusquea glauca</i>                          | √       | W                                   | √                                       |                                      |
| 12. <i>Chusquea lanceolata</i>                      |         | W                                   | √                                       | √                                    |
| 13. <i>Chusquea liebmannii</i>                      |         | W                                   | √                                       |                                      |
| 14. <i>Chusquea longifolia</i>                      |         | W                                   | √                                       |                                      |
| 15. <i>Chusquea matlatzínca</i>                     | √       | W                                   | √                                       | √                                    |
| 16. <i>Chusquea mulleri</i>                         | √       | W                                   | √                                       |                                      |
| 17. <i>Chusquea nedjaquithii</i>                    | √       | W                                   | √                                       | √                                    |
| 18. <i>Chusquea nelsonii</i>                        | √       | W                                   | √                                       |                                      |
| 19. <i>Chusquea perotensis</i>                      | √       | W                                   | √                                       |                                      |
| 20. <i>Chusquea pitieri</i>                         |         | W                                   | √                                       |                                      |
| 21. <i>Chusquea repens</i> subsp. <i>repens</i>     | √       | W                                   |   |                                      |
| <i>Chusquea repens</i> subsp. <i>oaxacacensis</i> * | √       | W                                   | √                                       |                                      |
| 22. <i>Chusquea septentrionalis</i>                 | √       | W                                   |   |                                      |
| 23. <i>Chusquea simpliciflora</i>                   |         | W                                   | √                                       | √                                    |
| 24. <i>Chusquea sulcata</i>                         |         | W                                   | √                                       |                                      |
| 25. <i>Cryptochloa strictiflora</i>                 |         | H                                   | √                                       | √                                    |
| 26. <i>Guadua aculeata</i>                          |         | W                                   | √                                       |                                      |
| 27. <i>Guadua amplexifolia</i>                      |         | W                                   | √                                       |                                      |
| 28. <i>Guadua inermis</i>                           | √       | W                                   | √                                       |                                      |
| 29. <i>Guadua longifolia</i>                        |         | W                                   | √                                       | √                                    |

|                                       |   |   |   |   |
|---------------------------------------|---|---|---|---|
| 30. <i>Guadua paniculata</i>          |   | W | √ |   |
| 31. <i>Guadua tuxtensis</i>           | √ | W | √ |   |
| 32. <i>Guadua velutina</i>            | √ | W |   |   |
| 33. <i>Lithachne pauciflora</i>       |   | H | √ |   |
| 34. <i>Merostachys mexicana</i>       | √ | W | √ |   |
| 35. <i>Olmea clarkiae</i>             |   | W | √ | √ |
| 36. <i>Olmea fulgor</i>               | √ | W | √ |   |
| 37. <i>Olmea recta</i>                | √ | W | √ | √ |
| 38. <i>Olmea reflexa</i>              | √ | W | √ |   |
| 39. <i>Olmea zapotecorum</i>          | √ | W | √ | √ |
| 40. <i>Olyra glaberrima</i>           |   | H |   |   |
| 41. <i>Olyra latifolia</i>            |   | H | √ |   |
| 42. <i>Otatea acuminata</i>           | √ | W | √ | √ |
| 43. <i>Otatea carrilloi</i>           | √ | W | √ | √ |
| 44. <i>Otatea fimbriata</i>           |   | W | √ |   |
| 45. <i>Otatea glauca</i>              | √ | W | √ | √ |
| 46. <i>Otatea nayeeri</i>             | √ | W |   | √ |
| 47. <i>Otatea ramirezii</i>           | √ | W | √ |   |
| 48. <i>Otatea reynosoana</i>          | √ | W | √ |   |
| 49. <i>Otatea rzedowskiorum</i>       | √ | W | √ | √ |
| 50. <i>Otatea transvolcanica</i>      | √ | W | √ |   |
| 51. <i>Otatea victoriae</i>           | √ | W | √ |   |
| 52. <i>Otatea ximenae</i>             | √ | W | √ |   |
| 53. <i>Rhipidocladum bartlettii</i>   |   | W |   |   |
| 54. <i>Rhipidocladum martinezii</i>   | √ | W | √ | √ |
| 55. <i>Rhipidocladum pitieri</i>      |   | W | √ | √ |
| 56. <i>Rhipidocladum racemiflorum</i> |   | W | √ | √ |

\*These species were recently collected and they are not performing well; they may have to be collected again.

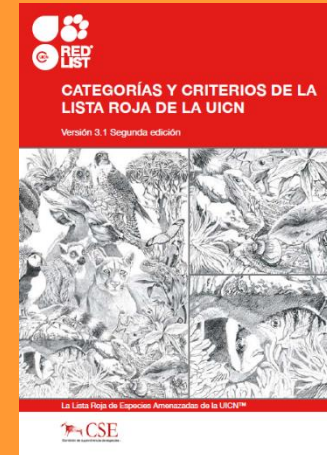
2018

49 species + 5 new species  
One population *Otatea ximenae*  
Morpho *Lithache pauciflora*.

# Ex situ Conservation



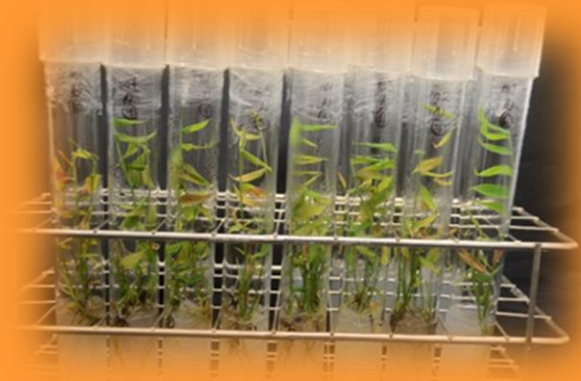
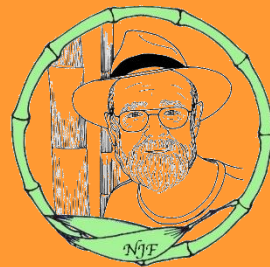
*Chusquea enigmatica*



*Chusquea bilimekii*

## *In vitro* tissue culture

*Olmeca clarkiae*, *Chusquea nedjaquihtii*,  
*C. matlatzinca*, *C. enigmática*,  
*Rhipidocladum martinezii*, *Olyra latifolia*

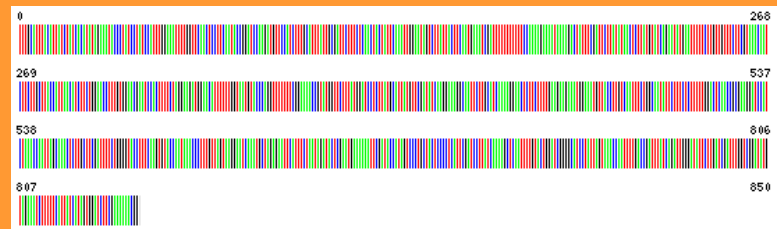
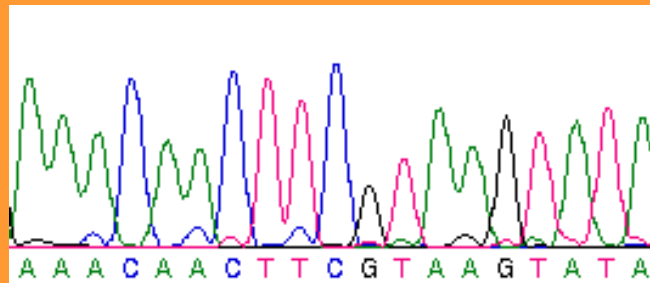
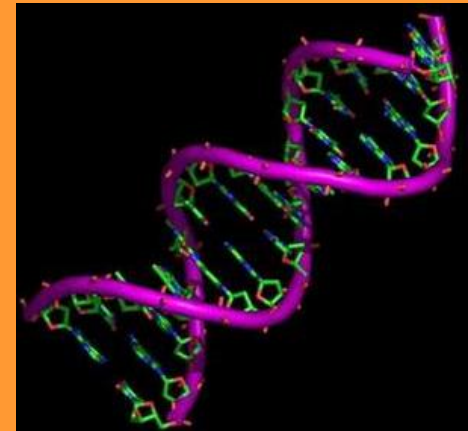


# Barcode of mexican bamboos (36 species)



CONABIO

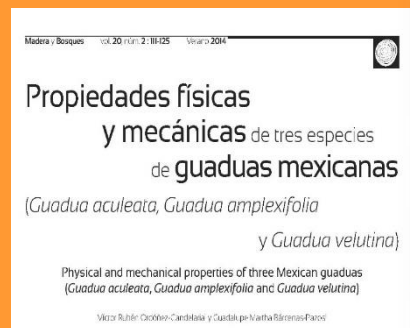
matK , rbcL, psbI-K



# Physical and mechanical properties of Mexican *Guadua*

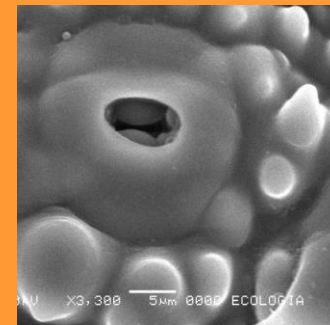
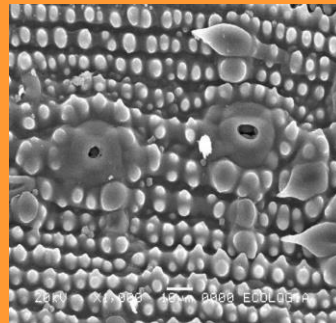
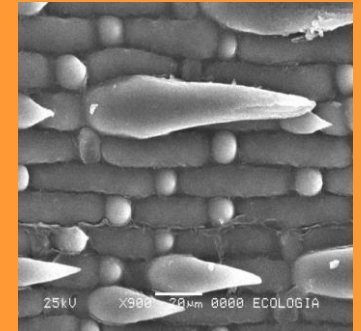
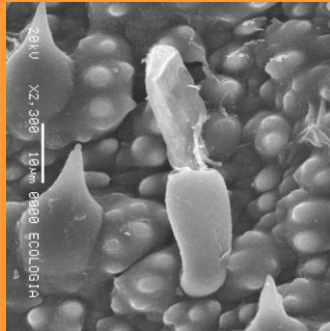


*G. aculeata* *G. amplexifolia* *G. velutina*





# Study on anatomy

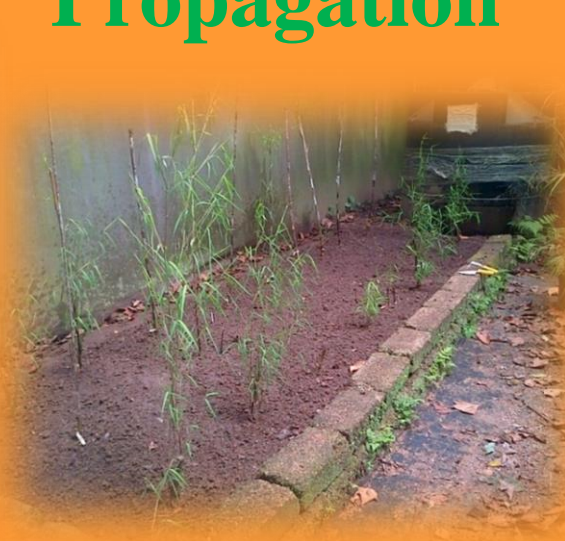


# Insects associated with bamboo



| Family                  | Genus                        | Estate   | Samples number |
|-------------------------|------------------------------|----------|----------------|
| <b>Alydidae</b>         | <i>Stenocoris</i> sp.        | Veracruz | 11             |
| <b>Anthocoridae</b>     |                              | Veracruz | 3              |
|                         | <i>Bactrophyamixia</i> sp.   | Veracruz | 2              |
| <b>Berytidae</b>        | <i>Jalysus</i> sp.           | Chiapas  | 1              |
| <b>Blissidae</b>        | <i>Ischnodemus</i> sp.       | Chiapas  | 44             |
|                         | <i>Toonglasa</i> sp.         | Veracruz | 2              |
|                         | <i>Toonglasa</i> sp.         | Chiapas  | 22             |
|                         | <i>Toonglasa</i> sp.         | Oaxaca   | 6              |
| <b>Coreidae</b>         | <i>Anasa</i>                 | Veracruz | 2              |
|                         | <i>Kalinckascelis</i> sp.    | Chiapas  | 1              |
|                         | <i>Barreratalpa bambusii</i> | Oaxaca   | 6              |
| <b>Miridae</b>          | <i>Phytocoris</i>            | Veracruz | 2              |
|                         | Otros                        | Veracruz | 2              |
| <b>Nabidae</b>          | <i>Hoplistoscelis</i>        | Veracruz | 30             |
| <b>Pentatomidae</b>     | <i>Banasa</i>                | Veracruz | 68             |
|                         | <i>Mormidea</i> sp.          | Veracruz | 1              |
|                         | <i>Neoadoxoplatys</i> sp.    | Chiapas  | 10             |
|                         | <i>Neoadoxoplatys</i> sp.    | Oaxaca   | 15             |
| <b>Reduviidae</b>       | <i>Repipta taurus</i>        | Veracruz | 1              |
|                         | <i>Saica</i>                 | Veracruz | 1              |
|                         | <i>Ricolla similima</i>      | Veracruz | 3              |
|                         | <i>Barce</i>                 | Veracruz | 2              |
| <b>Rhyparochromidae</b> | <i>Balboa variabilis</i>     | Veracruz | 11             |
| <b>Tingidae</b>         | <i>Leptoparsa</i>            | Veracruz | 82             |
|                         | <i>Gargaphia</i>             | Veracruz | 26             |
|                         | <i>Leptodictya</i> sp.       | Veracruz | 33             |
|                         | <i>Leptodictya</i> sp.       | Chiapas  | 79             |
| <b>Thyreocoridae</b>    | <i>Corimelaena</i> sp.       | Chiapas  | 3              |
| <b>Curculionidae</b>    |                              | Chiapas  | 6              |
| <b>TOTAL</b>            |                              |          | <b>475</b>     |

# Propagation



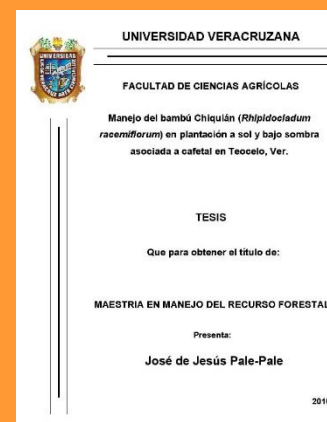
Germination on *Otatea acuminata* and  
*Lithachne pauciflora*



# Sustainable managemet



*Rhipidocladum racemiflorum* (chiquián)  
Coffe plantation



# Thesis



**Molecular phylogeny**– *Otatea* genus (PhD)

**Sustainable management** – *Rhipidocladum racemiflorum* (Master)

## Undergraduate

**Propagation** – vegetative (*Rhipidocladum racemiflorum*, *Otatea acuminata*, *Bambusa oldhamii*)



- seeds (*Otatea acuminata*, *Lithachne pauciflora*)

**Conservation** - *Chusquea bilimekii* and *C. enigmatica*

**Uses** – Monte Blanco and Cuetzalan

**Mechanical and physical properties** - *Guadua*





**Domingo**  
**27.sept.**  
**2015**  
**11 horas**

**SIEMBRA UN BAMBÚ CON TU FAMILIA**



Organizadora: Dra. Teresa Mejía Saúlés

**Actividades:**

- ♦ Pláticas
- ♦ Juegos familiares
- ♦ Visita guiada a la Colección Nacional de Bambúes Nativos

**Nota: para sembrar el bambú se necesita registrarse con anticipación**  
Jardín Botánico F. J. Clavijero  
Carretera antigua a Coatepec 351  
El Hays, Xalapa, Ver.  
(228)8421800 ext. 3004 y 6001  
[www.inecol.mx](http://www.inecol.mx)  
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National and international Congress

Workshop



# FUTURE WORK

- ❖ Propagation *in vitro* of endangered species
- ❖ Conservation projects
- ❖ Management sustainable



# THANKS



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