Keeping the bees: identifying wild bees – a prerequisite for conservation
Outline

- The importance of bees
- Species identification and discovery through barcodes
- The campaign to barcode the bees of the world – progress and prognosis
Bees and Our Food

- “If the bee disappeared off the surface of the globe man would have only four years of life left”
Identification and discovery 1: Halictus “ligatus” in Canada & the USA
Is two species that are morphologically exactly the same but genetically they are very, very different.
They are sympatric in the Piedmont region of the Appalachian mountains.
H. townsendi

- H. poeyi

H. ligatus
Identification and discovery 2: *Lonchopria*

an example of barcoding helping us find morphological differences

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CONTRIBUCION AL ESTUDIO DE LAS ESPECIES CHILENAS DEL GENERO LEIOPROCTUS (Apoidea)

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ABSTRACT

The chilean species of the Genus *Leioproctus* (*Lonchopria*) and two new species: *L. bathycyanus*
There are at least 6 species
Male mandibles and base of female metasoma modified
Identification and Discovery 3: *Liphanthus*
33 described species, 29 from Chile. Most barcode clusters have been examined by the expert who described 22 of the 29 Chilean species – Luisa Ruz.

Strong sexual dimorphism

Male *Liphanthus sabulosus*  
Female

![Male Liphanthus sabulosus](image1.png)  
![Female Liphanthus sabulosus](image2.png)
We have $\geq 32$ barcode clusters, but only 11 of them are described species.
Seemingly at least 21 undescribed species – with incomplete sampling
The campaign to barcode the bees of the world

Inaugural Meeting

May 12th – 14th 2008
Geographic Coverage of Bee Barcodes: Data as of August 30th 2013
geographic coverage

- Thailand
- Canada
- Ghana
- Oman
- UK

# spp.  # barcoded

RUINAS BRITANIA
90% of ~500 genera have at least one barcode
~30% of 20,077 species have at least one barcode
HELP?

- We still need bees from throughout the world.
- Whenever there are flowers in bloom there will be bees flying: please catch us some!
- Just using plastic cups with soapy water inside will work.
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• **COLLABORATORS**
  • By now, this represents almost all bee researchers worldwide.
Thanks for listening

Photo courtesy Dr. S.F. Sakagami