

Brazilian Pollinators Initiative



Vera Lucia Imperatriz Fonseca

Braulio Ferreira de Souza Dias

Workshop on Solitary Bees: Conservation, Rearing and
Management for Pollination - Beberibe, Ceará April 26-30,
2004

Brazilian Pollinators Initiative (BPI)

– Initial Steering Committee:

- Braulio Ferreira de Souza Dias, MMA
- Afonso Valois, EMBRAPA
- Vera Lucia Imperatriz Fonseca, USP
- Marina Siqueira Castro, EBDA
- Fernando Silveira, UFMG
- Breno M. Freitas, UFC

Important milestones

- Sao Paulo Declaration on Pollinators Conservation (1998)
- BPI sessions at the Biennial Bee Meetings, Ribeirão Preto, 2000 and 2002
- World Bees Checklist Workshop, 2002
- The Sao Paulo Declaration on Pollinators plus 5 Forum (2003)
- The infoway (Webbee)
- BPI in other workshops
- The solitary bees workshop (2004)

Important milestones

- The inclusion of BPI in the Federal Government Multi-Year Work Program for 2004-7
- The public call for projects on pollinators sustainable use, MMA September 2003 and January 2004
- A MOU between MMA & EMBRAPA on Biodiversity Research, October 2003
- Books publication: "Pollinating Bees: the Conservation link between Agriculture and Nature" (also available on line) ; "Brazilian Bees, Systematics and Identification"

Sao Paulo Declaration on Pollinators - 1998

- Raised international interest
- Provided strategic direction for pollinator conservation planning
- Provided impetus for national and international programs

BPI sessions at the Biennial Bee Meetings, Ribeirão Preto

- The most important Bee meeting in Brazil at this moment
- Scientific community discuss the main points in Bee Biology, Conservation and Applications
- The right Forum for joining researchers around the BPI
- Next meeting September 2004

World Bees Checklist Workshop, 2002

(<http://www.cria.org.br>)

IN:Trends and developments in Biodiversity informatics Forum

Objectives

- To gather specialists together in an effort to organize our current knowledge on bee taxonomy.
- To establish a framework on which we can build a retrieval system where the information on the biological and ecological needs of pollinators and the plants they pollinate can be easily accessed.
- To propose a plan of action to build such a retrieval system.

World Bees Checklist Workshop, 2002

(<http://www.cria.org.br>)

IN:Trends and developments in Biodiversity informatics Forum

Products

- A provisional checklist of the bee species of the world with geographic distributions by country and state/province.
Preliminary list of world Colletinae species
- A worldwide list of bee taxonomists. Preliminary list
- A worldwide list of scientific collections containing bees -
Preliminary list of Museums Collections
- World Bee Checklist Workshop - Final Report

The Sao Paulo Declaration on Pollinators plus 5 Forum (2003)

- 12 countries, 77 participantes
- Joined International Initiatives
- Two workshops:
 - *Standard methodologies workshop*
 - *Pollinators Initiatives and the role of Information Technology: building synergism and cooperation*

The Sao Paulo Declaration on Pollinators plus 5 Forum (2003)

- Standard methodology workshop addressed
 - the methods related to pollinator-mediated gene flow; (coordinator: Dr. Claudia Jacobi) 😊
 - to bee surveys and monitoring of bees as pollinators in natural landscapes; (coord. Dr. Fernando Silveira and Dr. Cynthia Pinheiro- Machado) 😊
 - to bee management for pollination purposes.
 - Honeybees: coord. Dr. David De Jong 😊
 - Solitary bees: Dr. Breno M. Freitas 😊
 - Stingless bees: Dr. Marina Siqueira de Castro 😊

The Sao Paulo Declaration on Pollinators plus 5 Forum (2003)

- The IT workshop addressed the importance of the global facilities (as GBIF and other current services, for example ITIS), as tools for supporting and to join the local knowledge on bee names, checklists and regional catalogs, providing knowledge for policy makers.
- Presented the webbee



WebBee

A platform for a Brazilian information network on bees.

Solitary bees Workshop

April 26-29th 2004

Ceará- Brazil

outline

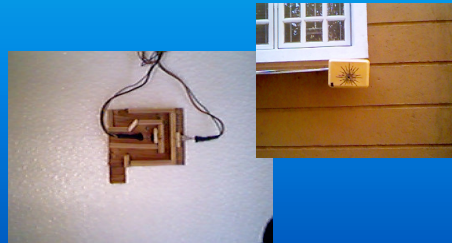
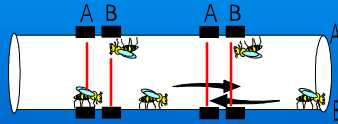
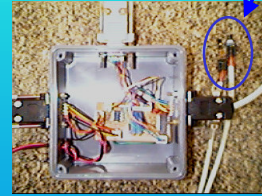
WebBee:
**From instrumentation to an
information network**

Start: instrumentation

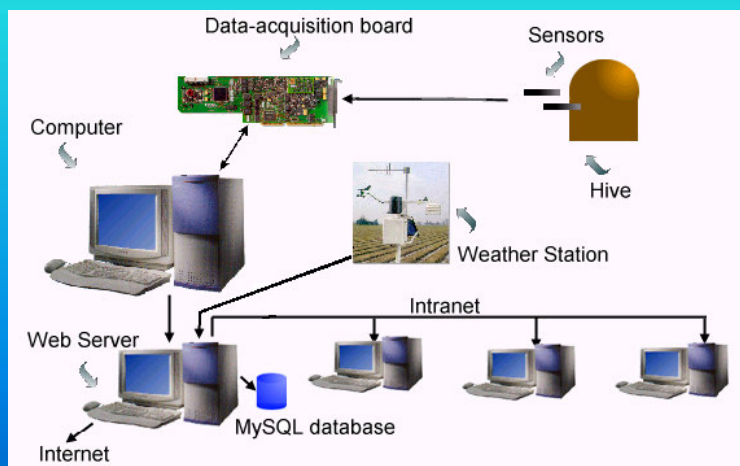
- **in 1999, research on flight activity of stingless bees**
- **focus on automatic data acquisition**
 - to get more and better data
 - to free the researchers from some time consuming and error-prone activities .

Bee hives monitored for

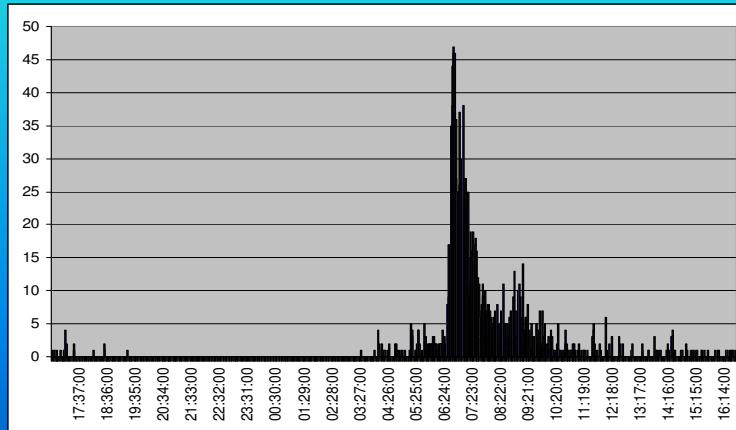
- Air temperature
- Air humidity
- Bee flux: “Bee detector”
 - I.R. emitter-detector pair



A web-based monitoring system



Bee count: flight activity concentrated in the morning

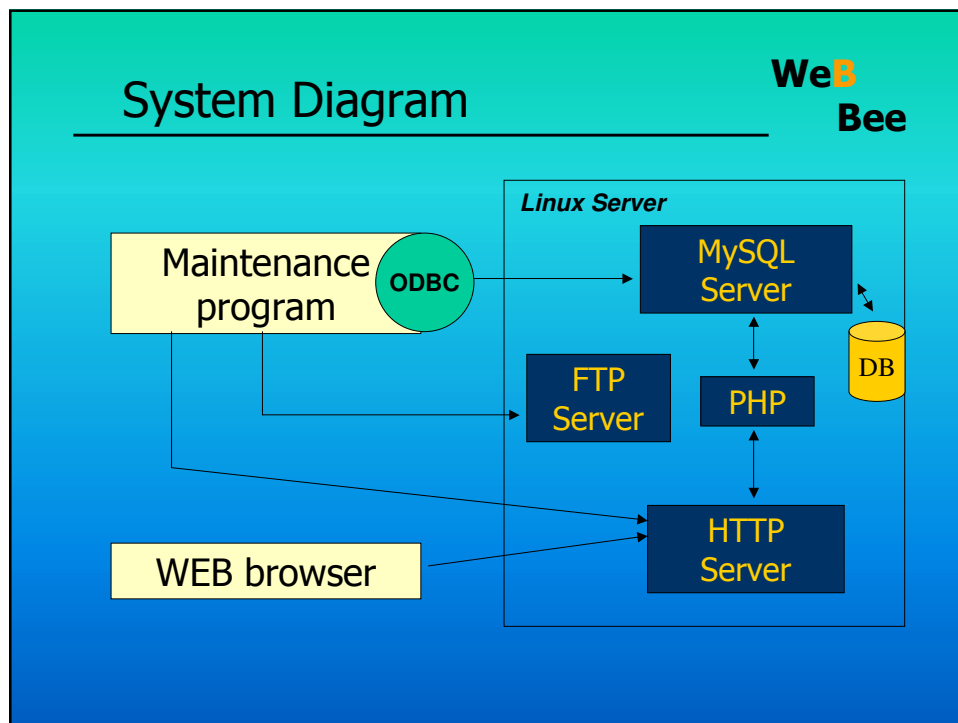


A step ahead: an information system

- Knowledge and information on bees need to be
 - organized, preserved, shared, published(!)
- Target audience
 - scientists, beekeepers, students, teachers, policy makers, agricultural producers...
 - Increase public awareness on the importance and uses of pollinators
 - in Portuguese and other languages

WebBee: information system

- Contents:
 - Bee species data: biology, taxonomy, distribution,
 - Hives, equipment & numerical data
 - Beekeeping, plants visited
 - References
 - Information source: Intellectual Property
- Dynamic web pages: database
- Multimedia: texts, images, videos
- Web-based: easy access and sharing



Software Platform

**Web
Bee**

Operating system	Linux www.linux.org
Database MS	MySQL 2.23.49 www.mysql.com
WEB Server	Apache www.apache.org
Dynamic Pages	PHP 4.0 www.php.net
Graphics	Graphics library GD www.boutell.com/gd

WebBee

Database – Bee species catalog

- images and texts

The screenshot displays the WebBee database interface. At the top, there is a search bar with the text "Nome Científico" and a dropdown menu set to "TODAS". Below the search bar, a table lists bee species with columns for "Legenda", "Nome Científico", and "Nome Popular".

Legenda	Nome Científico	Nome Popular
Fv	Friesoemilitta varia (Lepelletier, 1836)	marmelada amarela brava
Mbb	Melipona bicolor bicolor Lepelletier, 1836	guanupu
Mm	Melipona marginata Lepelletier, 1836	manduri
Mga	Melipona quadrifasciata anthidioides Lepelletier, 1	manducais
Nt	Nannotrigona testaceicornis (Lepelletier, 1836)	irai
Pd	Plebeia droryana (Friese, 1900)	mirim droryana
Pr	Plebeia remota (Holmberg, 1903)	mirim guapu
Ps	Plebeia saiqui (Friese, 1900)	mirim saiqui
Psp		jatas da terra
Psp		cupira
Sb		tu
Sx		m
Sq		g
Ta		te
Tc		tu
Mr		m
Li		la

Below the table, there are several detailed view windows for specific species:

- Melipona bicolor bicolor Lepelletier, 1836 - guanupu:** Includes a large image of the bee, a "Ver mais Fotos" button, and a "Operaria" dropdown menu. It also shows a grid of smaller images for different views: Frontal, Lateral, Axila, Palma, Dorsal, and another Lateral view.
- Tetragonia angustula (Latreille, 1811) (jatas):** Includes a large image of the bee, a "Ver mais Fotos" button, and a "Operaria" dropdown menu. It also shows a grid of smaller images for different views: Frontal, Lateral, Axila, Palma, Dorsal, and another Lateral view.

At the bottom of the interface, there is a footer with the text: "Uma rede de informação sobre biodiversidade brasileira em dados nativos" and the website URL "www.webbee.org.br".

WebBee

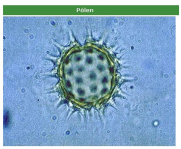
Database – Plant species catalog

- images and texts

Nome Científico | TODAS | A | B | C | D | E | F | G | H | I | J | K |

Procurando pelo letra: M no campo: Nome Científico

Legenda	Nome Científico	Nome Popular
Mn	Machaerium nictitans	sem identificação
Mo	Machaerium oblongifolium	sem identificação
Ma	Malva viscosus arboreus	malvaisco
Mt	Mandevilla tumiformis	sem identificação
Mi	Mangifera indica	maça
Mp	Meriania pulcherrima	sem identificação
Me	Matayba elaeagnoides	amboata
Ms	Maytenus elaterioides	carquinho, coração de luara
Mo	Melia azadirachta	sem identificação



WebBee: num spectabile

Padrão: Não Disponível

Porte: Não Disponível

Flor: Não Disponível

Pólen: Não Disponível

Folia: Não Disponível

Frut: Não Disponível


SA: Não Disponível

LA: Não Disponível

NCIC: Não Disponível

S: Não Disponível

Informações



Planta ornamental
Bibliografia: Lorenzi H & Souza HM. Plantas ornamentais do Brasil. Plantarum, 1995.
Foto: Marilda Cortopessi Laurino

WebBee: Dombeya wallichii

abacaxista russa

Dombeya burgessiae

abacaxista, amboata

Calliandra tweedii

calliandra

Polygonum cornutum

capetzingibá


Eugenia pilanga

pitanga

WebBee

Database – Weather station (at IB – USP, São Paulo)

- graphics and table



Uma rede de informações sobre biodiversidade brasileira em abelhas nativas

projeto | biologia das abelhas | banco de dados | IBP - iniciativa brasileira de polinizadores | home

Velocidade do Vento




GRÁFICO DO DIA 11
Terça-feira, 30 Setembro 2003.

Temperatura Ambiente

Gerar Gráfico
Gerar Dados

De: Dia Mês Ano Hora Min
30 Set 2003 11:00

Até: Dia Mês Ano Hora Min
30 Set 2003 11:00

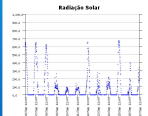
Instrumento: Temperatura Ambiente

Gerar Gráfico
Gerar Dados

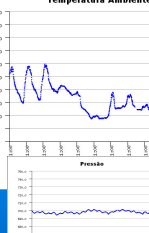
TEMPERATURAS

HORA	TEMPERATURA
01	23.00
02	23.00
03	23.00
04	23.00
05	23.00
06	23.00
07	23.00
08	23.00
09	23.00
10	23.00
11	23.00
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24	23.00


Radiação Solar



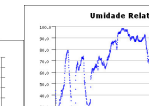
Pressão



Radiação Ultra-Violeta



Umidade Relativa do Ar



Replicate WebBee

- Do other groups have similar needs and problems? 😊
- Does a single group have enough data to populate the system? 😞
- How much time would it take? 😞
- Do they have other data? 😊

WebBee - a network

- Groups cooperate on providing data
 - Species information
 - Experimental data / weather stations
 - By region, species, family...
- Distributed Effort
 - Less work for each
 - Each is part of solution

WebBee - a network

Important issues:

- Intellectual property
 - Contents: texts, photos, etc → author
 - Neutral domain: www.webbee.org.br
- WebBee: consortium
 - Partners
 - Invited researchers for their pages
 - Credit
 - Management

Brazilian Pollinators Initiative (BPI) website

- events
- publications
- timeline
- activities



BPI in other workshops

- Mabula Workshop (South Africa, June 2003)
- Managing Agricultural Biodiversity for Sustainable Development , CGIAR, Kenya, Oct 2003
- Apimondia Tropical Beekeeping: Research and Development for Pollination and Conservation, Costa Rica, Feb. 2004
- Inter- American workshop on environmental data Access- CRIA, Brazil, March 2004
- Beekeeping Brazilian Congress, Brazil, April 2004

Brazilian Government Actions

- Supports the BPI in its initiatives
- Promoted the public call for projects on pollinators sustainable use (US\$ 500, 000 for 2003-4)
- Coordinates the Brazilian proposal for funding by Global Environmental Facility. (*Conservation and Management of Pollinators for Sustainable Agriculture, Through an Ecosystem Approach*)

Brazilian Pollinators Initiative- next steps

- To strength the participation of additional research groups in a common agenda, with:
 - Development of a knowledge base
 - Extension and promotion of pollinator-friendly best management practices
 - Capacity building and awareness raising
 - Sharing experiences and dissemination of results
- To replicate WebBee
- To encourage adoption of standards
- To share tools, methodologies, expertise

Brazilian Pollinators Initiative

- Acknowledges:
 - To all participants of the Solitary bees workshop
 - To Dr. Breno Magalhães Freitas, that organized this meeting
 - To the sponsors of Solitary Bees Workshop, that understood their importance for pollination purposes
 - To the Ministry of the Environment and Ministry of Science and Technology, Brazil