

Bio-security Challenges Posed by Invasive Species

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Invasive Species: Threats to Biosecurity

A species introduced into an ecosystem where it does not occur naturally...

Introduction causes or is likely to cause harm

Could be any taxonomic group

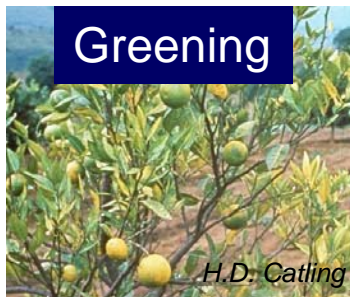
Melaleuca



Asian Tiger Mosquito



Greening



Achatina fulica



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Economic Impacts

Nation

- \$120 Billion annually

(Pimentel et al, 2005)

State

- \$179 Million annually (PEAC, 2001)

Local

- Citrus canker (95-04) - \$600 million



Florida is Highly Vulnerable: Need for Action

Globalization

Strategic location

Climate and geography



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Partnership



Research



- Invasive species
- Ecological crop management
- Agro-biodiversity

Developing human capital



Outreach



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CBC's Work on Invasive Species

Training & Outreach

Prevention

- Offshore pest mitigation
- Invasion biology and risk assessment
- Capacity building – regional safeguarding

Early Detection and Rapid Response

- Diagnostic tools
- Minimizing spread of invasive species

Management and Recovery

- Biologically based mitigation tactics
- Economic of impact of IAS
- Safety of biological control



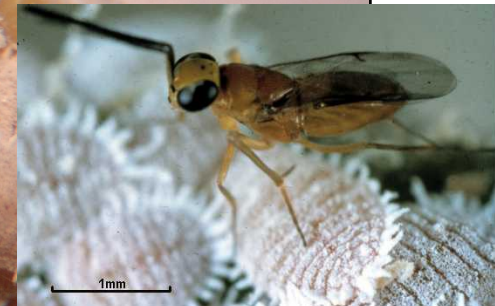
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Prevention

- Offshore pest mitigation

- *Planococcus minor* –
Passionvine Mealybug



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Prevention

- Regional safeguarding and capacity building

Critical training for trade partners - Ecuador



Regional Partnerships

Participation in regional projects e.g.:
Mitigating the threats of invasive species in the insular Caribbean




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Early Detection and Rapid Response

- Diagnostic tools

Identification Tool for Weevil Biological Control Agents of Aquatic and Terrestrial Weeds in the United States and Canada
M. Haseeb, C.W. O'Brien, R.W. Flowers and M.T.K. Kairo



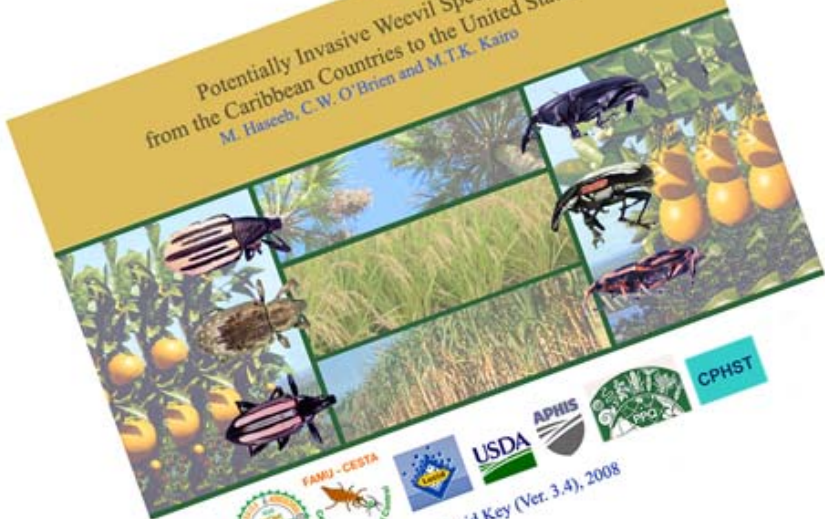
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USDA APHIS
PPQ

CPHST

Lucid Key (Ver. 3.3), December 2006

Potentially Invasive Weevil Species from the Caribbean Countries to the United States
M. Haseeb, C.W. O'Brien and M.T.K. Kairo



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Early Detection and Rapid Response

- Minimizing spread of invasive species



Cactus moth, *Cactoblastis cactorum*



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Management and Recovery

- Biologically based mitigation tactics



Management of pests of honey bees: Varroa mite and small hive beetle



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Management and Recovery

- Biologically based mitigation tactics



Integration of weed and insect biological control to prevent the dispersal and spread of disease-vectoring thrips



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Management and Recovery

- Biologically based mitigation tactics
- Economics



Management and economic impact of cogongrass, *Imperata cylindrica*



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Summary

- Biosecurity risks posed by invasive species are a major challenge which must be addressed.
- The Center for Biological Control has established strategic partnerships which capitalize on its competitive strengths to deliver significant outputs in the three areas of the land grant mission – Research, Training and Outreach.



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Acknowledgements



- The CBC Team: Faculty, Staff, Students **who make it happen.**
- Partners: USDA ARS, USDA APHIS PPQ CPHST, UF Entomology and Nematology, CABI, MALMR, USDA CSREES etc.



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