

# The NPGS Plant Exploration/Exchange Program

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Biennial Meeting

Crop Germplasm Committee Chairs

Plant Germplasm Operating Committee

Geneva, New York

# Role of the CGCs

“Identify gaps in U.S. collections and develop proposals to fill these gaps through exchange and collaborative collecting trips.”

<http://www.ars-grin.gov/npgs/aboutcgc.html>

# The NPGS Plant Exploration/Exchange Program

Purpose: To fill gaps in the **NPGS** collections

Administration: Plant Exchange Office (PEO),  
National Germplasm Resources Lab

Funding: \$125,000 annually



# Exploration vs. Exchange



Wild potato, U.S.

Plant exploration: field collection of samples of landraces and wild species not already conserved in genebanks



John Innes Center, U.K.

Plant exchange: visits to foreign germplasm collections to assess collections and arrange for exchange

# Complementary Goals of the NPGS Plant Exploration/Exchange Program

- acquire germplasm to fill gaps in the NPGS collections
- maximize future opportunities for continued germplasm exchange
- enhance the capacity of cooperating institutions to conserve plant genetic resources

# Proposals

- accepted yearly
- separate guidelines for exploration and exchange proposals
- endorsement by CGC and crop curator required
- pre-proposals for foreign explorations requested in April
- deadline for 2011 proposals was July 23
- email submission encouraged
- challenges

# Locating cooperators

- PEO has contacts in many countries  
(ask us!)
- Scientific meetings
- Country reports for the FAO State of the World's Plant Genetic Resources for Food and Agriculture:

*<http://www.fao.org/agriculture/crops/core-themes/theme/seeds-pgr/sow/en/>*

# Access to Plant Genetic Resources for International Explorations

- governed by two international treaties:
  - the Convention on Biological Diversity (CBD)
  - the International Treaty on Plant Genetic Resources for Food and Agriculture (IT)
- both recognize the national sovereignty of nations over genetic resources
- prior informed consent for access to obtained from national authorities
- Both recognize the need for sharing of benefits



# The CBD and the IT

## CBD

- covers all genetic resources
- bilateral negotiation on terms of access

## IT

- covers 65 crops
- main intent and use to facilitate exchange of genetic resources in *ex situ* collections
- access based on set of terms laid out in the Standard Material Transfer Agreement (SMTA)

# Benefit Sharing Associated with NPGS Plant Explorations

- associated with most foreign explorations
- non-monetary “in-kind” benefits (training, equipment purchase, increase projects, etc.)
- increases the capacity of host country to conserve PGR
- determined in close consultation with host country partners



# Examples of Benefit Sharing Associated with NPGS Plant Explorations

Multiple crops in  
Georgia

Regeneration, training in  
genebank management,  
equipment purchases

Grasses in Russia

Equipment purchases for VIR

Multiple crops in  
Azerbaijan

Support of genebank, training  
in seed regeneration &  
genebank management

Wild beet in Morocco

Increase and characterization  
of collected germplasm

Forage legumes in  
Ukraine

Equipment purchase for  
genebank

*Peanut characterization  
Paraguay*

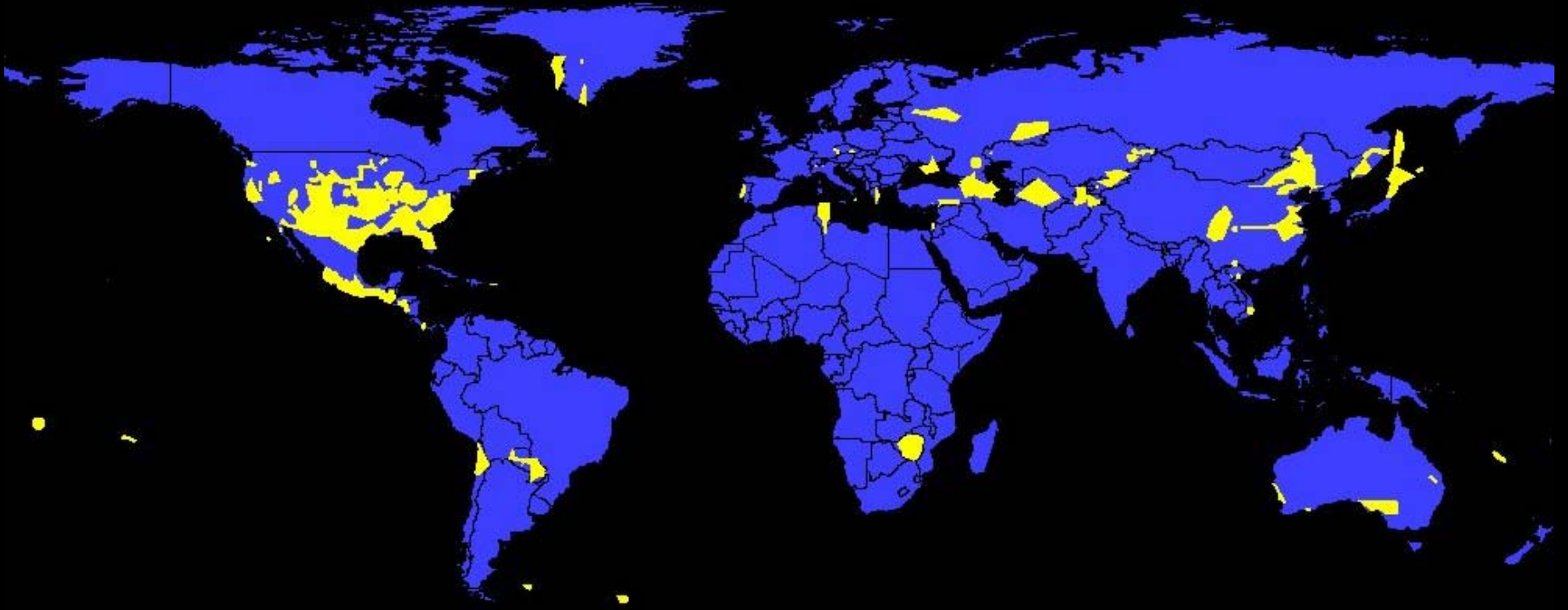


# The future of access for International Plant Explorations

- Use of SMTA may be more common (used to provide access to germplasm on two NPGS explorations and one exchange trip thus far)
- the Parties to the Convention on Biological Diversity (CBD) are developing a legally-binding International Regime for Access and Benefit Sharing

# NPGS Plant Explorations

## 2000 - 2009



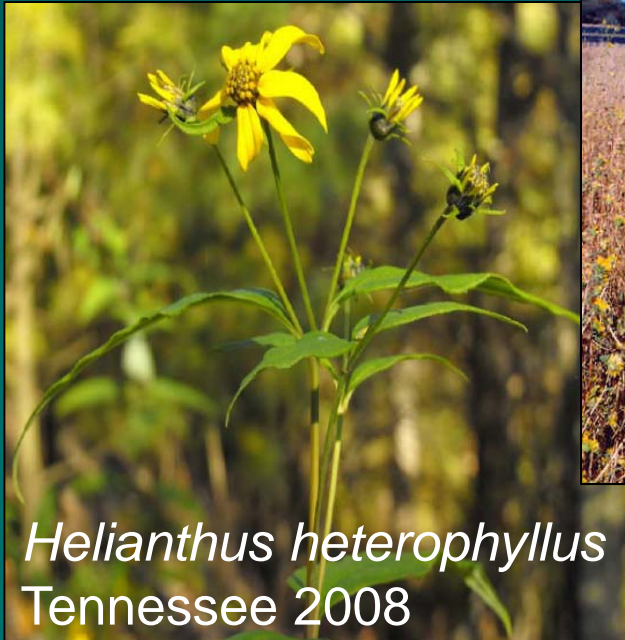
Number of explorations	136
Number of countries	37
Number of CGCs represented	29

# Plant Explorations for wild sunflower in the U.S.

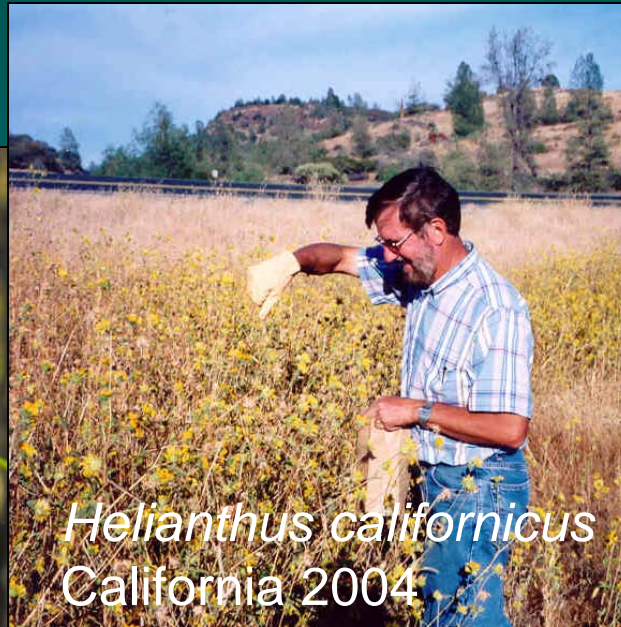
- long-range plan
- planned and conducted by G. Seiler (CGC Chair) and L. Marek (sunflower curator)



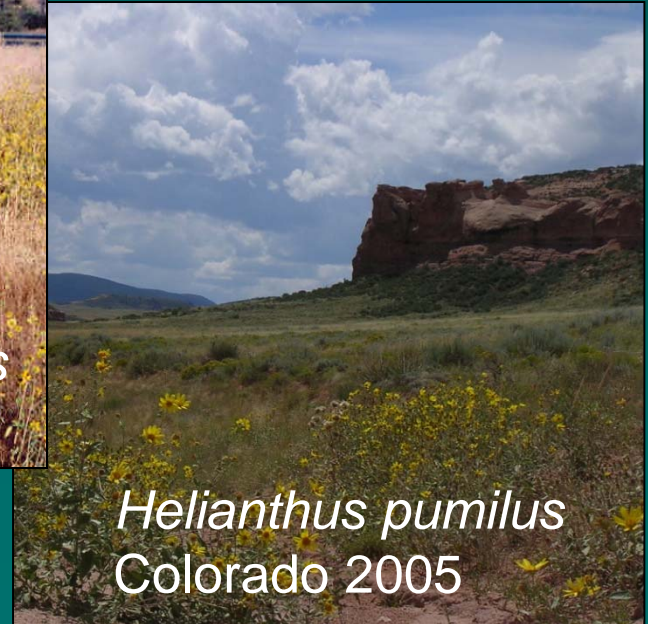
*Helianthus silphoides*  
Arkansas 2009



*Helianthus heterophyllus*  
Tennessee 2008



*Helianthus californicus*  
California 2004



*Helianthus pumilus*  
Colorado 2005



# Plant Explorations for landraces and wild carrot, onion and garlic in Tunisia 2007 and 2009



Garlic landrace

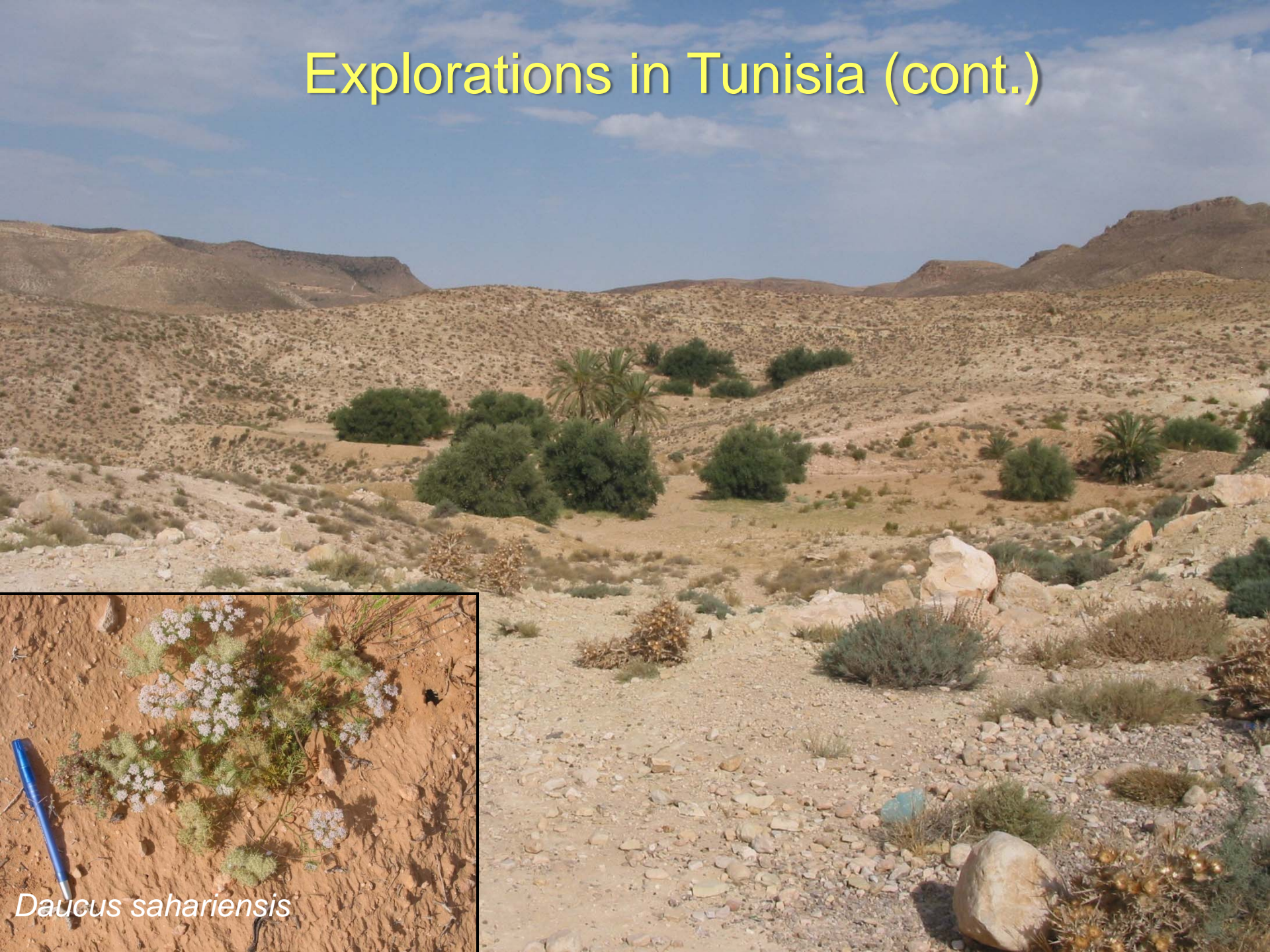
Cooperators:

- National Genebank, MEDD
- Institut des Régions Arides
- USDA-ARS

SMTA used in 2009 to transfer germplasm



# Explorations in Tunisia (cont.)



*Daucus sahariensis*



# Plant Explorations for wild lettuce

Resistance to *Verticillium* wilt sought



Armenia  
Institute of Botany  
3 species, 39 accessions



Georgia  
Institute of Botany  
3 species, 19 accessions

# Explorations in Azerbaijan

- 2004 exploration for food and forage legumes
- 2006 exploration for woody landscape plants
- 2007 exploration for *Juglans*, *Prunus*, *Punica*, etc.
- 2008 exploration for WLP, *Pistacia*, *Juglans*, *Vitis*, etc.

## Cooperators:

- Genetic Resources Institute
- Bioresources Institute
- USDA-ARS





# Exploration for wild beet in Morocco

## June 2010



Cooperators:  
National Institute of Agronomy Research (INRA)  
Lee Panella, Beet CGC Chair  
Barbara Hellier, NPGS Beet Curator

SMTA used to transfer  
germplasm

# PEO Cooperation with Missouri Botanic Garden On Plant Exploration

- main focus in the Caucasus and Central Asia
- MBG identifies cooperators and transfers funding
- PEO works with cooperators to plan trips and obtain permission for collecting
- cooperators collect germplasm for the NPGS
- No US collectors involved
- Three trips this year – Georgia, Armenia and Russia

# NPGS Plant Explorations - 2010

Beet	Morocco
Small grains	Armenia
Grasses	Russia
Small grains	Georgia
Lettuce	Georgia
Spanish lime	U.S., Trinidad & Tobago
Ash	China
Fruits and nuts	Georgia
Lettuce	Russia
Carrot relatives	United States
Grain amaranths and bedding plants	United States
Sunflower	United States
Kentucky coffeetree	United States
Ash (3 trips)	United States
Herbaceous ornamentals	United States
Lesquerella	United States





*Thank you!*

