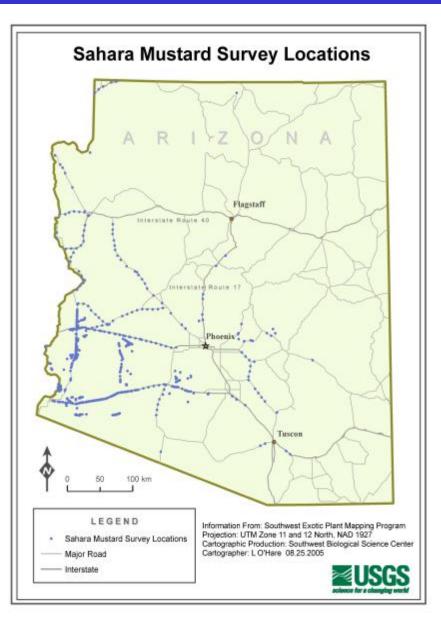
Brassica tournefortii In Arizona

- Documented in Coachella Valley 1938
- Imperial Valley 1947
- Arrived in Yuma County 1957
   Likely via traffic from California
- Common on ORPI-CPNWR mid-1980's
- Moving Northward 1990's

# Distribution in Arizona



## *Brassica tournefortii* Major Management Concerns

- Competition/Impact Sand Dune Endemics

   Pinta Sands, Mohawk Dunes, Gran Desierto
- Grand Canyon, Lake Mead, Lake Powell
- Lower Colorado River (BWNWR)
  - Rainfall Above Average 2003-2004
     Brassica localized

## Brassica tournefortii Major Management Concerns

- Maricopa County (into Surrounding Mountain Ranges)
- Fire
- Competition

## **Brassica tournefortii** Major Management Actions

Study Cabeza Prieta NWR

- Brassica Removed From Study Plots 1995
  - Found only in Unweeded Plots 1999
- Monitored 2002-2003
  - No Brassica Observed in 25 plots
- 2004-2005 Brassica Abundant
  - Not like distribution to the North
  - (e.g., Malpais Area Interstate 8, Highway 95)

## **Brassica tournefortii** Major Management Actions

#### Study KOFA NWR

- Pulling Plants vs Inflorescence,
- 1200 lbs removed
- Spraying AZ DOT
- Photographic Monitoring Plots
  - Determine Efficacy of Spraying and Pulling
- Hand Pulling GCRA

#### **Brassica tournefortii** Some Thoughts

#### • CPNWR

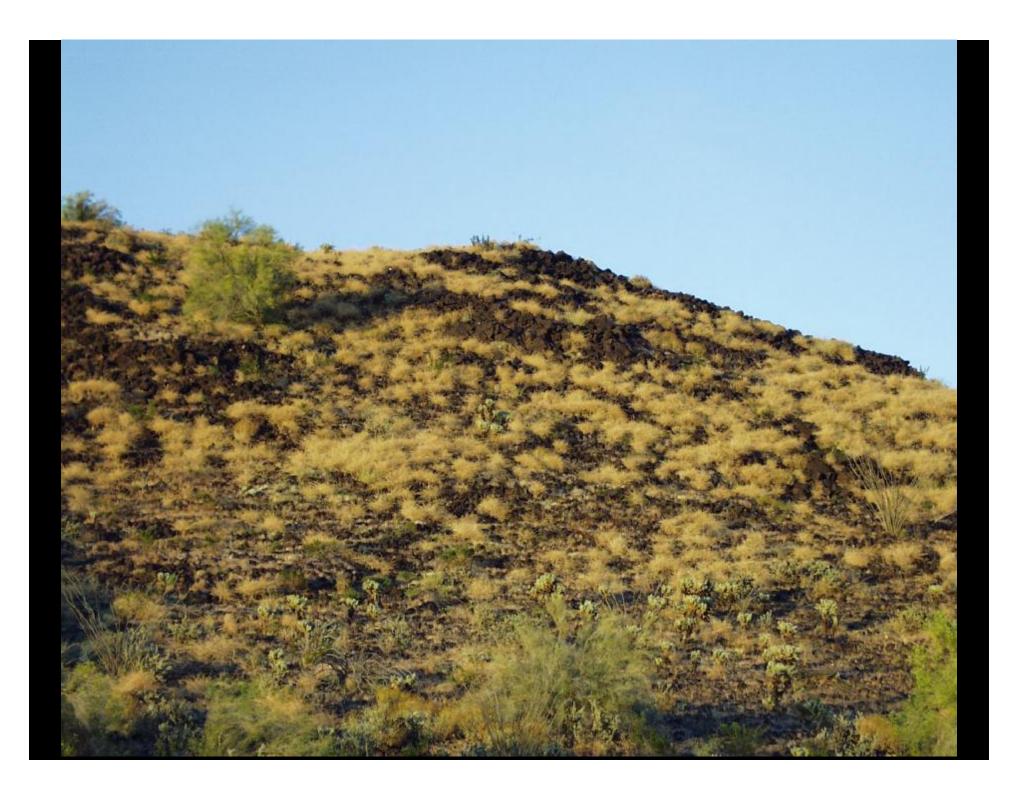
- Brassica found throughout wash systems in Central, and Eastern portion of the Refuge
- Local Infestations common but isolated
- Found uniformly but diffusely
- Distributed throughout LATR, and/or LATR-AMDE Flats (especially with sandy soils)
- Note this distribution makes control very difficult in 803,000 acre wilderness area



**Brassica tournefortii** Some Thoughts

- Southwest AZ north of I-8,
  - Some areas became dense monoculture
    - Malpais, mountains, other areas
  - Local Infestations common
  - Infestations observed this year strongly related to unknown occurrences throughout deserts north of I-8 (e.g., consistent but diffuse distribution observed for years on CPNWR) My Opinion





**Brassica tournefortii** Some Thoughts

- Dispersal potential is great
  - Dust devils
  - Tumble weeds
  - Border Activities





Photo copied from: M. Dimmett http://www.desertmuseum.org/invaders/invaders\_saharamustard.htm

#### **Brassica tournefortii Future Management Actions**

- Initiate Roadside Treatment of Major Infestations

   (Local CWMA's partnering with ADOT)
   seek funding
- Take advantage of dry years or cold years
  - Mobilize crews to eradicate

#### **Brassica tournefortii** Arizona Ranking

- Top 6 plants to control in GRCA
- In Top 4 of Management Priorities KOFA CWMA
- "Need for Immediate Action"
- "Worst Invasive Plant in the Sonoran Desert"
- Cautious to Rank, May Be Artifact of Wet Year

#### **Brassica tournefortii Theoretical Implications**

- 2004-2005 Distribution Product Of Abnormal Rainfall Year
  - Distribution Returns To Usual Pattern
- Quantity Of Seeds Result In Population Outbreak Throughout Western Arizona Regardless Of Precipitation
- Drought Where Very Little Emerges
- Subsequent Years

