Tres Ríos

Vector Control Strategies
Where we started

A. Short-Term Evaluations
   1. Develop alternatives to audio alarms at WWTP.
   2. Conduct area-wide odor assessment and control study.
      - Identify causes of odors in the general area.
      - Evaluate improved odor control program at WWTP.
      - Evaluate odor control program for Plaintiffs’ properties.
      - Evaluate odor control program for the Salt River downstream of the WWTP effluent discharge point.
   3. Conduct an area-wide vector assessment and develop plan of an area-wide vector control program.
      - Coordinate with Maricopa County.
   4. Develop a River Management Program.
      - Discussions with County, State and Federal agencies.
   5. Investigate redirection of flow discharge further south from Plaintiffs’ properties.
   6. Investigate improved security and police protection in the area.
      - Sheriff’s Office.
      - Maricopa County.
      - City of Avondale.
   7. Develop plan to discourage illegal dumping in the area.
   8. Perform a water quality assessment of private potable water supplies in the area.

B. Long-Term Evaluations
   1. Evaluate the use of a Lined Channel.
      - In high land within public right-of-ways.
      - In the Salt River flood plain.
      - In conjunction with a constructed wetlands project.
   2. Evaluate the use of the ANPP Pipeline.
   3. Evaluate the feasibility of the Tres Rio (constructed wetlands) to replace swampy and insect breeding areas.
   4. Evaluate the feasibility of rechannelization of flow in the Salt River.
   5. Evaluate the feasibility of a Total Effluent Reuse Project.
   6. Evaluate other possible alternatives under consideration by EPA, Bureau of Reclamation, etc.
   7. Combination options of above.

- Brogden settlement
- #3
- New NPDES parameters
Got Mosquito’s?
Flood Conveyance

Flood damage in the late 70’s
OC-Water Quality

- Maintain constant outfall rate
- Stabilize water to a natural state
- Convey water to downstream users
Vector production ground zero
Habitat

Ecosynthesis
Conditions and History

- High CO2 production
- High light signature
- Heavy agricultural surroundings
- Abundant water sources
Team Tres Rios
Tools of The Trade

FIG. 6: TRES RIOS CONTRIBUTING AREA
ADULT MOSQUITO COUNTS
BY GENUS JUL 2006-JUN 2009

- Psorophora
- Aedes
- Anopheles
- Culex
- Culiseta

No. Adults

Date:
- 07/05/06
- 08/16/06
- 09/26/06
- 11/11/06
- 12/20/06
- 01/31/07
- 03/14/07
- 04/24/07
- 06/05/07
- 07/18/07
- 08/29/07
- 10/10/07
- 11/28/07
- 01/10/08
- 02/20/08
- 04/02/08
- 05/14/08
- 06/25/08
- 08/06/08
- 09/17/08
- 10/30/08
- 12/10/08
- 01/21/09
- 03/04/09
- 04/15/09
- 06/03/09
Larvae counts/ adult I.D./Arbivirous screening

FIG. 9  TRES RIOS LARVAE LIFE STAGE PROPORTIONS
COBLE AND HAYFIELD COMBINED

- 1st instar: 35%
- 2nd instar: 23%
- 3rd instar: 20%
- 4th instar: 22%
- Pupa: 0%
Qualitative/Quantitative
Integrated Pest Management

Food Chain
Vegetation Management
Targeted pesticide application

- Targeted pest specific
- Application time sensitive
- Application frequency
- Application method sensitive
- **Catch all kill all, will get you nowhere**
Control Agents
Public Safety and lessons learned

- Design
- Accessibility
- Proper staffing/training
- Equipment
- IPM’s
- Budget
- Experience
FIG. 8 TRES RIOS LARVAE COUNTS BY LIFE STAGE
COBBLE AND HAYFIELD SITES COMBINED
Jan 2007-Dec 2009

Cumulative Number per Dip Sequence

The season
Strategy

- Consistent results
- Resource management
- Understanding of overall mission
- Anticipation of adaptive nature
The Fine Line