Southwest Mosquito Abatement & Control District

RE: Summary report for the City of Ivin's regarding Ivin's/Fire Lake Reservoir flying insect surveillance project.

Summary Report

Task: Survey flying insects around Ivin's/Fire Lake Reservoir.

Method:

- Four CDC light traps baited with LED light and CO_2 gas were set in various locations around the reservoir from the evening of May 23rd to the morning of May 24th . (See map)

Conditions effecting survey:

- Temperature: average temperature was 74° (low- 52°, high 89°).
- Wind: The average wind speed was between 5-7 mph (0-1 by morning).
- Seasonality: This is typically a moderate to high time of year for flying insects.
- General environment: The reservoir, which has been established for many years, along with the changes with the addition of Fire Lake in more recent years, could affect the number of flying insects.
    - Water quality: An imbalance in water quality can cause an increase in numbers. The amount and type of fish can also affect insect levels.
    - Surrounding vegetation: The amounts and different kinds of vegetation can affect insect numbers.
    - Reservoir Depth: The average depth along shorelines can affect those flying insects that develop mostly in shallow water.

Trapping Results:

- Three traps surrounding the reservoir had an insignificant number of flying insects. Mostly containing tiny non-biting gnats.
- The trap placed in the reservoir discharge wash had an abundance of marsh mosquitoes and few other insects. In this area the water backs up before the highway which has caused a swampy area to be formed.

Assessment and Control Recommendations:

- Reservoir area: The low numbers of flying insects caught near the reservoir shouldn't be of much concern, but seasonality or environmental changes could cause imbalances and numbers to increase for short periods of time. These situations could be mitigated by:
    - ULV (Ultra-Low-Volume) spray (fog) in the evenings to avoid non-target insects.
    - Traps could be set to attract and contain insects.
    - Bacterial treatments to water sources to control larvae and algae.
    - Addition of more and different types of fish.
    - Vegetation control along the shorelines.
    - Water depth- Increasing and maintaining the water depth.

- Wash area: The high numbers of mosquitoes in this area can be mitigated by:
    - Treatments made by Mosquito Abatement, both for larvae and adult mosquitoes.
    - Cleaning and/or clearing of the vegetation buildup in the lower wash.
        - By use of fire or heavy equipment
    - Channeling the water to flow instead of spreading out.
    - Unclogging the blockage at the culvert under the highway.
    - Ongoing monitoring and vegetation control.

- Future reservoirs: Proposed reservoirs can mitigate many issues in design and planning stages by implementing strategies such as:
    - Water depth: Avoid creating shallow (2 feet or less) areas and the gradual variation of water levels.
    - Addition of natural bacterial concentrations to help balance and establish a proper bacterial load in the water source.
    - Possible introduction of fish to feed on insect larvae and adults.
    - Introduction of aquatic larval predators (like dragon flies).
    - Vegetation control along shorelines and into drawdown areas.
    - Traps placed strategically around the reservoir to attract and contain insects. Also used for monitoring purposes.
    - Pesticide barrier spraying around the reservoir to keep insects contained.
    - ULV (Ultra-Low-Volume) spray (fog) on occasions where insects can't be controlled by natural means.

SWMACD Mosquito Map

