

**Consumer and Environmental Protection Agency
Vector Control District
Unmanned Aerial/Aircraft (UAS) for Larvicide Mosquito Control**

Annual Surveillance Report: July 1, 2022 – June 30, 2023

1. Description of How the Technology Was Used

Vector Control District (VCD) employed unmanned aircraft systems (UAS/drones) to effectively apply larvicides in rural and inaccessible areas within the county. These drones are equipped with specialized equipment capable of dispersing larvicides to control the population of vectors such as mosquitoes in the larval stage. The focus was solely on mosquito population control in rural and hard-to-reach areas to safeguard public health. Each treatment using drones for larvicide application, VCD will collect various data sets to monitor and assess the effectiveness of the treatments and fulfill regulatory reporting requirements. The acquired unmanned aircraft systems include the following information:

1. Spatial Polygons: VCD would capture spatial polygons representing the treated areas on a map. These polygons would outline the precise boundaries of the locations where the larvicides were applied.
2. Rates: The rate of larvicide application
3. Acreage of coverage
4. Type of Larvicide Used
5. Total Output Larvicide at Treatment Area

To ensure the security and privacy of the information collected by the VCD drone operations, there are internal processes in place to limit access to the acquired data. Furthermore, these drones do not record with their cameras, so there is no way they can record people and/or personally identifiable data. These processes are in accordance with the VCD Surveillance Use Policy, which outlines specific guidelines and procedures for handling and protecting collected information. All information collected by the drone has been retained in accordance with VCD SUP.

2. Data Sharing with Outside Entities

To ensure the security and privacy of the information collected by the VCD when using drones for larvicide applications, there are internal processes in place to limit access to this data. These processes designed in accordance with the VCD surveillance use policy (SUP), which outlines guidelines and procedures for handling and protecting the collected information. Access to the information collected at the end of drone larvicide applications is restricted to authorized personnel only. VCD SUP establishes access control to ensure that only individuals with established clearance can access the data. Only individuals with a legitimate reason for accessing the data, such as those involved in mosquito control and data analysis, are granted permission. Those identified in the VCD SUP are made aware of their responsibilities regarding data protection and confidentiality. Currently, no data has been shared with outside entities. All records have stayed within VCD.

3. Community Complaints or Concerns

Tracking community complaints and concerns regarding drone usage is essential for addressing any issues or misconceptions and ensuring transparency and accountability in VCD drone operations. To effectively manage and respond to these complaints and concerns, the district has four methods of receiving and recording complaints and concerns. One is by direct phone call that is handled by the VCD front desk team. A physical log is kept of received call and the nature of the call and complaints are directed to the management team. Second, is by leaving a voicemail that allows for call backs as needed. Third, is through the districts email. Fourth, is through the service request portal. Even in the absence of complaints, it is still essential to continue monitoring and maintaining transparency about drone usage for larvicide purposes. By continuing to engage with the community and providing transparent communication, VCD can strengthen public confidence in its mosquito control strategies and the responsible use of drone technology.

4. Audits and Policy Violations

VCD has assigned personnel responsible for overseeing compliance with the SUP. These designated individuals, members of the VCD management team, play a crucial role in ensuring that all staff adhere to the policy's guidelines. The designees responsible for compliance have been officially documented, establishing clear accountability within the organization via the district SUP policy. All staff members have been provided with the SUP and have participated in internal meetings to discuss its content. This training ensures that all personnel are aware of the policy's requirements and expectations. Information collected from drone operations is directed to the management team and stored on County servers, accessible only to the management level staff identified in the SUP. This access control ensures that sensitive data is limited to authorized personnel only. Records obtained from each operation are stored in files accessible solely to VCD management. This organized records management ensures data security and confidentiality.

VCD has not identified any cases of misuse of the collected data, indicating the effectiveness of the implemented measures and the responsible conduct of personnel. Due to the absence of any violations of the SUP requirements, no sanctions or disciplinary actions have been necessary.

5. Effectiveness at Achieving Identified Purposes

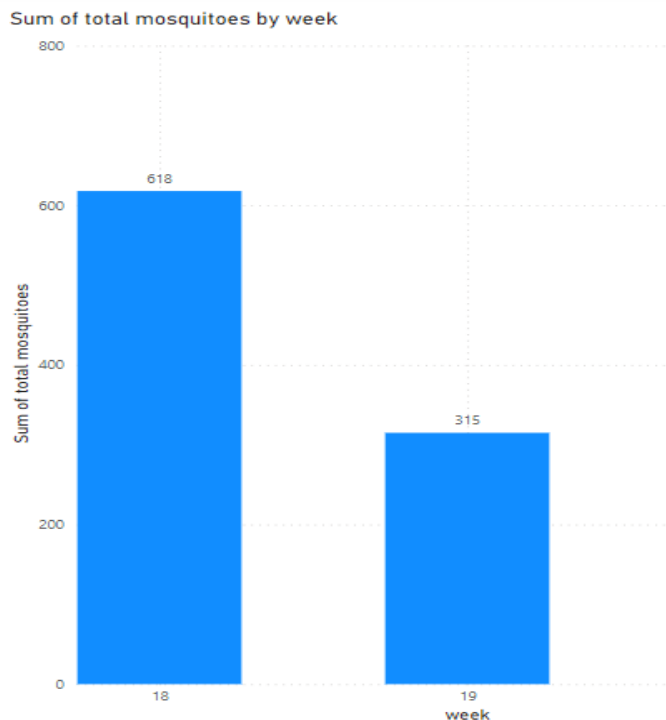
The use of drones for larvicide application has proven to be a valuable and effective tool for the VCD in its efforts to control mosquito populations and improve public health. By leveraging drone technology, the VCD has experienced several benefits expanded treatments Drones offer greater accessibility to rural and hard-to-reach areas, allowing the VCD to expand its larvicide treatments to previously challenging inaccessible locations. This increased coverage enhances the overall effectiveness of mosquito control efforts. A reduction in mosquito abundance. With more extensive treatments enabled by drones, the VCD can target a larger number of potential breeding sites. This leads to a significant reduction in mosquito abundance, thereby decreasing the risk of mosquito-borne

diseases. By reducing mosquito populations, the VCD contributes to a better quality of life for residents in the county. Fewer mosquitoes mean fewer annoying bites and reduced exposure to potential disease transmission. Targeted drone larvicide applications focus on specific areas, minimizing the use of larvicides in non-affected regions. This targeted approach helps reduce environmental impact and enhances ecological balance. Efficiency and Drones provide a more efficient and cost-effective method for larvicide application compared to traditional ground-based methods. They can cover larger areas in less time, optimizing resource utilization.

Date of Operation	Area Treated In Acres
5/2/2023-First Ever UAS Operation	82.58
5/3/2023	160.81
5/4/2023	101.58
5/23/2023	130.69
5/24/2023	55.03
7/12/2023	31.07

561.76 acres treated by a drone thus far.

The abundance trapping for the first UAS indicated that there was a 51% decline in abundance in week 18 of trapping on 5/5/2023 to week 19 on 5/19/2023. This indicates that after a week of the initial treatment there was a significant decrease in the adult mosquito abundance population.



6. Public Records Act Requests

Nextrequest is used by VCD to track, process, and manage public records at requests. No request has been made to the VCD regarding drone usages by the district.

7. Annual Costs

The total annual cost up to date for Calander year 2023 is equal to \$23,512.18 for operating the drone for larvicide treatments within the county. The personnel cost for the surveillance technology is estimated at \$2,432.16 (six operations at an average of six hours per operation at an hourly cost of \$67.56). The technology is funded through the VCD budget, which is derived from district benefit assessments. There is no impact to the general fund for VCD using a UAS for larvicide treatments.