

# Getting the Most Out of Your Adulticide Program

Assistant Branch Chief
Mosquito & Forest Pest Management Branch
Prince William County Public Works

## Outline



- History of adulticiding in PWC
- Considerations for adulticiding
  - > Not the "why", but the "what" and "how"
- Spray block criteria
- Post-spray analysis
- Future considerations

## History Pre 2010



- Citizen "request for spray" program
- Spray blocks based around subdivisions
  - > In some cases individual streets or houses
- 2-3 ULV adulticide machines
  - > No GPS tracking or software
- 1-2 staff members per mission

Prince Will	iam Cour	nty - Depa	artment o	of Public	Works	- Envir	onmental	Services	Division	ı - Gypsy	y Moth &	Mosquite	o Control	Branch
			DAILY	REPOR	T FO	R LAI	RVICID	ING AN	ID ADU	ILTICIE	DING			
DATE:	OPERATOR/S:						VEHICLE #:							
SE	E REVE	RSE FO	R EQUI	PMENT			, WEATH			RS, EM	ERGEN	CY CON	ITACTS	
Request	Мар	Starting	Ending	Relative	Temp	Wind	TION RE Engine	Engine	Spray	Spray	Engine	Engine	Minutes	Actual spra
Number	Page	Mileage	Mileage	Humidity	Temp	Speed		Start	Start	Stop	Stop	time	Anvil	Vectobac
	33		10									1		
	273		S					1			e* 8			5
			92			2 3								8
	123		80 8			3	\$	\$			E			£
	93					9				4	- 60 - 0	-		
							2							
			**								68 0			
\$	- 15	8	50 0			1 1	1		2		61 6	8	2	5
	13		20	3				\$			102 93			
	91					9	-			2	60 0	1		0
			60 1					2						
		, k									6			i é
	454	200		Commen	ts (wea	ather, v	ehicle or	equipm	ent failui	re, etc.)	1/8	8	00	64

### **Spray Report**

\*Minimal information being gathered due to technological shortfalls of equipment

## <u>History</u>

### Transition Period: 2010-2011



- "Request for spray" largely ended
- Adulticiding reactive to adult mosquito/disease surveillance
  - Citizen requests for spray investigated with site visits and/or adult mosquito trapping
- Spray blocks and staffing remained the same
- Brainstorming for improvements to current system

## History 2012-Present



- 2 new Clarke Cougar ULV sprayers w/ smartflow acquired (2012)
  - > Sentinel GIS software
- Spray block "criteria" developed and implemented
- Standardized 2 staff per mission
- Post-spray analysis

## Considerations/ Establishing the Criteria



- Existing trap sites and spray blocks
- Population density
- Target mosquito species
- Geography
- Road attributes
- Zoning

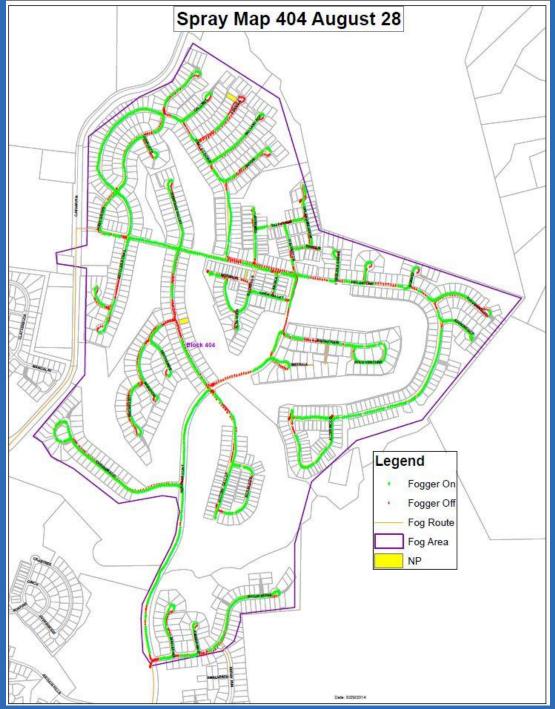
## Spray Block Criteria



- Spray blocks will be designed around existing or future trap sites
  - > Radius of ½ mile
- Speed limit of 35 mph or less
- Encompass residential areas
- Time limited to 2.5 hours
- Block perimeter determined by natural, geographical or manmade features

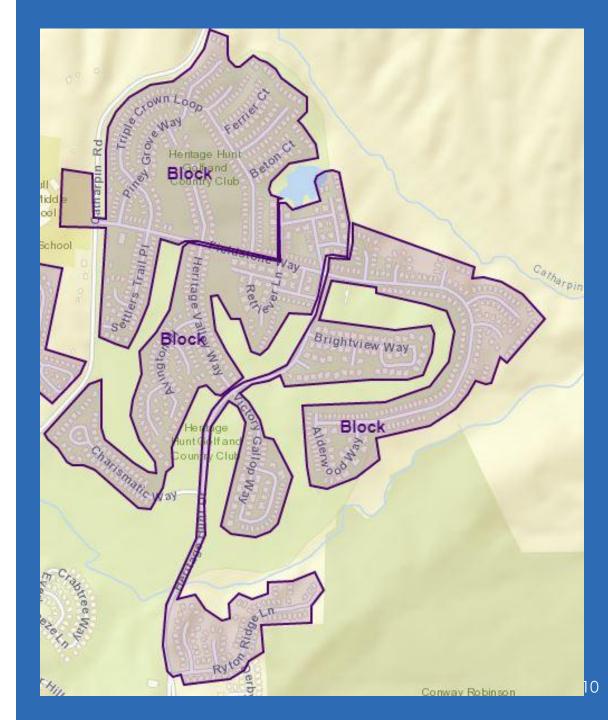
## **Pre-Criteria Spray Block**

- "Neighborhood" based
- Spray block extends well beyond ½ mile radius
- Length is over 7 miles and time is over an hour to complete



## **Spray Blocks Criteria Applied**

- 1 block is now broken into 3 based on the ½ mile radius
- Blocks are more easily separated and tasked by trap site
- Block length is now 2-4 miles each and 20-30 minutes of time to complete





#### Spray Session Detail: 7/30/2015

**Blocks 88 & 89** 

Report Created On: 7/31/2015

<u>Driver</u>	Chemical	Log In Time	Log	g Out Time	Duration	Distance (miles)	SprayDistance (mi)	
		Al (lbs/gal)	Mix Rate	Mix Use (oz)	Mix Use (gal)	Al Use (lbs)	Treated Acres	
30/2015								
88 Aaron Henecke	Zenivex E4 RTU	8:19:22PM	8.7	42:39PM	00:23:17	3.91	2.51	
Nation richecke	Zolivox Z4 NTO				00.20.17			
		0.3000	1: 0.00	141.38	1.10	0.33	91.18	
	Truck/Equipment: ES2926 / Cougar ULV				Wind: < 5 N	E Tei	mp: 79F	

#### **Sentinel GIS Report**





## Sentinel GIS Map

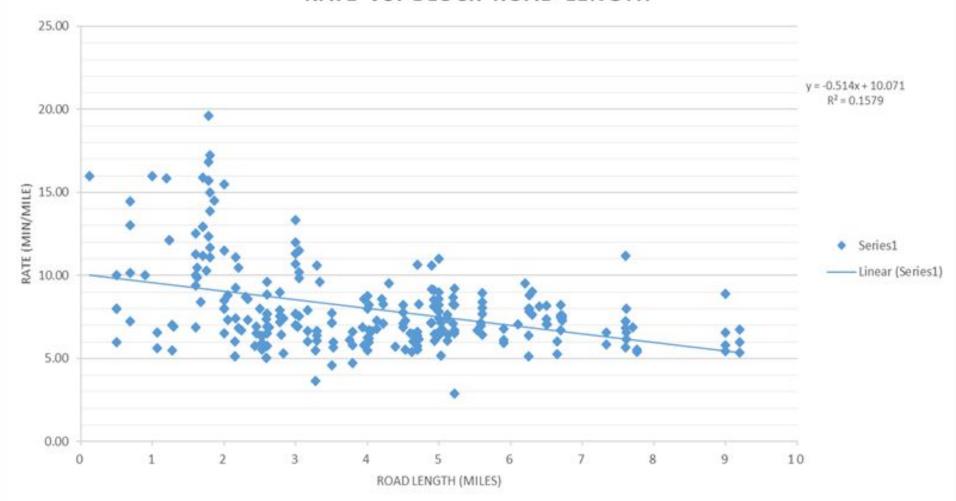
## Spray Analysis



- Analysis of spray mechanics, not efficacy
  - > Time, miles, total flow, acreage
- Easily compared against known spray block attributes
- Why do it?
  - Efficiency, planning, budgeting, minimizing abuse

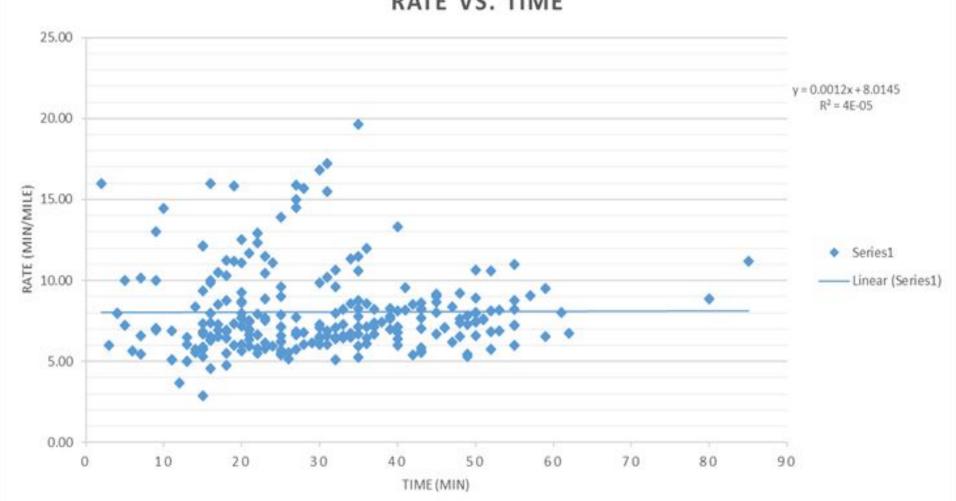


#### RATE VS. BLOCK ROAD LENGTH



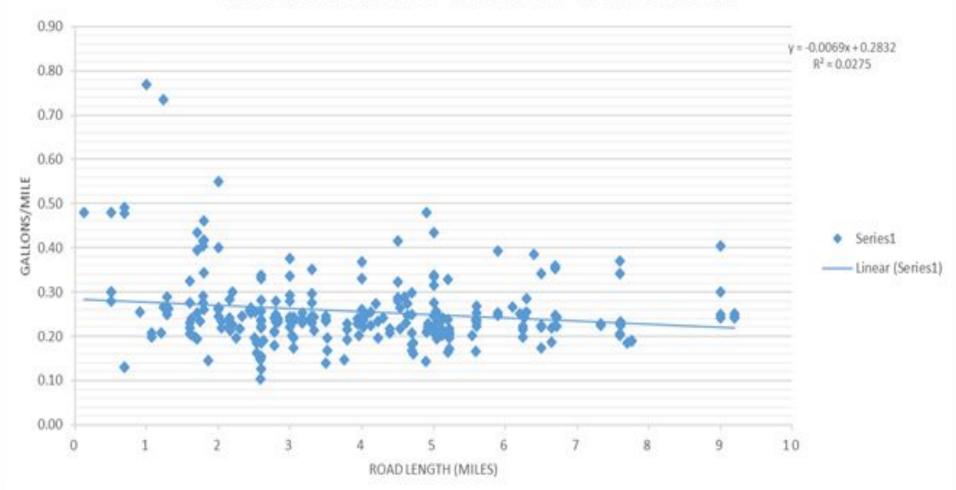






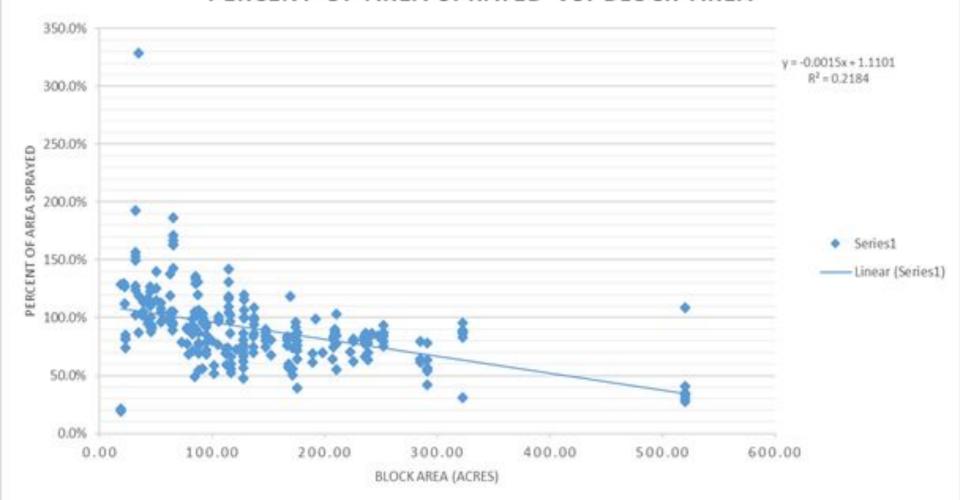


#### GALLONS PER MILE VS. BLOCK ROAD LENGTH



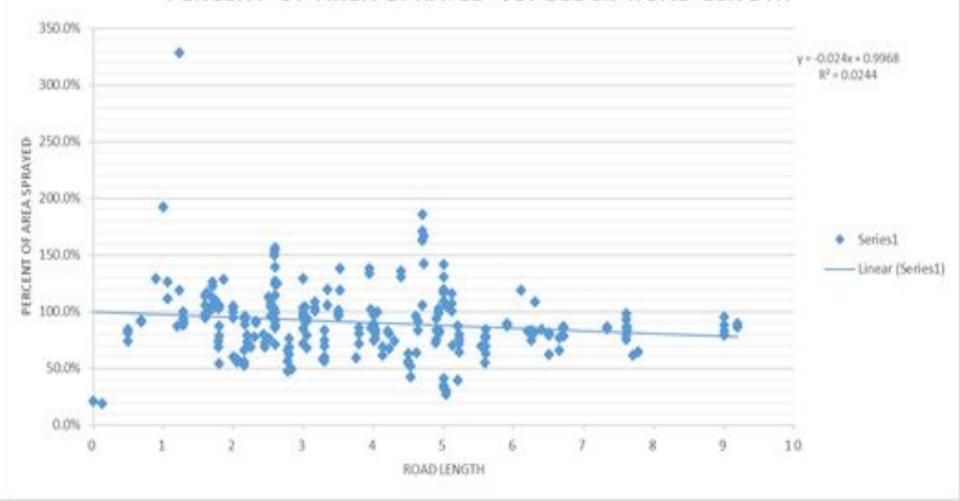


#### PERCENT OF AREA SPRAYED VS. BLOCK AREA





#### PERCENT OF AREA SPRAYED VS. BLOCK ROAD LENGTH



### What Did We Learn??

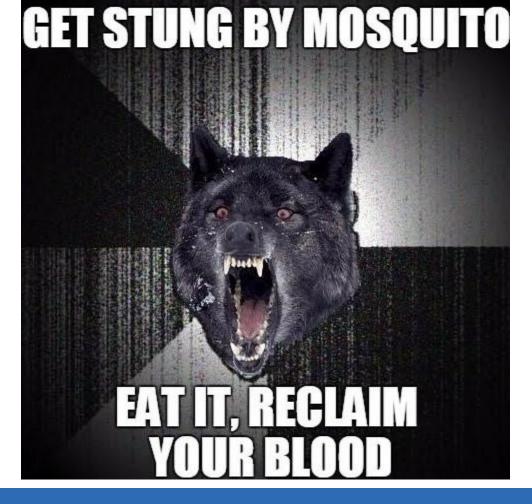


- Rate of speed changes by road length but not by time of spray
- Material sprayed does not change by road length
- Area sprayed decreases with increasing block area but not with increasing road length

### **Future Considerations**



- Redo the criteria
- Investigate specific attributes of spray blocks
  - Road attributes (# of turns?), zoning, parcel size, etc.
- Refine the dataset, especially outliers
- Make recommendations for adulticide block planning, creation, and execution



## Questions???

Nathaniel Nagle, Assistant Branch Chief Mosquito and Forest Pest Management Branch Prince William County Department of Public Works