

The BG-Sentinel Trap



Presented by Kirby Foley

ACKNOWLEDGMENTS

- **The Chesapeake Mosquito Control Commissioners and Gene Payne, Director**
- **My Associates of the Biology Department: Jason Williams, Joe Simmons, and Connie Gregg**
- **Interns: Gabriel Pargas, Ethan Samford, Nikki Ange, Jay Kiser, Tanya Hodges, and Jessica Wood**
- **Dr. Bruce Harrison**

BG–Sentinel Trap

- Developed and manufactured by BioGents in Regensburg Germany www.biogents.com
- Sold here by BioQuip www.bioquip.com
- Developed over 15 years of research
- Originally designed to attract *Aedes aegypti* and *Aedes albopictus*

BG–Sentinel Trap

- Mimics convection currents created by a human body
 - The BG-Lure consists of a combination of ammonia, lactic acid, and fatty acids (substances on human skin)
- Employs attractive visual cues
 - Uses the black and white color scheme
- Releases attractants through a large surface area
 - 14 inch diameter area covered by gauze

BG TRAP and LURE



Power Supply

- Power supply can be 120 AC or 12 volt battery
- Using the transformer and extension cord you can trap 24 / 7 ...let it function as the Mosquito Magnet type trap or just overnight.
- We trapped 2 PM to 7 AM and used 12 volt battery

BG Trap vs CDC Trap



BG–Sentinel Trap vs CDC Trap 2006

- We received and started setting two BG traps in mid August of 2006
- In 2006 we set a BG-Sentinel and a CDC trap side by side (within 2 meters) 18 nights for comparison (both baited with CO₂)
- The BG Trap set on Ground and the CDC Trap 1 to 1.5 meters high

	2006	2006	2006	
	<u>BG Trap</u>	<u>CDC Trap</u>	<u>BG Trap %</u>	<u>t-test</u>
DAYS TRAPPED:	18	18		
Ae albopictus	1485	16	9281%	0.048
Ae vexans	363	31	1171%	0.2
An crucians / bradleyi	9	121	7%	0.099
An punctipennis	1	0	0%	0.331
An quadrimaculatus	18	23	78%	0.738
Cq perturbans	38	13	292%	0.115
Cs melanura	882	578	153%	0.223
Cx erraticus	176	43	409%	0.094
Cx pipiens	10	2	500%	0.226
Cx restuans	24	3	800%	0.262
Cx salinarius	365	79	462%	0.023
Oc atlanticus/tormentor	547	128	427%	0.166
Oc infirmatus	128	31	413%	0.186
Oc sollicitans	0	0	0%	
Oc taeniorhynchus	0	0	0%	
Ps columbiae	114	9	1267%	0.114
Ps ferox	979	103	950%	0.199
Ur sapphirina	7	63	11%	0.237
Total Mosquitoes:	5146	1243	414%	

BG-Sentinel Trap vs CDC Trap 2007

- We set the BG and CDC Traps side by side 33 Nights
- The CDC Trap was baited with carbon dioxide and had the light source
- The BG Trap was baited with carbon dioxide and the lure

	2007	2007	2007	
	<u>BG Trap</u>	<u>CDC Trap</u>	<u>BG Trap %</u>	<u>t-test</u>
DAYS TRAPPED:	33	33		
Ae albopictus	761	7	10871%	0.001
Ae vexans	10	5	200%	0.169
An crucians / bradleyi	78	35	223%	0.465
An punctipennis	12	2	600%	0.076
An quadrimaculatus	33	6	550%	0.0043
Cq perturbans	27	13	208%	0.109
Cs melanura	673	81	831%	0.044
Cx erraticus	7	5	140%	0.689
Cx pipiens	3	3	100%	1
Cx restuans	8	7	114%	0.768
Cx salinarius	506	103	491%	0.008
Oc atlanticus/tormentor	0	0	0%	0
Oc infirmatus	1	1	100%	1
Oc sollicitans	0	1	0%	
Oc taeniorhynchus	294	19	1547%	0.248
Ps columbiae	178	14	1271%	0.156
Ps ferox	0	0	0%	0
Ur sapphirina	0	0	0%	0
Total Mosquitoes:	2591	302	858%	

BG-Sentinel Trap vs CDC Trap 2008

- We set the BG and CDC Traps side by side 43 nights
- We also set an additional CDC Trap with a BG lure for a number of nights ...the results were insignificant

	2008	2008	2008	
	BG Trap	CDC Trap	<u>BG Trap %</u>	<u>t-test</u>
DAYS TRAPPED:	43	43		
Ae albopictus	3153	29	10872%	0.0003
Ae vexans	112	238	47%	0.534
An crucians / bradleyi	47	52	90%	0.794
An punctipennis	15	4	375%	0.0621
An quadrimaculatus	26	4	650%	0.0078
Cq perturbans	11	1	1100%	0.229
Cs melanura	306	61	502%	0.077
Cx erraticus	27	11	245%	0.372
Cx pipiens	49	40	123%	0.746
Cx restuans	25	32	78%	0.618
Cx salinarius	1317	591	223%	0.249
Oc atlanticus/tormentor	67	2	3350%	0.225
Oc infirmatus	28	1	2800%	0.111
Oc sollicitans	6	2	300%	
Oc taeniorhynchus	289	43	672%	0.168
Ps columbiae	3	7	43%	0.377
Ps ferox	199	5	3980%	0.159
Ur sapphirina	0	0	0%	0
Total Mosquitoes:	5680	1123	506%	

Three Year Comparison of the BG Trap vs CDC Trap

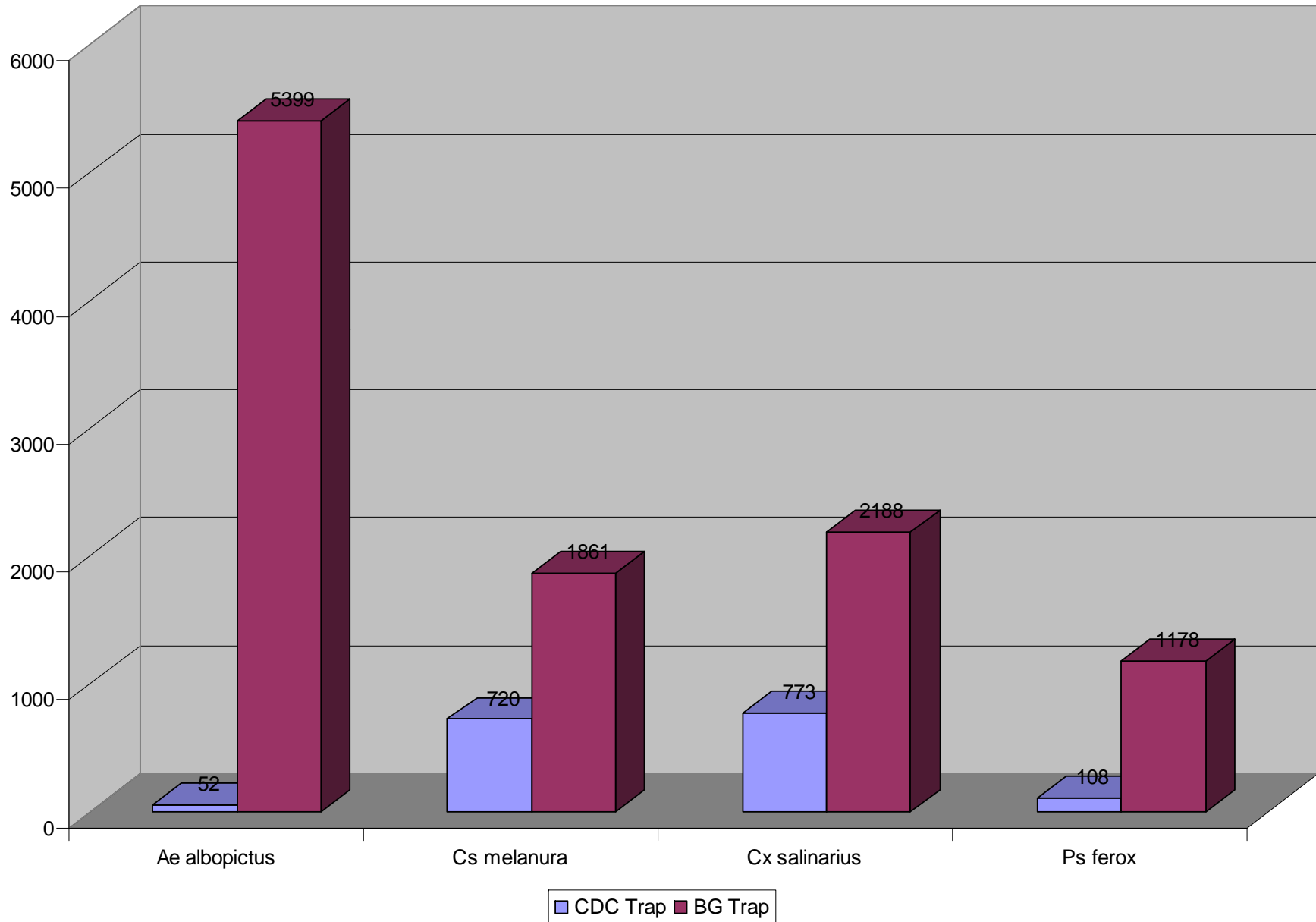
- We set the BG-Sentinel and the CDC Traps side by side 94 nights over the 3 year period

	Three year	2006, 2007, and 2008	and 2008		
	BG Trap	CDC Trap	BG Trap %	t-test	Anova
DAYS TRAPPED:	94	94			
Ae albopictus	5399	52	10383%	0.000003	0.000002
Ae vexans	486	274	177%	0.521	0.5317
An crucians / bradleyi	134	208	64%	0.419	0.439
An punctipennis	28	6	467%	0.0069	0.0093
An quadrimaculatus	77	33	233%	0.022	0.043
Cq perturbans	76	27	281%	0.012	0.121
Cs melanura	1861	720	258%	0.0046	0.0433
Cx erraticus	210	59	356%	0.063	0.176
Cx pipiens	62	45	138%	0.0553	0.656
Cx restuans	57	42	136%	0.52	0.579
Cx salinarius	2188	773	283%	0.03	0.067
Oc atlanticus/tormentor	614	130	472%	0.111	0.209
Oc infirmatus	157	33	476%	0.094	0.236
Oc sollicitans	6	3	200%		
Oc taeniorhynchus	583	62	940%	0.076	0.093
Ps columbiae	295	30	983%	0.045	0.056
Ps ferox	1178	108	1091%	0.118	0.168
Ur sapphirina	7	63	11%	0.228	0.226
Total Mosquitoes:	13418	2668	503%		

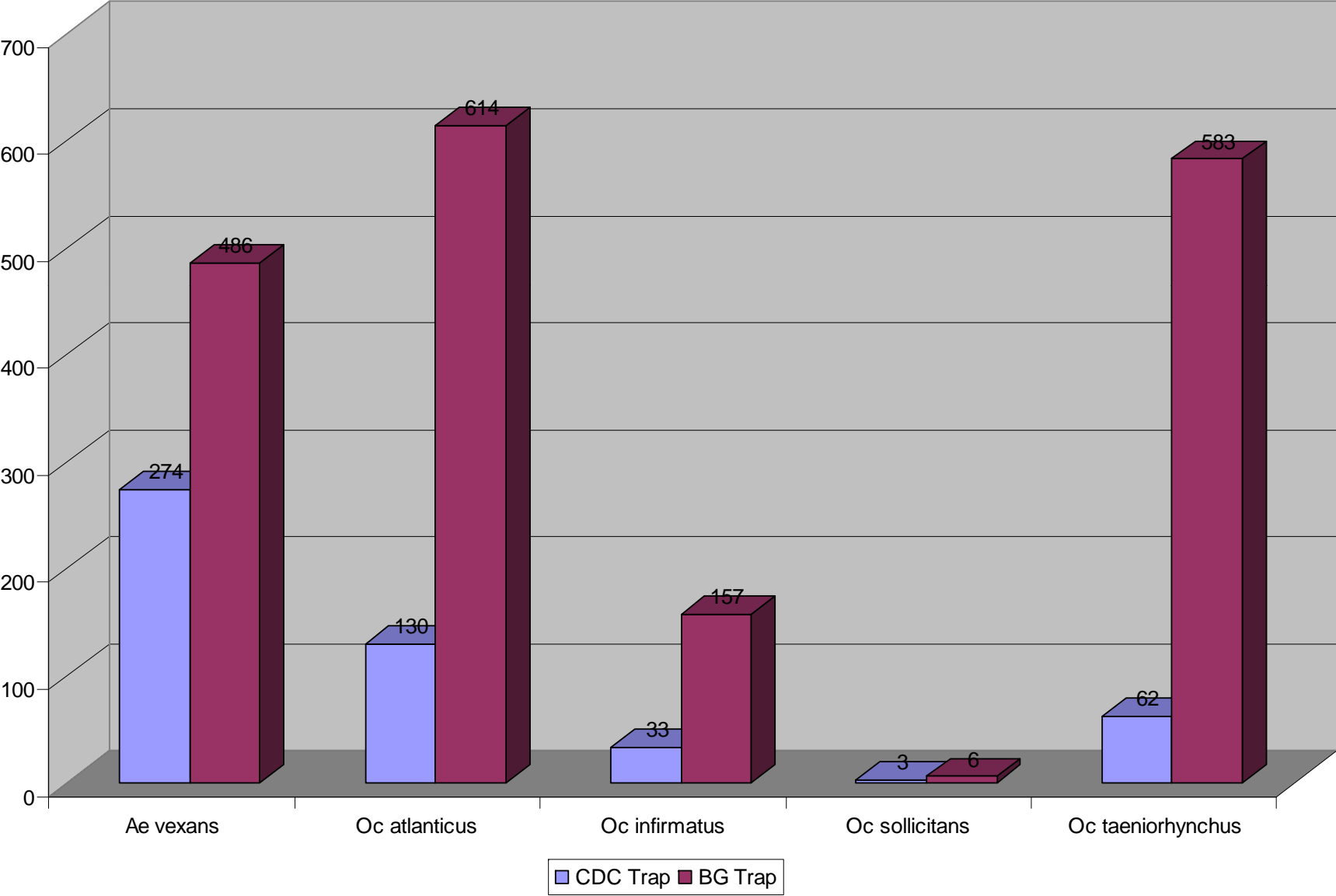
THREE YEAR COMPARISON OF THE BG-SENTINEL TRAP TO THE CDC LIGHT TRAP

SPECIES	CDC TRAP	BG TRAP	BG TRAP %	t-test
• <i>Ae. albopictus</i>	52	5399	10383	0.000003
• <i>Ae. vexans</i>	274	486	177	0.521
• <i>Oc. atlanticus</i>	130	614	472	0.209
• <i>Oc. Infirmatus</i>	33	157	476	0.094
• <i>Oc. sollicitans</i>	3	6	200	
• <i>Oc. taeniorhynchus</i>	62	583	940	0.076

Three Year Comparison of the BG-Sentinel Trap to the CDC Light Trap



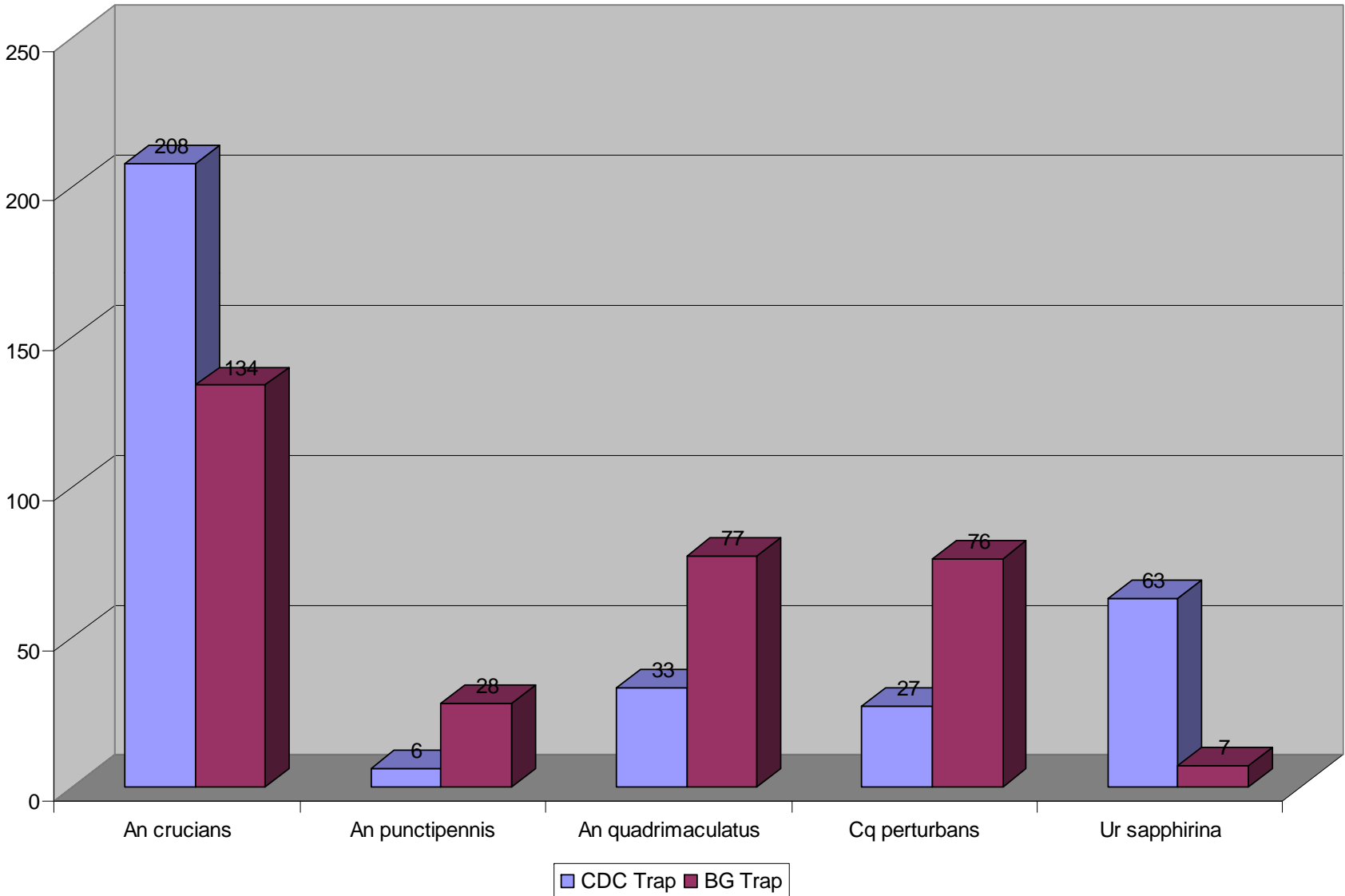
Three Year Comparison of the BG-Sentinel Trap to the CDC Light Trap



THREE YEAR COMPARISON OF THE BG-SENTINEL TRAP TO THE CDC LIGHT TRAP

SPECIES	CDC TRAP	BG TRAP	BG TRAP %	t-test
<i>An. crucians</i>	208	134	64	0.419
<i>An. punctipennis</i>	6	28	467	0.0069
<i>An. quadrimaculatus</i>	33	77	233	0.022
<i>Cq. perturbans</i>	27	76	281	0.012
<i>Cs. melanura</i>	720	1861	258	0.0046
<i>Ur. sapphirina</i>	63	7	11	0.228

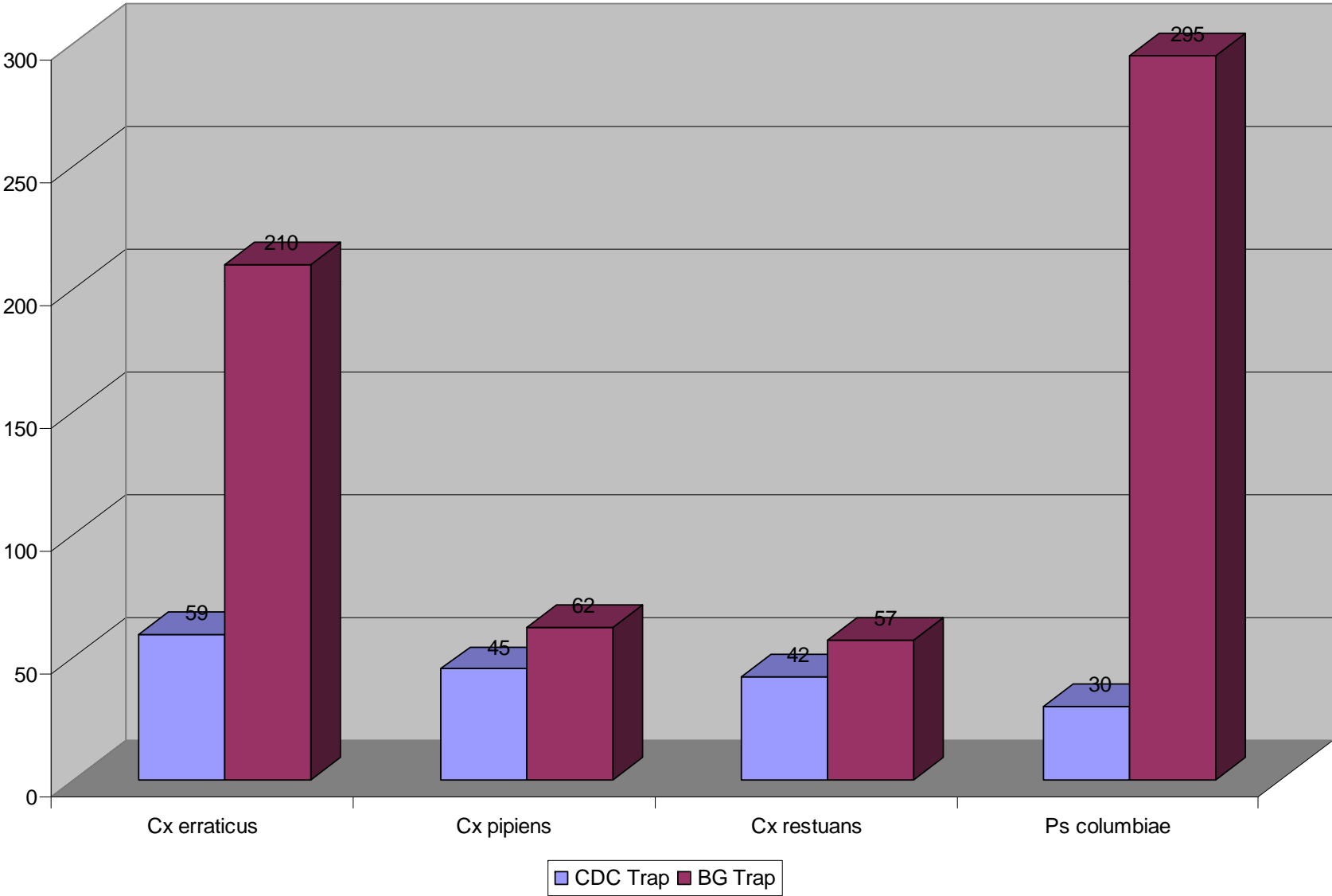
Three Year Comparison of the BG-Sentinel Trap to the CDC Light Trap



THREE YEAR COMPARISON OF THE BG-SENTINEL TRAP TO THE CDC LIGHT TRAP

SPECIES	CDC TRAP	BG TRAP	BG TRAP %	t-test
• <i>Cx. erraticus</i>	59	210	356	0.063
• <i>Cx. pipiens</i>	45	62	138	0.055
• <i>Cx. restuans</i>	42	57	136	0.52
• <i>Cx. salinarius</i>	773	2188	283	0.03
• <i>Ps. columbiae</i>	30	295	983	0.045
• <i>Ps. ferox</i>	108	1178	1091	0.118

Three Year Comparison of the BG-Sentinel Trap to the CDC Light Trap



SUMMARY

- **The BG Trap is more efficient than the CDC Trap in collecting 15 of the 18 species listed in this study**
- **The BG Trap is significantly more efficient for seven of the species ...proved by the t-test indications**
- **The BG Trap is a very good tool that can be useful in every program**

Questions ?

