WEST NILE VIRUS IN IDAHO

2012

It's for the Birds!





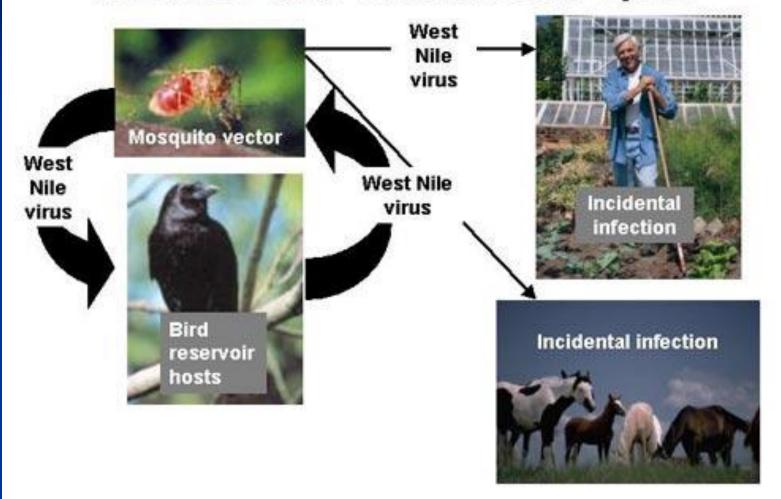
- West Nile Virus History
- Transmission Cycle and Mosquito Vectors in Idaho
- Case Count Nation Wide (Focus: Dallas TX)
- What happened in Idaho
- Integrated Pest Management (Mosquito Management)
- Canyon County Mosquito Abatement Mosquito Management.

WEST NILE VIRSUS A HISTORY

West Nile Virus Facts

- An arbovirus flavivirus spread by the bite of an infected mosquito.
- First isolated in the West Nile region of Uganda in 1937.
- Symptoms are "Flu Like": Headache, fever, muscle ache, swollen lymph glands and rash.
- Severe cases: Neurorinvasive Encephalitis that can lead to paralysis (poliomyelitis-inflamed spinal chord) nerve damage and death. (About 1% of cases)

West Nile Virus Transmission Cycle



Reservoir Host Nesting Migratory Birds

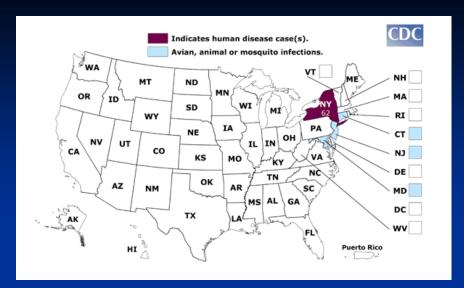


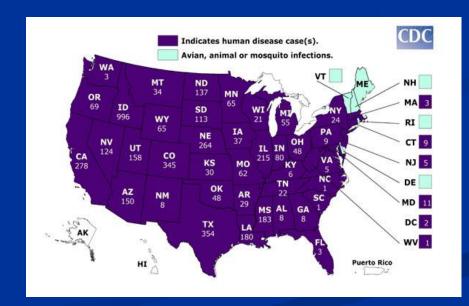


MIGRATORY BIRD FLYWAYS



WEST NILE VIRUS ACTIVITY





WNV Vectors in Idaho

Western Equine Encephalitis Mosquito (Culex tarsalis)

Northern House Mosquito (Culex pipiens)

Tule Mosquito (Culex erythrothorax)



Culex tarsalis

- This is the "Bad Guy" Predominant vector for West Nile Virus.
- Habitat: Permanent water sites.
- Overwinter as Fertilized Females.
- Population spikes with hot weather.



Culex pipiens

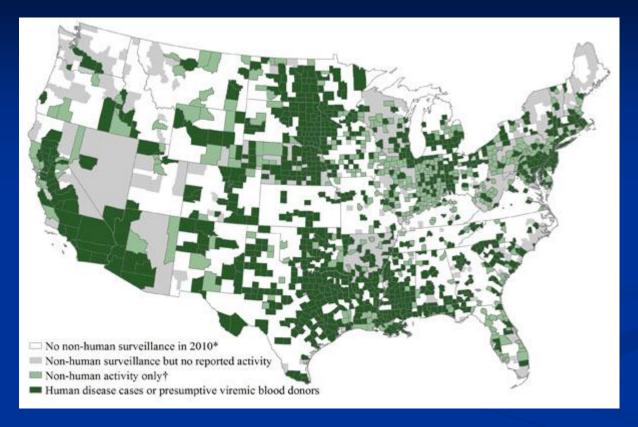
- Habitat: Urban mosquito, storm drains, sewer treatment facilities, catch basins, irrigation retention ponds.
- Can enter houses regularly.
- Overwinters as adult female (fertilized).
 Sometimes found in crawlspaces, basements and bathrooms in winter.



Culex erythrothorax

- Habitat: Marshlands, wetlands, swamps with heavy aquatic weed growth. Mosquito is almost red in color.
- Can overwinter as fertilized female or larvae stage.
- Usually do not appear in very high numbers.

2012



Nationwide: Worst outbreak of WNV since 2005 and 2006 5247 reported human cases with 2643 neurinvasive encephalitis and 234 deaths. Texas alone over 1200 reported human cases.

2012 Top 10 States (from CDC Nov. 26, 2012)

STATE	# REPORTED CASES	NI (Encephalitis)	DEATHS
TEXAS	1707	774	58
CALIFORNIA	424	260	16
LOUISIANA	311	145	14
ILLINOIS	249	168	10
MISSISSIPPI	242	99	5
S.D./MICH(tie)	202	62/99	3/14
OKLAHOMA	184	98	12
NEBRASKA	187	37	4
COLORADO	129	60	3
ARIZONA	124	82	4

2012 WEST NILE VIRUS GROUND ZERO

DALLAS COUNTY, TEXAS

Dallas County, Texas

What they were saying:

"We didn't have the resources"

".....I didn't think it would happen here."

"We're dealing with a "Third World mutating virus" Quotes from Public Health Officials.

From the Headlines:



Low level aerial insecticide spraying over metropolitan Dallas



DALLAS/NORTH TEXAS METRO AREA

- 800 human cases
- 23 fatalities
- Close to 200 West Nile

Encephalitis





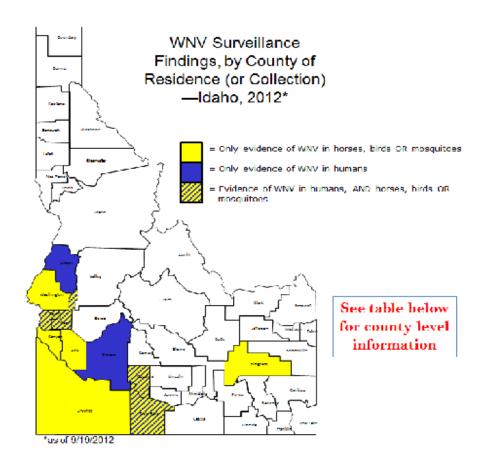


happened in Idaho?









Idaho West Nile Virus Statistics as of November 12, 2012

Infected County	Human WNV Fever	Human Neurinvasive Encephalitis	Horse	Bird	+ Mosquito Test Sites
Ada	0	0	0	1 Owl	14
Adams	2	1	0	0	0
Bingham	0	0	0	0	1
Canyon	0	0	3	0	8
Elmore	1	2	1	0	0
Gem	4	1	0	0	6
Gooding	1	0	2	0	0
Owhyee	0	0	2	1 Eagle	2
Payette	2	1	0	1 kestrel	1
Twin Falls	2*	0	0	0	3
Washington	0	0	1	0	0

^{*}Acquired from out of area

Summary:

- 11 Counties reported West Nile Virus Activity
- 17 Human Cases (five of which are West Nile Encephalitis)
- Positive Mosquito tests sites 36



Integrated Pest Management (Mosquito Style!)

I.P.M.



No Pesticides

Term has been re-defined by Anti-Pesticide advocates to mean:

- Least Toxic
- Last Alternative
- Last Resort

Pest Management Evaluations

- 1. Set Action Thresholds
- 2. Monitor (Id Pest)
- 3. Prevention
- 4. Control

Setting Action Thresholds





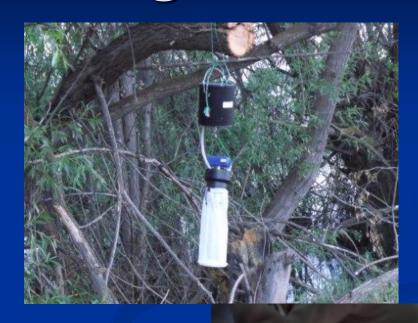




Monitoring









Prevention









Fight The Bite



Avoid Mosquito Bites! Mosquitoes carry West Nile virus:

West Nile Virus Information Line:

-877-333-WNVI (9681) 1



- Severe illness can occur. Hospitalization and even death is possible. DEET, Picaridin and oil of lemon eucalyptus-based repellents
- are EPA-approved, follow label instructions carefully. Cover up exposed skin when outdoors, particularly between dusk and dawn when mosquitoes are most active. Hunters should wear latex gloves when field dressing and handling dead wild game and cook meat thoroughly.
- Reduce mosquito breeding sites: Eliminate standing water in your yard. Empty birdbaths every week.
- Keep mosquitoes out of your home: Check and fix screens as needed.
- Vaccinate your horses.
 One-third of horses with West Nile virus can die.
- Report dead birds to the closest Idaho Department of Fish and Game Regional Office.

Control or Management of Pest Population

Habitat Manipulation: Mechanical

Biological: Predator Species

Pesticides: (Natural or Chemical)

Mosquito Biological Control









Habitat Manipulation

FROM THIS.....

TO THIS.....





OPERATIONS

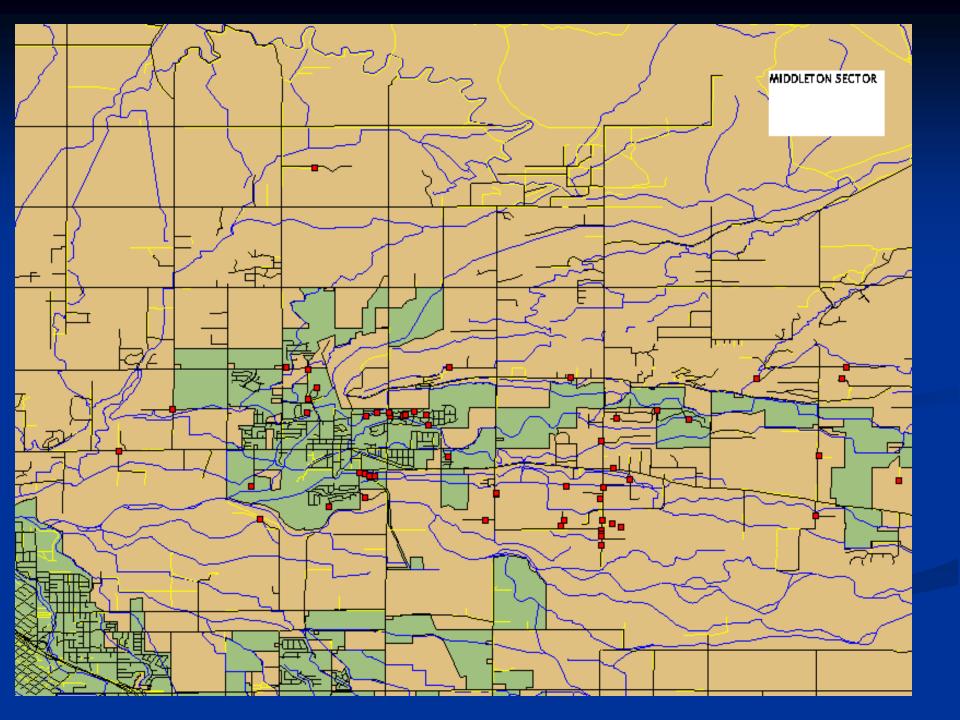
Mosquito larval control







Approximately 7000 acres treated in 2012



1 acre of mosquito larvae control

100 acres of treating for flying, biting, possible disease carrying adult mosquitoes

Adult Mosquito Control

Shootin down the fliers!









2012 DFNWR Pesticide (Bacillus thuringiensis israelensis) Record

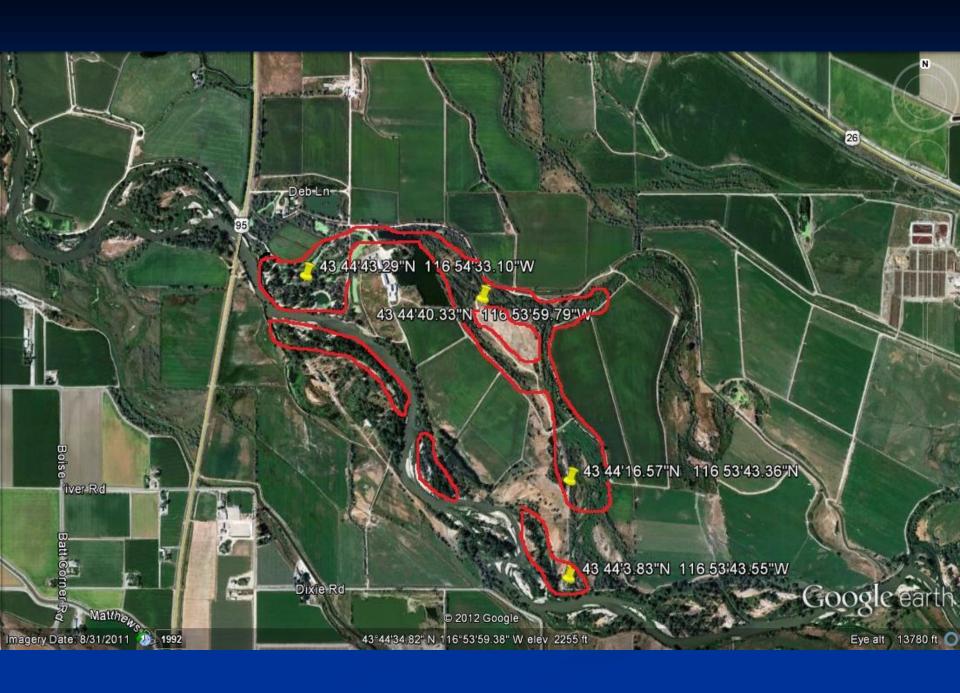
Application Date	Application type	Treatment Site	Threshold Level # larvae/dip	Acres	Amount (lbs.)	Follow Up Dip Count # larvae/dip
1-Apr	ground	Access 6	14/dip	1.5	15	
4-Apr	around	Access 5	5/dip	3.3	33	3/dip
20-Apr	air	Access 3-Access 7	19/dip	466	3728	0.1/dip
24-Apr	ground	NY Canal-Access 1	11/dip	6.5	66	1.0/dip
25-Apr	around	Access 4	5/dip	4	38	1.0/dip
2-May	ground	Schaffer's Access and South Marsh	26/dip	9.75	98	< 2/dip
3-May	ground	Tio Ln parking	5/dip	2	20	<2/dip
11-May	ground	NY Canal-Access 1	20/dip	5	50	1/dip
14-May	air	Access 2-Access 6	20/dip	350	2800	1/dip
16-May	ground	NY Canal-Access 1	6/dip	4	40	0.5/dip
17-May	ground	Tio Lane parking/Schaffer's Access	10/dip	9.5	97	0.5/dip
21-May	ground	Schaffer's Lateral/south Marsh	12/dip	15.5	155	0.5/dip
24-May	air	Access 4-6	7/dip	200	1600	1/dip
24-May	air	Schaffer's Access and Marsh/NY Canal	8/dip	200	1600	.5/dip
5-Jun	ground	NY Canal to Access 1	8/dip	8.5	85	0/dip
6-Jun	ground	Schaffer's Lateral Marsh-Tio Lane	15/dip	3.5	35	1/dip
7-Jun	ground	Schaffer's Access-Gott's Pt.	5/dip	3	30	1/dip
11-Jun	air	Access 3 to Access 7	14/dip	400	3200	0/dip
11-Jun	air	Gott's Pt. S Marsh, Schaffer's Access	15/dip	400	3200	0/dip
11-Jun	ground	Access 4	8/dip	1.92	20	0/dip
20-Jun	ground	NY Canal-Access 1	6/dip	2.5	20	0/dip
20-Jun	air	Access 3-Access 6	10/dip	200	1600	.5/dip
21-Jun	ground	Shaffer's Access	10/dip	7.5	75	0/dip
29-Jun	air	Access 3-Access 6	6/dip	284	2272	0/dip
29-Jun	air	Schaffer's Access/Marsh to NY Canal	12/dip	56	448	4/dip
3-Jul	ground	Access 1	5/dip	6.5	63	4/dip
13-Jul	air	Schaffer's Access/marsh to NY Canal	10/dip	150	1200	1/dip
18-Jul	air	Schaffer's Access/Marsh to NY Canal	6/dip	150	1200	0/dip
18-Jul	ground	NY Canal/Access 1	8/dip	2.5	26.2	0/dip
29-Jul	ground	Schaffer's Access to NY Canal	8/dip	3 2955.97	23 23837.2	0/dip

Total acres treated: 2955.97 Total lbs. of Bti: 23837.2

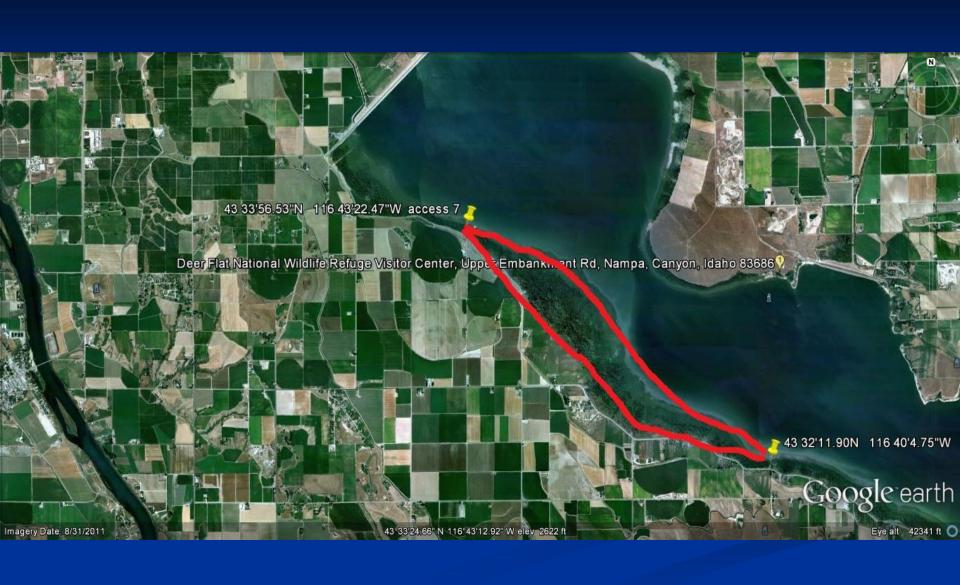
Total acres treated by air: 2856

Total lbs. of Bti applied by air: 22848 lbs. Aquabac CG

Total acres treated by ground applications: 99.97
Total lbs of Bti applied by ground applications: 989.2
Tecknar CG

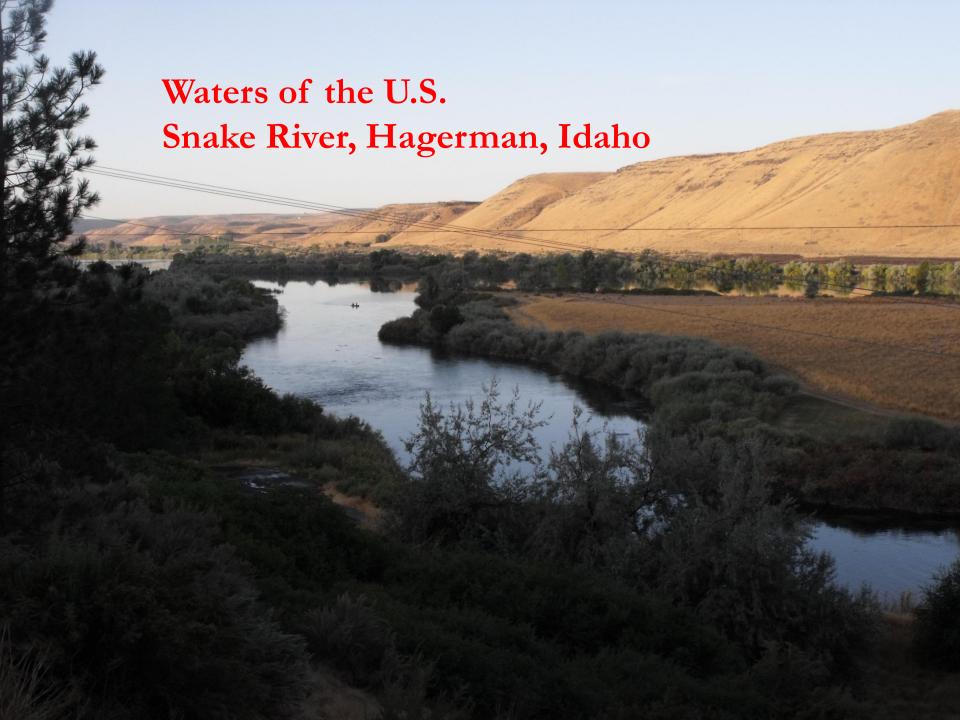






NPDES PESTICIDE GENERAL PERMIT



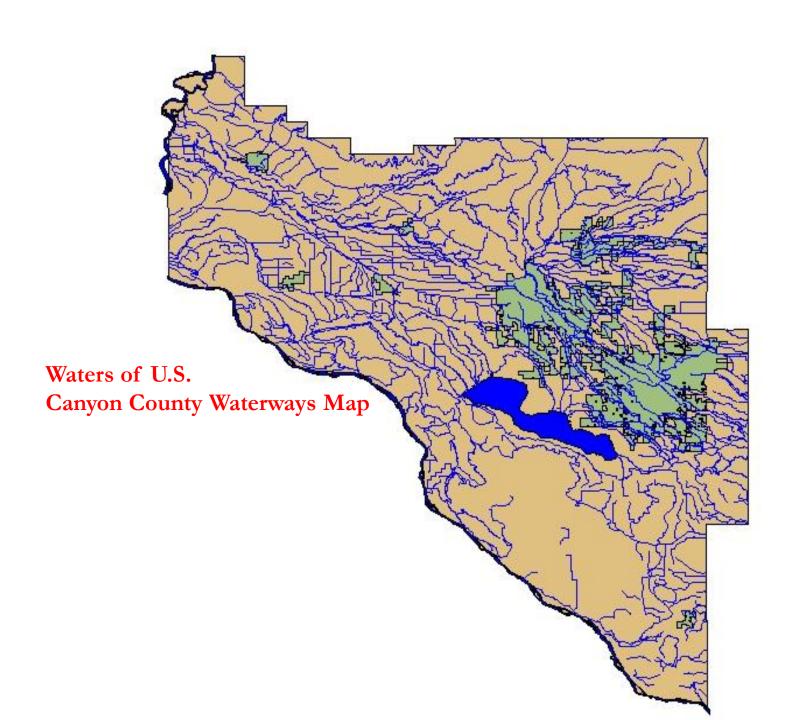


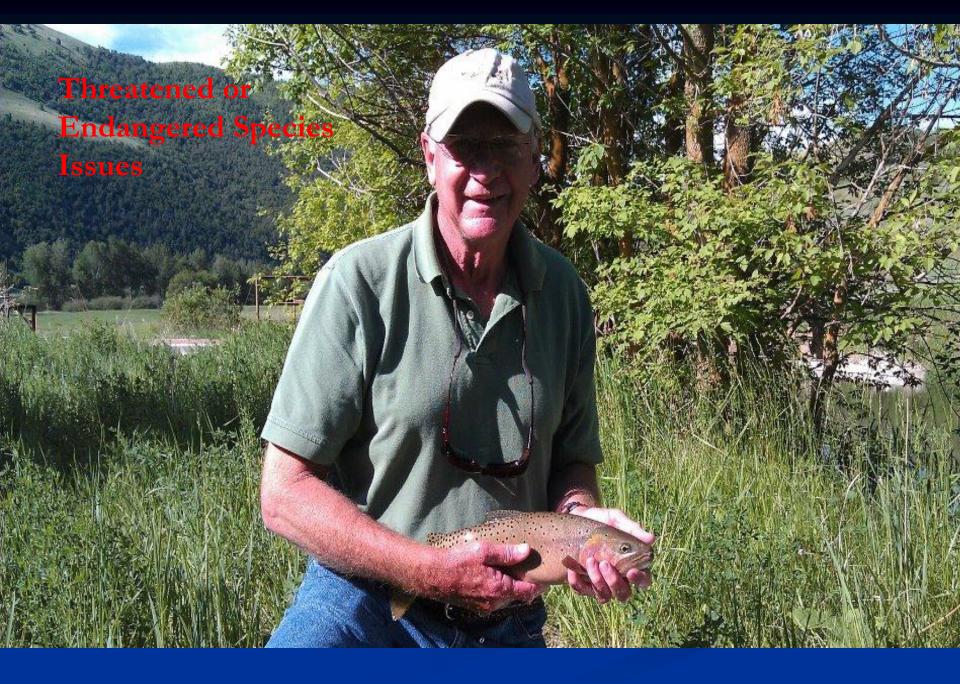




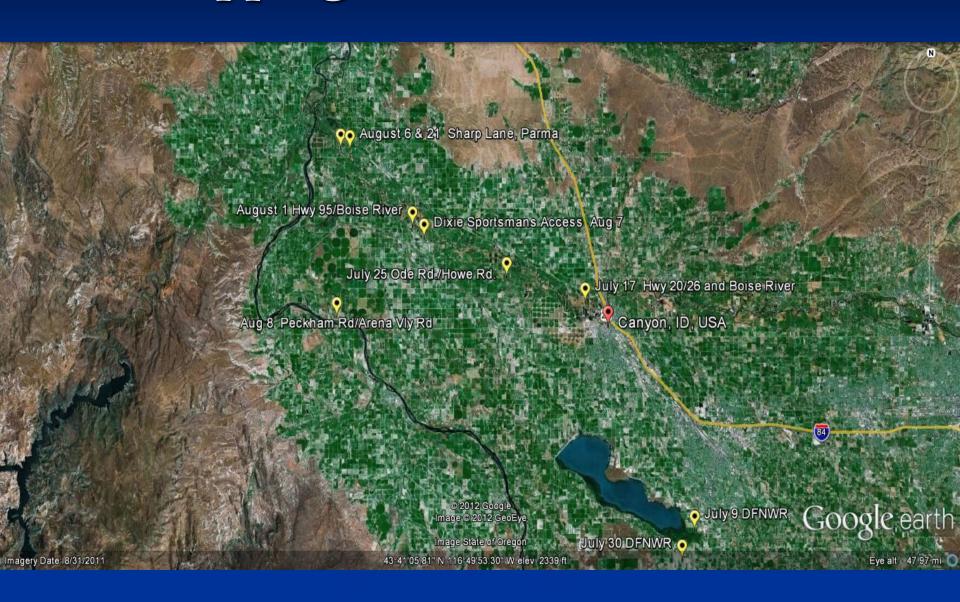








Positive West Nile Virus Mosquito Trapping Test Sites and Dates



What's Gonna Happen Next Year?

Doesn't depend on this winter.

- Culex species overwinters as adults
- We were still seeing disease activity late in the season in the mosquito population. Disease will overwinter with the infected mosquitoes.

Does depend on what happens next spring.

- A warm dry spring will spike the population of Culex species early.
- Remember they feed on migratory birds. The presence of migratory birds and high Culex species can lead to an amplification of West Nile Virus early.



