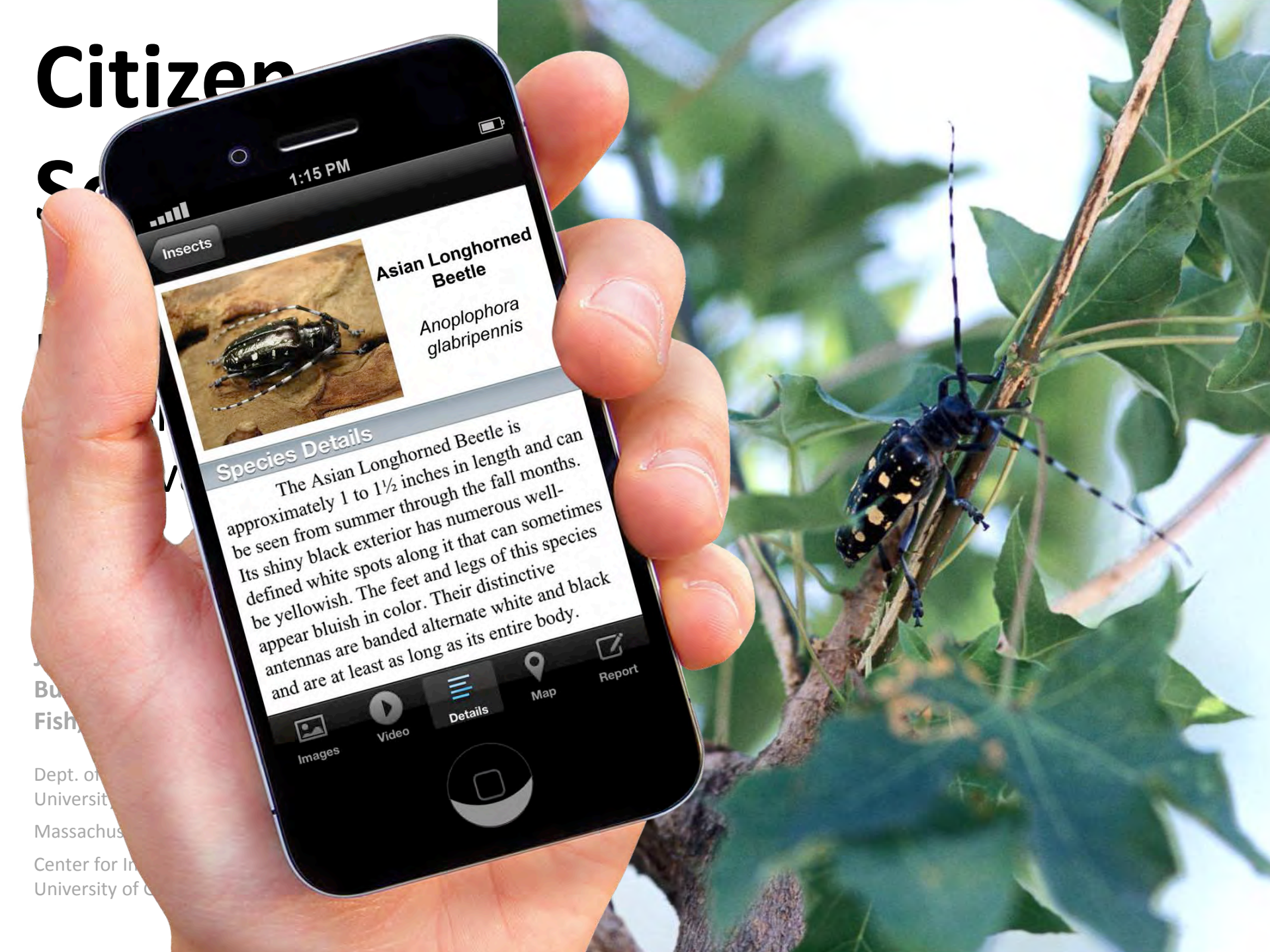
Citizen
S



Bu
Fish

Dept. of
University

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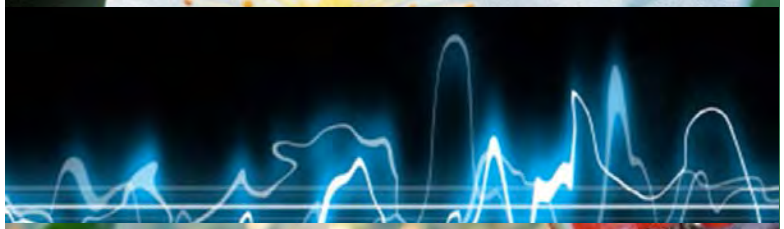
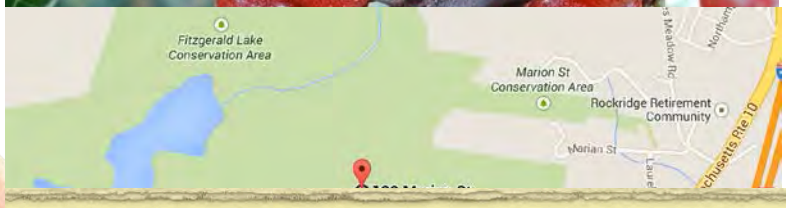
University of





I came across 3 trees in my neighborhood...

There were lots of small Dime-sized holes in the trees!

The upper foliage was Fall colored and it is July...

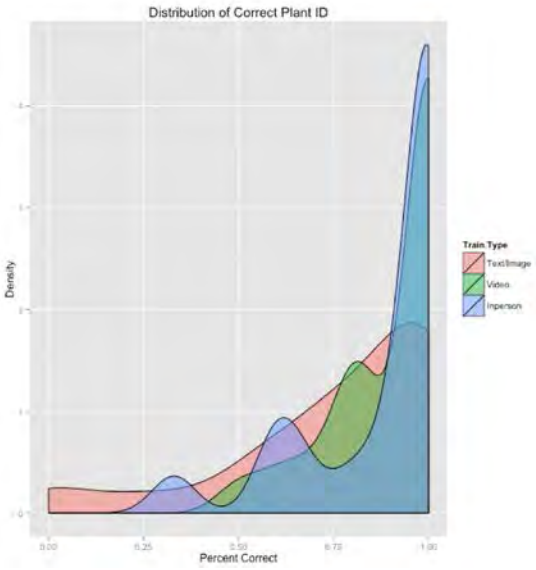
I couldn't see any beetles, but these are the signs of ALB!

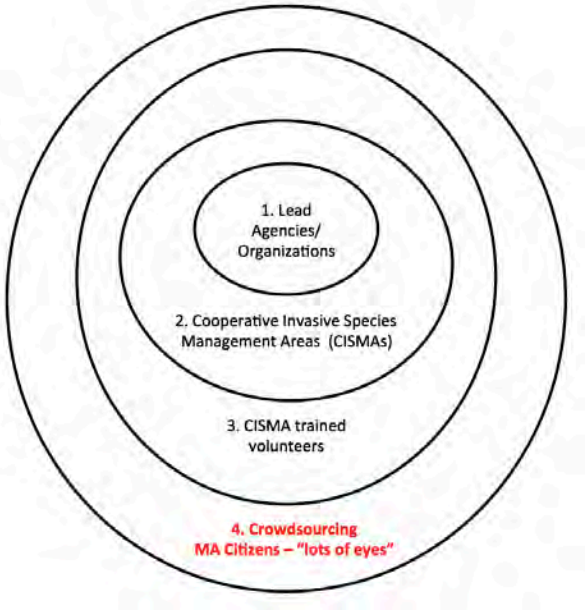
Outsmart Invasive Species Project

what we do

Invasive Species…

- Outreach
- Research
- Collaborative environmental management





what we do


1:15 PM
Stocks
Utilities
Podcasts
Outsmart
WBUR
Weather
Messages
Mail
Safari
Music

what we do


1:15 PM
Outsmart
Shrubs
Trees
Vines
Insects
SHRUBS
TREES
INSECTS
Species
Alphabetical
Report Queue
More

what we do


1:15 PM
Scientific
Insects
Outsmart
Asian long-horned beetle
Anoplophora glabripennis
Agrilus planipennis
Invasive insects
Gypsy moth
Lymantria dispar
Hemlock woolly adelgid
Adelges tsugae
Winter moth
Operophtera brumata
Unknown/Unlisted
I don't know what it is
The insect is not on this list
Species
Alphabetical
Report Queue
More

what we do


1:15 PM
Insects
5476349
Photo By: Joe Boggs
Images
Video
Details
Map
Report

what we do

what we do


1:15 PM
Insects
Asian Longhorned Beetle
Anoplophora glabripennis
Species Details
The Asian Longhorned Beetle is approximately 1 to 1½ inches in length and can be seen from summer through the fall months. Its shiny black exterior has numerous well-defined white spots along it that can sometimes be yellowish. The feet and legs of this species appear bluish in color. Their distinctive antennas are banded alternate white and black and are at least as long as its entire body.
Images
Video
Details
Map
Report

what we do


1:15 PM
Insects
Mt Toby State Forest
Sunderland
Leverett
Whately
Hatfield
Elm St
Hadley
Mt Holyoke Range State Park
Mt Tom State Reservation
Easthampton
South Hadley
Granby
Google
Images
Video
Details
Map
Report

what we do

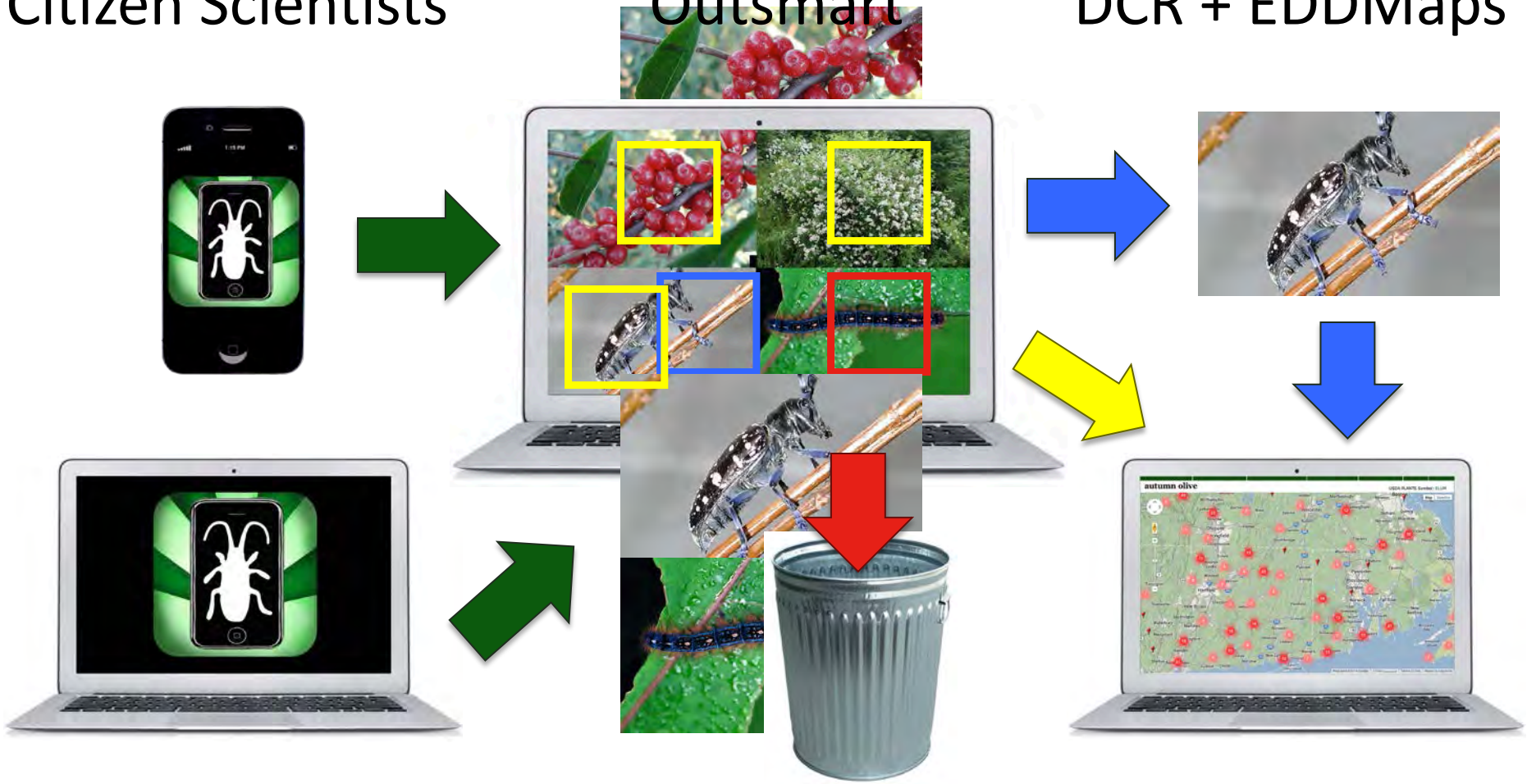

1:15 PM
Save
Insects
Report Image
No Image Selected
Latitude : 42.307955
Longtitude : -72.505917
Accuracy : 2 meters
Amount
One
Multiple
Any Extra Information Goes Here
Images
Video
Details
Map
Report

data flow

Citizen Scientists

Outsmart

DCR + EDDMaps



research

Compound Incentives

Incentive Category	Respondent #	4	6	5	3	8	2	9	1
	Rated "Very important"								
Learning	To improve plant and insect identification skills	x		x			x	x	
Learning	To learn more about invasive species	x			x		x	x	
Public good - "helping the cause"	To keep track of invasive species sightings	x	x	x	x	x	x	x	
Public good - "helping the cause"	To protect biodiversity	x	x	x	x	x	x		
Personal need	To protect my property	x					x		
Public good - "helping the cause"	To prevent outbreaks of destructive species	x	x	x	x	x	x	x	
Personal need	To connect with others interested in protecting biodiversity	x					x		
Public good - "helping the cause"	To contribute data to scientific research	x	x	x		x	x		x
Cost to participate	Because the Outsmart Invasive Species app is free	x					x		x
Fine-scaled Task Granularity	Because it is easy to participate	x		x			x		x
Fine-scaled Task Granularity	Because there is no formal time commitment	x		x			x		x
Paid	Because it is useful for my job			x					
Paid	Because I can take part on the job		x	x					
Enjoyment	Because I enjoy spending time outdoors	x			x	x	x		
Learning	Because it is relevant to my field of study	x	x			x			
Enjoyment	Because it seemed like fun	x			x		x		x
Paid	Because there is potential to win a prize								
	# Submissions	32	5	4	3	3	2	2	1
	Incentive count totals	15	6	9	6	6	13	4	5

Training Methods

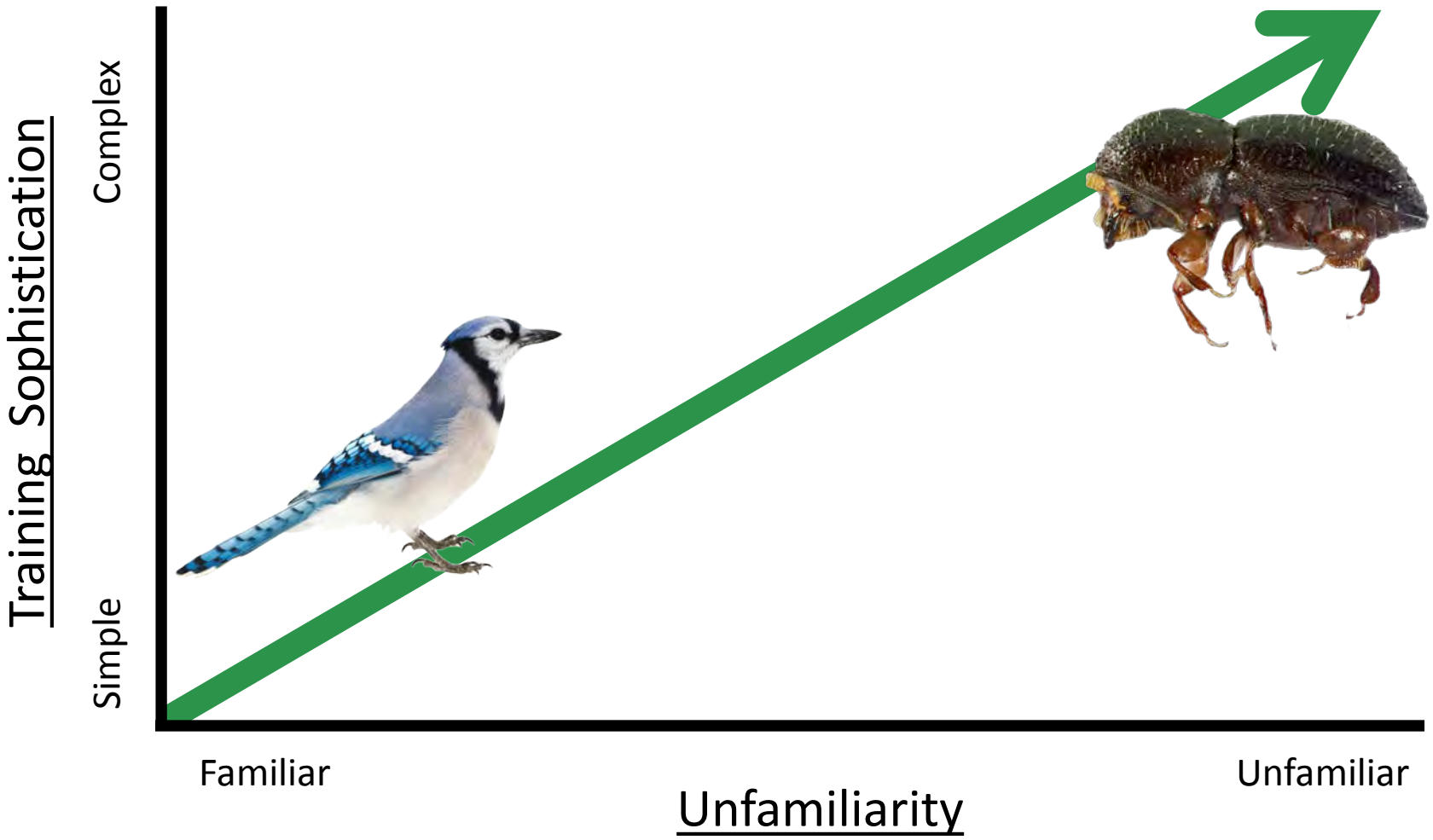
research

Compound Incentives

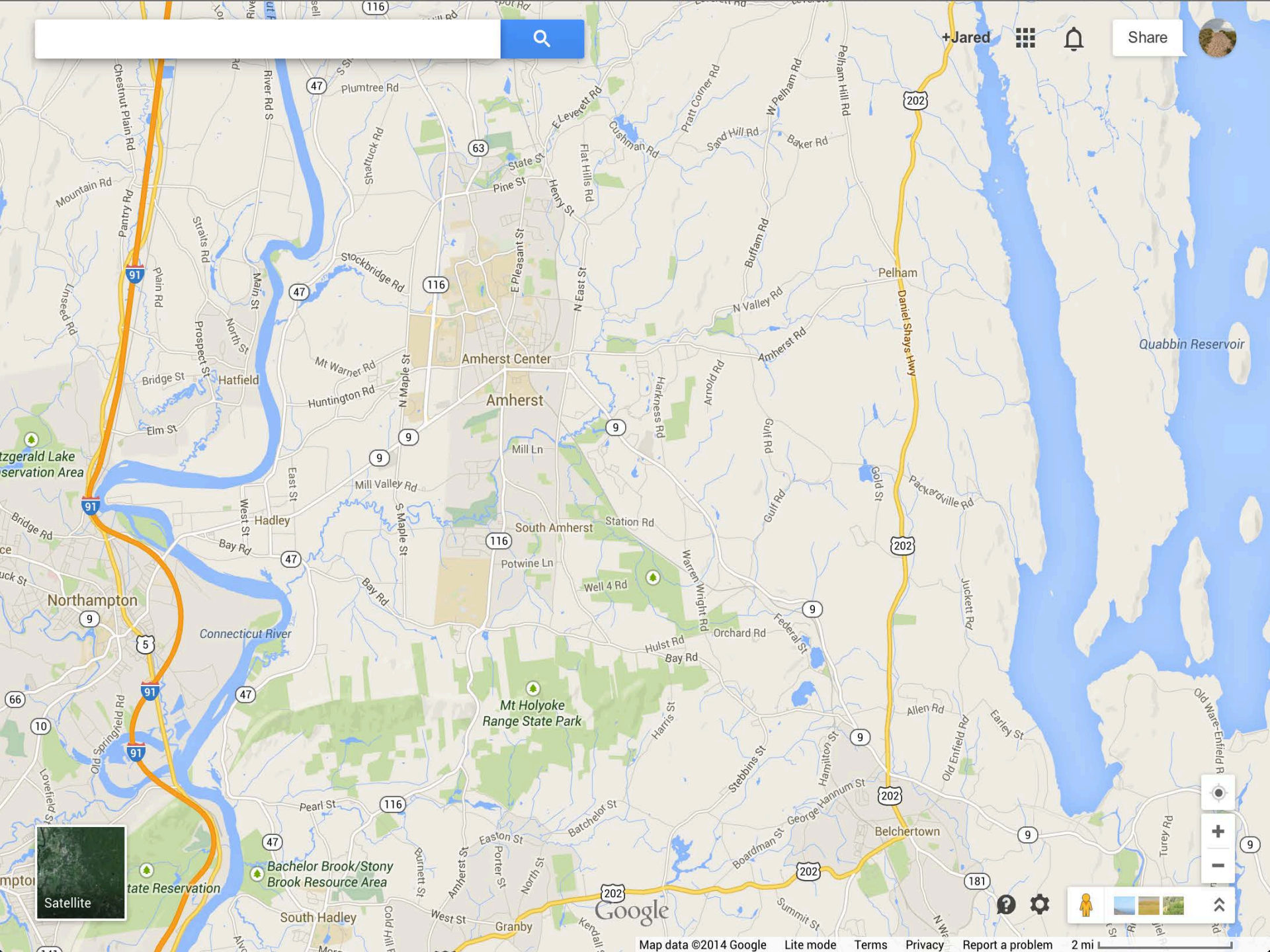
Incentive Category	Respondent #	4	6	5	3	8	2	9	1
	Rated "Very important"								
Learning	To improve plant and insect identification skills	x		x			x	x	
Learning	To learn more about invasive species	x			x		x	x	
Public good - "helping the cause"	To keep track of invasive species sightings	x	x	x	x	x	x	x	
Public good - "helping the cause"	To protect biodiversity	x	x	x	x	x	x		
Personal need	To protect my property	x					x		
Public good - "helping the cause"	To prevent outbreaks of destructive species	x	x	x	x	x	x	x	
Personal need	To connect with others interested in protecting biodiversity	x					x		
Public good - "helping the cause"	To contribute data to scientific research	x	x	x		x	x		x
Cost to participate	Because the Outsmart Invasive Species app is free	x					x		x
Fine-scaled Task Granularity	Because it is easy to participate	x		x			x		x
Fine-scaled Task Granularity	Because there is no formal time commitment	x		x			x		x
Paid	Because it is useful for my job			x					
Paid	Because I can take part on the job		x	x					
Enjoyment	Because I enjoy spending time outdoors	x			x	x	x		
Learning	Because it is relevant to my field of study	x	x			x			
Enjoyment	Because it seemed like fun	x			x		x		x
Paid	Because there is potential to win a prize								
	# Submissions	32	5	4	3	3	2	2	1
	Incentive count totals	15	6	9	6	6	13	4	5

Training Methods

issues


Training Sophistication
Complex
Simple
Familiar
Unfamiliar
Unfamiliarity


NCCAT


+Jared
Share
Amherst
Amherst Center
Hadley
Northampton
South Amherst
Pelham
Belchertown
South Hadley
Granby
Quabbin Reservoir
Connecticut River
Mt Holyoke Range State Park
Bachelor Brook/Stony Brook Resource Area
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Map data ©2014 Google
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Report a problem
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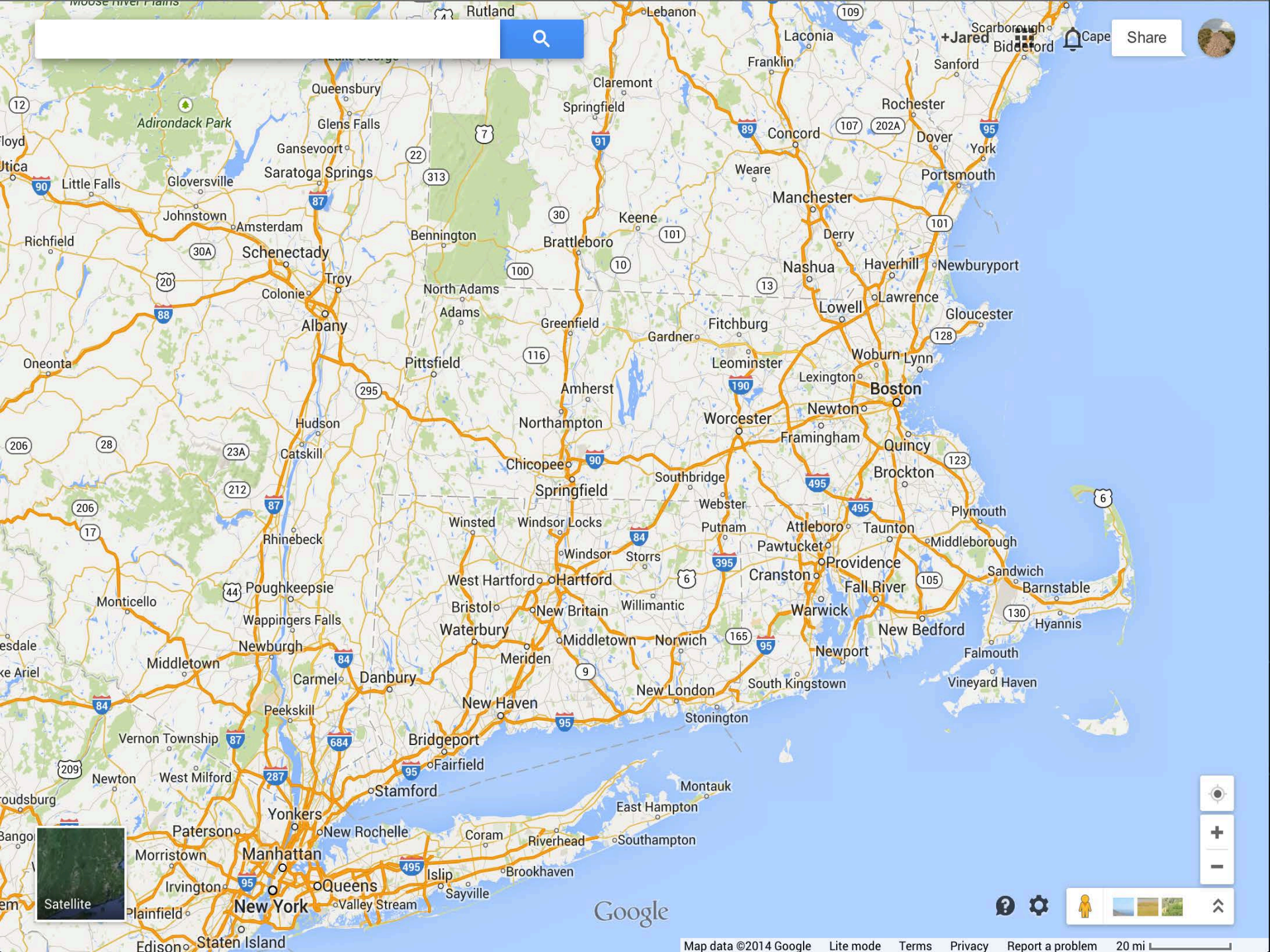
Share
Cape
Rutland
Lebanon
Laconia
Jared
Scarborough
Biddeford
Sanford
Franklin
Claremont
Springfield
Rochester
Concord
Dover
York
Portsmouth
Weare
Manchester
Keene
Derry
Nashua
Haverhill
Newburyport
Lawrence
Lowell
Gloucester
Fitchburg
Gardner
Leominster
Woburn
Lynn
Lexington
Boston
Newton
Framingham
Worcester
Quincy
Brockton
Plymouth
Attleboro
Taunton
Middleborough
Pawtucket
Providence
Cranston
Fall River
Sandwich
Barnstable
Hyannis
New Bedford
Warwick
Newport
Falmouth
Vineyard Haven
South Kingstown
New London
Stonington
Norwich
Middletown
Willimantic
New Britain
Hartford
West Hartford
Windsor
Storrs
Windsor Locks
Winsted
Putnam
Southbridge
Webster
Springfield
Chicopee
Northampton
Amherst
Greenfield
Adams
North Adams
Bennington
Brattleboro
Pittsfield
Albany
Troy
Schenectady
Colonie
Saratoga Springs
Gansevoort
Glens Falls
Queensbury
Adirondack Park
Gloversville
Johnstown
Amsterdam
Little Falls
Richfield
Oneonta
Utica
Hudson
Catskill
Rhinebeck
Poughkeepsie
Wappingers Falls
Newburgh
Middletown
Monticello
Waterbury
Meriden
Danbury
Carmel
Peekskill
New Haven
Bridgeport
Fairfield
Stamford
Vernon Township
Newton
West Milford
Yonkers
Paterson
New Rochelle
Morristown
Manhattan
Irvington
Queens
New York
Valley Stream
Plainfield
Staten Island
Edison
Sayville
Islip
Brookhaven
Coram
Riverhead
Southampton
East Hampton
Montauk
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Map data ©2014 Google
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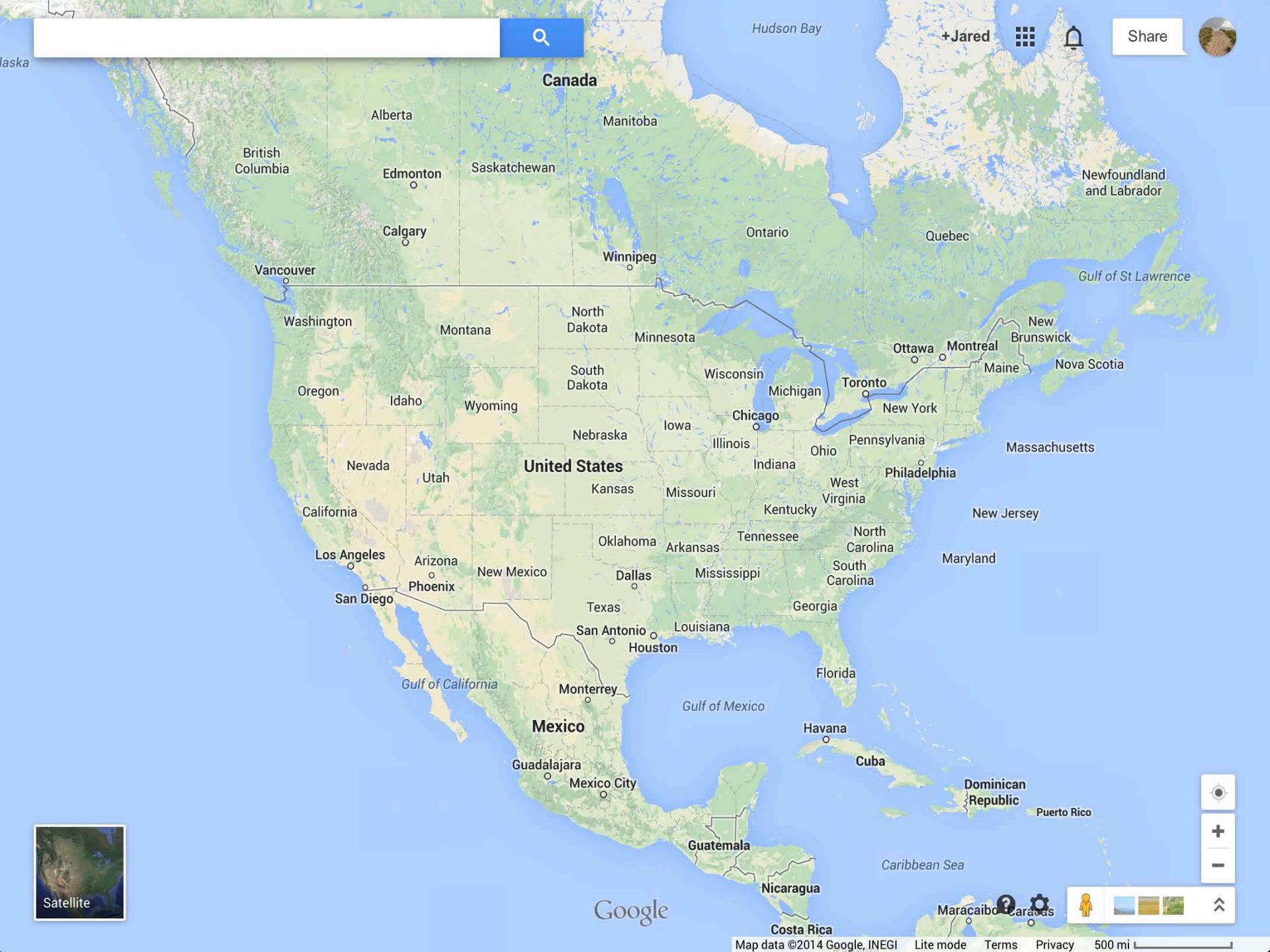
Hudson Bay
+Jared
Share
Canada
Alberta
Manitoba
British Columbia
Edmonton
Saskatchewan
Newfoundland and Labrador
Calgary
Ontario
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Winnipeg
Vancouver
Gulf of St Lawrence
Washington
Montana
North Dakota
Minnesota
New Brunswick
Ottawa
Montreal
Maine
Nova Scotia
South Dakota
Wisconsin
Toronto
Oregon
Idaho
Wyoming
Michigan
New York
Chicago
Iowa
Nebraska
Illinois
Pennsylvania
Ohio
Massachusetts
Nevada
Utah
United States
Indiana
Philadelphia
Kansas
Missouri
West Virginia
California
Kentucky
New Jersey
Oklahoma
Arkansas
Tennessee
North Carolina
Los Angeles
Arizona
New Mexico
Dallas
Mississippi
South Carolina
Maryland
Phoenix
San Diego
Texas
Georgia
San Antonio
Louisiana
Houston
Florida
Gulf of California
Monterrey
Gulf of Mexico
Mexico
Havana
Cuba
Guadalajara
Mexico City
Dominican Republic
Puerto Rico
Guatemala
Caribbean Sea
Nicaragua
Maracaibo
Caracas
Costa Rica
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1:15 PM
Save
Insects
Report Image
GPS location
Latitude : 42.307955
Longtitude : -72.505917
Accuracy : 2 meters
Amount
Images
Video
Details
Map
Report

training


1:15 PM
Insects
Asian Longhorned Beetle
Anoplophora glabripennis
Species Details
The Asian Longhorned Beetle is approximately 1 to 1½ inches in length and can be seen from summer through the fall months. Its shiny black exterior has numerous well-defined white spots along it that can sometimes be yellowish. The feet and legs of this species appear bluish in color. Their distinctive antennas are banded alternate white and black and are at least as long as its entire body.
Images
Video
Details
Map
Report

training

materials

HABITAT

materials

FEATURES

materials

C
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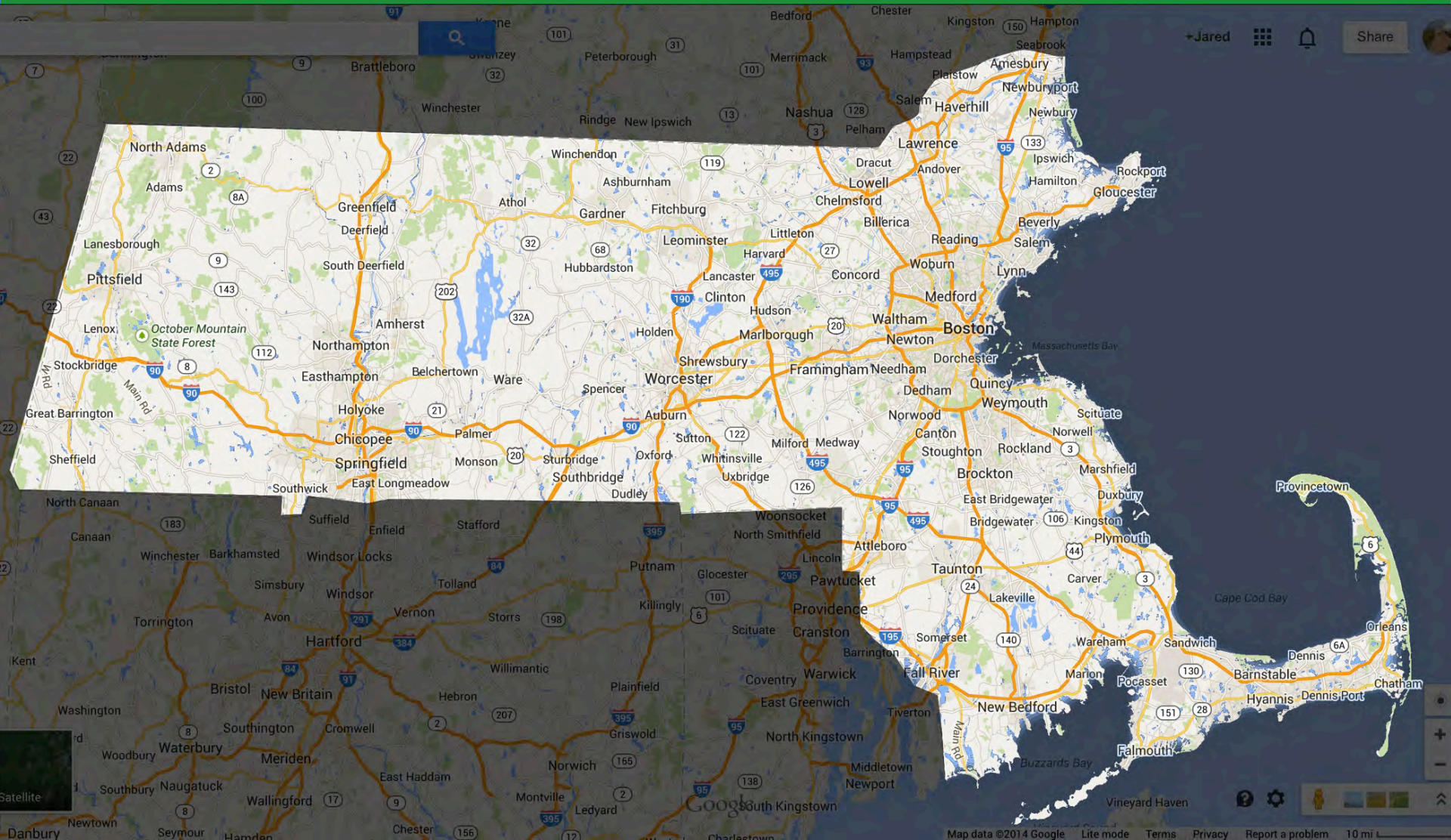
materials

NATIVES

Goldspotted Oak Borer

(Agrilus auroguttatus)

The experiment



The experiment

The experiment

76 total volunteers *(**529** total submissions)*

3 groups

n = 19

n = 24

n = 33

hypothesis

1st

2nd

3rd

results

ID Difficulty	Species	In-Person	Video	Text/Images
Easy	Autumn Olive	76%	86%	84%
	Japanese Knotweed	97%	98%	84%
	Multiflora Rose	98%	96%	98%
Difficult	Exotic Honeysuckles	57%	60%	46%
	Glossy Buckthorn	100%	89%	75%
Total Mean	*all species*	92%	92%	81%

results

	A	B	C	D	E	F
1	ID	Subject	User	Location	Date	Correct
2	3061105	Japanese knotweed	001	Hampshire County, Massachusetts	20-Sep-13	1
3	3061106	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
4	3061107	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
5	3061108	multiflora rose	001	Hampshire County, Massachusetts	20-Sep-13	1
6	3061109	multiflora rose	001	Hampshire County, Massachusetts	20-Sep-13	1
7	3061112	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	0
8	3061113	multiflora rose	001	Hampshire County, Massachusetts	20-Sep-13	1
9	3061114	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
10	3061115	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
11	3061116	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
12	3061117	multiflora rose	001	Hampshire County, Massachusetts	20-Sep-13	1
13	3061118	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
14	3061121	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
15	3061122	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
16	3061123	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
17	3061124	multiflora rose	001	Hampshire County, Massachusetts	20-Sep-13	1
18	3061125	autumn olive	001	Hampshire County, Massachusetts	20-Sep-13	0
19	3065005	multiflora rose	001	Franklin County, Massachusetts	29-Sep-13	1
20	3062309	Japanese knotweed	002	Hampshire County, Massachusetts	23-Sep-13	1
21	3064795	Japanese knotweed	002	Hampshire County, Massachusetts	27-Sep-13	1
22	3064804	autumn olive	002	Hampshire County, Massachusetts	27-Sep-13	1
23	3064805	multiflora rose	002	Hampshire County, Massachusetts	27-Sep-13	1
24	3064806	multiflora rose	002	Hampshire County, Massachusetts	27-Sep-13	1
25	3064807	multiflora rose	002	Hampshire County, Massachusetts	27-Sep-13	1
26	3061207	bush honeysuckles (exotic)	002	Hampshire County, Massachusetts	22-Sep-13	0
27	3061208	multiflora rose	002	Hampshire County, Massachusetts	22-Sep-13	1
28	3061209	multiflora rose	002	Hampshire County, Massachusetts	22-Sep-13	1
29	3061210	autumn olive	003	Hampshire County, Massachusetts	22-Sep-13	1
30	3061211	autumn olive	003	Hampshire County, Massachusetts	22-Sep-13	1
31	3062344	glossy buckthorn	003	Hampshire County, Massachusetts	23-Sep-13	1
32	3045128	glossy buckthorn	004	Middlesex County, Massachusetts	9-Jul-13	1
33	3045158	glossy buckthorn	004	Middlesex County, Massachusetts	9-Jul-13	1
34	3045584	glossy buckthorn	004	Franklin County, Massachusetts	14-Jul-13	1
35	3058774	Japanese knotweed	004	Franklin County, Massachusetts	3-Aug-13	1
36	3060248	Japanese knotweed	004	Franklin County, Massachusetts	2-Sep-13	1
37	3060644	glossy buckthorn	004	Essex County, Massachusetts	11-Sep-13	1
38	3061134	Japanese knotweed	004	Berkshire County, Massachusetts	20-Sep-13	1
39	3064984	glossy buckthorn	004	Franklin County, Massachusetts	29-Sep-13	1

Correct ID Score

16/18 = 89%

n < 5

results

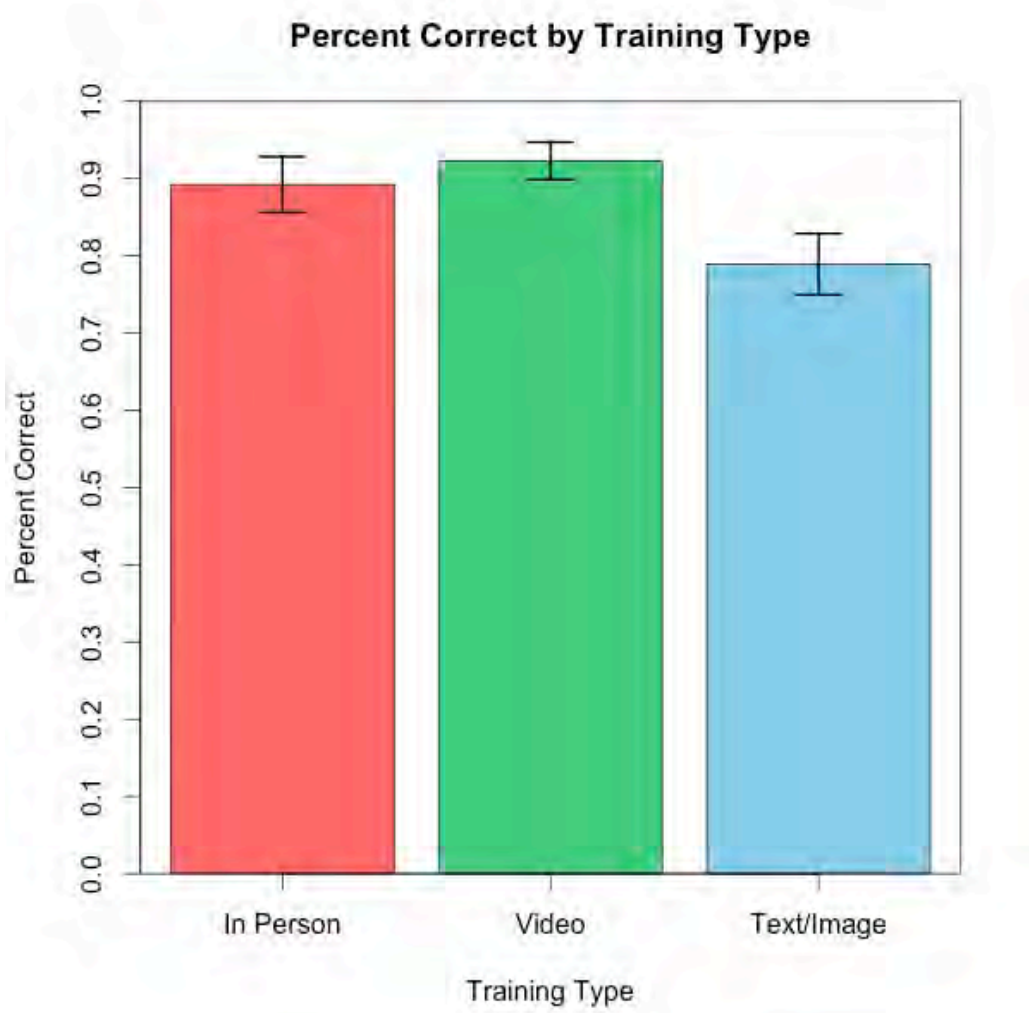
	A	B	C	D	E	F
1	ID	Subject	User	Location	Date	Correct
2	3061105	Japanese knotweed	001	Hampshire County, Massachusetts	20-Sep-13	1
3	3061106	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
4	3061107	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
5	3061108	multiflora rose	001	Hampshire County, Massachusetts	20-Sep-13	1
6	3061109	multiflora rose	001	Hampshire County, Massachusetts	20-Sep-13	1
7	3061112	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	0
8	3061113	multiflora rose	001	Hampshire County, Massachusetts	20-Sep-13	1
9	3061114	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
10	3061115	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
11	3061116	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
12	3061117	multiflora rose	001	Hampshire County, Massachusetts	20-Sep-13	1
13	3061118	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
14	3061121	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
15	3061122	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
16	3061123	glossy buckthorn	001	Hampshire County, Massachusetts	20-Sep-13	1
17	3061124	multiflora rose	001	Hampshire County, Massachusetts	20-Sep-13	1
18	3061125	autumn olive	001	Hampshire County, Massachusetts	20-Sep-13	0
19	3065005	multiflora rose	001	Franklin County, Massachusetts	29-Sep-13	1
20	3062309	Japanese knotweed	002	Hampshire County, Massachusetts	23-Sep-13	1
21	3064795	Japanese knotweed	002	Hampshire County, Massachusetts	27-Sep-13	1
22	3064804	autumn olive	002	Hampshire County, Massachusetts	27-Sep-13	1
23	3064805	multiflora rose	002	Hampshire County, Massachusetts	27-Sep-13	1
24	3064806	multiflora rose	002	Hampshire County, Massachusetts	27-Sep-13	1
25	3064807	multiflora rose	002	Hampshire County, Massachusetts	27-Sep-13	1
26	3061207	bush honeysuckles (exotic)	002	Hampshire County, Massachusetts	22-Sep-13	0
27	3061208	multiflora rose	002	Hampshire County, Massachusetts	22-Sep-13	1
28	3061209	multiflora rose	002	Hampshire County, Massachusetts	22-Sep-13	1
29						
30						
31						
32	3045128	glossy buckthorn	004	Middlesex County, Massachusetts	9-Jul-13	1
33	3045158	glossy buckthorn	004	Middlesex County, Massachusetts	9-Jul-13	1
34	3045584	glossy buckthorn	004	Franklin County, Massachusetts	14-Jul-13	1
35	3058774	Japanese knotweed	004	Franklin County, Massachusetts	3-Aug-13	1
36	3060248	Japanese knotweed	004	Franklin County, Massachusetts	2-Sep-13	1
37	3060644	glossy buckthorn	004	Essex County, Massachusetts	11-Sep-13	1
38	3061134	Japanese knotweed	004	Berkshire County, Massachusetts	20-Sep-13	1
39	3064984	glossy buckthorn	004	Franklin County, Massachusetts	29-Sep-13	1

14

17

25

results



	A	B	C
1	Text/Image	Video	In-person
2	0.91	1.00	1.00
3	0.89	1.00	1.00
4	0.94	1.00	0.89
5	0.75	0.83	0.93
6	0.93	1.00	1.00
7	0.54	0.83	1.00
8	1.00	0.83	0.67
9	1.00	1.00	1.00
10	1.00	1.00	0.80
11	0.57	1.00	1.00
12	1.00	0.80	0.60
13	0.67	1.00	1.00
14	0.50	0.60	0.60
15	0.67	1.00	1.00
16	0.83	1.00	
17	0.33	1.00	
18	1.00	0.80	
19	1.00		
20	0.20		
21	0.80		
22	0.80		
23	0.60		
24	0.80		
25	1.00		
26	1.00		

results

Analysis of Variance (One-Way)

Summary

Groups	*Sample size*	*Sum*	*Mean*	*Variance*
Text/Image	25	19.73	0.79	0.05
Video	17	15.7	0.92	0.01
In-person	14	12.49	0.89	0.02

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*p-level*	*F crit*
Between Groups	0.21	2	0.1	3.07	**0.05**	4.22
Within Groups	1.79	53	0.03			
Total	2.00	55				

results


1:15 PM
Insects
Asian Longhorned Beetle
Anoplophora glabripennis
Species Details
The Asian Longhorned Beetle is approximately 1 to 1½ inches in length and can be seen from summer through the fall months. Its shiny black exterior has numerous well-defined white spots along it that can sometimes be yellowish. The feet and legs of this species appear bluish in color. Their distinctive antennas are banded alternate white and black and are at least as long as its entire body.
Images
Video
Details
Map
Report

VS


1:15 PM
Done
2:04
-0:18

results

Analysis of Variance (One-Way)

Summary

Groups	*Sample size*	*Sum*	*Mean*	*Variance*
Text/Image	25	19.73	0.79	0.05
Video	17	15.7	0.92	0.01

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*p-level*	*F crit*
Between Groups	0.18	1	0.18	4.97	**0.03**	5.87
Within Groups	1.47	40	0.04			
Total	1.65	41				

results


1:15 PM
Insects
Asian Longhorned Beetle
Anoplophora glabripennis
Species Details
The Asian Longhorned Beetle is approximately 1 to 1½ inches in length and can be seen from summer through the fall months. Its shiny black exterior has numerous well-defined white spots along it that can sometimes be yellowish. The feet and legs of this species appear bluish in color. Their distinctive antennas are banded alternate white and black and are at least as long as its entire body.
Images
Video
Details
Map
Report

VS


NCCAT

results

Analysis of Variance (One-Way)

Summary

Groups	*Sample size*	*Sum*	*Mean*	*Variance*
Text/Image	25	19.73	0.79	0.05
In-person	14	12.49	0.89	0.02

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*p-level*	*F crit*
Between Groups	0.1	1	0.1	2.26	**0.14**	5.91
Within Groups	1.57	37	0.04			
Total	1.66	38				

results

VS

results

Analysis of Variance (One-Way)

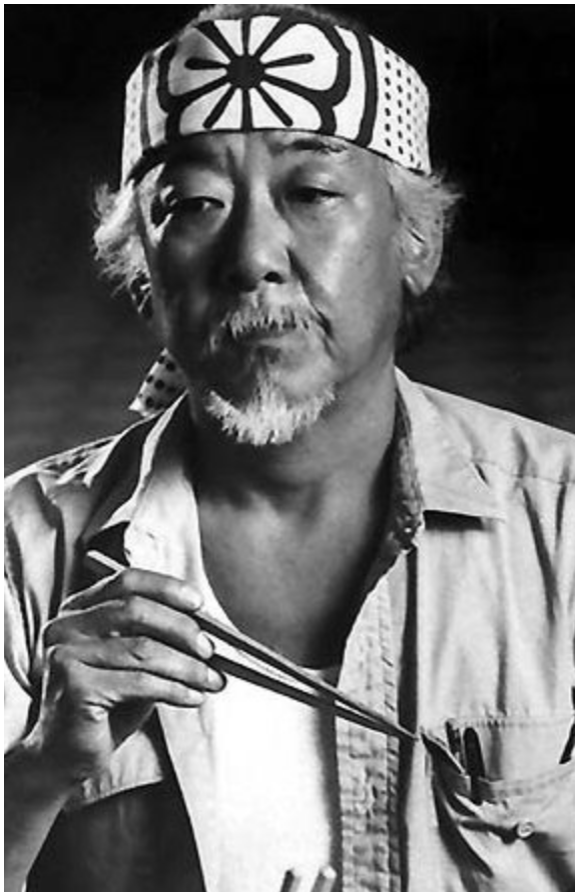
Summary

Groups	*Sample size*	*Sum*	*Mean*	*Variance*
Video	17	15.7	0.92	0.01
In-person	14	12.49	0.89	0.02

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*p-level*	*F crit*
Between Groups	0.01	1	0.01	0.39	**0.54**	6.06
Within Groups	0.55	29	0.02			
Total	0.01	1	0.01	0.39		

results

Beginner	Intermediate	Advanced
		

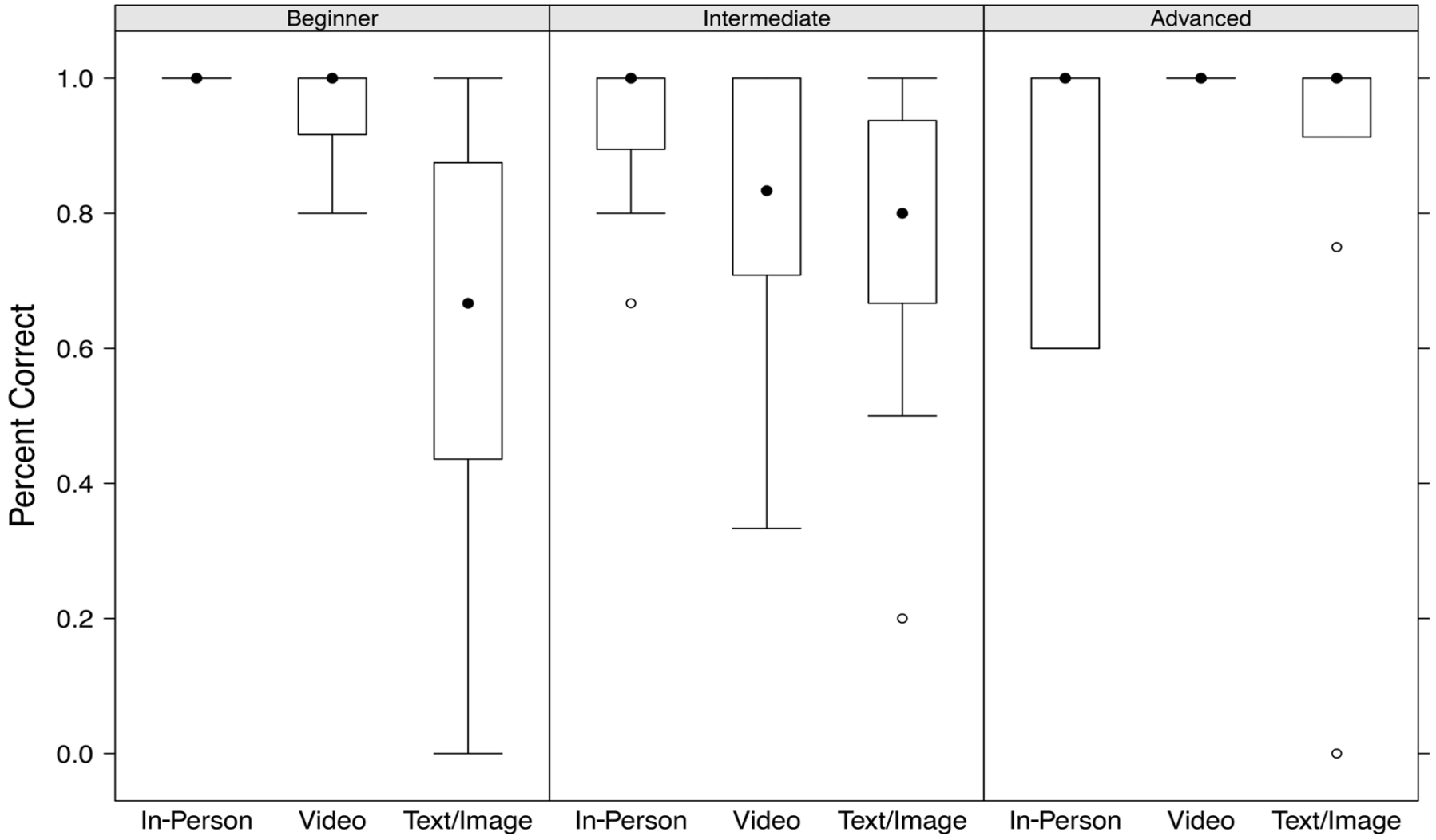
results

Generalized Linear Model

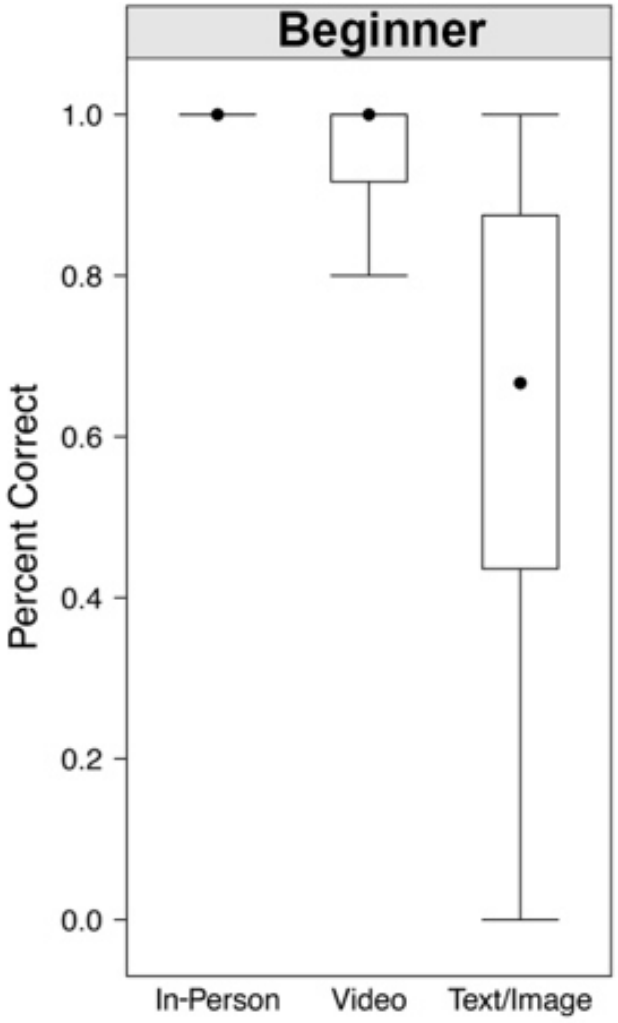
% Correct ~
Training * Experience

```
> Mglm1= glm (cbind(numCorrect, numFail) ~ factor(Train.typ)*factor(Plant.id),
+ family=binomial, data=PeopleResults)
> summary(Mglm1)

Call:
glm(formula = cbind(numCorrect, numFail) ~ factor(Train.typ) *
    factor(Plant.id), family = binomial, data = PeopleResults)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.9282  -0.6992   0.1905   1.0165   3.0747

Coefficients:
                                 Estimate Std. Error z value Pr(>|z|)
(Intercept)                        0.7282     0.3254   2.238 0.025240 *
factor(Train.typ)2                 2.7217     0.7885   3.452 0.000557 ***
factor(Train.typ)3                18.1162  1935.6071   0.009 0.992532
factor(Plant.id)2                  0.7006     0.3998   1.753 0.079671 .
factor(Plant.id)3                  1.4690     0.5144   2.856 0.004296 **
factor(Train.typ)2:factor(Plant.id)2  -2.5973     0.8865  -2.930 0.003391 **
factor(Train.typ)3:factor(Plant.id)2 -16.8941  1935.6072  -0.009 0.993036
factor(Train.typ)2:factor(Plant.id)3  13.6715  1407.7355   0.010 0.992251
factor(Train.typ)3:factor(Plant.id)3 -18.0888  1935.6072  -0.009 0.992544
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 146.28  on 75  degrees of freedom
Residual deviance: 107.54  on 67  degrees of freedom
AIC: 197.23

Number of Fisher Scoring iterations: 16
```

results

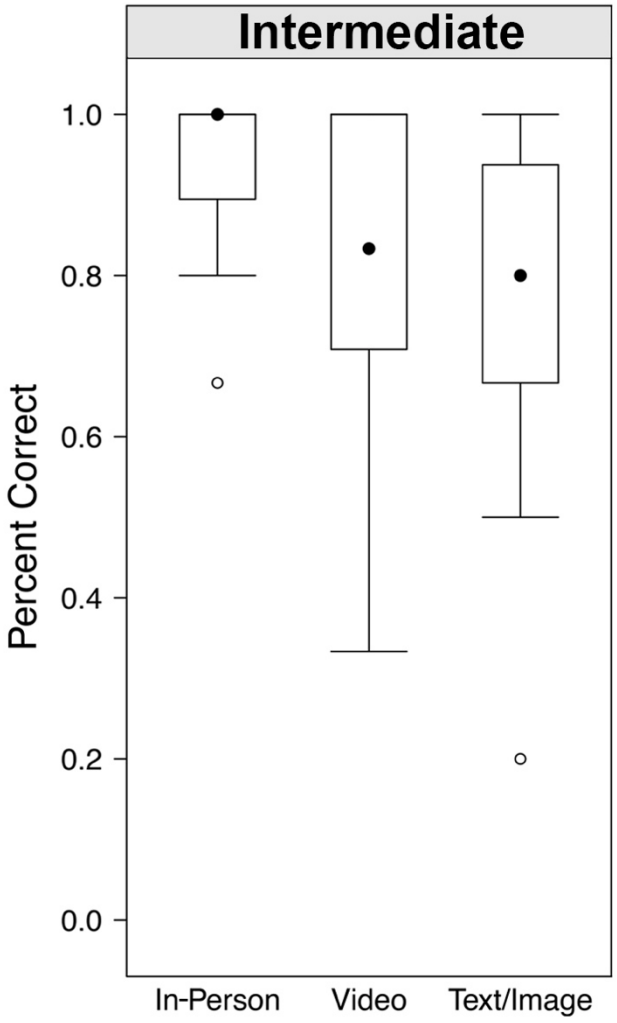

Beginner
Intermediate
Advanced
Percent Correct
1.0
0.8
0.6
0.4
0.2
0.0
In-Person
Video
Text/Image
In-Person
Video
Text/Image
In-Person
Video
Text/Image

results



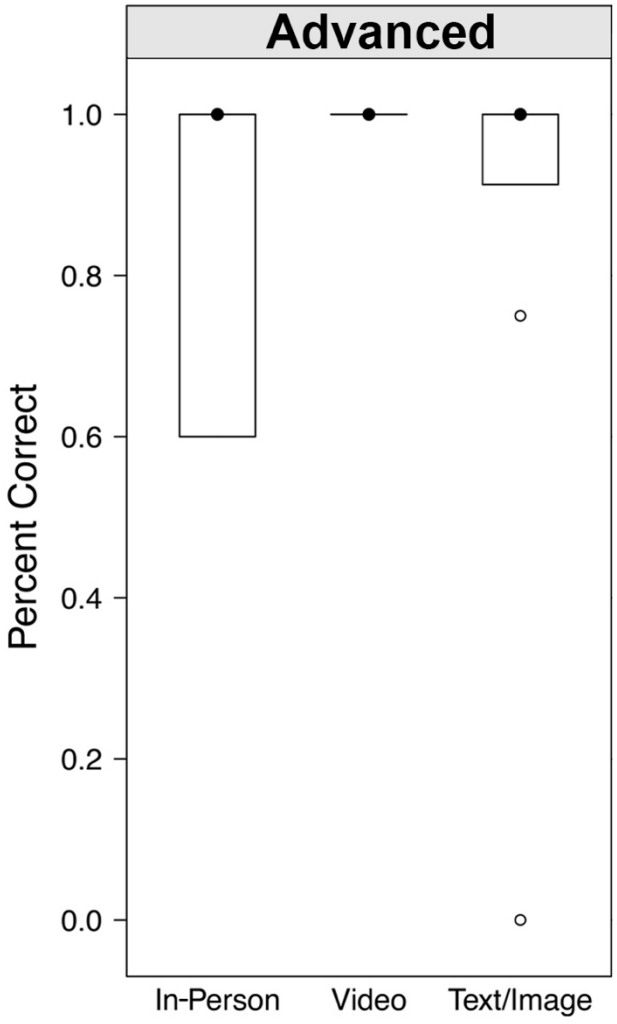

```
> Mglm.begin= glm (cbind(numCorrect, numFail) ~ factor(Train.typ),
+ family=binomial, data=PeopleResults[PeopleResults$Plant.id==1,])
> summary(Mglm.begin)

Call:
glm(formula = cbind(numCorrect, numFail) ~ factor(Train.typ),
    family = binomial, data = PeopleResults[PeopleResults$Plant.id ==
        1, ])

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.7072  -1.1049   0.1652   0.5847   3.0747

Coefficients:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)         0.7282     0.3254   2.238 0.025240 *
factor(Train.typ)2  2.7217     0.7885   3.452 0.000557 ***
factor(Train.typ)3 19.1162  3191.2766   0.006 0.995221
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 46.959  on 15  degrees of freedom
Residual deviance: 23.999  on 13  degrees of freedom
AIC: 42.827

Number of Fisher Scoring iterations: 17
```

results




```
> Mglm.inter= glm (cbind(numCorrect, numFail) ~ factor(Train.typ),
+ family=binomial, data=PeopleResults[PeopleResults$Plant.id==2,])
> summary(Mglm.inter)

Call:
glm(formula = cbind(numCorrect, numFail) ~ factor(Train.typ),
    family = binomial, data = PeopleResults[PeopleResults$Plant.id ==
        2, ])

Deviance Residuals:
     Min        1Q    Median        3Q       Max
-2.92824  -0.66254   0.05152   1.33170   1.73239

Coefficients:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)         1.4289     0.2322   6.155 7.52e-10 ***
factor(Train.typ)2  0.1245     0.4050   0.307   0.7586
factor(Train.typ)3  1.2220     0.4820   2.535   0.0112 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 64.915  on 40  degrees of freedom
Residual deviance: 56.858  on 38  degrees of freedom
AIC: 111.97

Number of Fisher Scoring iterations: 5
```

results




```
> Mglm.exp= glm (cbind(numCorrect, numFail) ~ factor(Train.typ),
+ family=binomial, data=PeopleResults[PeopleResults$Plant.id==3,])
> summary(Mglm.exp)

Call:
glm(formula = cbind(numCorrect, numFail) ~ factor(Train.typ),
    family = binomial, data = PeopleResults[PeopleResults$Plant.id ==
        3, ])

Deviance Residuals:
     Min        1Q    Median        3Q       Max
-2.14597   0.00016   0.64919   1.01982   1.97506

Coefficients:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)         2.1972     0.3984   5.515 3.49e-08 ***
factor(Train.typ)2 17.3933  2320.9631   0.007    0.994
factor(Train.typ)3  0.0274     0.6601   0.042    0.967
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 30.853  on 18  degrees of freedom
Residual deviance: 26.681  on 16  degrees of freedom
AIC: 42.436

Number of Fisher Scoring iterations: 17
```

conclusions

1st

1st

3rd

next steps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next steps

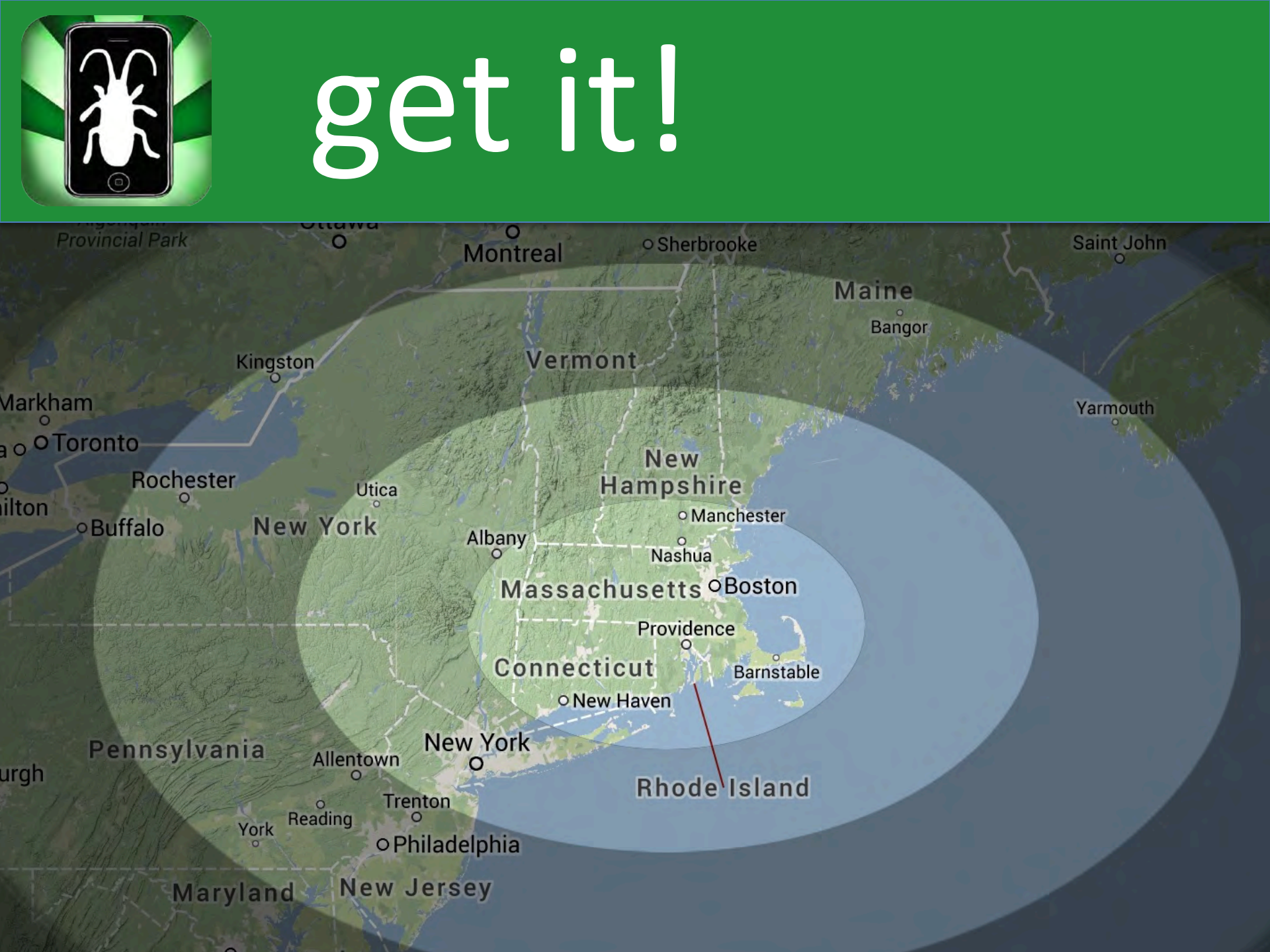

1”


Hemlock Woolly Adelgid
(Adelges tsugae)
0:46 / 1:59


Emerald Ash Borer
(Agrilus planipennis)
0:50 / 2:42


0:35 / 2:33

next steps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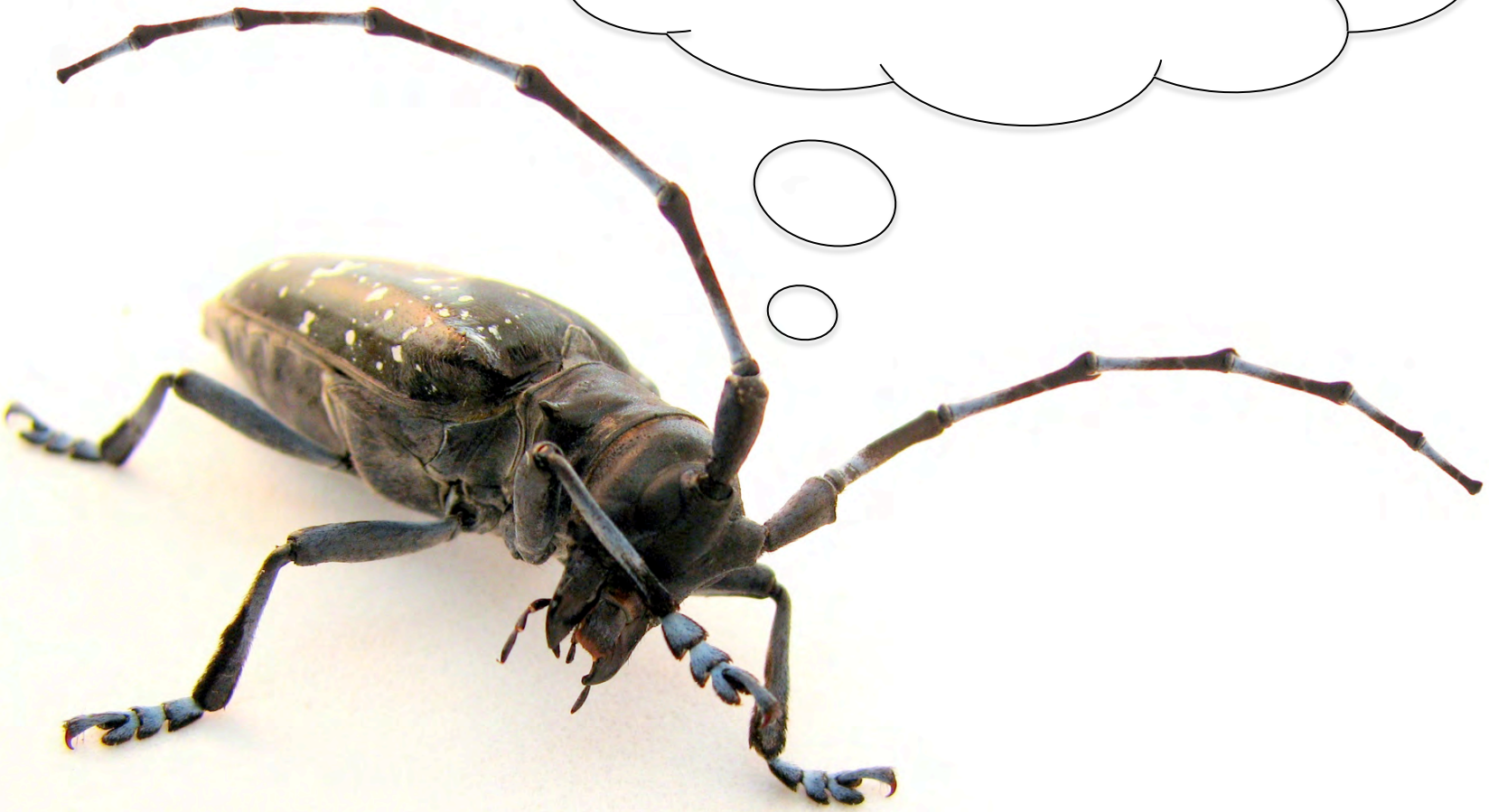
Outsmart Invasive Species project is funded through a grant (11-DG-11420004-294) from the Northeastern Area State and Private Forestry program, USDA Forest Service. Database management and app development by Chuck Bargeron, University of Georgia.

Questions?



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