

Assessing Hunter Opinion and Economic Aspects of Sika Deer Hunting and Management on Maryland's Eastern Shore

Katie Delph, Environmental Economics Intern
Dr. Scott Knoche, Director
Kaitlynn Ritchie, Senior Research Associate
Morgan State University
Patuxent Environmental and Aquatic Research Laboratory
August 4th, 2022



Recreational Hunting in Maryland

- 88,000 Hunters spent 1.4 million days hunting in 2011
- \$264 million in hunting related expenditures in 2011
 - \$104 million in trip-related expenditures
- \$401 million annual revenue that supports 4,500 jobs and generates \$128 million in salaries, wages, and business income



Introduction to Sika deer

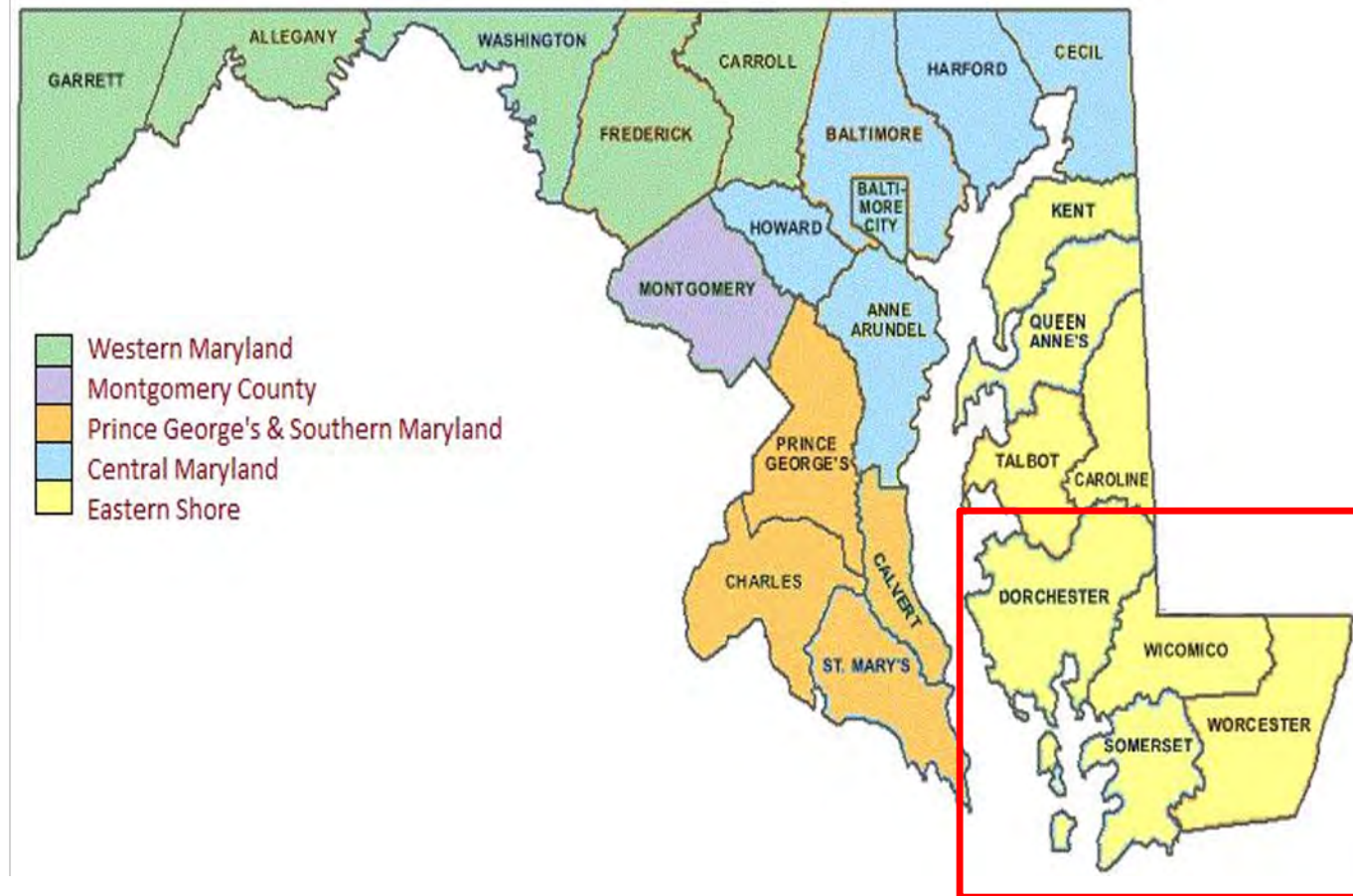
- What is a Sika Deer?
 - Non-native species
 - Member of elk family
 - Prefers marsh and wetland
- Limited to Delmarva Peninsula and Maryland's Eastern Shore
- Unique recreational hunting experience gaining recognition
- Only biological and ecological scientific literature



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Sika Deer Background

- Estimated 5,425 Sika deer hunters
- 63,560 estimated days of effort in 2021-2022 hunting season
- Estimated 15,000 Sika Deer in 2018
- 89% of hunter's effort and harvest occurred in Dorchester
 - 4th lowest median income
 - 3rd highest poverty rate



Project Goals and Objectives

- Develop and deploy hunter survey
- Estimate Sika deer hunting total annual expenditures
- Better understand hunter opinion on sika deer management
- Develop report for MDDNR on our key findings and management implications



Survey Methods

- Data obtained from hunter survey at the conclusion of the 2021-2022 hunting season
- Survey instrument developed with MDDNR and pretested with 10 hunters
- Sample frame of 96,157 resident and non-resident hunters
- Email survey to hunters that purchased license in past three years (2019, 2020, and 2021) and provide email to DNR
- One follow up email sent one week after initial invitation
- Received 3,655 viable responses



SIKA DEER HUNTING AND MANAGEMENT

MARYLAND DEPARTMENT OF NATURAL RESOURCES WILDLIFE AND HERITAGE SERVICE

February 2022

Are you a sika deer hunter? If yes – please complete this survey!

The [sika deer](#) is a popular game species on Maryland's Lower Eastern Shore that attracts interest from resident and nonresident hunters. Understanding sika deer hunter perspectives is critical to the effective management of this game species. The Maryland Department of Natural Resources and Morgan State University have developed a sika deer hunter survey to obtain this understanding.

If you have ever hunted sika deer in Maryland, no matter how long ago, please complete this survey.

By taking a few minutes to complete this survey you will be helping state managers to enhance Maryland hunting opportunities.

If you have ever hunted sika deer in Maryland, your input is essential to ensure the accuracy of our results. Your answers are strictly confidential. The survey takes about 10 minutes to complete.

Please click [here](#) to take the survey.

If you have any questions, please email sikadeersurvey.dnr@maryland.gov.

Thank you for your time.

Sincerely,

Maryland Department of Natural Resources and Morgan State University

Stata Applications

- What is Stata?
 - Statistical software program for data manipulation and visualization
 - Versatile way to write commands and record changes made to datasets
- Data cleaning
 - Renaming variables
 - Replacing missing data



```
1 import excel using C:\Users\delph\Downloads\sika\01.xlsx, first
2 save C:\Users\delph\Downloads\sika\01original.dta, replace
3
4 use C:\Users\delph\Downloads\sika\01original.dta
5 append using C:\Users\delph\Downloads\sika\02.dta C:\Users\delph\
6 Downloads\sika\03.dta C:\Users\delph\Downloads\sika\04.dta
7
8 clonevar Q44_total_nightsaway19_20_n = Q44_total_nightsaway19_20
9
10 order Q44_total_nightsaway19_20_n, before (Q44_total_nightsaway19_20)
11
12 destring Q44_total_nightsaway19_20_n, replace
13
14 replace Q44_total_nightsaway19_20 = "7" if Q44_total_nightsaway19_20 ==
15 "7 or more"
16
17 drop ABTest
18
19 rename P Q5_firearm_weapon_season
20
21 rename Q Q5_Muzzleloader_weapon_season
22
23 gen Q26_Public_PrivateLandType = Q26_publicland_archerytrip+
24 Q26_privateland_archerytrip
```


Data Analysis

- Hunter opinion on regulations
 - Antler point Restrictions
 - Bag limits
- Estimations of:
 - Total annual spending
 - Public and private land hunters
 - Number of trips

19. Sika Deer Antler Point Restrictions

	Totally unacceptable	Unacceptable	Slightly unacceptable	Neutral	Slightly acceptable	Acceptable	Perfectly acceptable
Keep regulation of <u>no antler point minimum</u> for all stags	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Change regulation to a <u>minimum of 2 points on 1 antler</u> for all stags	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Change regulation to a <u>minimum of 3 points on 1 antler</u> for all stags	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. For this trip, please enter the dollar amount of your share of expenditures for each category below. Please provide your best estimate. If you made no expenditures for a category, please enter a "0".

Round-trip vehicle transportation costs (ex: fuel, tolls)	<input type="text"/>
Public transportation (ex: airplane, car/RV rental)	<input type="text"/>
Food & drink from restaurants/bars	<input type="text"/>
Food & drink from grocery or convenience stores	<input type="text"/>
Lodging (ex: motels, cabins, lodges, camping)	<input type="text"/>
Guide fees or package fees	<input type="text"/>
Public land use or access fees (excluding leases)	<input type="text"/>
Other	<input type="text"/>

Antler point restrictions

Question with regulation	Totally unacceptable	Unacceptable	Slightly unacceptable	Neutral	Slightly acceptable	Acceptable	Perfectly acceptable
(Status Quo) No antler point min for stags	13.17%	11.75%	11.02%	20.59%	5.44%	16.71%	21.32%

Bag limit

Question with regulation	Totally unacceptable	Unacceptable	Slightly unacceptable	Neutral	Slightly acceptable	Acceptable	Perfectly acceptable
(Status Quo) Keep bag limit at 3 stags	10.59%	11.18%	9.72%	19.75%	5.87%	21.94%	20.96%

Hunting Trips and Expenditures

- \$11.6 million total annual spending
 - \$7.7 million in private land total spending
 - \$3.9 million in public land total spending
- Asked about spending in county hunted
 - A majority of hunters reported spending at least 75% of trip expenditure in county hunted
- ~ 2,800 public land hunters took 10,400 trips
- ~3,400 Private land hunters took 15,800 trips



Photo credits by
<https://www.daybreakfishing.com/hunting/sika-deer/>

Discussion

- Opportunity to explore new regulations viewed as more acceptable than status quo
- Over \$10 million in annual trip expenditure; most stays within county hunted
 - Potential for economic significance
- Private land and Archery season had highest expenditures

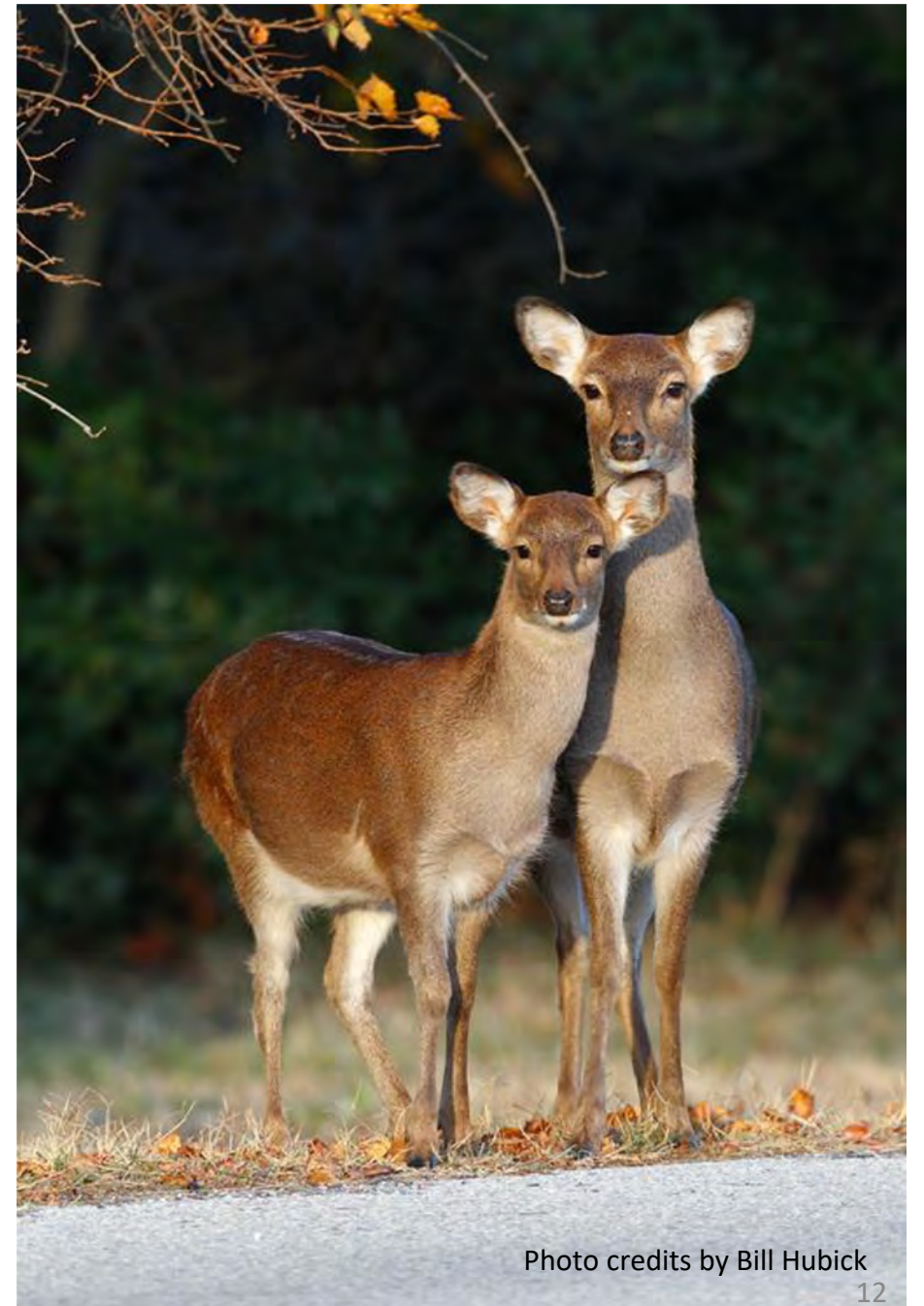


Photo credits by Bill Hubick

Acknowledgements

- MSU PEARL
 - Mentors: Dr. Scott Knoche (Director), Kaitlynn Ritchie (Researcher)
 - Amanda Knobloch (Coordinator)
- Maryland Department of Natural Resources
 - Game Mammal Section Leader: Brian Eyler
- Chesapeake Research Consortium
 - Randy Rowel (Director of C-StREAM program)
- Sika Deer



Photo credits by <https://www.shoremonthly.com/post/2018/12/07/sika-deer-the-interesting-origins-of-one-of-maryland-s-most-elusive-mammals>

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Questions?



Katie Delph, Environmental Economics Intern
C-StREAM Intern
kadel2@morgan.edu

Thank you!



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