

# CENTER FOR PUBLIC ISSUES EDUCATION

IN AGRICULTURE AND NATURAL RESOURCES

## Final Report

Public Opinions of Endangered and  
Invasive Species in Florida

Sandra Anderson, Cody Gentry, & Dr. Ricky Telg



## For More Information

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## Executive Summary

Public Opinion of Endangered and Invasive Species in Florida  
August 2016

### Introduction

Managing invasive species and endangered species populations in a way that maintains biodiversity and ecological health are key issues for a tourism-heavy and natural-resource rich state like Florida. This survey captured responses from 539 Florida residents in August 2016 to explore the Florida public's opinions, attitudes, and knowledge about (1) general endangered species and invasive species topics, (2) how to prioritize efforts related to conservation, and (3) management practices for endangered and invasive species populations.

### Findings

- Seventy-two percent of respondents considered environmental conservation to be highly or extremely important. Compared to nine other Florida issues, environmental conservation ranked sixth out of 10.
- Eighty-two percent of respondents were likely or very likely to vote to support land conservation programs and seventy-eight percent of respondents were likely or very likely to vote for candidates who support environmental conservation.

### Endangered Species

- Few participants (16% or less) considered themselves either highly or extremely knowledgeable about threats to endangered species, how to prevent endangerment, and what species are currently endangered.
- Sixty-three percent of respondents believe the Endangered Species Act should be strengthened.
- Eighty-eight percent of respondents agreed or strongly agreed it is important to conserve fish, compared to 50% who agreed or strongly agreed it is important to conserve microorganisms.
- When asked whether they thought Florida state leaders and agencies had the right amount of influence to impact policies affecting endangered species, respondents indicated they thought Florida citizens had too little influence (53%), and 43% indicated they thought political leaders in Florida had too much influence.
- Only 38% percent considered county regulatory agencies to have the right amount of influence.
- Eighty-five percent of respondents would support or strongly support imposing fines on those who harm endangered species in Florida, and 82% would support or strongly support imposing fines on those who harm endangered species' habitats in Florida.
- Seventy-five percent of respondents would support or strongly support restricting residential development of areas that are habitat for endangered species, and 76% would support or strongly support restricting commercial development of the same areas.
- Seventy-seven percent of respondents would support a 1% sales tax increase to protect endangered species. Forty percent of respondents would support a 5% sales tax increase for the same purpose.
- Seventy-five percent of respondents would support or strongly support the state of Florida purchasing endangered species' habitat so it can be protected.
- Eighty-one percent of respondents would somewhat support or strongly support the state acquiring and protecting large parcels of lands to maintain a proper habitat for the long-term survival of endangered species.
- Fifty-six percent of respondents would like to learn more about the types of species that are endangered.



## Invasive Species

- Sixty percent of respondents reported they felt they were either not knowledgeable or only slightly knowledgeable about the topic of invasive species.
- Sixty-four percent of respondents considered themselves not knowledgeable or only slightly knowledgeable about the types of invasive species living in Florida, and 63% were not knowledgeable or only slightly knowledgeable about how they could prevent invasive species from entering Florida.
- Half of the respondents believed “we should use management strategies to control invasive species only in areas that are most affected,” while 41% believed “we should do all we can to completely eradicate invasive species.”
- Seventy-four percent of respondents supported preventing invasive species from entering Florida in the future.
- Sixty-three percent of respondents would support a 1% sales tax increase to prevent and eradicate invasive species in Florida, but only 30% would support a 5% sales tax increase for the same purpose.
- Sixty-nine percent of respondents indicated they thought the penalties for owning and selling Burmese pythons as pets should be strengthened.
- Fifty-one percent of respondents would like to learn about the types of species that are invasive.

## Background

Biodiversity and ecological health are key issues for a tourism-heavy and a natural-resource rich state like Florida. Maintaining and improving endangered species populations, along with preventing endangerment, are important public issues facing Florida residents. Additionally, heavy international travel, tourism, and the exotic pet industry have made invasive species a common topic in the news and an important environmental issue in Florida. This survey was designed to capture Florida residents’ opinions, attitudes, and knowledge about these two key issues - endangered and invasive species - and covers topics including:

- General knowledge about endangered and invasive species
- Attitudes towards prioritizing efforts to conserve species
- Attitudes towards prioritizing minimization of the impacts of invasive species
- Management practices relevant to endangered and invasive species overall
- Management practices relevant to specific endangered or invasive species

## Methods

In August 2016, an online survey was distributed to Florida residents using non-probability sampling. Qualtrics, a survey software company, distributed the online survey link to Florida residents, age 18 or older, resulting in 539 completed responses. To ensure the respondents were representative of the Florida population according to the 2010 U.S. Census (seen in Table 1), the data were weighted to balance their geographic location in the state, age, gender, and race/ethnicity (Kalton & Flores-Cervantes, 2003). Weighting procedures are commonly used in non-probability samples to compensate for selection, exclusion and non-participation biases (Baker et al., 2013), and as a result, can yield results comparable or, in some cases, better-than-standard probability-based samples (Abate, 1998; Twyman, 2008; Vavreck & Rivers, 2008). Public opinion research commonly utilizes non-probability samples to make population estimates (Baker et al., 2013).





The survey includes the Government Style Questionnaire developed by Green-Demers, Blanchard, Pelletier, and Béland (1994). For more detailed methods related to the Center for Public Issues Education (PIE Center) public opinion surveys, please refer to our website: [www.piecenter.com](http://www.piecenter.com).

*Table 1: Weighted demographics of survey respondents*

Demographic Category	%
<b>Gender</b>	
Male	48.3
Female	51.7
<b>Ethnicity</b>	
Hispanic	21.1
<b>Race</b>	
Native American	0.4
Multiracial	1.9
Other	3.2
Asian	2.5
African American	14.4
White	77.6
<b>Age</b>	
19 and younger	3.5
20-29 years	16.3
30-39 years	15.5
40-49 years	17.9
50-59 years	17.2
60-69 years	14.2
70-79 years	9.4
80 and older	6.2
<b>Rural Urban Continuum</b>	
Metro- Counties in metro areas of 1 million population or more	63.1
Metro- Counties in metro areas of 250,000 to 1 million population	25.7
Metro- Counties in metro areas of fewer than 250,000 population	4.8
Nonmetro- Urban population of 20,000 or more, adjacent to a metro area	3.5
Nonmetro- Urban population of 2,500 to 19,999, adjacent to a metro area	2.6
Nonmetro- Completely rural or less than 2,500 urban population, adjacent to a metro area	0.3



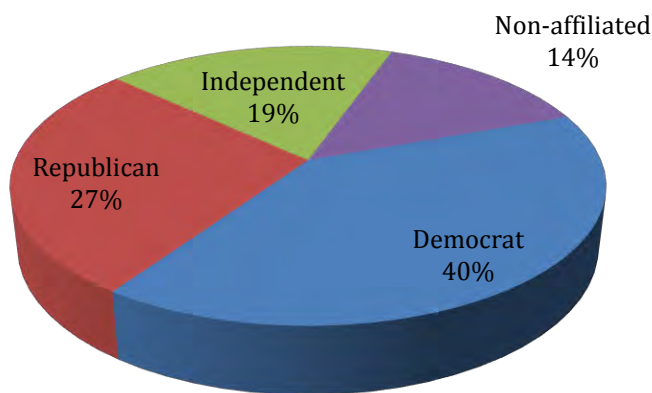
## Results

### Description of Respondents

#### Political Values and Affiliation

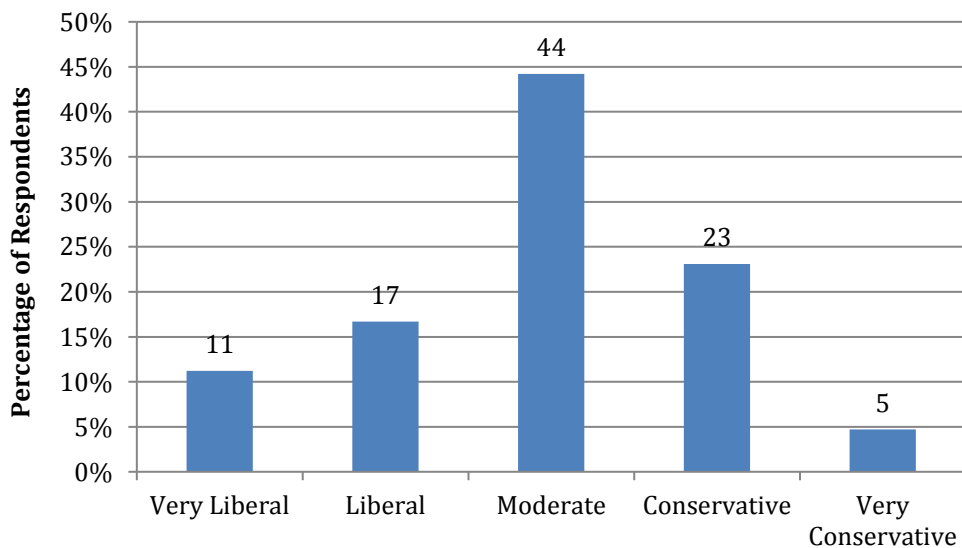
Forty percent of respondents affiliated politically as Democratic, 27% with Republican, and 19% as Independent (Figure 1).

*Figure 1: Political affiliation*



Forty-four percent of respondents considered themselves politically moderate (Figure 2).

*Figure 2: Political ideology*



#### Importance of Key Florida Issues

Respondents were asked to indicate how important they considered 10 different Florida issues. They were asked to classify the level of importance as a) not at all important, b) slightly important, c) fairly important, d) highly important, e) extremely important, or f) unsure. Table 2 displays the percentage of respondents who rated each



issue as extremely or highly important. Environmental conservation ranked 6<sup>th</sup>; 72 percent of respondents considered this to be a highly or extremely important issue. Health care and the economy ranked the highest (89% and 83%, respectively)

*Table 2: Importance level of Florida issues*

Florida Issue	% of respondents rating the issue as highly or extremely important
Health Care	89
Economy	83
Water	79
Public Education	77
Taxes	76
Environmental Conservation	72
Immigration	65
Food Production	60
Climate Change	60
Housing and Foreclosure	59

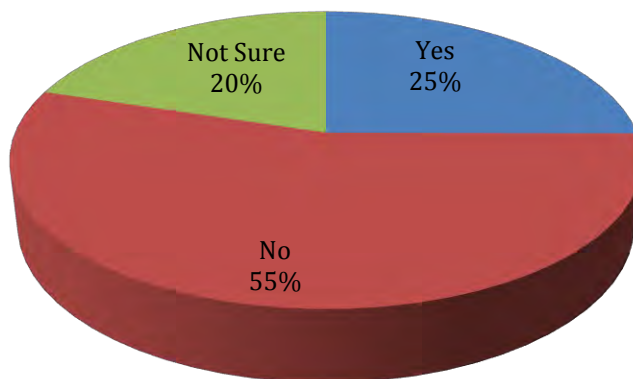
### Knowledge of Endangered Species

Respondents were asked a series of questions related to their knowledge regarding endangered species. This included questions regarding news consumption, general knowledge of what causes endangered species, and knowledge about policies which impact endangered species.

#### Endangered Species News Coverage and Interest

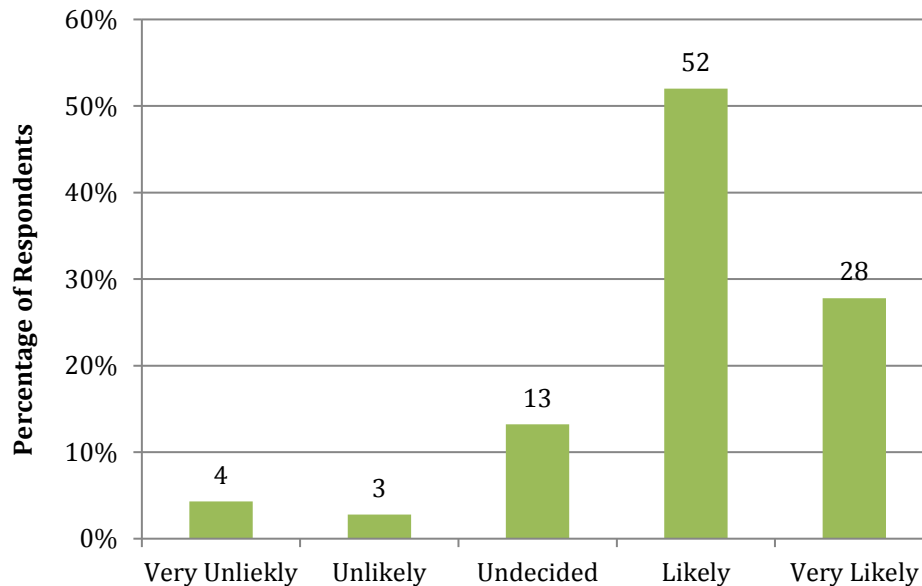
Respondents were asked whether they had seen anything related to endangered species in the news during the last month. Fifty-five percent responded “no,” 25% responded “yes,” and 20% were not sure (Figure 3).

*Figure 3: Endangered species news coverage*



Respondents were then asked how likely they would be to pay attention to a news story about endangered species. Eighty percent indicated they were likely or very likely to pay attention to an endangered species news story (Figure 4).



*Figure 4: Interest in news related to endangered species*

#### News coverage pertaining to endangered species

When respondents were asked what news coverage they had seen related to endangered species in the last month, almost 18% of respondents indicated seeing coverage pertaining to manatees (Table 3). All responses were coded and some respondents gave multiple answers. The following quotes are examples of the open-ended responses received with regard to this theme:

- “Concern over the safety of manatees in our state and coastal waters as to pollution of those waters.”
- “A mass amount of manatees in an area they haven’t been before.”
- “Green fungus that choked off air to manatee[s].”

Eleven percent of the respondents said they had seen coverage pertaining to Florida panthers. The following quotes are examples of the open-ended responses received with regard to this theme:

- “Florida panthers [are] getting killed on highways.”
- “2 Florida panthers killed [on the] same day last week.”
- “Exploration in more than 285 square kilometers, puts endangered panther [in harm’s way in] Florida state.”

Additionally, 10% of respondents said they had seen coverage on turtles, sea turtles, and gopher tortoises. The following quotes are examples of the open-ended responses received with regard to this theme:

- “An article about protecting turtles.”
- “... someone was caught stealing turtle eggs on a beach where they had been laid to hatch.”
- “Sea turtles nesting.”



**Table 3: News related to endangered species**

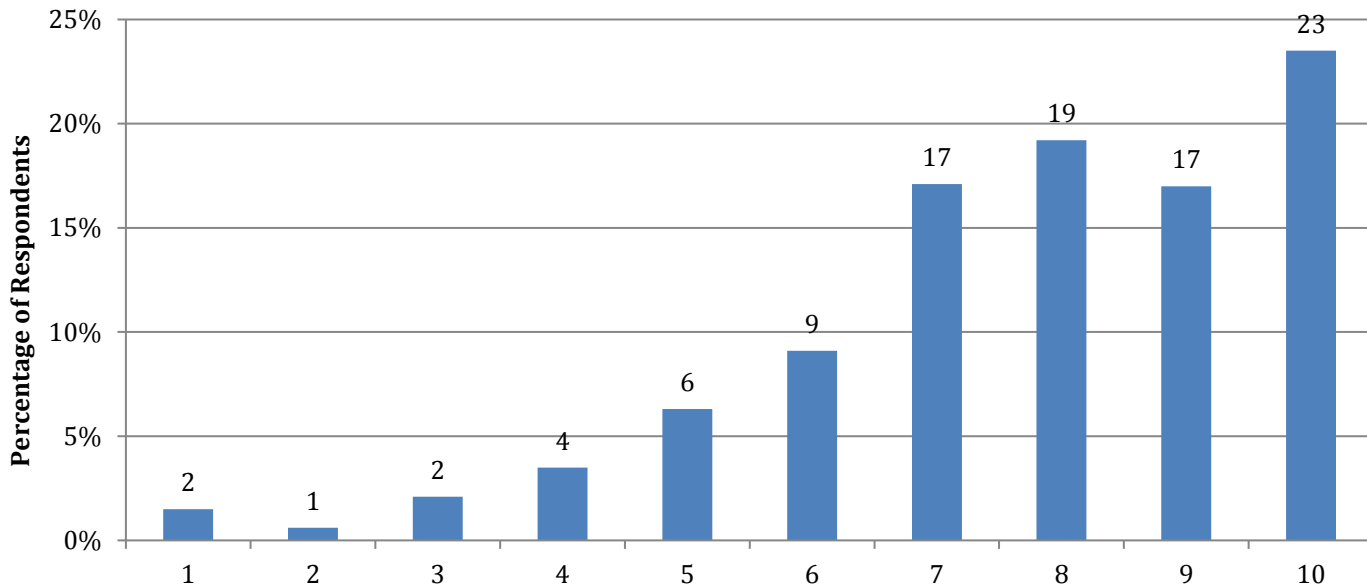
<b>News Coverage</b>	<b>%</b>
Manatees/decline of/effect of algae on manatees	17.6
Florida panthers/2 killed on the same day	11.3
Turtles/sea turtles/gopher tortoise	9.9
Birds	4.8
Alligator/crocodiles/attacks	4.6
Black bears/being hunted/hunt postponed	4.2
Algae problems South Florida	3.3
Whales/humpback whales	2.2
Endangered species in other countries	1.7
Lion Fish	1.4
Cougars	1.3
Treatment/abuse of animals	1.3
Endangered/protected animals getting killed at zoos	1.2
Tigers	1.2
Policies	1.1
Population of endangered species has increased	1.0
General endangered species in the Everglades	0.9
Animal Planet	0.8
Report by Florida Fish and Wildlife Conservation	0.8
Species are endangered due to human interference	0.8
Polar bears	0.7
Expanding list of endangered species	0.6
Panama crayfish becoming endangered	0.5
Animals coming off endangered list who should not be	0.5
Pythons	0.4
Chimpanzee	0.4
Coral reef in Keys	0.4
Discovery Channel	0.4
Fish/crustacean disappearing from Indian River Lagoon	0.4
Sustaining fisheries in South Florida	0.4
Changes in how species are considered endangered	0.4
Local government comprising more about endangered species	0.5
Endangered white lion cubs	0.4
Project delayed due to concern over snail kites	0.4
Miscellaneous	8.5
Don't know	4.9
No Answer	8.7
<b>Total</b>	<b>100.0</b>

### Concern about Endangered Species

Respondents were asked how concerned they were about endangered species in Florida and asked to rate their concern on a scale of 1-10 (1 being not concerned, and 10 being extremely concerned). Seventy-six percent of respondents indicated they were concerned with a rating of 7 or higher (Figure 5).



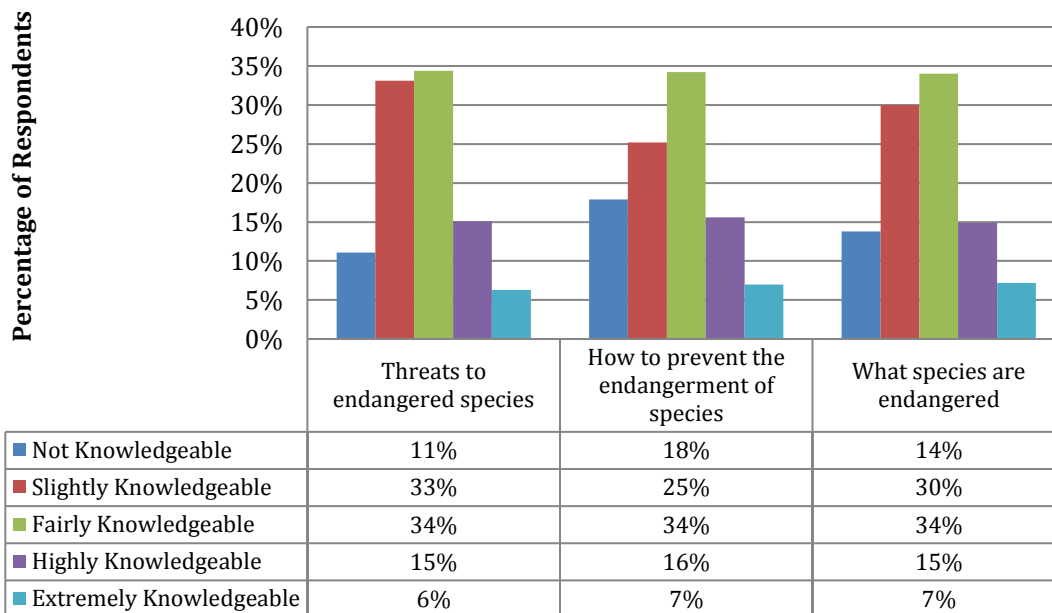
Figure 5: Concern about endangered species



Overall Knowledge of Endangered Species Topics

Next, respondents were asked to rate how knowledgeable they felt they were about endangered species topics (Figure 6). Respondents considered themselves equally “fairly knowledgeable” about threats to endangered species, how to prevent endangerment, and what species are endangered (34%). Few participants (23% or less) considered themselves either highly or extremely knowledgeable about these three topics.

Figure 6: Overall knowledge about endangered species



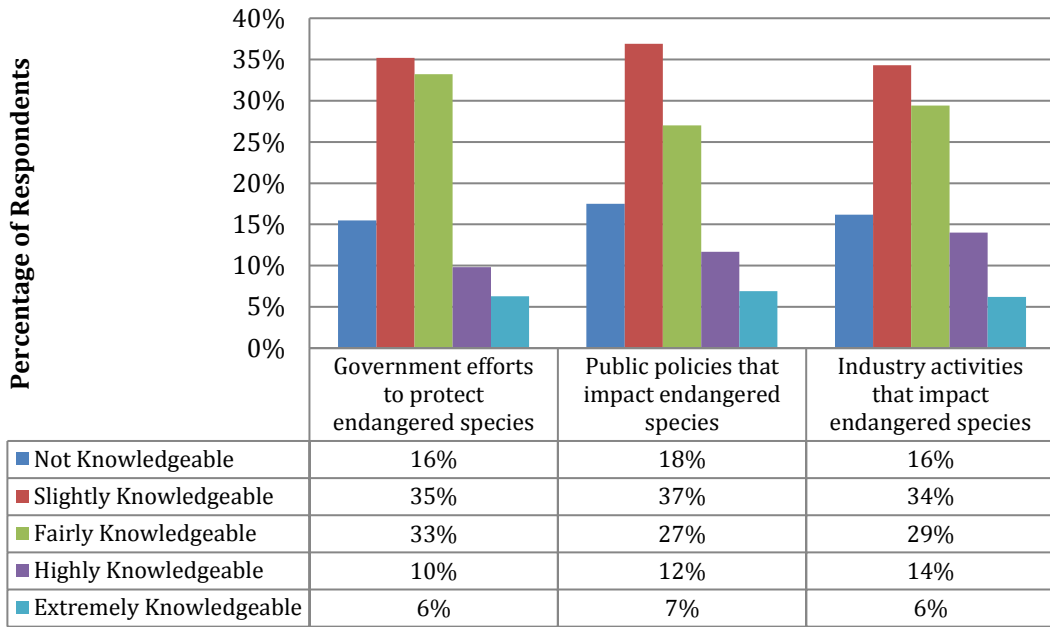
Knowledge of Policies Impacting Endangered Species

The majority of respondents considered themselves either “not knowledgeable” or only “slightly knowledgeable” about policies and activities which impact endangered species, including government efforts (51%), public policies



(55%), and industry activities (50%) (Figure 7). Few respondents (20% or less) considered themselves either highly or extremely knowledgeable on any of these topics.

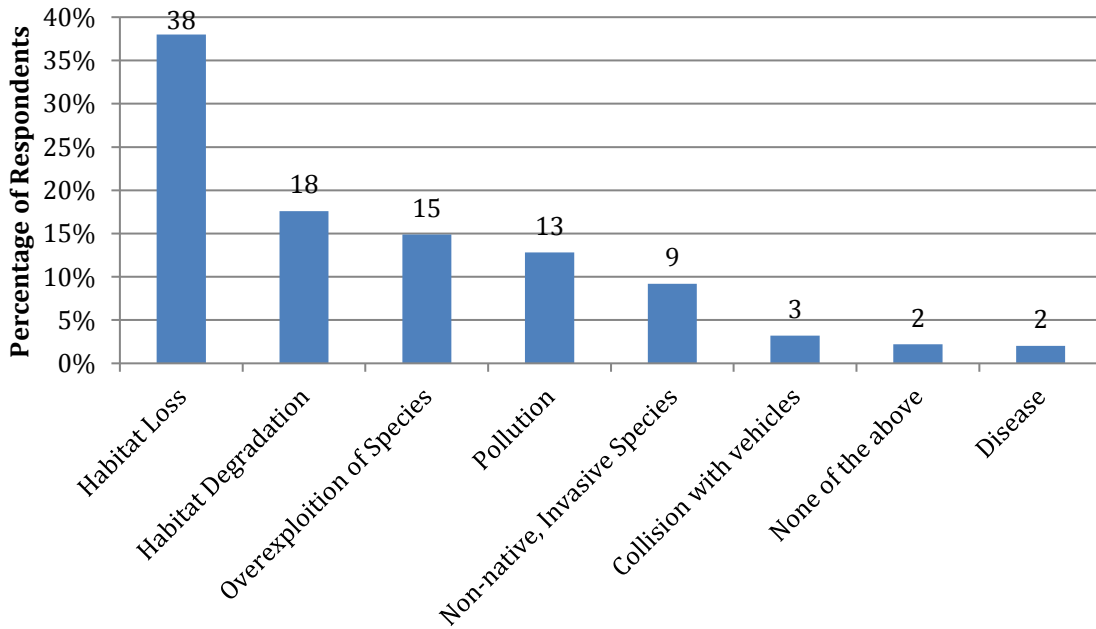
Figure 7: Knowledge of policies and activities impacting endangered species



Key Contributor to the Endangerment of Species

Respondents were asked to indicate the one main contributor they believed was the most important to species endangerment. Thirty-eight percent chose habitat loss and 18% chose habitat degradation (Figure 8).

Figure 8: Main contributor to species endangerment



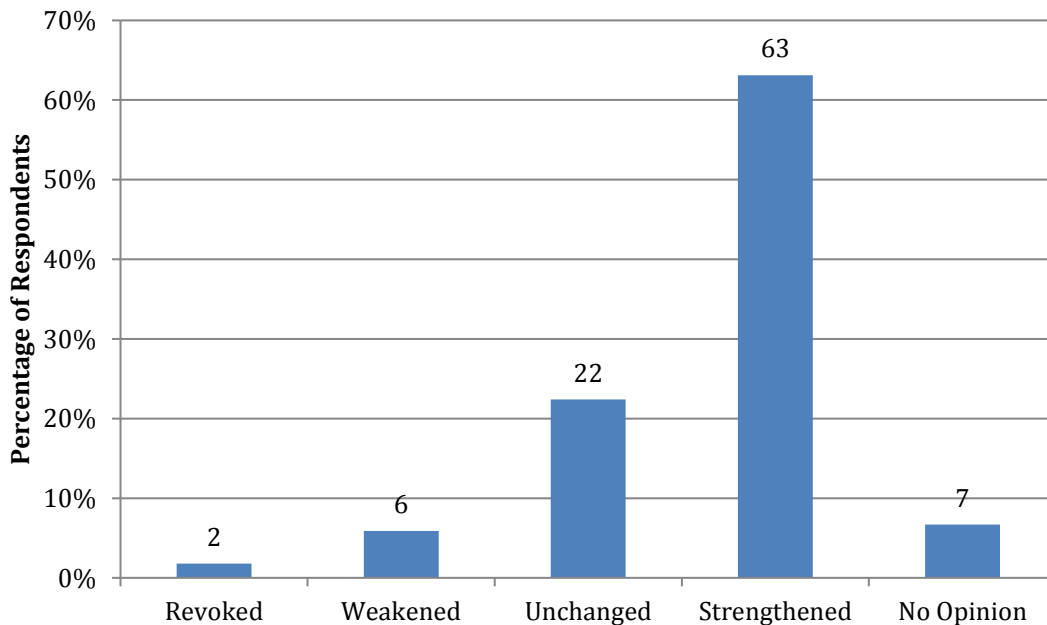
### Opinions Regarding Endangered Species

The next section of the survey asked participants a variety of questions regarding their opinions about endangered species, including the types of species which should be prioritized.

#### Changes to the Endangered Species Act

Respondents were told “The Endangered Species Act was enacted in 1973 to provide conservation for species that are endangered or threatened, as well as the conservation of their ecosystems. The U.S. Endangered Species Act should be a) revoked, b) weakened, c) unchanged, d) strengthened, or e) no opinion.” Sixty-three percent of respondents believed the Endangered Species Act should be strengthened (Figure 9).

*Figure 9: Opinions about the Endangered Species Act*



#### Conservation Attitudes towards Endangered Species

The next section of the survey included questions about the attitudes respondents had about conserving species and prioritizing species conservation efforts.

#### Conserving Types of Species

Respondents were asked to indicate how strongly they agreed that certain types of native species (not just endangered species) should be conserved. The levels of agreement ranged from 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, and 5 = *Strongly Agree*. Equal percentages of respondents (88%) agreed or strongly agreed fish and mammals should be conserved, followed by 87% who agreed or strongly agreed plants should be conserved (Table 4). The type of species with the lowest agreement was microorganisms, with 50% of respondents who agreed or strongly agreed this species should be conserved.





**Table 4: Conservation of species by type**

Type of species	% respondents who agreed or strongly agreed the species should be conserved
Fish	88
Mammals	88
Plants	87
Birds	85
Reptiles	74
Amphibians	69
Invertebrates	66
Microorganisms	50

**Prioritizing Conservation of Endangered Species**

Next, respondents were given a list of criteria that could be considered when prioritizing conservation efforts for endangered species. Respondents were asked to select any of the criteria on the list they would support when making decisions about conservation (Table 5). The majority of respondents indicated they would prioritize the importance of the species for maintaining the ecosystem (76%), the current urgency of the threat facing the species (68%), and the severity of the threat to the species (67%).

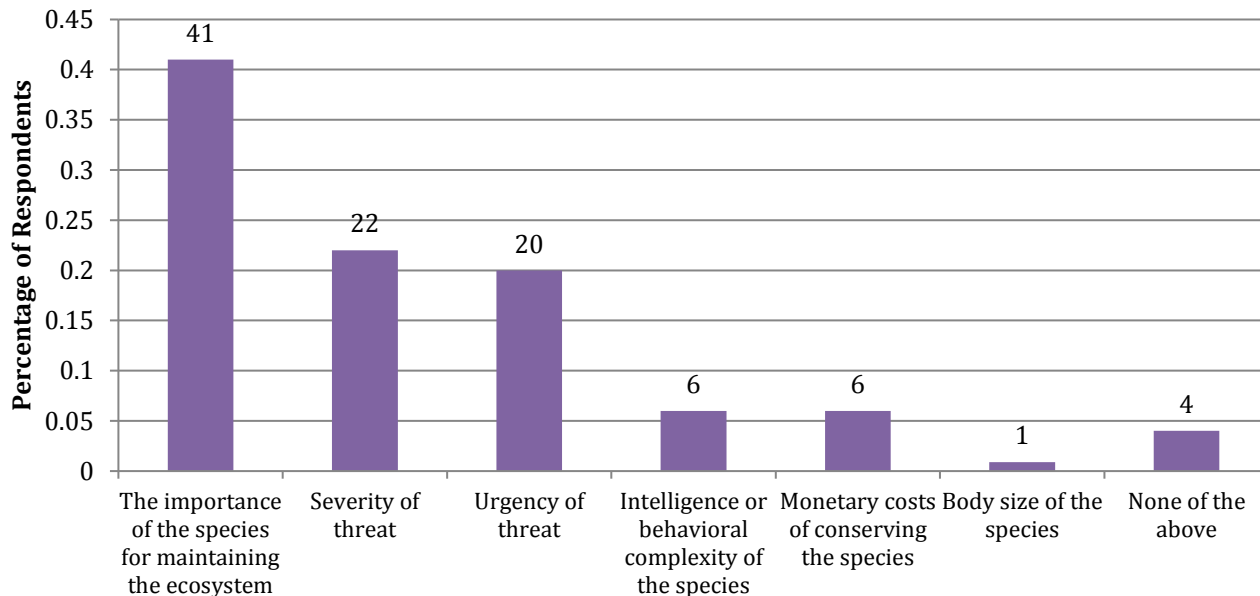
**Table 5: Criteria to consider when prioritizing species**

Criteria	%
The importance of the species for maintaining the ecosystem	76
Urgency of threat to the species	68
Severity of threat to the species	67
Monetary costs of preserving the species	37
Intelligence or behavioral complexity of the species	28
Body size of the species	18
Physical attractiveness of the species	15
None of the above	4

Out of the previous list, respondents were then asked to choose which of the seven criteria they thought was most important for government agencies to consider when prioritizing conservation efforts for endangered species. Forty-one percent of respondents chose “the importance of the species for maintaining the ecosystem,” followed by 22% who chose “urgency of the threat to the species” (Figure 10).



Figure 10: Most important criteria to consider when prioritizing species



### Endangered Species and Government Management

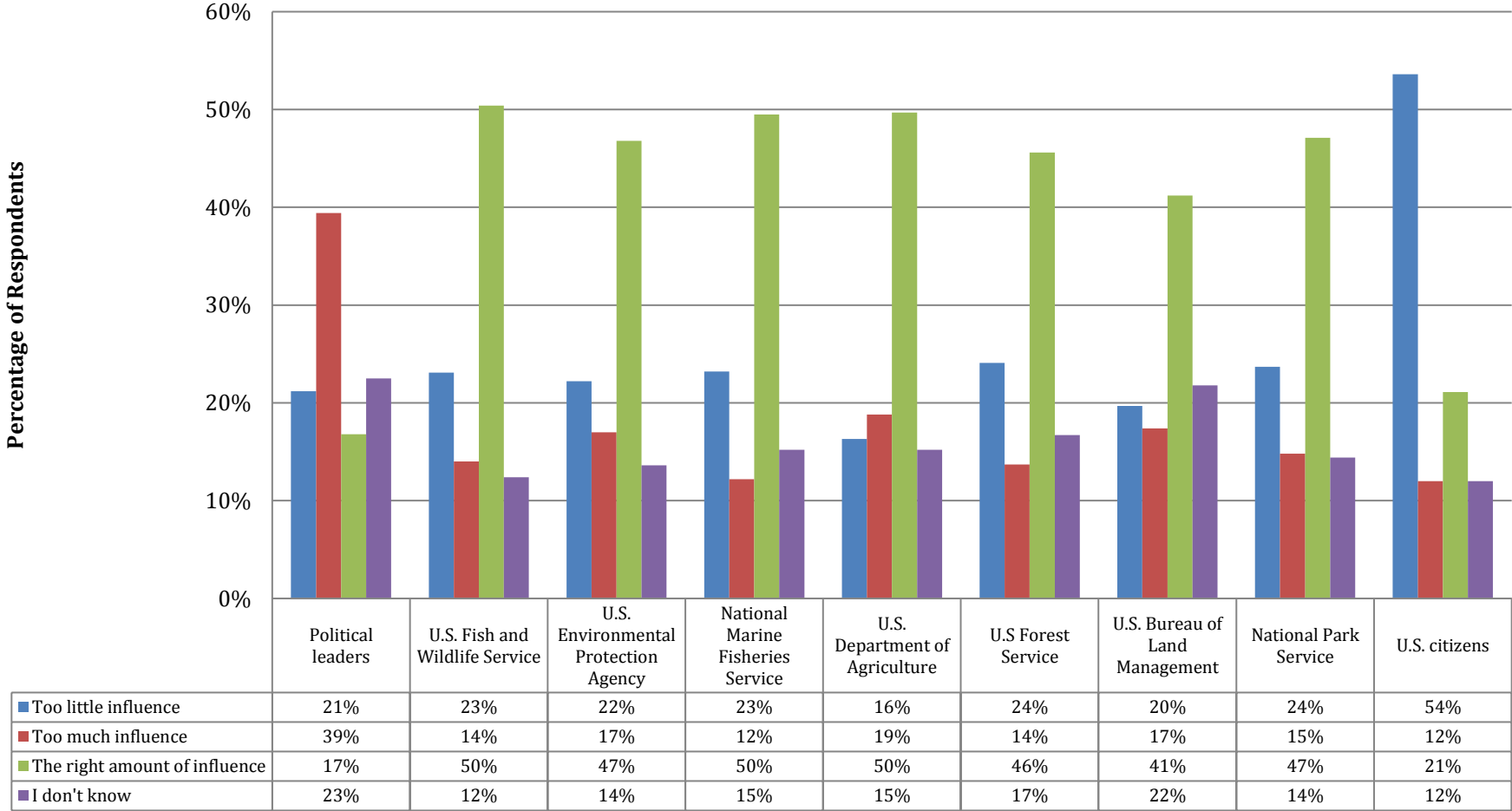
The survey asked respondents a series of questions about their attitudes towards national and state actors managing endangered species, as well as support for regulatory action to protect endangered species.

#### Attitudes towards the Influence of National Actors

Respondents were asked to indicate whether they felt a variety of national actors had too little influence, the right amount of influence, or too much influence on public policy impacting species diversity at the national level. They were also given an “I don’t know” option (Figure 11). Respondents thought U.S. citizens had too little influence (54%), and political leaders had too much influence (39%).



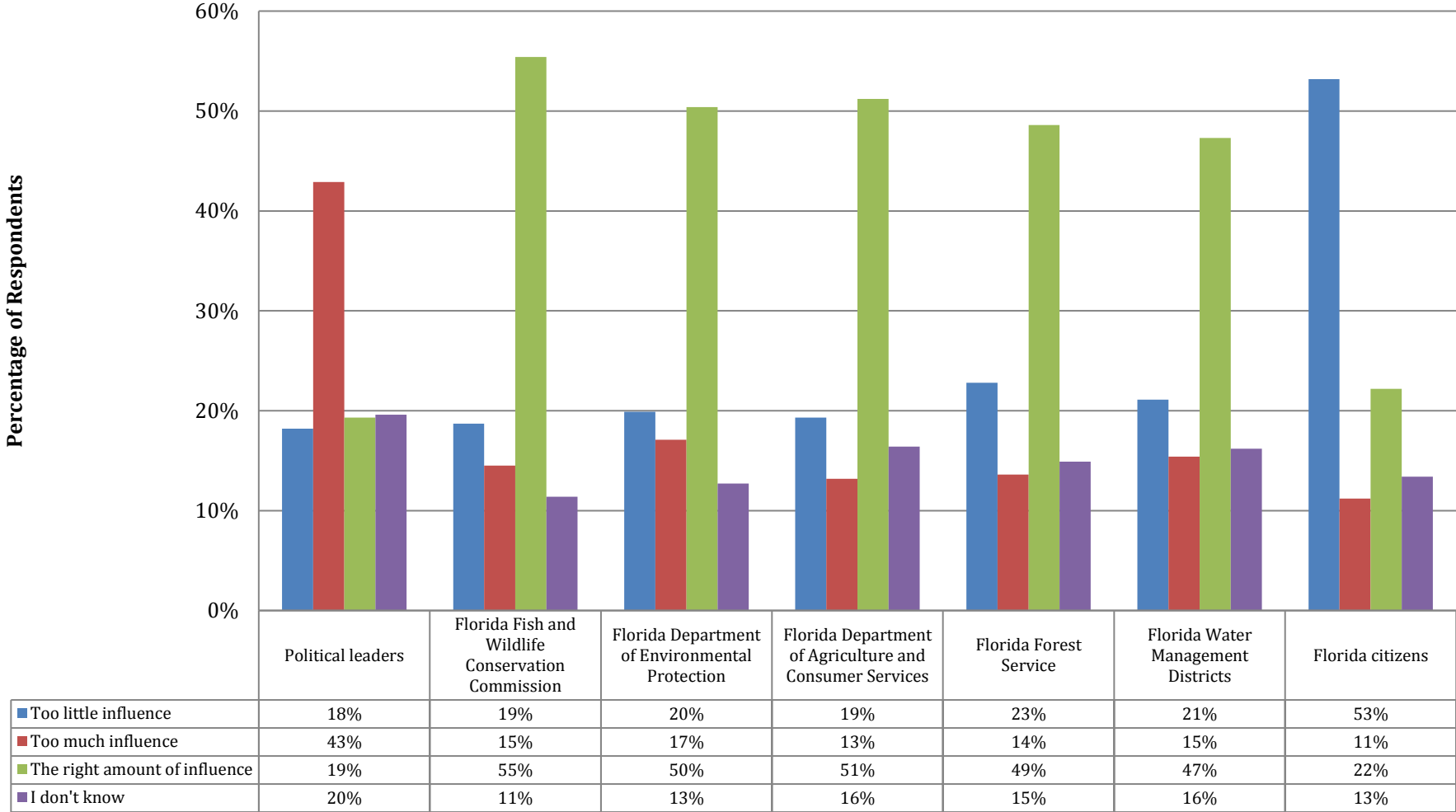
Figure 11: Influence of national actors on endangered species management



**Attitudes towards the Influence of State Actors**

The same question was asked about state actors in Florida (Figure 12). Responses followed a similar pattern to the national question, with respondents indicating they thought Florida citizens had too little influence (53%) and political leaders had too much (43%).

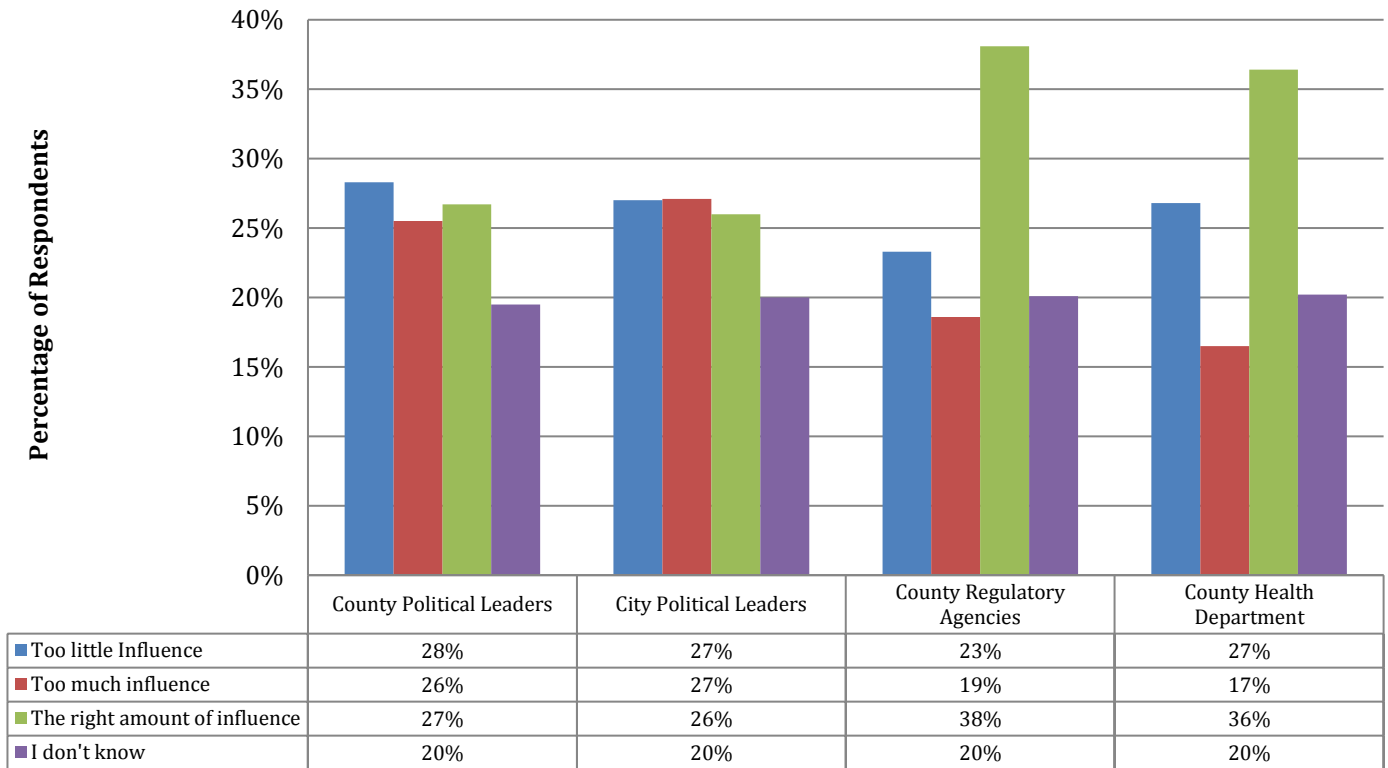
*Figure 12: Influence of state actors on endangered species management*



### Attitude of local actors on endangered species management

Respondents were then asked about local actors in Florida (Figure 13). Responses indicated that County Regulatory Agencies (38%) and the County Health Department (36%) had the right amount of influence.

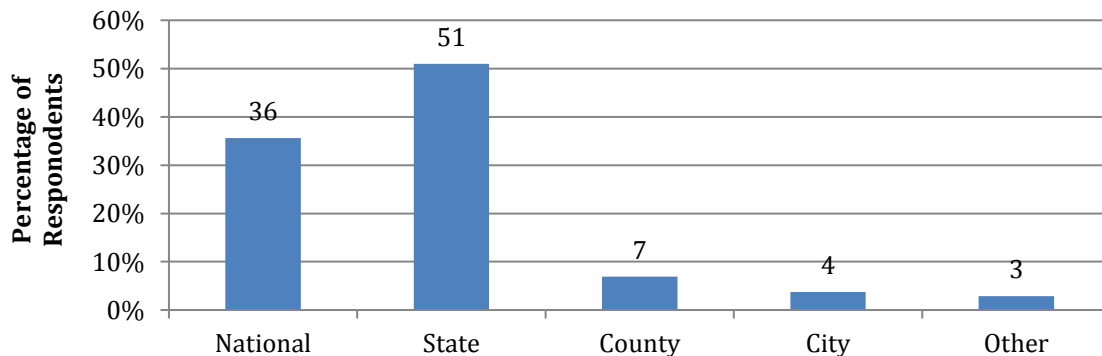
Figure 13: Influence of local actors on endangered species management



### Most influential actors on public policy impacting species diversity

Respondents were asked which level of actors they believe most influenced public policy impacting species diversity (Figure 14). The majority believed that the state actors are the most influential (51%), while only 36% believed national actors were the most influential. Only 4% believed city actors were the most influential.

Figure 14: Influence of actors on public policy impacting species diversity



### Support for Florida Regulatory Actions Affecting Endangered Species

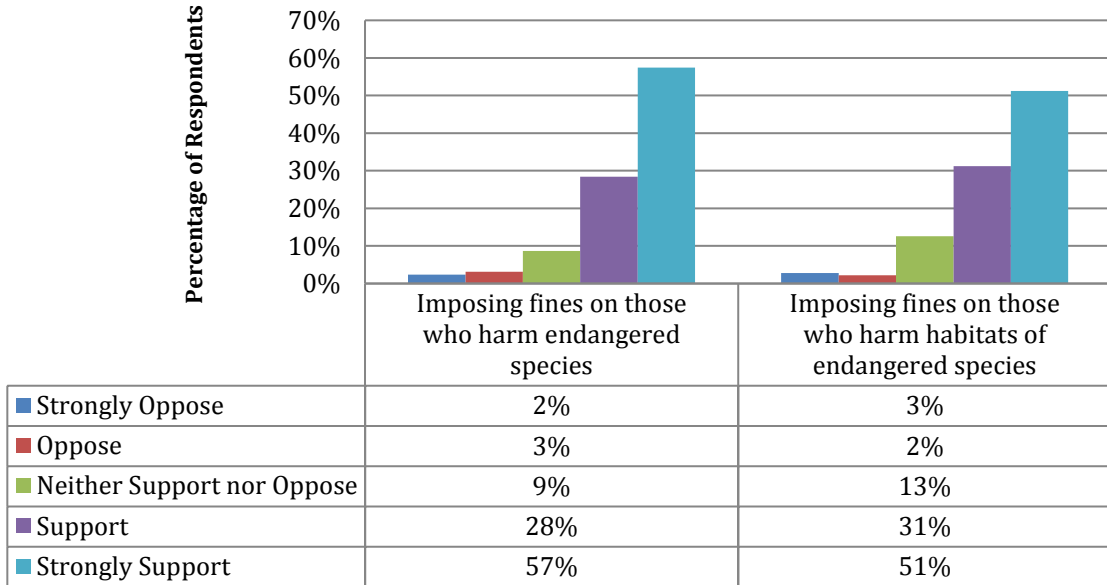
Next, a series of questions were given to assess respondents' support for regulatory actions in Florida designed to protect endangered species.



**Support for Imposing Fines for Harming Endangered Species**

Eighty-five percent of respondents would support or strongly support imposing fines on those who harm endangered species in Florida, and 82% would support or strongly support imposing fines on those who harm endangered species’ habitats in Florida (Figure 15).

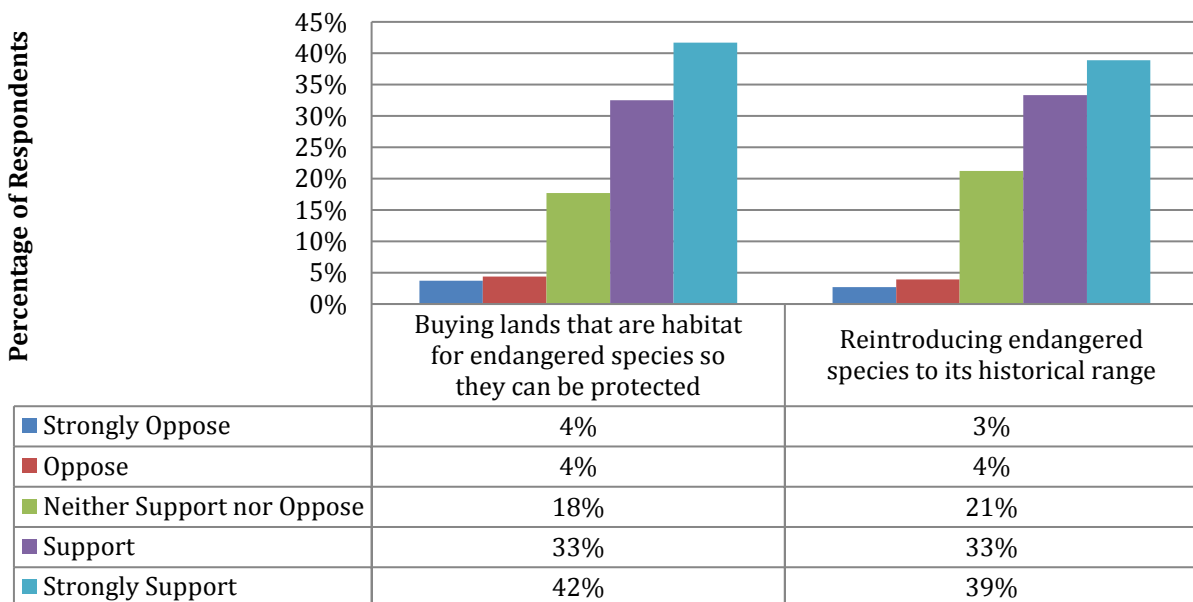
*Figure 15: Support for fines impacting endangered species*



**Support for Land Changes Impacting Endangered Species**

Seventy-five percent of respondents would support or strongly support the state of Florida purchasing endangered species’ habitat so it can be protected (Figure 16). Seventy-two percent would support or strongly support the state of Florida reintroducing endangered species to their historical ranges.

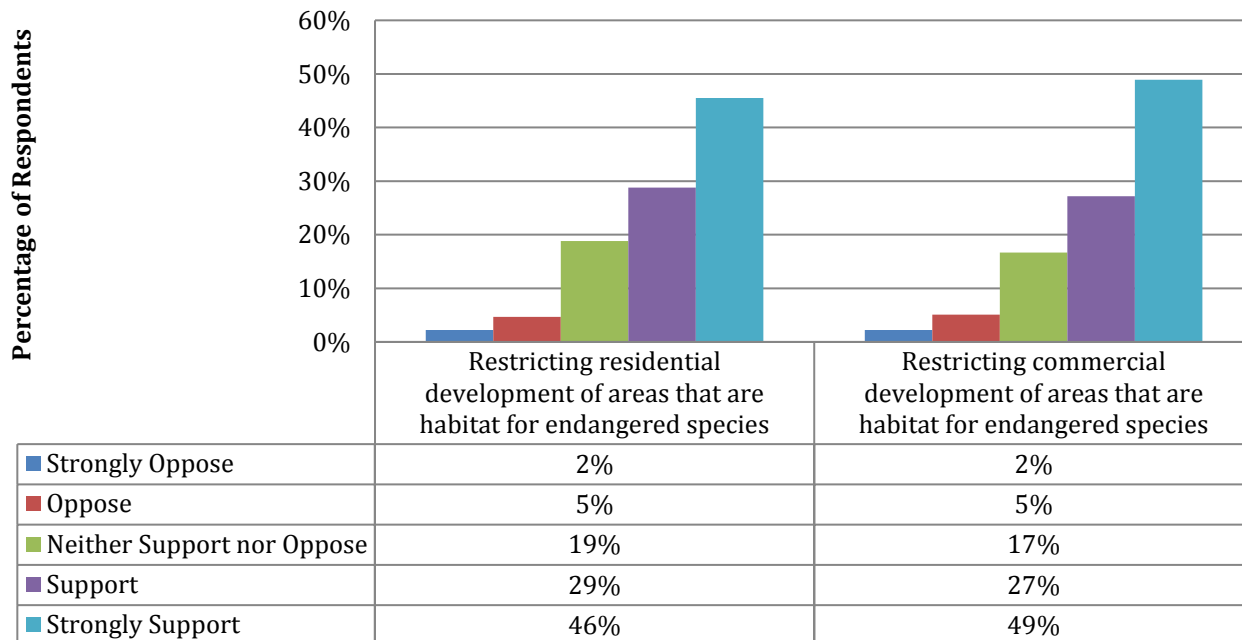
*Figure 16: Support for land changes impacting endangered species*



**Support for Restricting Land Development to Protect Endangered Species**

Seventy-six percent of respondents supported or strongly supported restricting commercial development of areas that are habitat for endangered species, followed by 75% supporting the restriction of residential development of the same areas (Figure 17).

*Figure 17: Support for restricting land development to protect endangered species*



**Support for Actions Relevant to Specific Endangered Species**

Respondents were asked about support for management actions that affect three specific endangered species in Florida, sea turtles, gopher tortoises, and Florida panthers.

**Sea Turtles**

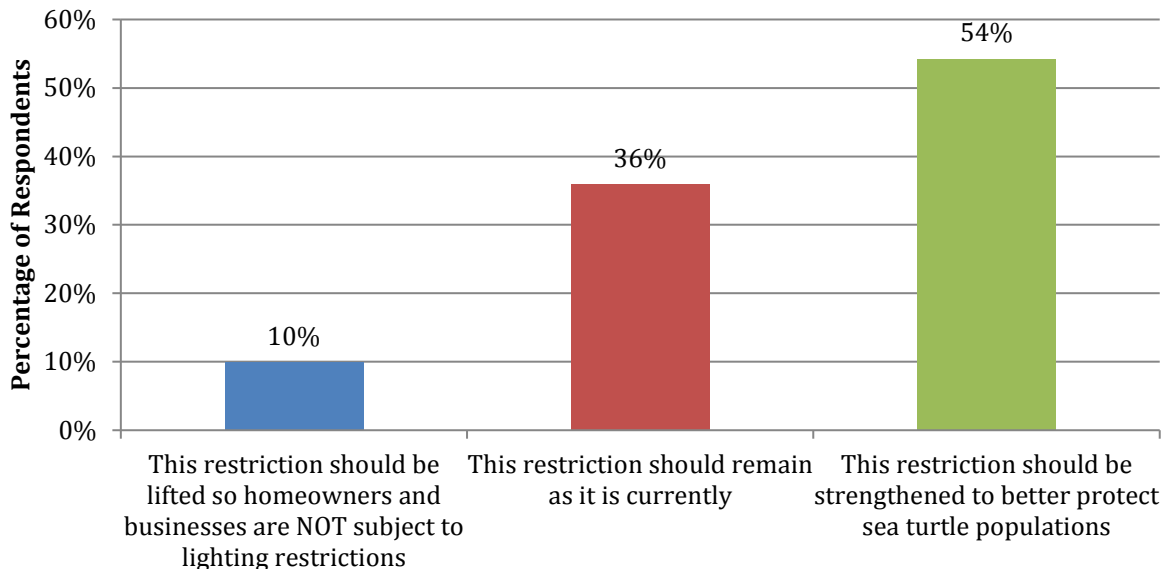
Respondents were given the following description of policies affecting sea turtles:

*In coastal areas, sea turtles hatch and depend on moonlight to lead them toward the ocean. Coastal lights (e.g., from buildings and parking lots) can lead the turtles inland instead, resulting in hatchling deaths. Sea turtles also prefer to nest in darker areas. Restrictions are often put in place to limit light near beaches, including requiring homes and businesses to shield, redirect, or turn off lights. In some areas, conservation groups are seeking to increase the restrictions because there are still some newly hatched sea turtles that move away from the water. There are also residents and businesses seeking to ease restrictions on lighting near beaches. Based on this information, please select the statement that most closely aligns with your beliefs. 1) This restriction should be lifted so homeowners and businesses are NOT subject to lighting restrictions; 2) This restriction should remain as it is currently; or 3) This restriction should be strengthened to better protect the sea turtle population.*

Fifty-four percent of respondents indicated they thought this restriction should be strengthened, while 36% indicated they thought this restriction should remain as it is currently (Figure 18).



Figure 18: Lighting restrictions for sea turtles



**Gopher Tortoises**

Respondents were given the following description of policies affecting gopher tortoises:

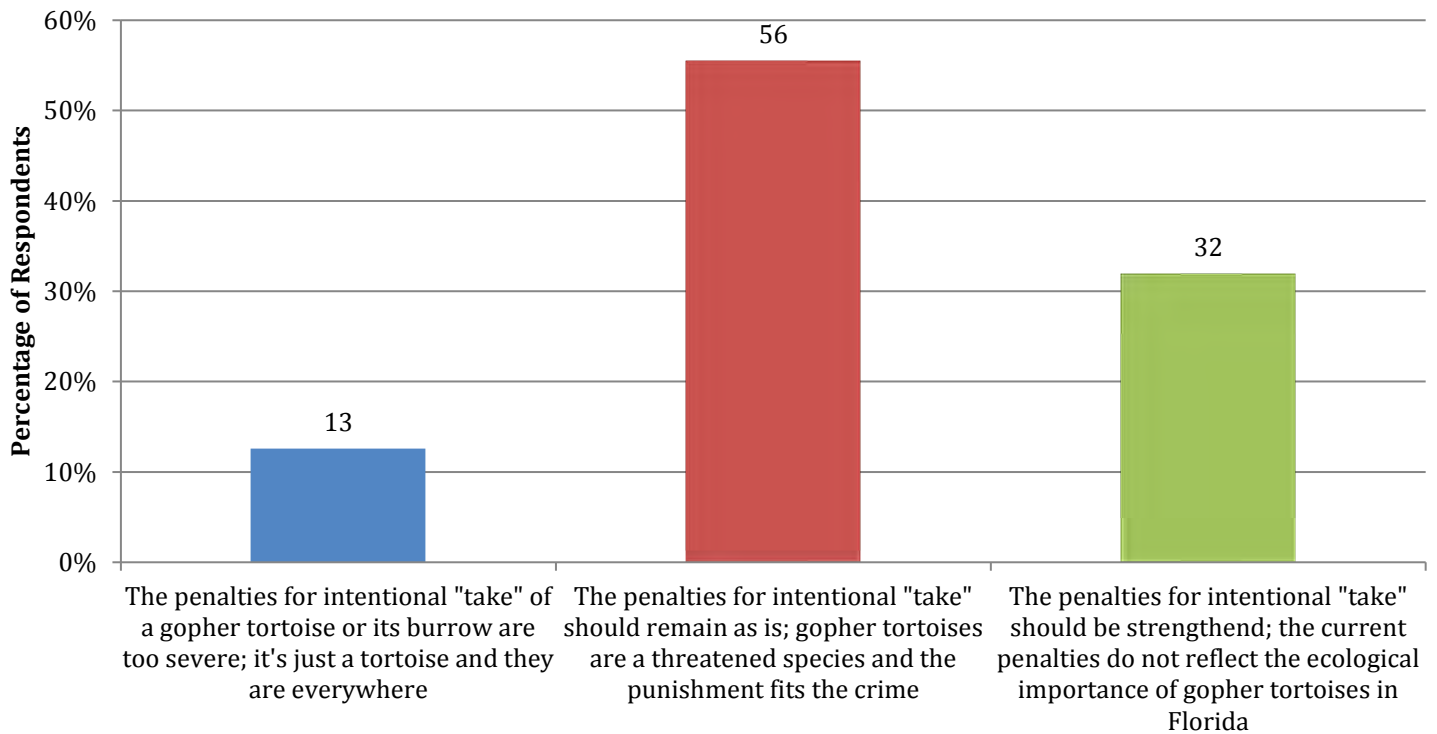
*The gopher tortoise is considered a “keystone species” because it excavates underground burrows that over 350 species depend on for refuge, including several state and federally protected species. Declines in gopher tortoise populations have been shown to result in a decline of the commensal species that rely on its burrows. In Florida, the gopher tortoise was classified as Threatened in 2007, and both the tortoise and its burrows are protected under state law. The charge for intentional “take” of threatened and endangered wildlife, such as harassing or harming a tortoise, its eggs or burrow is a 3rd degree felony. For example, a landowner or developer has intentionally destroyed several gopher tortoise burrows to build a house, potentially entombing the tortoises in the burrows. If convicted of a 3rd degree felony, penalties include up to 5 years in prison and a \$5,000 fine. Based on this information, please select the statement that most closely aligns with your beliefs. 1) The penalties for intentional “take” or a gopher tortoise or its burrow are too severe; it’s just a tortoise and they are everywhere; 2) The penalties for intentional “take” should remain as is; gopher tortoises are a threatened species and the punishment fits the crime; 3) The penalties for intentional “take” should be strengthened; the current penalties do not reflect the ecological importance of gopher tortoises in Florida.*





Fifty-six percent of respondents indicated they thought the penalties for intentional “take” should remain as is, while 32% indicated the penalties should be strengthened (Figure 19).

**Figure 19: Penalties for intentional “take” of gopher tortoises**



**Florida Panthers**

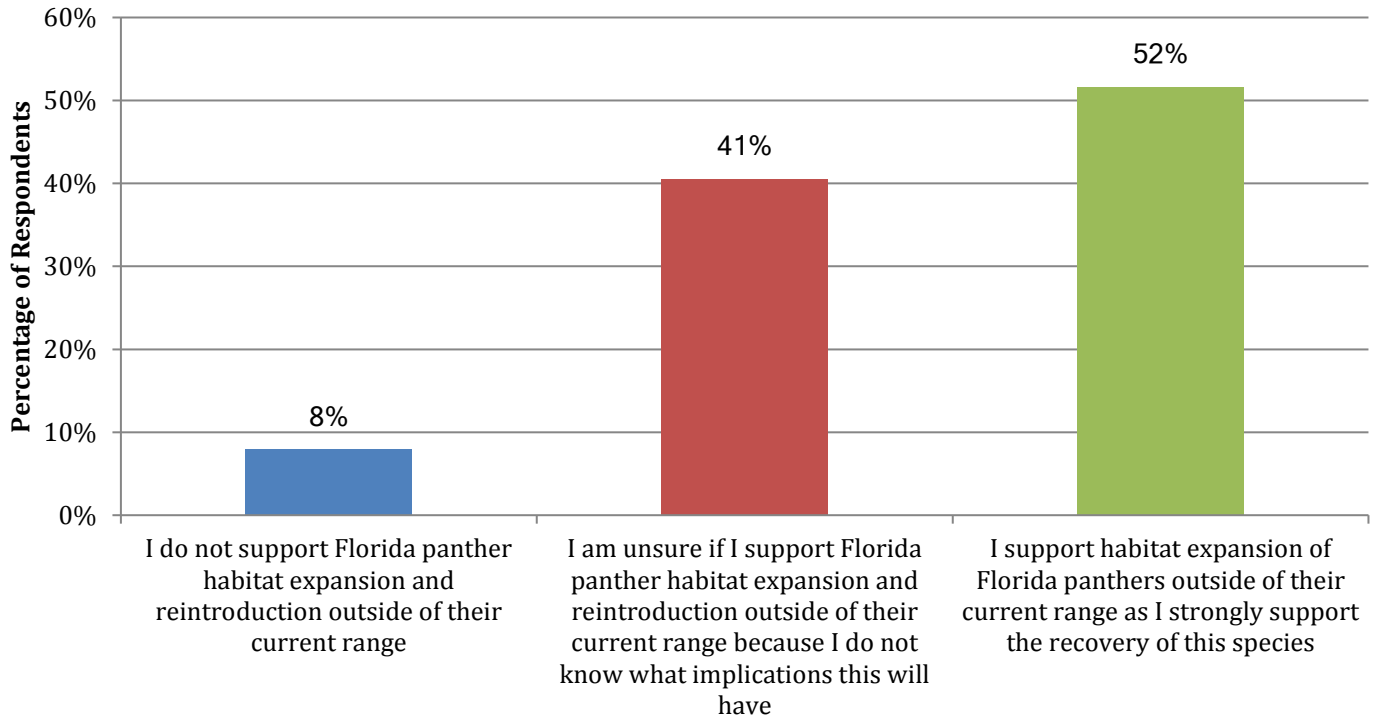
Respondent were given the following description of policies affecting Florida panthers:

*The federally endangered Florida panther is the last subspecies of Puma still surviving in the eastern United States, and the current population is restricted to less than 5% of its historic range in one breeding population in south Florida. According to the U.S. Fish and Wildlife Service, range expansion and reintroduction of additional populations are essential for species recovery, and current proposed strategies include expanding to south-central Florida and reintroducing two other viable populations farther north in Florida. Based on this information, please select the statement that most closely aligns with your beliefs related to the expansion and reintroduction of Florida panthers to areas not currently supporting a breeding population. 1) I do not support Florida panther habitat expansion and reintroduction outside of their current range. 2) I am unsure if I support Florida panther habitat expansion and reintroduction outside of their current range because I do not know what implications this will have. 3) I support habitat expansion and reintroduction of Florida panthers outside of their current range as I strongly support the recovery of this species.*

Fifty-two percent of respondents supported habitat expansion of Florida panthers, 41% of respondents were unsure if they support Florida panther habitat expansion, and 8% did *NOT* support Florida habitat expansion (Figure 20).



**Figure 20: Policies protecting Florida panthers**



**Support state preventative actions for endangered species**

Respondents were given the following information, based upon a report by the Florida Fish and Wildlife Conservation Commission:

*“A report by the Florida Fish and Wildlife Conservation Commission estimates that by 2060 endangered plants and animals across the state will lose anywhere from thousands to millions of acres of habitat. Based on this information, please choose your level of support for each of the following statements.”*

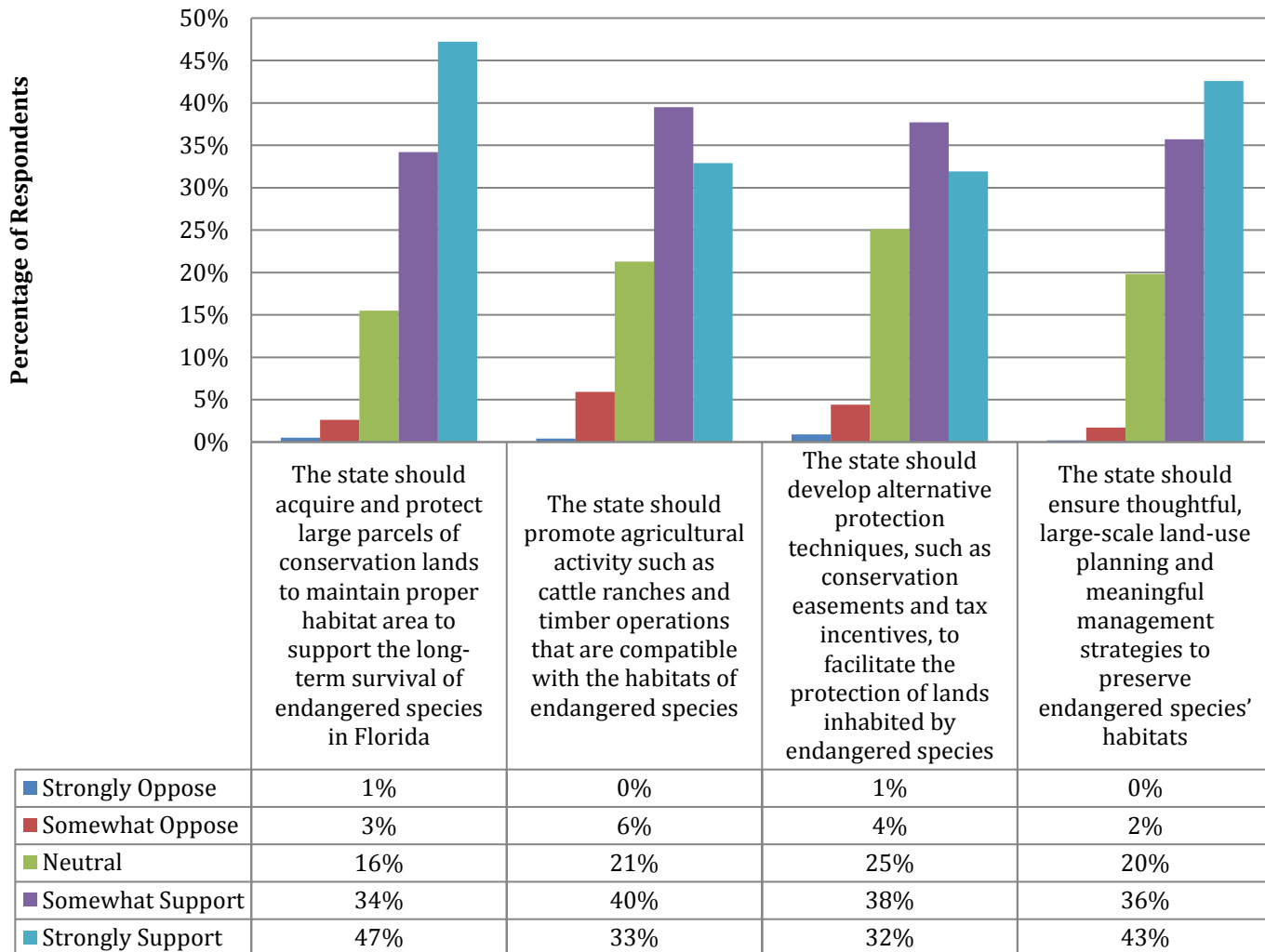
**Support state actions pertaining to endangered species**

After given the information on the report by Florida Fish and Wildlife Conservation Commission, respondents were asked to determine whether they support certain state actions with the following answers: 1) strongly opposed, 2) somewhat oppose, 3) neutral, 4) somewhat support, 5) strongly support.

The majority of respondents either somewhat supported or strongly supported the state acquiring and protecting large parcels of conservation lands to maintain proper habitat area to support the long-term survival of endangered species in Florida (81%), ensuring thoughtful, large-scale land-use planning and meaningful management strategies to preserve endangered species’ habitats (79%), promoting agricultural activity such as cattle ranches and timber operations that are compatible with the habitats of endangered species (73%), and developing alternative protection techniques, such as conservation easements and tax incentives, to facilitate the protection of lands inhabited by endangered species (70%) (Figure 21).



Figure 21: Support of preventative actions for endangered species



**Florida Black Bear and Florida Panther Habitat**

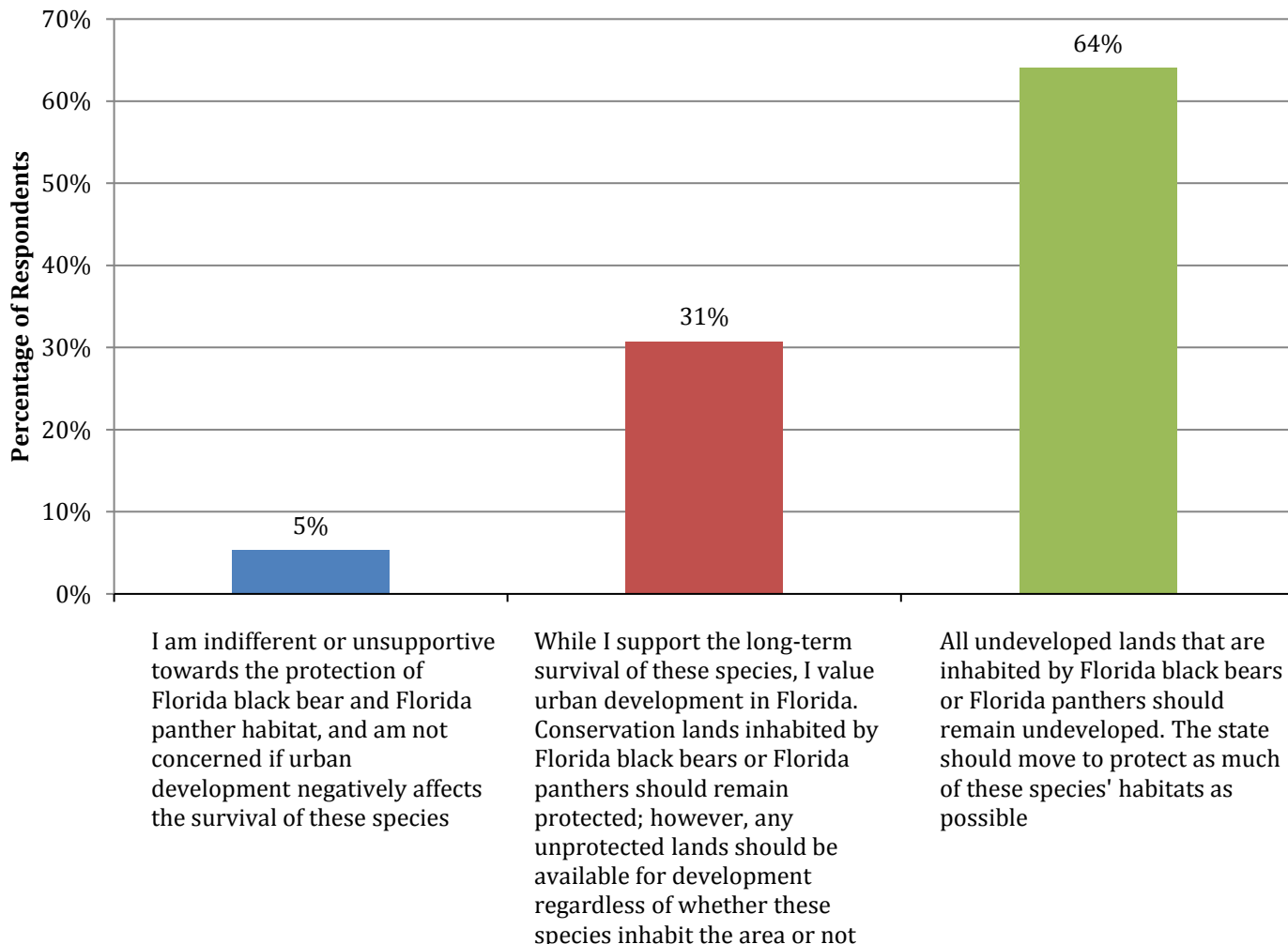
Respondents were given the following information pertaining to the Florida Fish and Wildlife Conservation Commission report about Florida black bears:

*“Again, the report by Florida Fish and Wildlife Conservation Commission estimates that by 2060, Florida black bears will lose 2.3 million acres of habitat and federally endangered Florida panthers will lose 300,000 acres due to urban development. Based on this information, please select the statement that most closely aligns with your beliefs.”*

Sixty-four percent believe the state should move to protect as much of these species’ habitat as possible, while 31% believed any unprotected lands should be available for development regardless of whether these species inhabit the area or not (Figure 22).



Figure 22: Florida black bear and Florida panther habitats



### Knowledge of Invasive Species

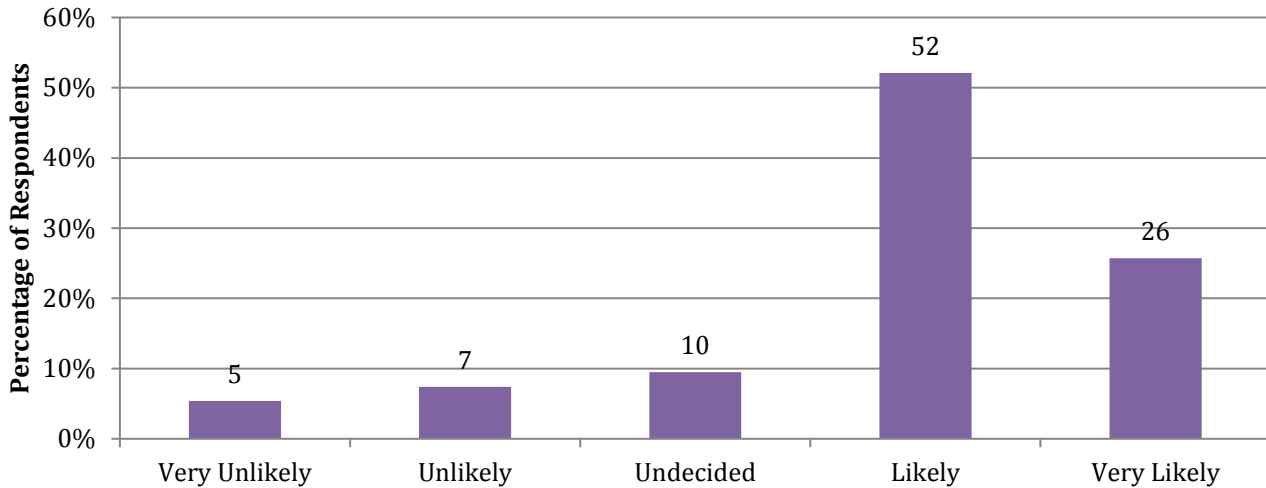
The survey then asked respondents questions about their knowledge of invasive species. Invasive species were defined as “organisms which cause ecological or economic harm in a new environment where they are not native.”

### News Interest about Invasive Species

Respondents were asked to indicate how likely they would be to pay attention to a news story dealing with issues related to invasive species. Seventy-eight percent of respondents reported they were either likely or very likely to do so (Figure 23).



**Figure 23: Interest in news related to invasive species**



**News coverage pertaining to invasive species**

When respondents were asked what news coverage they had seen related to invasive species in the last month, 24% of respondents indicated seeing coverage pertaining to pythons (Table 6). All responses were coded and some respondents gave multiple answers. The following quotes are examples of the open-ended responses received regarding this theme:

- “Trapping and killing Burmese pythons.”
- “Huge python snake sneaking into an old man’s house and causing troubles.”
- “Burmese pythons in the Miami area and north.”

Sixteen percent of the respondents said they had seen coverage pertaining to lionfish. The following quotes are examples of the open-ended responses received about these themes:

- “Lionfish in the Gulf of Mexico.”
- “Contests to catch lionfish in the Gulf of Mexico then eat them.”
- “Lots of news about lionfish, particularly the recent lionfish contest sponsored by the FWC.”

Additionally, 8% of respondents said they had seen coverage on snakes with no specific type mentioned. The following quotes are examples of the open-ended responses received regarding this theme:

- “[It was] about some kind of snake invading our land.”
- “Article about snakes.”
- “Local TV regarding snakes.”

**Table 6: News related to invasive species**

News Coverage	%
Pythons/python hunt in Everglades	23.6
Lionfish/lionfish hunt/ recipes for cooking	15.5
Non-specific snake	7.5
Government trying to find a solution to invasive species	4.2
Non-specific fish	3.0
Crocodiles/alligators	2.9

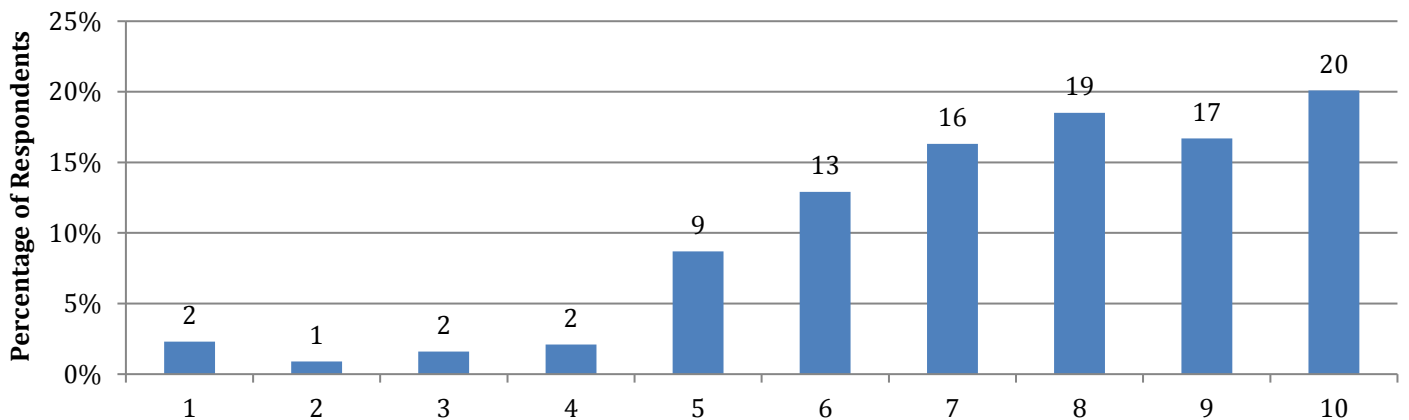


Zika virus/mosquitos	2.6
Boa constrictor in neighborhood	2.2
Florida black bears/bears wrecking homes	2.0
Dolphins/whales	1.6
Non-specific plant	1.3
Rodents/water rats	1.2
New species of frogs	1.0
A new program to get rid of invasive animals	0.9
Trying to get rid of invasive duck species	0.8
Non-specific reptile	0.8
A new blowfish that is destroying our native fish	0.7
Brazilian pepper	0.5
Non-specific fruit	0.5
Asian carp is a new enemy for other invasive species	0.5
Animal planet	0.5
Loss of citrus trees due to canker	0.4
Danger of invasive species to the environment/economy/human health	0.4
Miscellaneous	10.9
Don't know	7.8
No Answer	6.9
Total	100.0

**Concern for Invasive Species**

Respondents were asked to determine their concern about invasive species in Florida on a scale of 1 (not concerned) to 10 (extremely concerned). Seventy-two percent ranked their concern as a 7 or higher, indicating a high level of concern towards invasive species in Florida (Figure 24).

*Figure 24: Concern towards invasive species*

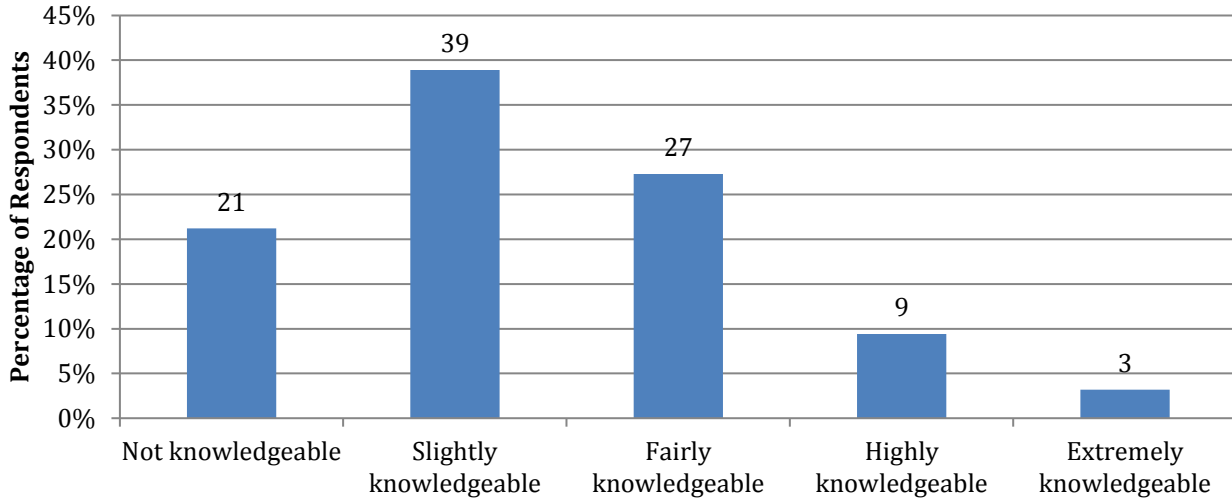


**Overall Knowledge of Invasive Species**

Respondents were asked to rate how knowledgeable they felt about the topic of invasive species. Sixty percent of respondents reported they felt they were either not knowledgeable or only slightly knowledgeable about the topic of invasive species (Figure 25).

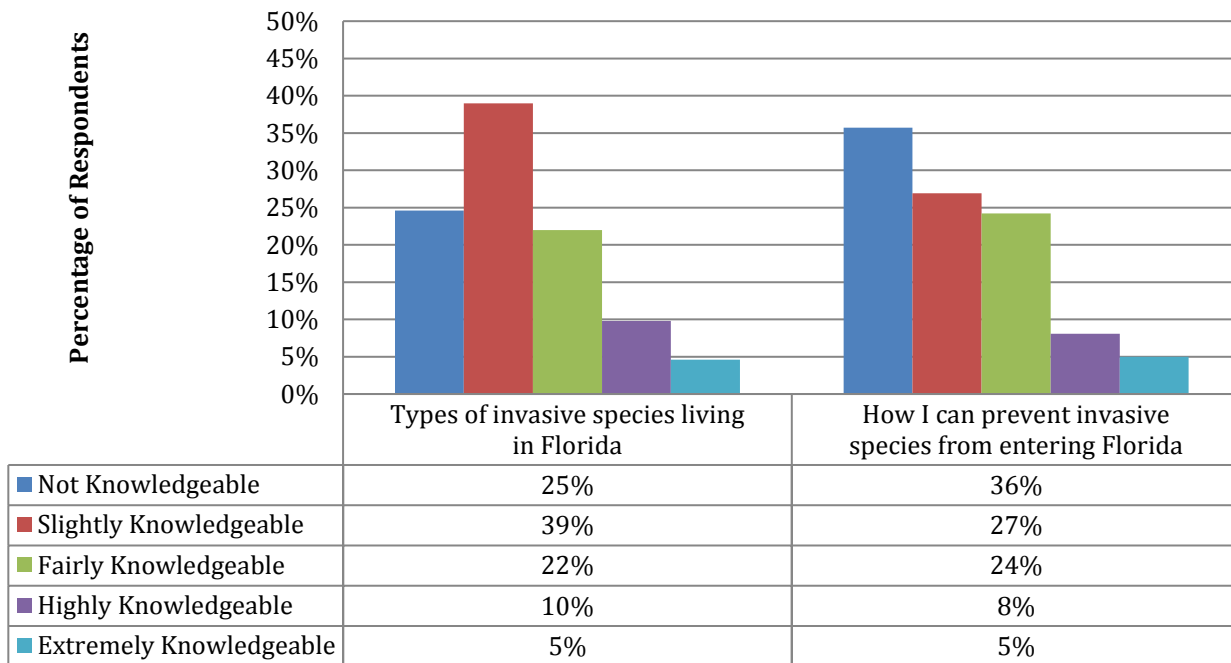


Figure 25: Knowledge on invasive species topic



Sixty-four percent of respondents considered themselves not knowledgeable or only slightly knowledgeable about the types of invasive species living in Florida (Figure 26). Sixty-three percent were not knowledgeable or only slightly knowledgeable about how they could prevent invasive species from entering Florida.

Figure 26: Overall knowledge about invasive species

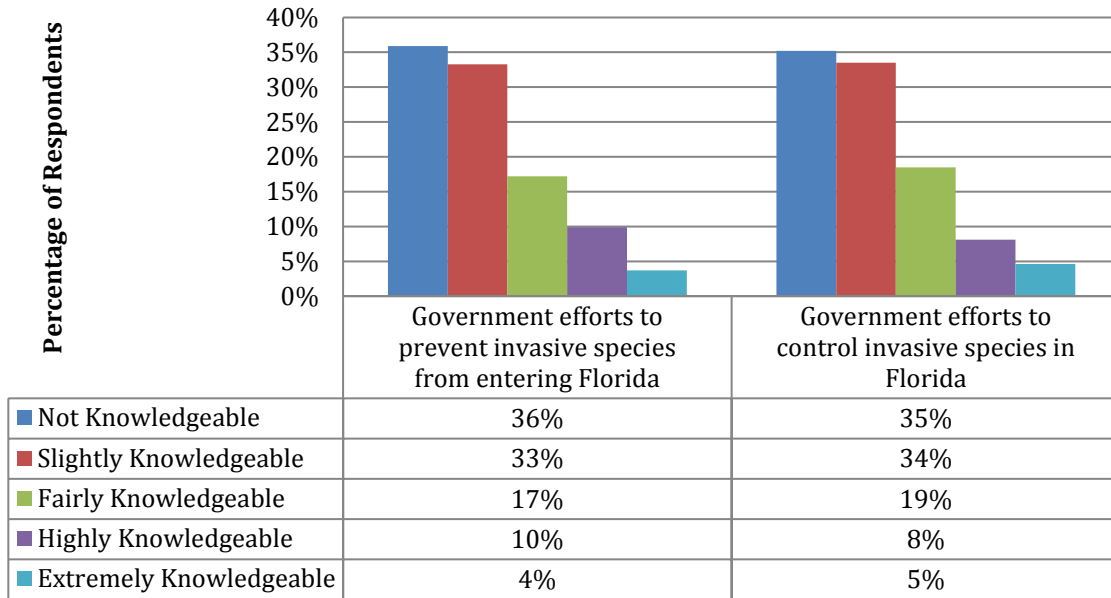


**Knowledge of Government Efforts towards Invasive Species**

Sixty-nine percent of respondents admitted they were not knowledgeable or only slightly knowledgeable about government efforts to prevent invasive species from entering Florida, and 69% were not knowledgeable or slightly knowledgeable about government efforts to control invasive species in Florida (Figure 27).



Figure 27: Knowledge of government efforts towards invasive species



### Opinions Regarding Invasive Species

The next set of questions in the survey asked respondents to indicate their opinions about prioritization efforts and management practices for invasive species.

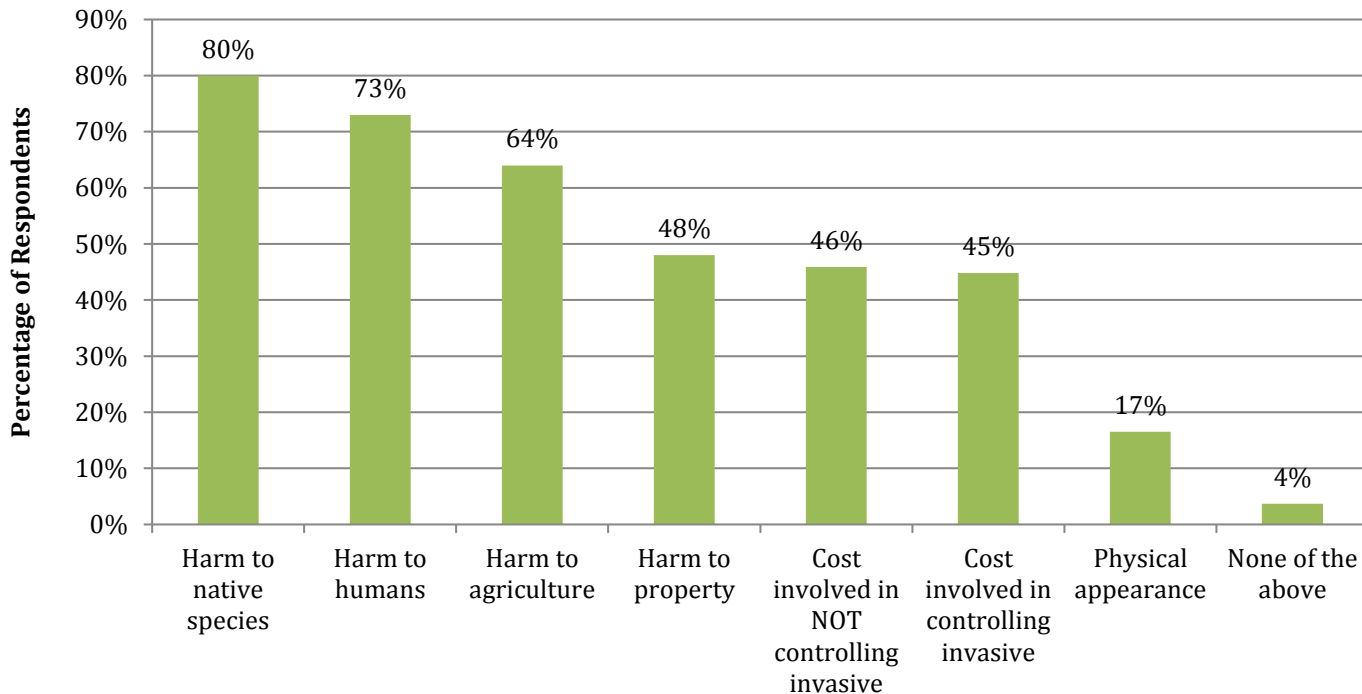
#### Prioritizing Invasive Species Efforts

Respondents were asked to indicate factors they felt should be considered by government agencies when prioritizing efforts to control invasive species. They were allowed to choose all that applied. Eighty percent of respondents selected “harm to native species” and 73% selected “harm to humans” as factors that should be considered in prioritization efforts (Figure 28).





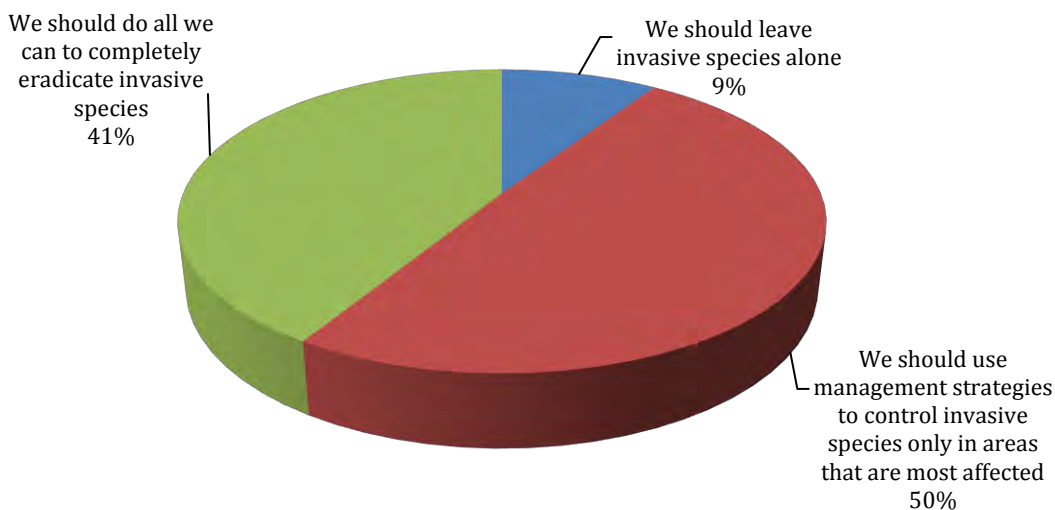
Figure 28: Factors to prioritize when controlling invasive species



**Management of Invasive Species**

Next, respondents were given three choices regarding management practices for invasive species and told to select the one that came closest to their personal views, even if none of the options was quite right. Fifty percent of respondents chose “we should use management strategies to control invasive species only in areas that are most affected,” and 41% chose “we should do all we can to completely eradicate invasive species” (Figure 29).

Figure 29: Management of invasive species



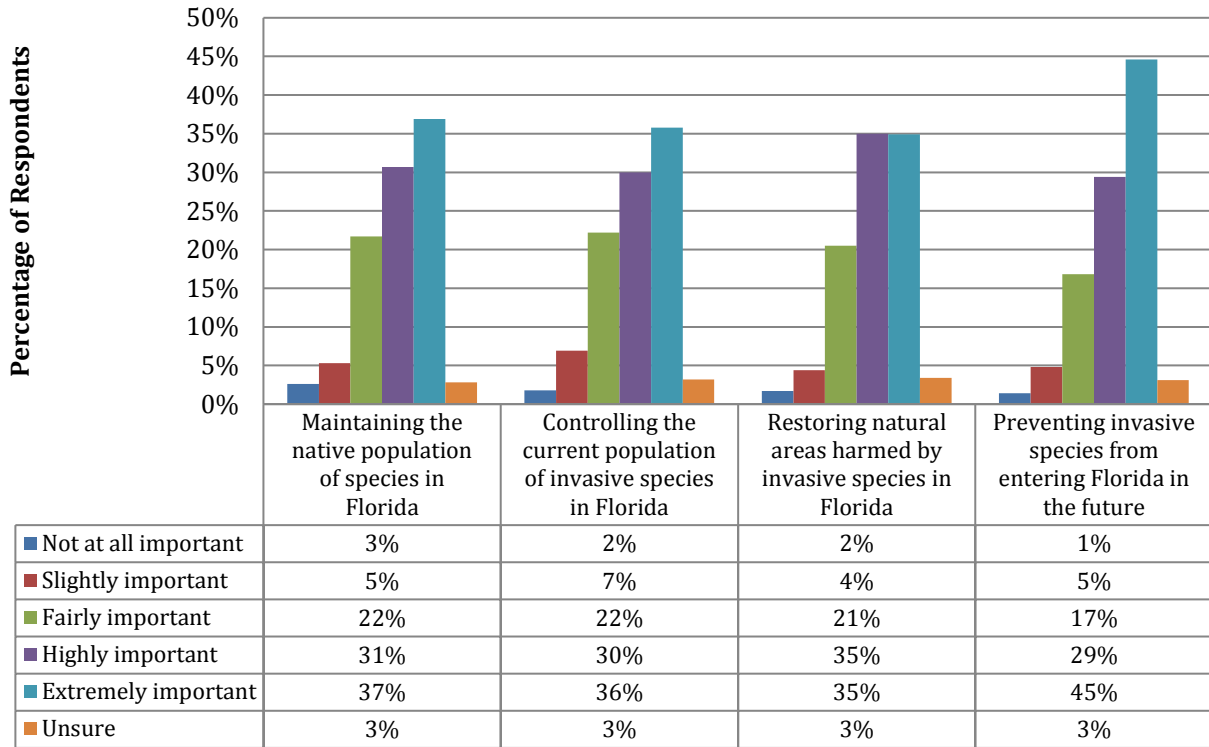
**Invasive Species Management Priorities**

Respondents were asked to indicate how important they considered various invasive species management priorities. Seventy-four percent considered it highly or extremely important to prevent invasive species from entering Florida in the future (Figure 30). Seventy percent considered it highly or extremely important to restore



natural areas harmed by invasive species in Florida. Sixty-eight considered it highly or extremely important to maintain native populations of species in Florida, and 66% considered it highly or extremely important to control the current population of invasive species in Florida.

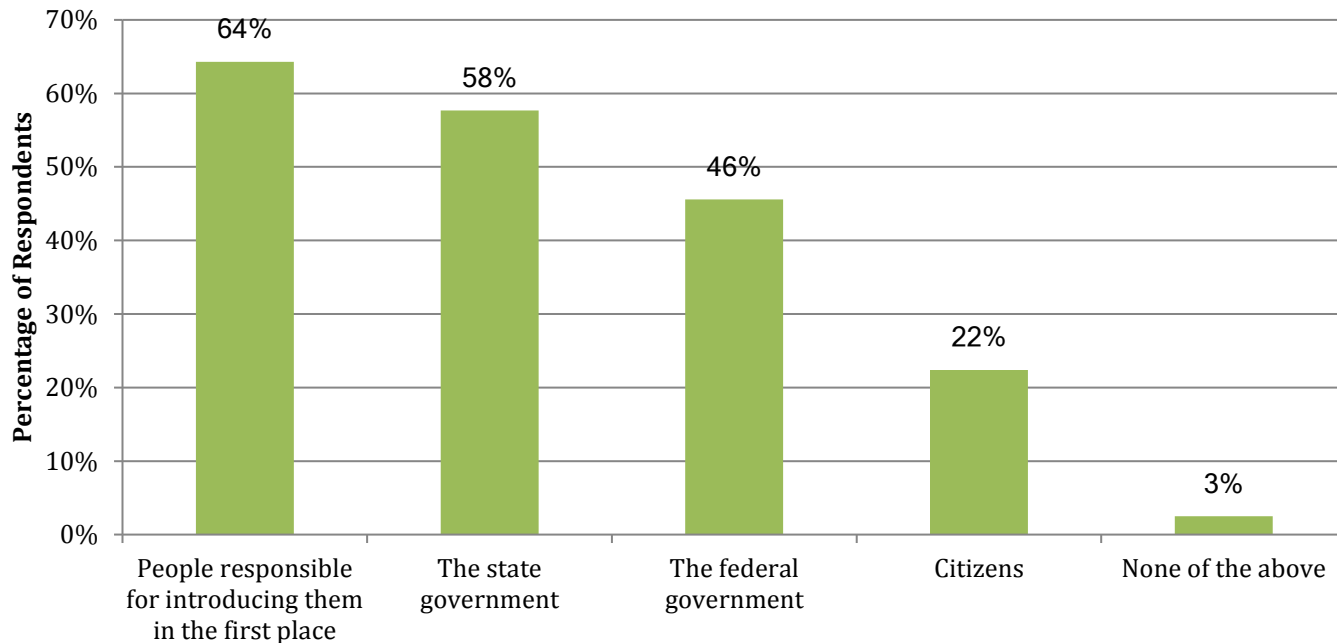
Figure 30: Importance of management practices for invasive species



**Financial Cost for Managing Invasive Species**

Respondents were provided with a list of potential groups that could be forced to pay the financial costs associated with managing invasive species and asked which group they felt should pay. They were allowed to choose all that applied. Sixty-four percent of respondents believed the people who introduced invasive species should be responsible for the financial cost, and 58% felt the state government should be responsible (Figure 31).

*Figure 31: Group responsible for the financial cost of managing invasive species*



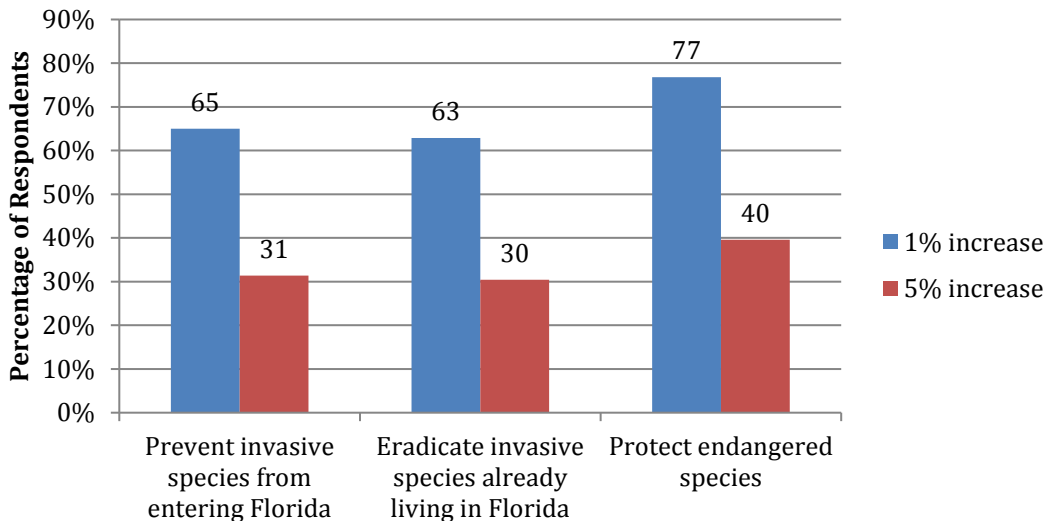
**Willingness to Pay for Invasive and Endangered Species Efforts**

Next, respondents were asked about their personal willingness to pay for the management of invasive species and the protection of endangered species through tax increases. Overall, respondents were more willing to support sales tax increases for the protection of endangered species than invasive species management and were more willing to support a 1% sales tax increase than a 5% sales tax increase.

Seventy-seven percent of respondents supported a 1% increase in sales tax to protect endangered species, but only 40% supported a 5% sales tax increase. Regarding invasive species, sixty-five percent would support a 1% sales tax increase to prevent invasive species from entering Florida, but only 31% supported a 5% sales tax increase for this same purpose. Sixty-three percent of respondents supported a 1% sales tax increase to eradicate invasive species already in Florida, while 30% supported a 5% sales tax increase (Figure 32).



Figure 32: Willingness to pay through tax increases



**Support for Actions Relevant to a Specific Invasive Species**

Respondents were also asked a series of questions about key invasive species including Burmese pythons and Nile crocodiles.

**Penalties for Owning or Selling Burmese Pythons as pets**

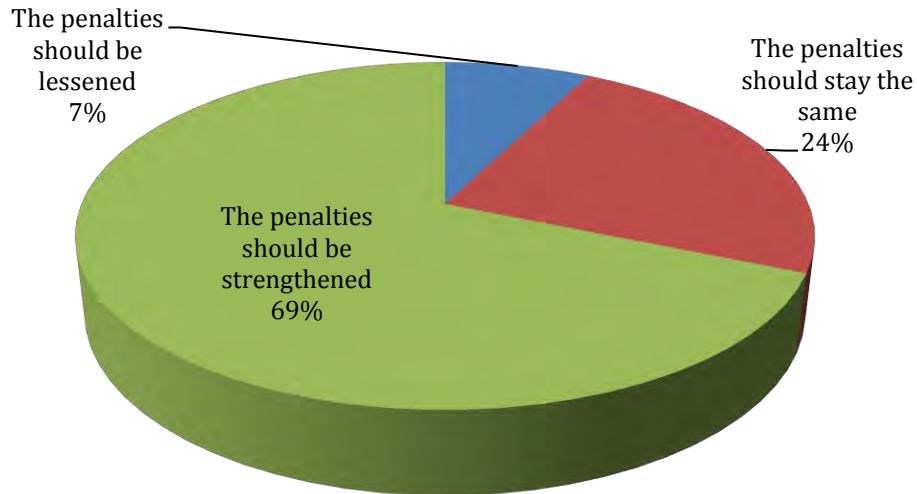
Respondents were given the following scenario about Burmese pythons:

*Burmese pythons have become invasive in Florida, particularly the wetlands of southern Florida, including the Everglades. Current efforts to control the python population include a ban on owning or selling pythons as pets as well as capturing and removing existing pythons in the wild. Penalties for violations of the ban mostly fall into the second-degree misdemeanor category and include a minimum mandatory fine of \$100 and also requires the surrender of the python. Based on this information, please indicate which of the following statements most closely aligns with what you believe. 1) The penalties for selling and owning Burmese pythons as pets should be lessened because they are too severe; 2) The penalties should remain as it is currently; 3) The penalties for owning and selling Burmese pythons as pets should be strengthened to better protect the natural habitat existing in the wetlands of southern Florida, including the Everglades.*

Sixty-nine percent of respondents indicated they believed the penalties for owning and selling Burmese pythons as pets should be strengthened, while 24% believed the penalties should remain the same (Figure 33). Only 7% believed the penalties should be lessened.



**Figure 33: Penalties for Owning and Selling Burmese pythons**



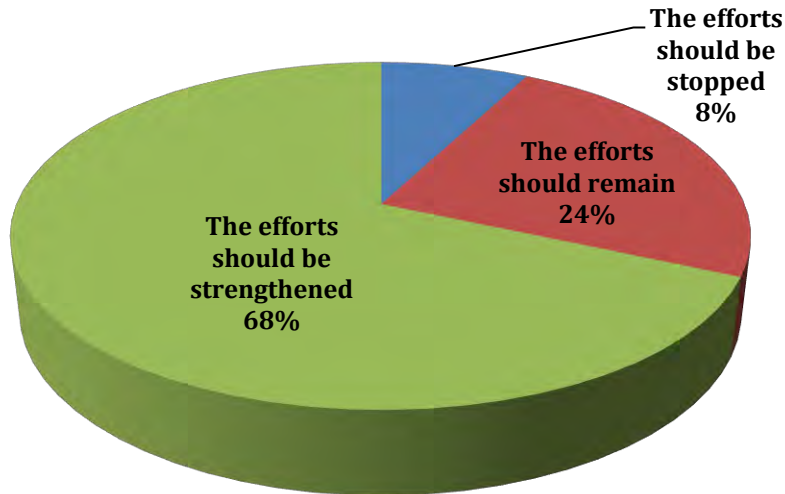
**Controlling Burmese Pythons**

Respondents were given a second scenario about Burmese pythons which read:

*Again, Burmese pythons have recently become invasive in Florida, particularly the wetlands of southern Florida, including the Everglades. Current efforts to control the python population include a ban on owning or selling pythons as pets as well as capturing and removing existing pythons in the wild. Please indicate which of the following statements most closely aligns with what you believe: 1) the efforts to capture and remove existing pythons in the wild should be stopped; 2) the efforts should remain as they are currently; or 3) the efforts to capture and remove existing pythons in the wild should be strengthened to better protect the natural habitat existing in the wetlands of southern Florida, including the Everglades.*

Sixty-eight percent of respondents indicated they thought the efforts to control the python population in the wild should be strengthened and 24% thought the efforts should remain the same (Figure 34). Only 8% of respondents thought the efforts should be stopped.



*Figure 34: Efforts to control Burmese pythons*

### *Nile Crocodiles*

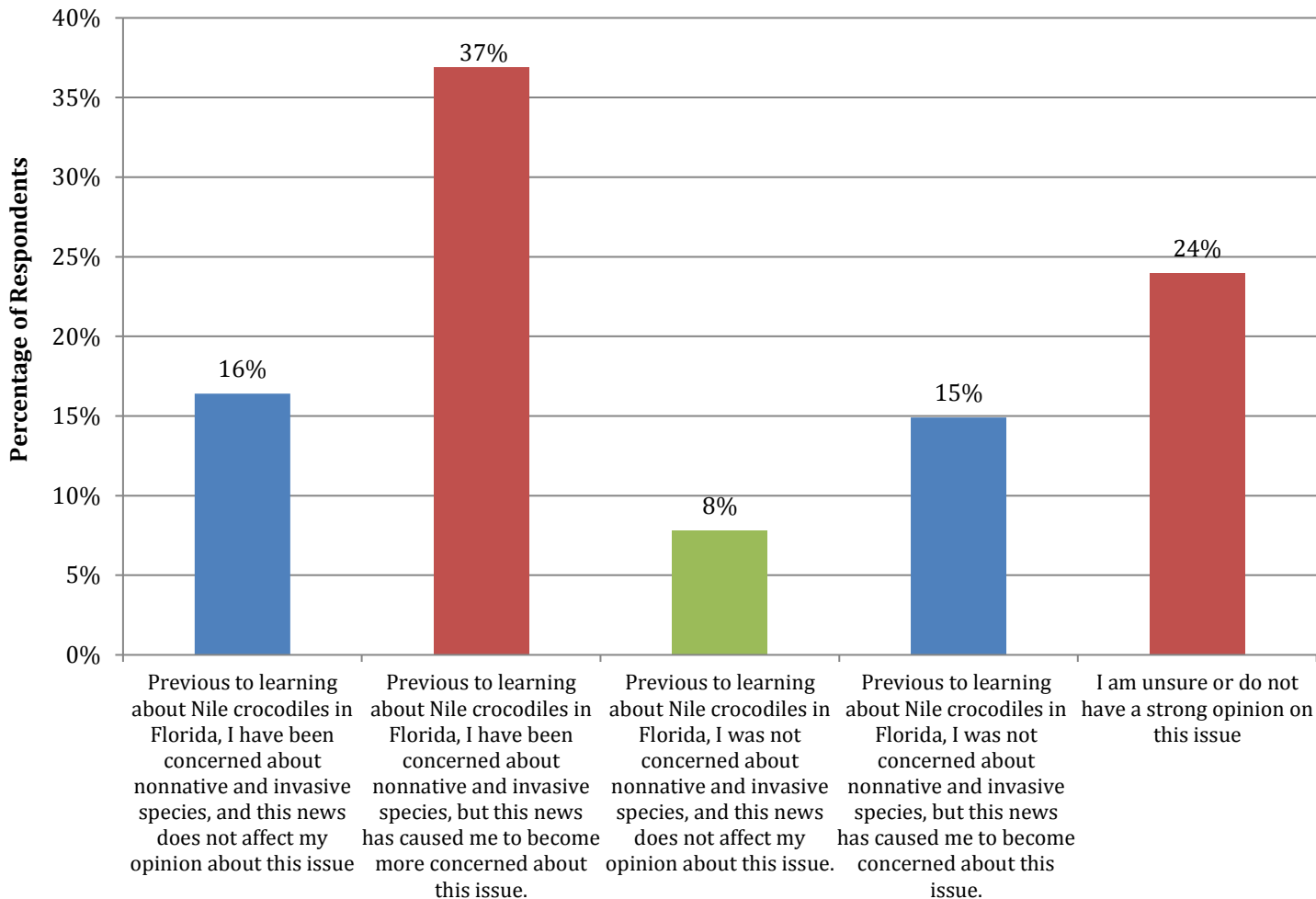
Respondents were given the following description concerning Nile crocodiles and asked to indicate previous concerns about Florida's nonnative and invasive issue and if this information has caused them to become more concerned:

*Florida is home to more nonnative (animals and plants living outside their native ranges) reptile and amphibian species living and breeding in the wild than any other place in the world. The majority of these introductions are due to human activity such as the exotic pet trade. It was recently confirmed that Nile crocodiles have been identified living in the wild in south Florida. While invasive species have been a problem in Florida for many years, does the presence of Nile crocodiles change your thoughts about nonnative or invasive species in Florida? Please select the statement that most closely aligns with your beliefs. 1) Previous to learning about Nile crocodiles in Florida, I have been concerned about nonnative and invasive species, and this news does not affect my opinion about this issue. 2) Previous to learning about Nile crocodiles in Florida, I have been concerned about nonnative and invasive species, but this news has caused me to become more concerned about this issue. 3) Previous to learning about Nile crocodiles in Florida, I was not concerned about nonnative and invasive species, and this news does not affect my opinion about this issue. 4) Previous to learning about Nile crocodiles in Florida, I was not concerned about nonnative and invasive species, but this news has caused me to become concerned about this issue. 5) I am unsure or do not have a strong opinion on this issue.*

Of respondents whom indicated they had previously been concerned about nonnative and invasive species, 37% responded that this news has caused them to become more concerned about the issue, while 16% indicated that this news did not affect their opinion. Of the respondents whom indicated that they had NOT been previously concerned about nonnative and invasive species, fifteen percent indicated that this news has caused them to become concerned about this issue, while 8% indicated that this news did not affect their opinion on the issue. Twenty-four percent of respondents indicated that they were unsure or did not have a strong opinion on the issue (Figure 35)



Figure 35: Nile crocodile affecting opinion on invasive and nonnative species



**Invasive Threats to Aquatic and Upland Environments**

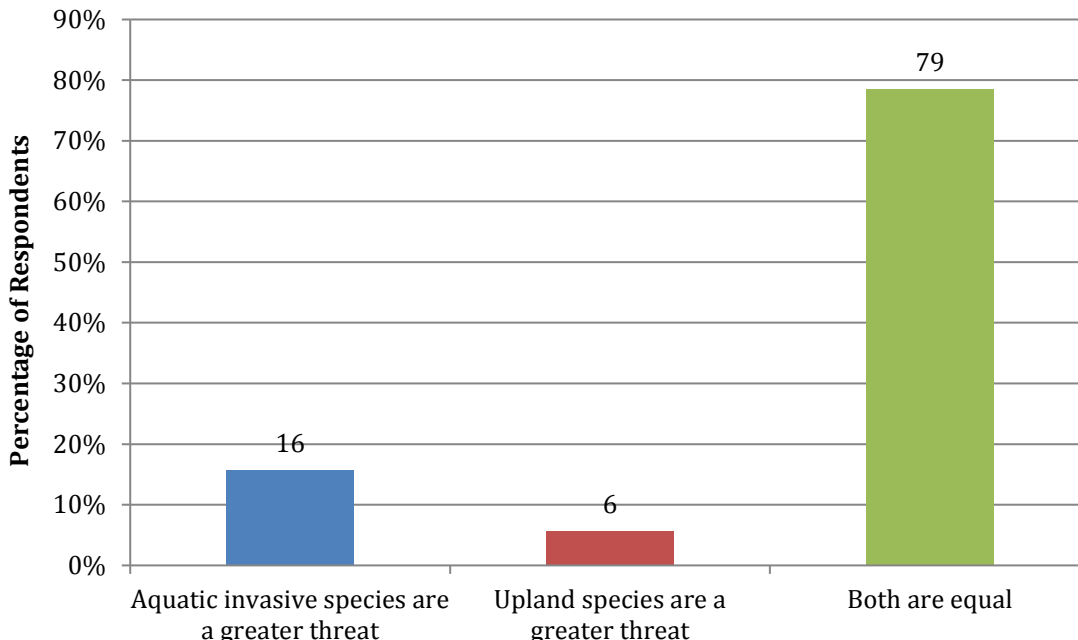
Respondents were given the following information concerning different environments affected by invasive species:

*“Different invasive species in Florida are often found in aquatic environments (e.g. lakes and rivers) and upland environments (e.g. grasslands, pine and oak forests). Do you believe that one group constitutes a greater threat to Florida than the other?”*

The majority of respondents (79%) indicated that both aquatic and upland environments are equally threatened by invasive species (Figure 36).



Figure 36: Invasive threats to aquatic and upland environments



### Importance of Floridian Natural Habitats and Wildlife

Respondents were asked to indicate the level of importance they associated with five items associated with wildlife on a 5-point Likert-type scale, with 1 = *Not at all important*, 2 = *Slightly important*, 3 = *Fairly important*, 4 = *Highly important*, and 5 = *Extremely important*. Eighty-two percent of respondents considered it highly or extremely important that native species are protected from non-native, invasive plants and animals. Seventy-eight considered it highly or extremely important that wildlife exists in Florida. Equal percentages of respondents (77%) considered it highly or extremely important that wildlife populations and fish populations are being properly managed in Florida (Table 7).

Table 7: Importance of Floridian natural habitats and wildlife

	% respondents who indicated item as highly or extremely important
Native species are protected from non-native, invasive plants and animals	82
Wildlife exists in Florida	78
Wildlife populations are being properly managed in Florida	77
Fish populations are being properly managed in Florida	77
People have the opportunity to view wildlife in Florida	68

### Attitudes towards Government Involvement in Environmental Issues

Respondents were asked to respond to questions aimed at understanding their opinions regarding government control and government support for personal engagement in environmental behaviors.

#### Governmental Control

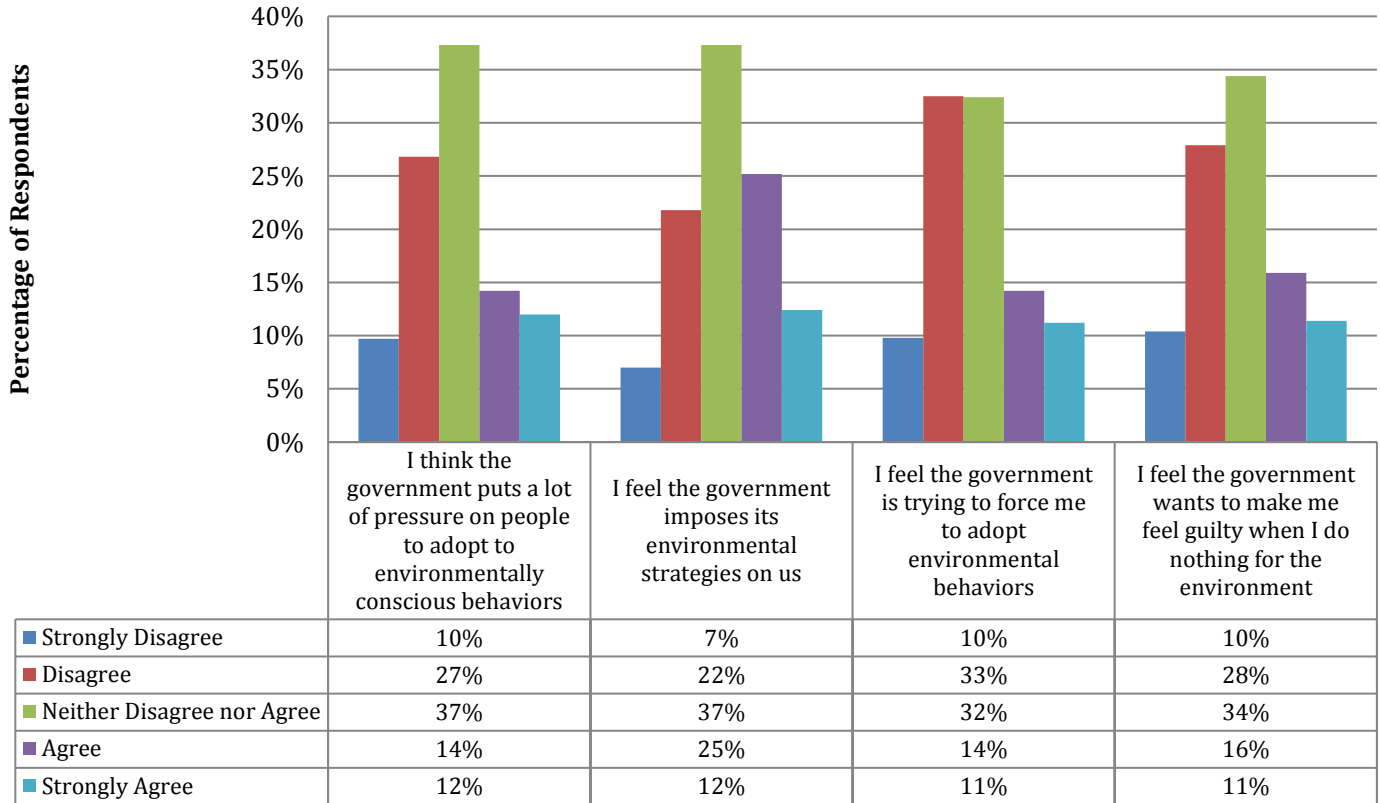
The first set of questions asked about respondents’ feelings that the government controls or forces them to engage in environmental behavior (Figure 36). The highest percent of respondents who agreed or strongly agreed to an





item of government control was for the statement “I feel the government imposes its environmental strategies on us” (37%). The highest level of disagreement or strong disagreement was for the item “I feel the government is trying to force me to adopt environmental behaviors” (43%).

Figure 36: Attitudes toward government control of environmental behaviors

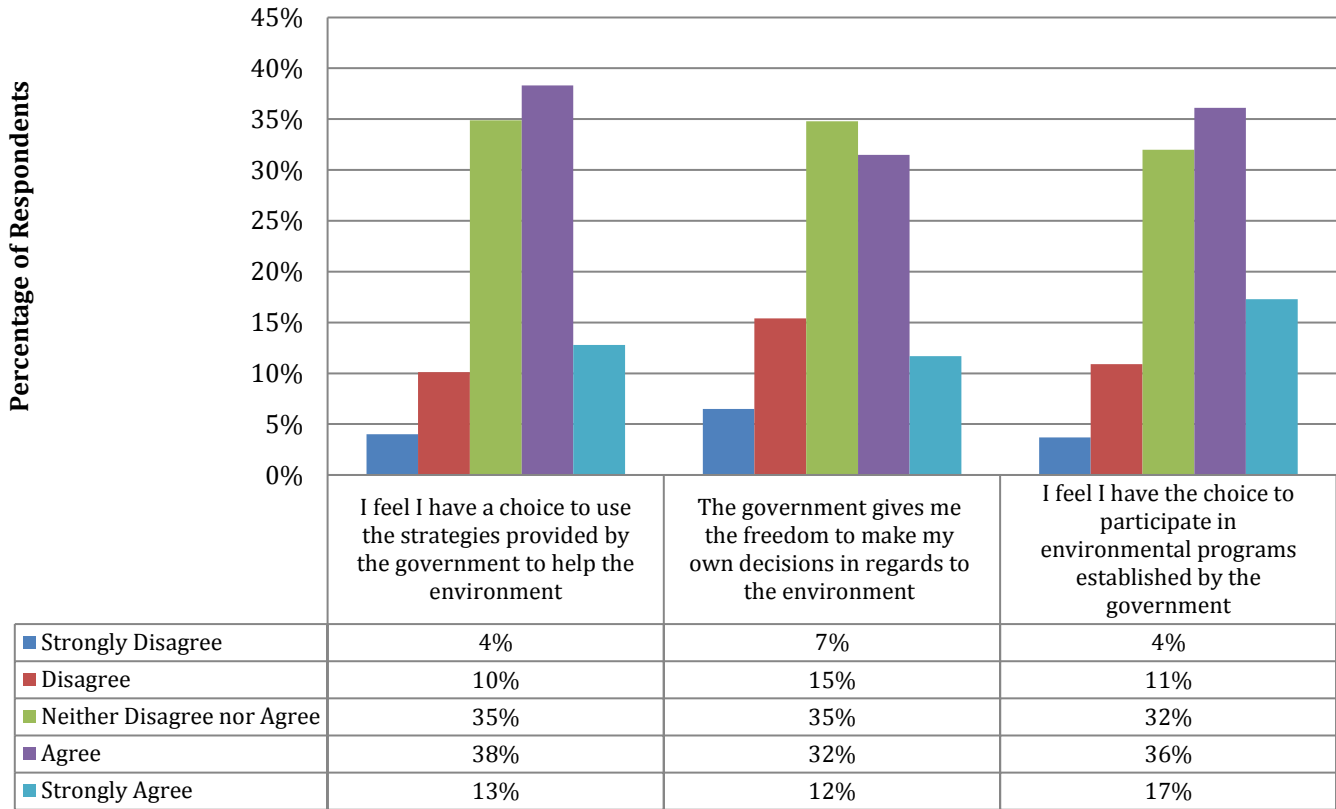


**Governmental Support**

The next set of questions asked about respondents’ feelings that the government allows them to participate in environmental behaviors in a supportive way (Figure 37). Fifty-three percent of respondents either agreed or strongly agreed they felt they had the choice to participate in environmental programs established by the government, followed by 51% who agreed or strongly agreed “I feel I have a choice to use the strategies provided by the government to help the environment.” Twenty-two percent of respondents disagreed or strongly disagreed “the government gives me the freedom to make my own decisions in regards to the environment.”



Figure 37: Attitudes toward government support for environmental behaviors



### Willingness to Engage in Specific Environmental Behaviors

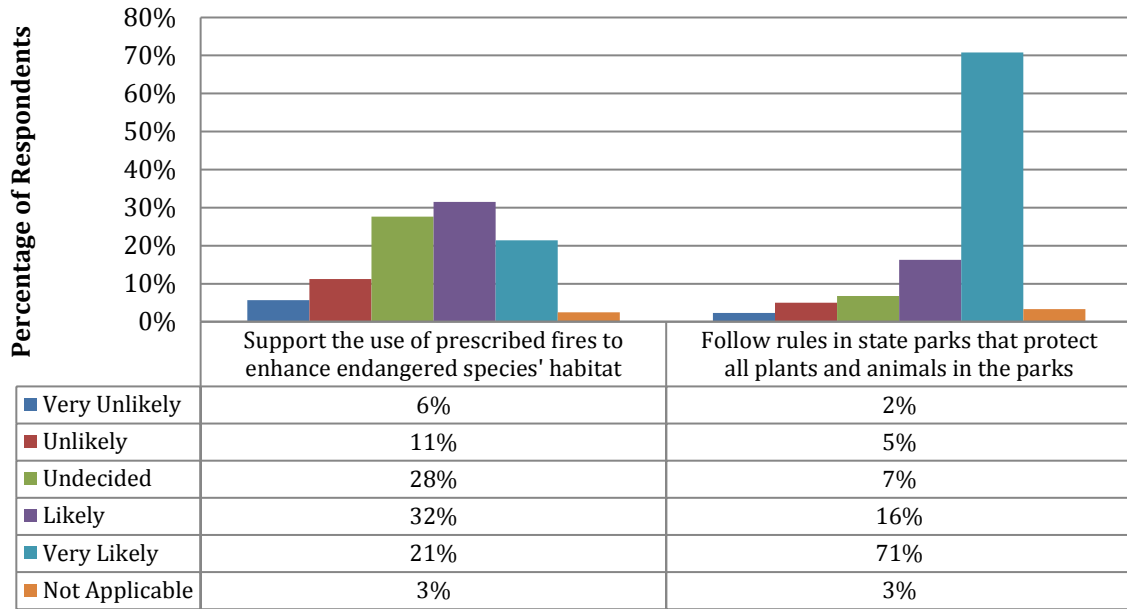
Respondents were asked a series of questions asking their willingness to engage in different behaviors related to the environment. The behaviors included (1) supporting specific policies, (2) engaging in specific purchasing behavior, (3) avoiding environmentally harmful activities, (4) reducing material waste, (5) voting for environmental causes, and (5) engaging in environmental civic behavior.

### Willingness to Support Specific Policies

Respondents reported they were very likely to follow rules in state parks (71%) while only 21% were very likely to support the use of prescribed fires to enhance endangered species' habitats (Figure 38).



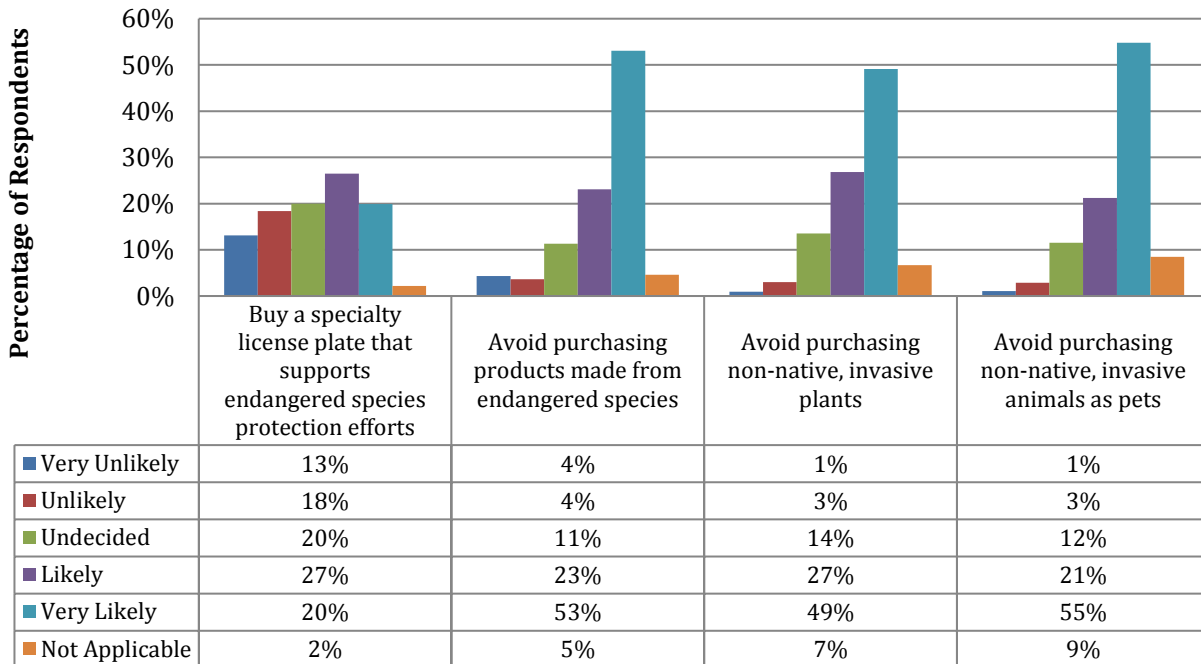
Figure 38: Willingness to support specific policies



**Willingness to Engage in Specific Purchasing Behavior**

While respondents were very likely to avoid purchasing products made from endangered species (53%), and non-native animals as pets (55%), only 20% were very likely to purchase a specialty license plate that supports endangered species protection effort (Figure 39).

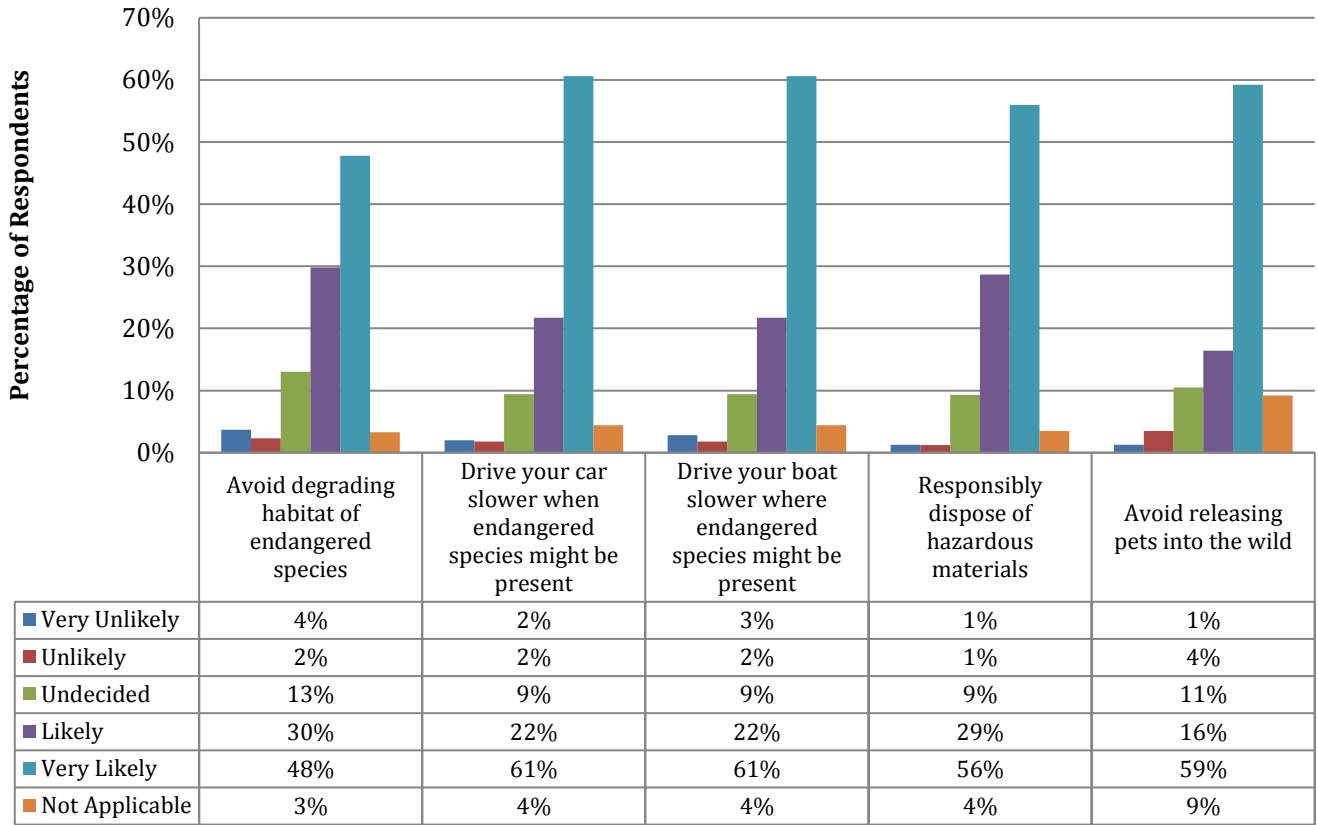
Figure 39: Willingness to engage in specific purchasing behavior



**Willingness to Avoid Harmful Activities**

Fifty-nine percent of respondents were very likely to avoid releasing pets into the wild, and 56% were very likely to responsibly dispose of hazardous materials (Figure 40).

*Figure 40: Willingness to avoid harmful activities*

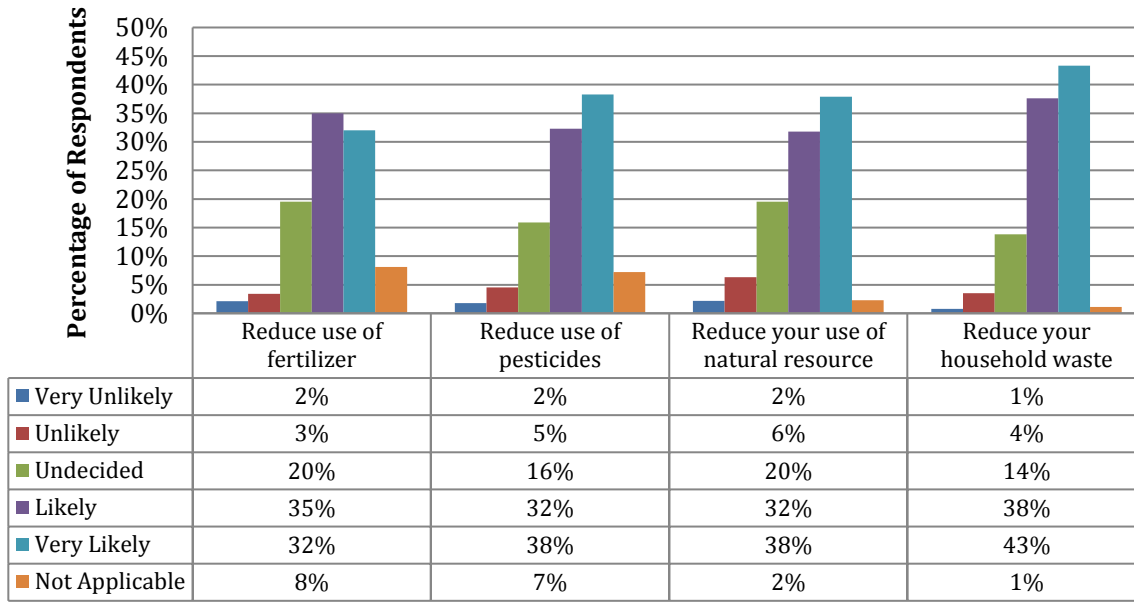


**Willingness to Reduce Material Waste**

Eighty-one percent of respondents stated they were likely or very likely to reduce their household waste and an equal percentage of respondents (70%) were likely or very likely to reduce their use of natural resources and reduce their use of pesticides (Figure 41).



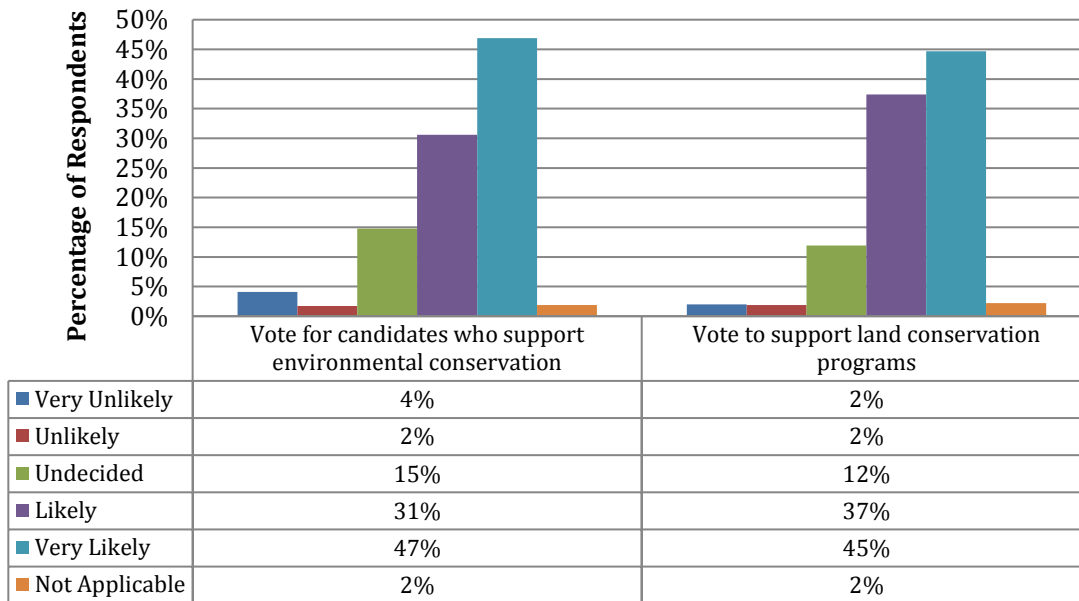
Figure 41: Willingness to reduce material use



Willingness to Vote for Environmental Causes

Eighty-two percent of respondents were likely or very likely to vote to support land conservation programs and 78% of respondents were likely or very likely to vote for candidates who support environmental conservation (Figure 42).

Figure 42: Willingness to vote for environmental causes

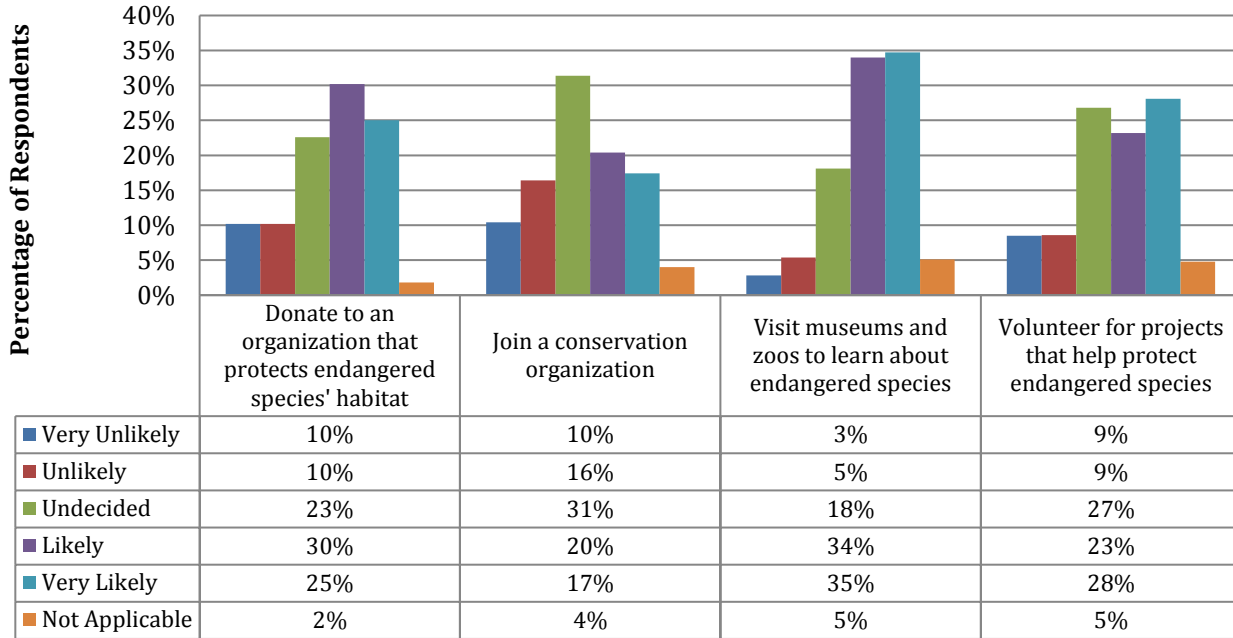


Willingness to Engage in Civic Behavior Related to Endangered Species

Sixty-nine percent of respondents were likely or very likely to visit museums and zoos to learn about endangered species, while only 37% were likely or very likely to join a conservation organization (Figure 43).



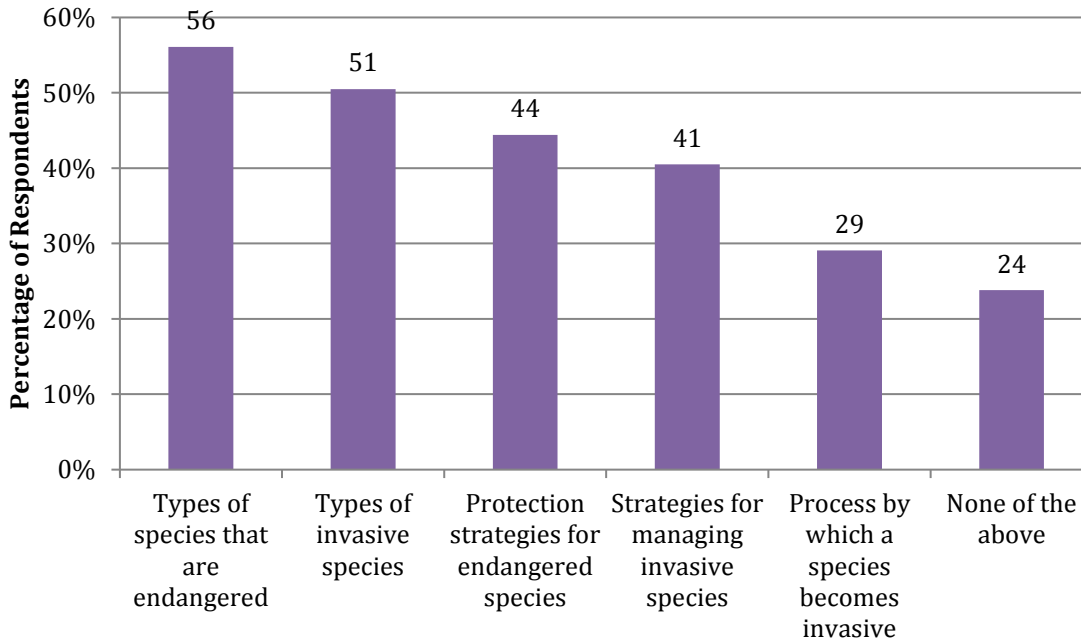
Figure 43: Willingness to engage in civic behaviors



### Educational Topics and Learning Mode

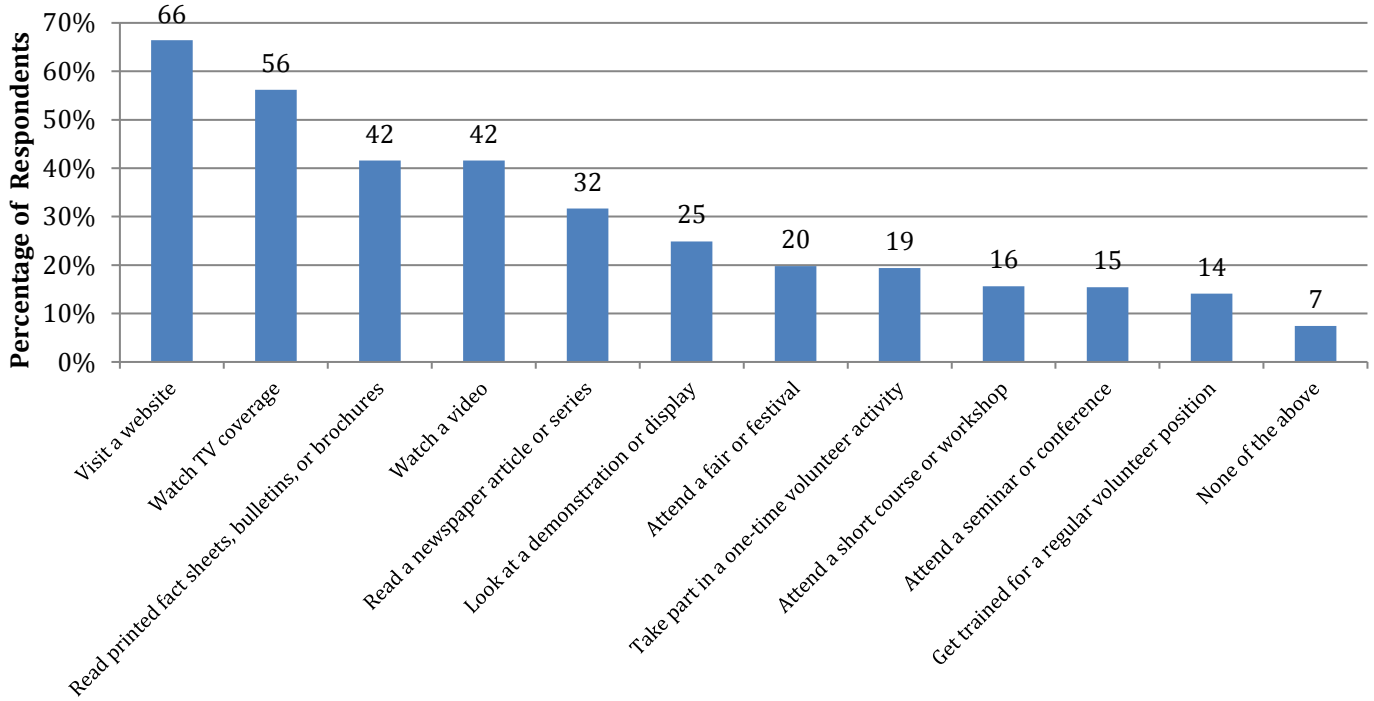
Respondents were asked to indicate whether they would like to learn more about topics related to endangered and invasive species. They were allowed to select all that applied. Fifty-six percent of respondents would like to learn more about types of species that are endangered, and 51% would like to learn about the types of species that are invasive (Figure 44).

Figure 44: Topics of interest regarding endangered and invasive species

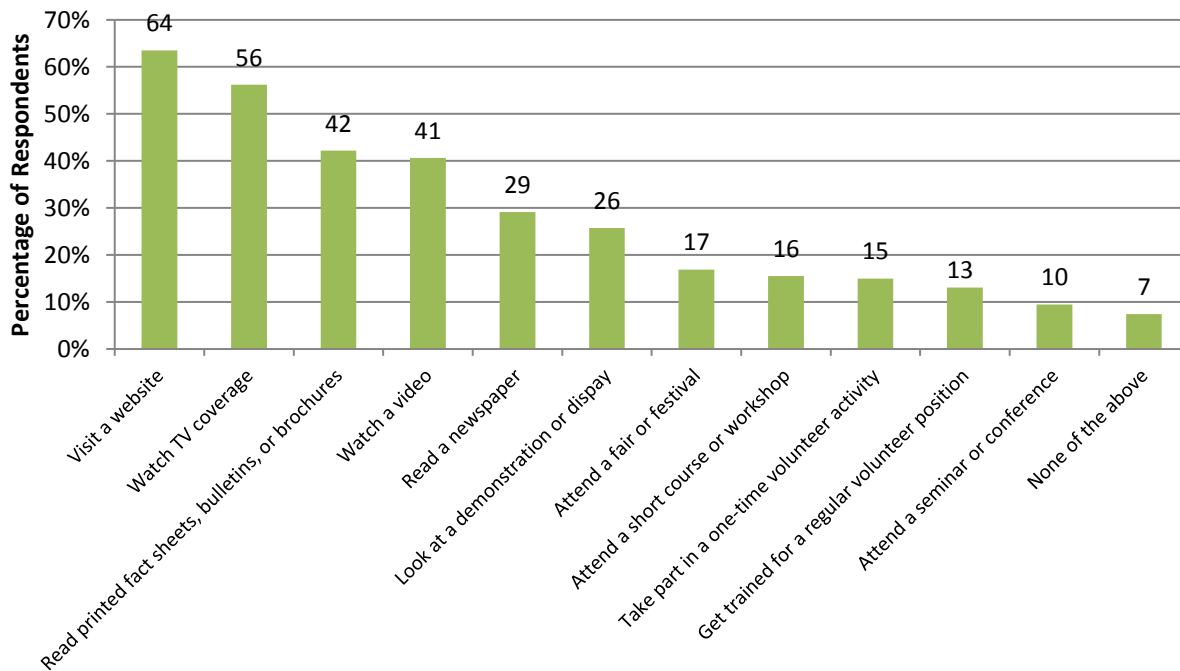


Respondents were asked what type of learning opportunities they would be most likely to take advantage of when learning about endangered species and invasive species topics. They were allowed to select all that applied and the results can be seen in Figure 45 and Figure 46. The most popular preferred mode of learning for endangered species topics was visiting a website (66%), followed by watching TV coverage (56%). The most popular preferred mode of learning for invasive species topics was also visiting a website (64%) and watching TV coverage (56%).

**Figure 45: Preferred mode of learning- endangered species (n=508)**



**Figure 46: Preferred mode of learning- invasive species (n=508)**



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