

CAPS Survey Report

Year:	2018
State:	Kansas
Cooperative Agreement Name:	Forest Pest Outreach
Cooperative Agreement Number:	USDA-APHIS-10025-PPQFO000-18-0231
Project Funding Period:	May 1, 2018 – April 30, 2019
Project Report:	Farm Bill Survey Report
Project Document Date:	May 1, 2018 – April 30, 2019
Cooperators Project Coordinator:	Laurinda Ramonda
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Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>

A. Write a brief narrative of work accomplished. Compare actual accomplishments to objectives established as indicated in the work plan. When the output can be quantified, a computation of cost per unit is required when useful.

Participants: Laurinda Ramonda – provide training and supervision
Surveyor – Brent Jones

- **April 6, 2018 – workplan signed by USDA**
- **May 22, 2018 – Brent Jones started survey**
- **May 23 – May 27, 2018 (Memorial Day Week) – 124 surveys taken**
 - Coffey County - John Redmond Lake-20
 - Douglas County - Clinton Lake-38
 - Jefferson County - Perry Lake-23
 - Riley County - Tuttle Creek Lake-21
 - Shawnee County - KOA Topeka-11
 - Shawnee County - Shawnee Lake-11
- **June 1 – June 4, 2018 – 72 surveys taken**
 - Greenwood County – Fall River Lake-9
 - Montgomery County – Elk City Lake-20
 - Miami County – Hillsdale Lake-10
 - Osage County – Pomona Lake-21
 - Woodson County – Toronto Lake-12
- **June 7, 2018 – Full funding awarded**
- **June 8-June 11, 2018 – 65 surveys taken**
 - Geary/Clay County – Milford Lake-24
 - Morris County – Council Grove Lake-10
 - Osage County – Melvern Lake-30
 - Osage County – Osage County Fishing Lake-1
- **June 15-June 18, 2018 – 86 surveys taken**
 - Brown County – Mission Lake-1
 - Butler County – El Dorado Lake-31
 - Jackson County – Banner Creek-7
 - Jackson County – Holton Prairie Lake-1
 - Marion County -Marion Reservoir-26
 - Osage County – Melvern Lake-10
 - Osage County – Cross Roads RV Park-10

- **June 22-June 25, 2018 – 85 surveys taken**
 - Geary County – Milford Lake-36
 - Linn County – LaCygne Lake-12
 - Lyon County – Emporia RV Park-10
 - Miami County – Rutlader RV Park-6
 - Russell County – Wilson Lake-21
- **June 29-July 2, 2018 – 82 surveys taken**
 - Ellsworth County – Kanopolis Lake-21
 - Labette County – Big Hill Lake-34
 - Shawnee County – Deer Creek Valley RV Park-13
 - Wabaunsee County – Paxico, Mill Creek RV Park-14
- **July 6-July 9, 2018 – 46 surveys taken**
 - Atchison County – Warnock Lake-1
 - Miami County – Osawatomie City Lake-1
 - Miami County – Miola Lake, Paola-13
 - Reno County – Cheney Lake-30
 - Riley County – Tuttle Creek, Stockdale Park-1
- **July 13-July 16, 2018 – 95 surveys taken**
 - Dickinson County – Covered Wagon RV Park, Abilene-3
 - Dickinson County – Four Seasons RV Park, Abilene-8
 - Ellsworth County – Kanopolis Lake-16
 - Rooks County – Webster Lake-8
 - Russell County – Wilson Lake-32
 - Trego County – Cedar Bluff Lake-28
- **July 21, 2018 – Outreach booth**
 - Meriden Threshing show – Jefferson County - outreach booth
- **July 22-July 23, 2018 – 47 surveys taken**
 - Mitchell County – Glen Elder Lake-26
 - Osage County – Melvern Lake-7
- **July 27-July 30, 2018 – 74 surveys taken**
 - Butler County – El Dorado Lake-21
 - Douglas County – Clinton Lake-25
 - Geary County – Milford Lake-7
 - Jefferson County – Ozawkie Old Town-13
 - Jefferson County – Perry Lake-8

- **August 3, 2018-August 5, 2018 – 70 surveys taken**
 - Jewell County – Lovewell Lake-29
 - Osage County – Pomona Lake-41
- **August 5, 2018 – Survey concluded**
- **May 22 - August 5 - a total of 832 written surveys were taken. One outreach event was done at the Meriden Threshing show in Jefferson County on July 21, 2018.**

Funding Amount (USDA)	Funding Amount (KDA)	Total Number of Surveys	Cost Per Unit
Proposed = \$14,151	Proposed = \$393	Proposed = N/A	Proposed = N/A
Actual = \$14,151	Actual = \$393	Actual = 832	Actual = \$17.48 per survey

1. Survey methodology:

A camper survey was given to users of recreational areas to fill out. They were also given information regarding pests. A green poster was given to recreational areas to display on their information boards. At the end of the survey statistics were done from results.

The survey and outreach materials are at end of report.

	Proposed	Actual
Sites (Locations):	N/A	51 locations - 832 surveys

	Proposed	Actual
Number of Counties:	25	27
Counties:	Anderson, Butler, Coffey, Crawford, Douglas, Ellsworth, Geary, Jefferson, Jewell, Kingman/Reno/Sedgwick, Linn, Labette, Marion, Meade, Miami, Mitchell, Montgomery, Morris, Norton, Osage, Riley/Pottawatomie, Rooks, Russell, Trego, Woodson	Atchison, Brown, Butler, Coffey, Dickinson, Douglas, Ellsworth, Geary, Greenwood, Jackson, Jefferson, Jewell, Linn, Lyon, Marion, Miami, Mitchell, Montgomery, Morris, Osage, Reno, Riley, Rooks, Russell, Shawnee, Trego, Woodson

2. **Survey dates:**

	Proposed	Actual
Survey Dates:	May 2018 to September 2018	May 22, 2018 – August 5, 2018

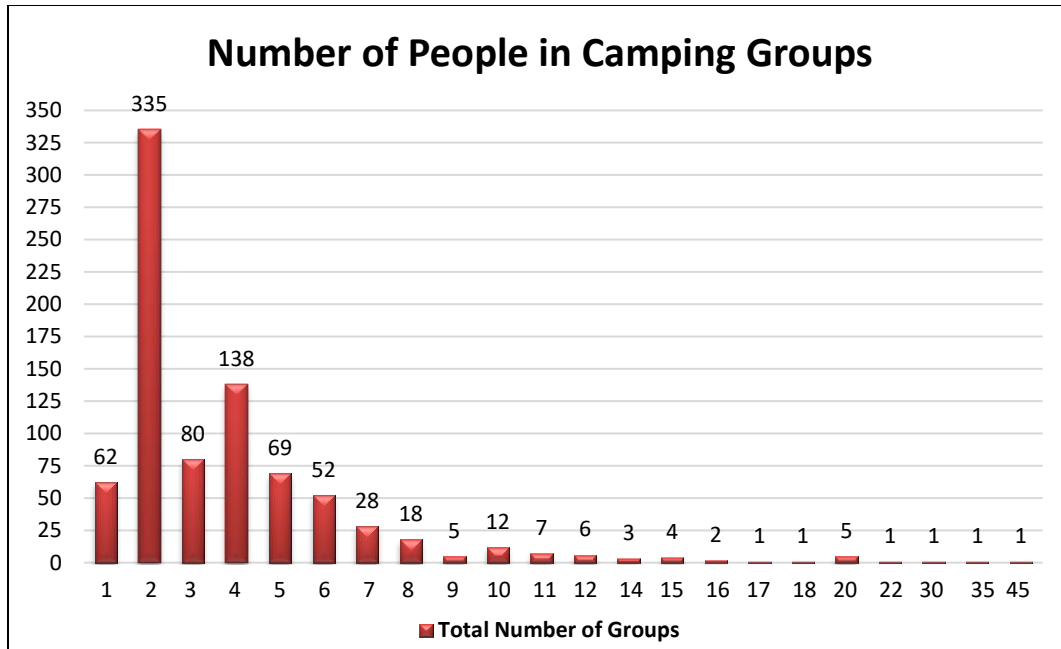
3. **Benefits and results of survey:**

Results from Questionnaire:

A. Number in camping group

- Most groups that were camping had two people, but it ranged from one to forty-five people in a group of campers. The larger groups were family reunions.

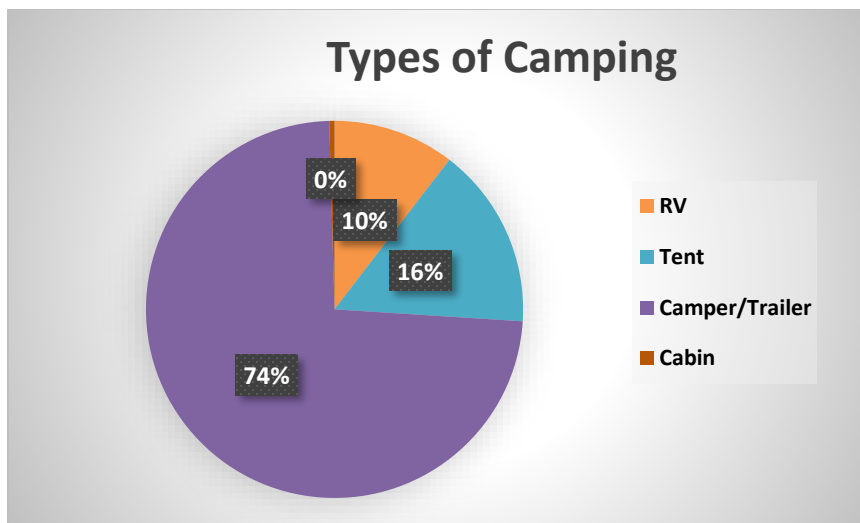
Number of people in camping group	Total number of groups surveyed
1	62
2	335
3	80
4	138
5	69
6	52
7	28
8	18
9	5
10	12
11	7
12	6
14	3
15	4
16	2
17	1
18	1
20	5
22	1
30	1
35	1
45	1



B. Type of Camping

- Campers/Trailers were most used for camping.

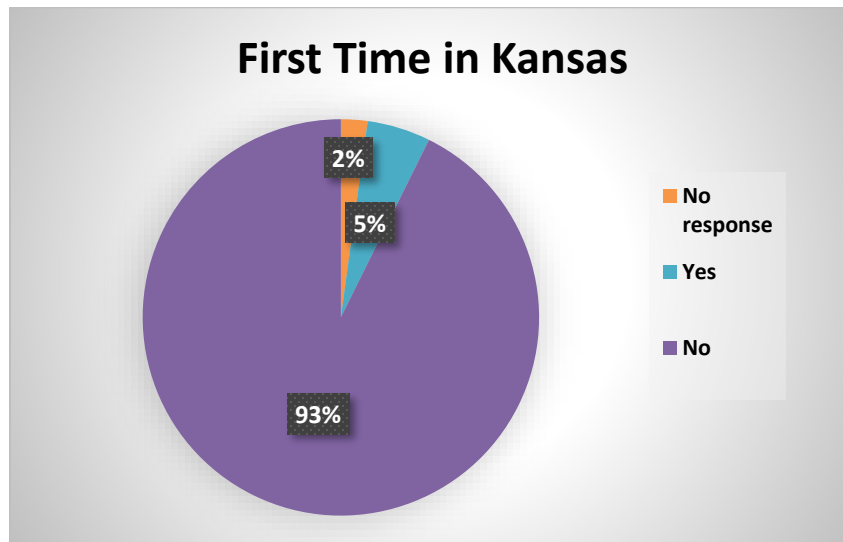
RV	Tent	Camper/Trailer	Cabin
93	139	656	4



C. Is this your first time in Kansas?

- Most campers are Kansas residents. This reduces chance of invasive pests being transported from other states.

No response	Yes	No
18	43	771



D. Zip Code Data

Campers came from 28 states outside of Kansas: Alabama, Arizona, Arkansas, California, Colorado, Florida, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, North Carolina, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington and Wisconsin. Highest number of campers came from Nebraska and Missouri.

1. The total percent of out-of-state campers were 15.3%.

- Percent of campers per state when the surveys was taken:

Alabama – 0.5%	Massachusetts – 0.1%	Oklahoma – 0.7%
Arizona – 0.2%	Michigan – 0.1%	Oregon – 0.2%
Arkansas – 0.1%	Minnesota – 0.2%	South Dakota – 0.6%
California – 0.4%	Missouri – 2.8%	Tennessee – 0.4%
Colorado – 0.8%	Montana – 0.1%	Texas – 1.6%
Florida – 0.7%	Nebraska – 3.8%	Vermont – 0.1%
Illinois – 0.4%	Nevada – 0.2%	Virginia – 0.1%
Kentucky – 0.2%	New Mexico – 0.1%	Washington – 0.2%
Maine – 0.1%	North Carolina – 0.1%	Wisconsin – 0.1%

2. Largest number of out-of-state campers at one site during survey:

- Lovewell Reservoir in Jewell County with 24 out-of-state campers:
2-Colorado, 1-Iowa, 20-Nebraska, 1-South Dakota

3. Number of out-of-state campers per campground during survey:

- Bill Hill Lake (Labette County) – 4:
1-Missouri, 3-Oklahoma
- Capital City KOA (Shawnee County) – 5:
1-Kentucky, 1-Missouri, 1-Oregon, 2-Texas
- Cedar Bluff (Trego County) – 3:
2-Colorado, 1-Texas
- Cheney Reservoir (Reno County) – 1:
1-Tennessee
- Clinton Lake (Douglas County) – 6:
1-Minnesota, 5-Missouri
- Council Grove Lake (Morris County) – 1:
1-Washington
- Covered Wagon RV Park (Dickinson County) – 2:
1-Minnesota, 1-Virginia
- Cross Roads RV Park (Osage County) – 5:
1-Illinois, 1-Missouri, 2-South Dakota, 1-Texas
- Deer Creek Valley RV Park (Shawnee County) – 7:
1-Arizona, 3-Florida, 1-Massachusetts, 1-Missouri, 1-Texas
- El Dorado Lake (Butler County) – 3:
2-Oklahoma, 1-Missouri
- Elk City Lake (Montgomery County) – 4:
4-Missouri
- Emporia RV Park (Lyon County) – 3:
1-Colorado, 2 Nevada
- Four Seasons RV Park (Dickinson County) – 3:
1-Oklahoma, 1-South Dakota, 1-Vermont
- Hillsdale Lake (Miami County) – 4:
1-Arizona, 1-Colorado, 2-Texas
- John Redmond Lake (Coffey County) – 3:
1-Illinois, 2-Missouri
- Kanopolis Lake (Ellsworth County) – 1:
1-Texas
- LaCygne Lake (Linn County) – 3:
2-Missouri, 1-Tennessee
- Marion Lake (Marion County) – 2:
1-Missouri, 1-New Mexico
- Melvern Lake (Osage County) – 2:
1-Missouri, 1-Texas

- Milford Lake (Geary County) – 10:
1-Iowa, 1-Missouri, 7-Nebraska, 1-Texas
- Mill Creek RV Park (Wabaunsee County) – 8:
1-Arkansas, 1-California, 1-Florida, 1-Kentucky, 2-Missouri, 1-Oregon,
1-Wisconsin
- Miola Lake (Miami County) – 1:
1-Texas
- Perry Lake (Jefferson County) – 5:
1-Colorado, 1-Illinois, 2-Missouri, 1-Tennessee
- Pomona Lake (Osage County) – 2:
2-Missouri
- Rutlader Outpost RV Park (Miami County) – 2:
1-South Dakota, 1-Texas
- Shawnee Lake (Shawnee County) – 7:
1-California, 2-Florida, 1-Maine, 1-Montana, 2-Texas
- Tuttle Creek Lake (Riley County) – 1:
1-Missouri
- Waconda Lake (Mitchell County) – 2:
2-Nebraska
- Warnock Lake (Atchison County) – 1:
1-Iowa
- Wilson Lake (Russell County) – 2:
1-Nebraska, 1-North Carolina

- 4. Emerald ash borer quarantines are in effect for 18 of the 28 states in which campers overnighted in Kansas. There are currently 8 counties quarantined in Kansas: Atchison, Doniphan, Douglas, Jefferson, Johnson, Leavenworth, Shawnee and Wyandotte.**

Kansas Campers from Quarantine Counties Camping in Non-Quarantine Counties

Quarantine County	Total Number of Camping Groups	Number of Camping Groups Camping in Non-Quarantine Counties	Non-quarantine County Campground
Atchison	2	2	Brown, Osage
Doniphan	0	0	N/A
Douglas	28	1	Osage
Jefferson	11	2	Lyon
Johnson	47	34	Coffey, Geary, Labette, Miami, Osage, Riley, Woodson
Leavenworth	15	2	Lyon, Osage
Shawnee	51	19	Geary, Morris, Osage, Riley, Russell
Wyandotte	7		Osage, Riley

Kansas Campers from Quarantine Counties Bringing Firewood to Non-Quarantine Counties

Quarantine County	Non-Quarantine County Campground	Number of Camping Groups Camping in Non-Quarantine Counties	Number of Groups Bringing Firewood to Non-Quarantine County	Percent of campers who brought firewood
Atchison	Brown, Osage	2	0	0%
Doniphan	none	0	0	0%
Douglas	Osage	1	1	100%
Jefferson	Lyon	2	0	0%
Johnson	Coffey, Geary, Labette, Miami, Osage, Riley, Woodson	34	10	29%
Leavenworth	Lyon, Osage	2	1	50%
Shawnee	Geary, Morris, Osage, Riley, Russell	19	9	47%
Wyandotte	Osage, Riley	4	0	0%

*Majority of firewood was brought into Osage County campgrounds from quarantined counties.

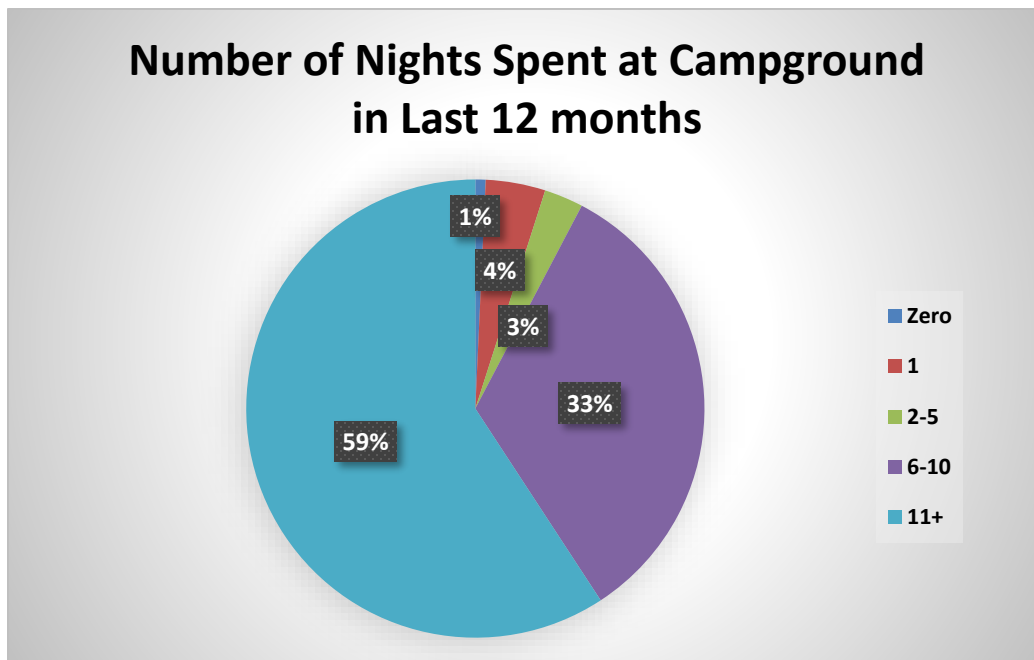
E. How many times did you visit a park/recreational/natural area in Kansas in the last 12 months?

- Most campers visit parks 6-10 times a year



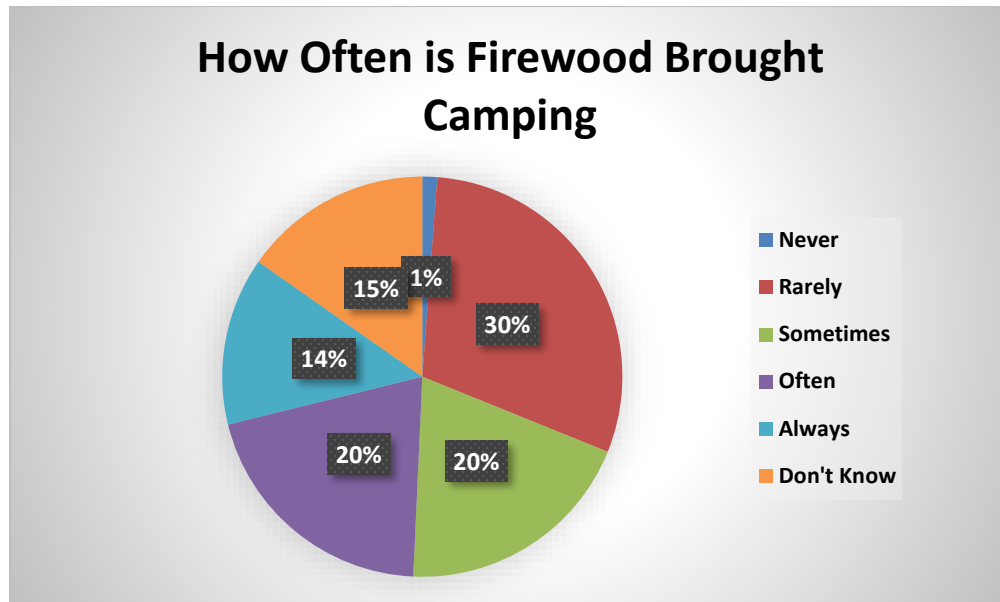
F. How many nights did you spend at a campground in Kansas in the last 12 months?

- Most campers spend 11 or more nights a year camping.



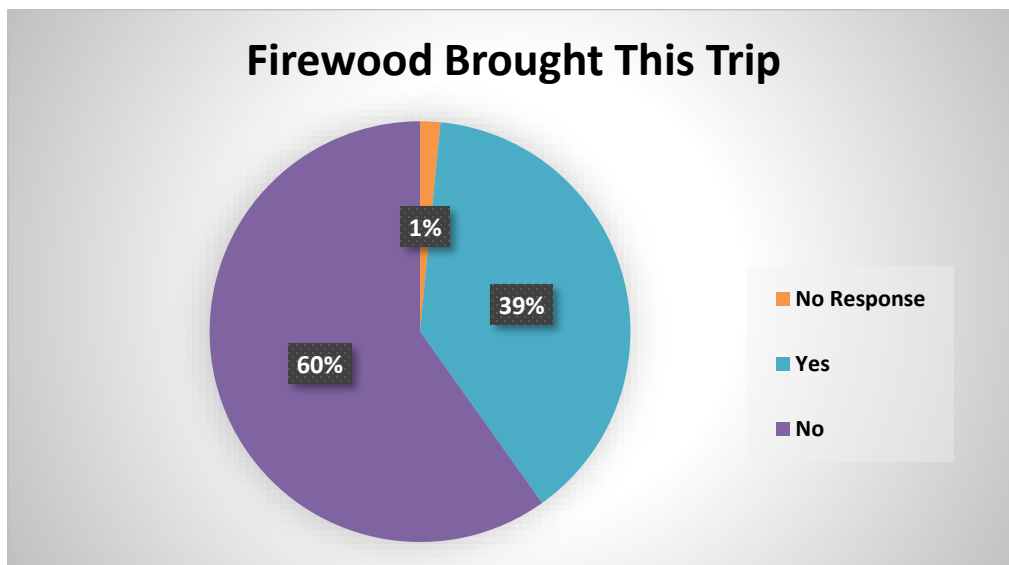
G. How often do you bring firewood with you when camping in Kansas?

- The majority rarely bring firewood. Often or sometimes combined is 40% in which campers bring firewood to camp which increases the chance of invasive pests being transported.



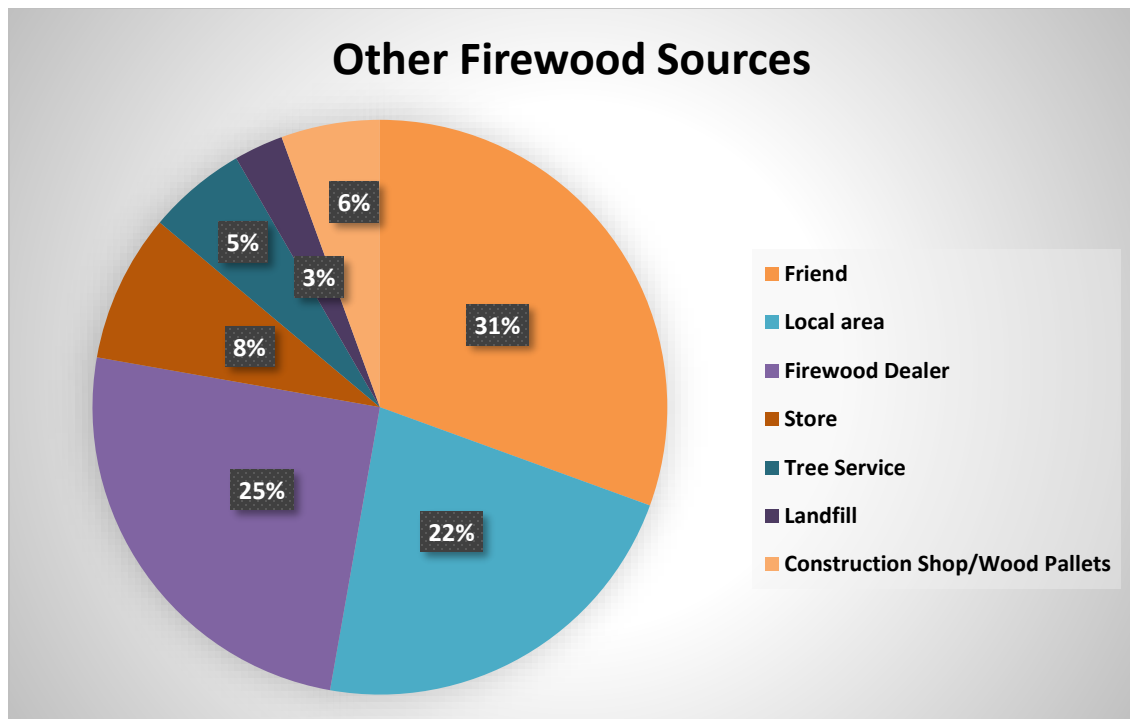
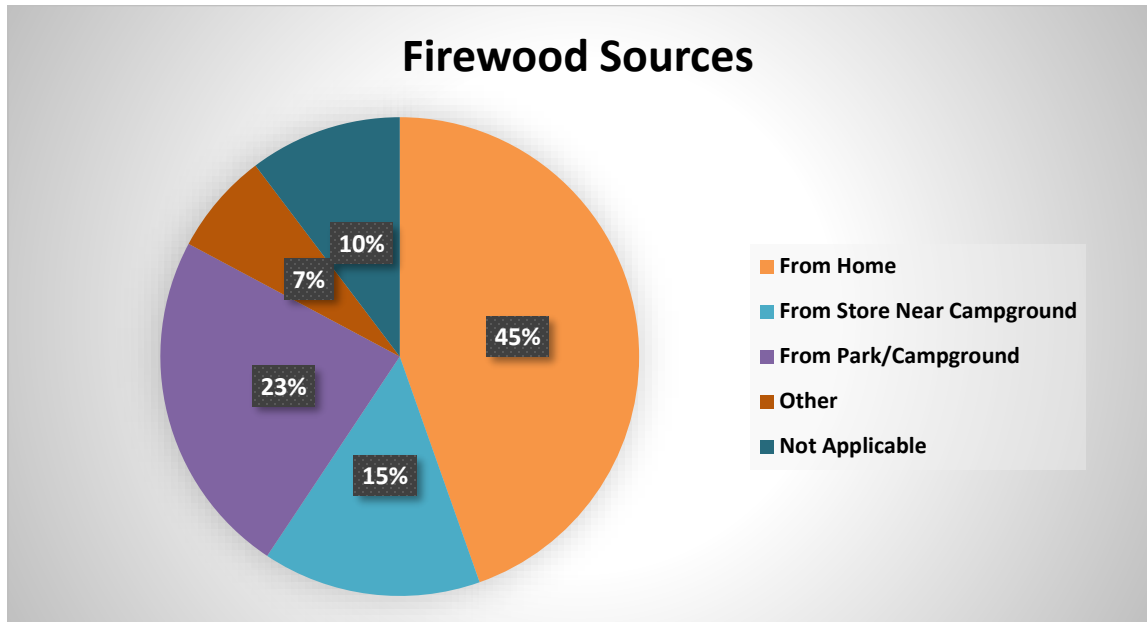
H. Did you bring firewood with you on this trip?

- Most campers did not bring firewood. This reduced the risk of invasive pests being transported to campgrounds.



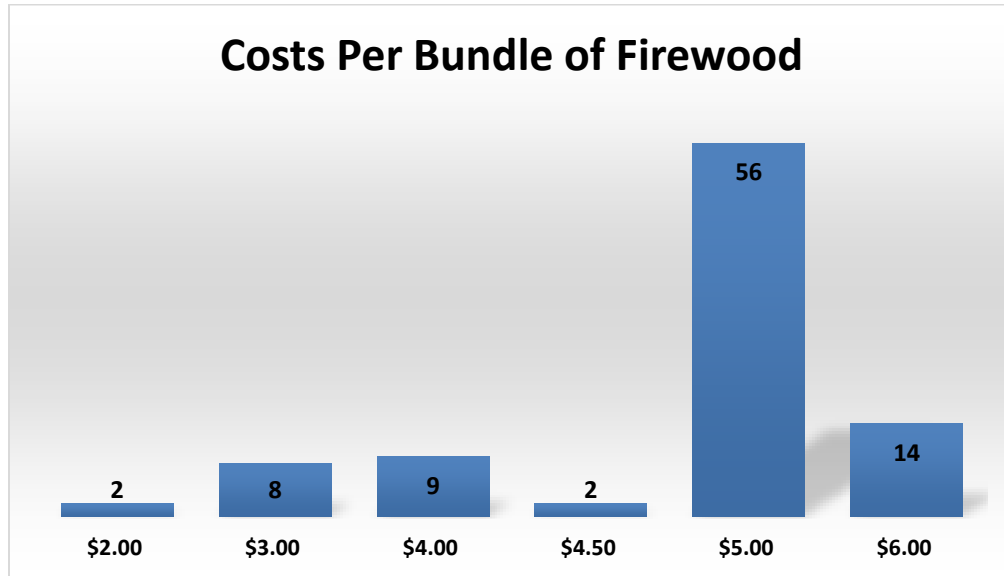
I. Where do you typically get your firewood?

- Most campers bring firewood from home. If it comes from other locations than the ones asked for, then it comes from friends or the local area. Invasive pests can be brought with firewood from home.



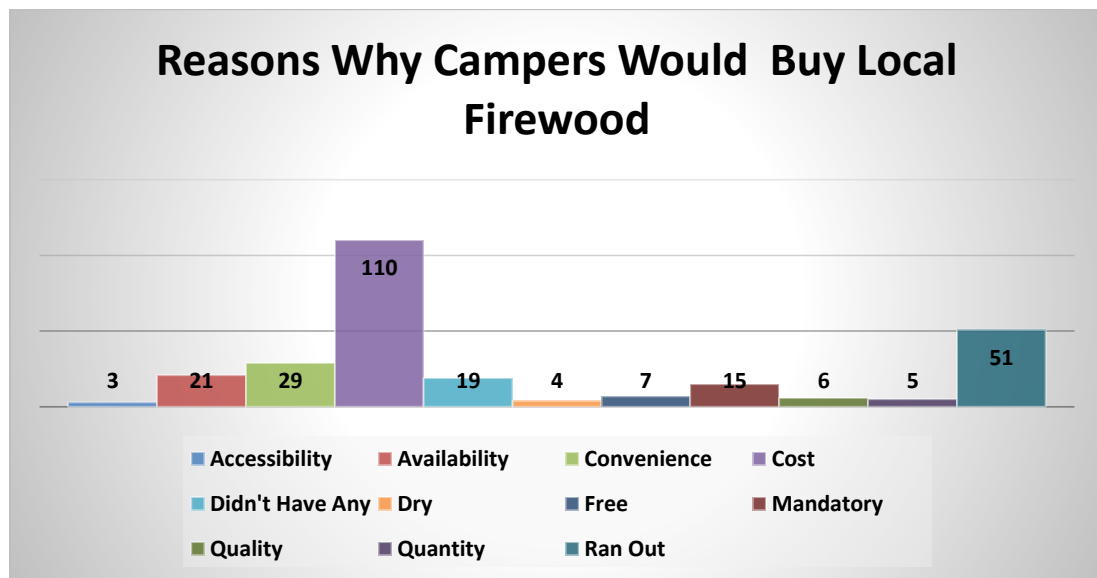
J. If you brought firewood, may we ask how much you paid?

- Only 108 people answered this question. Most bundles of firewood have about 6 logs and cost \$5.00 per bundle.



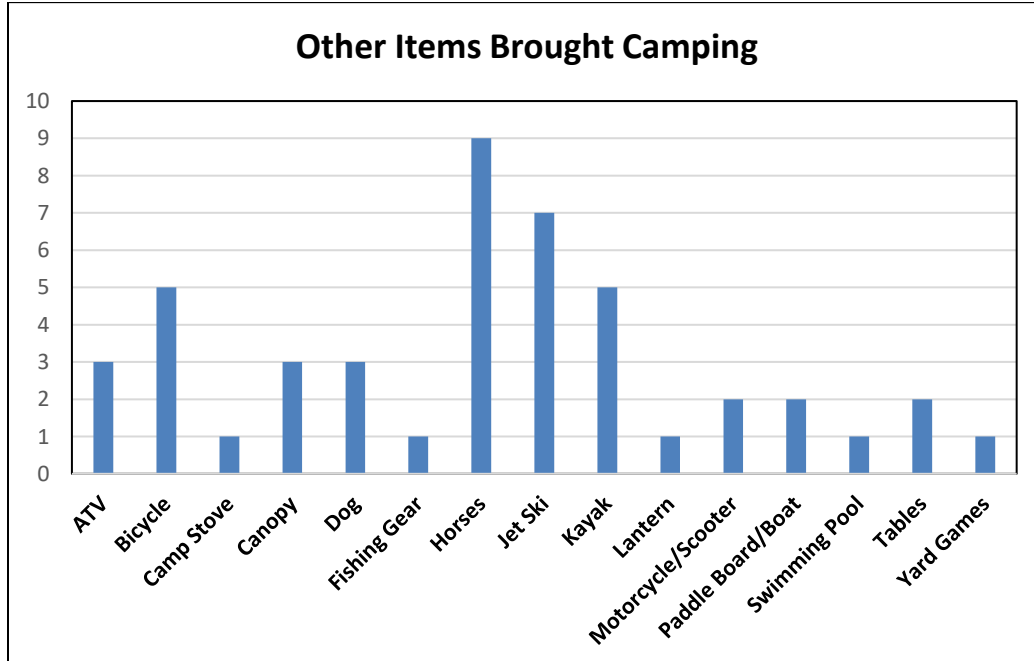
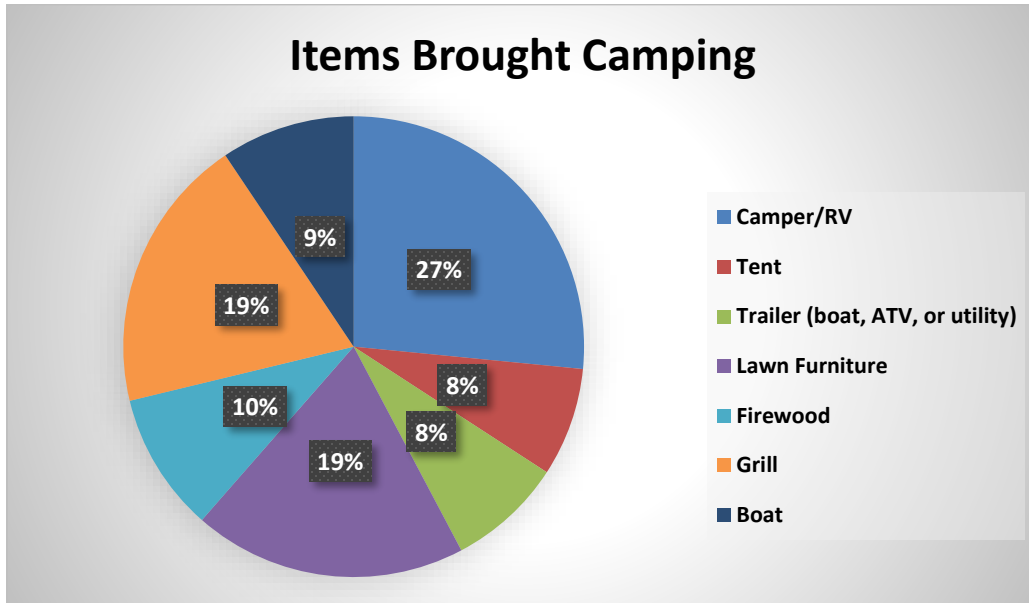
K. If you brought firewood from home, what would make you buy firewood at the campgrounds or local vendors?

- Cost would be the biggest factor for campers to buy firewood on site. If cost and convenience were possible campers would buy local wood.



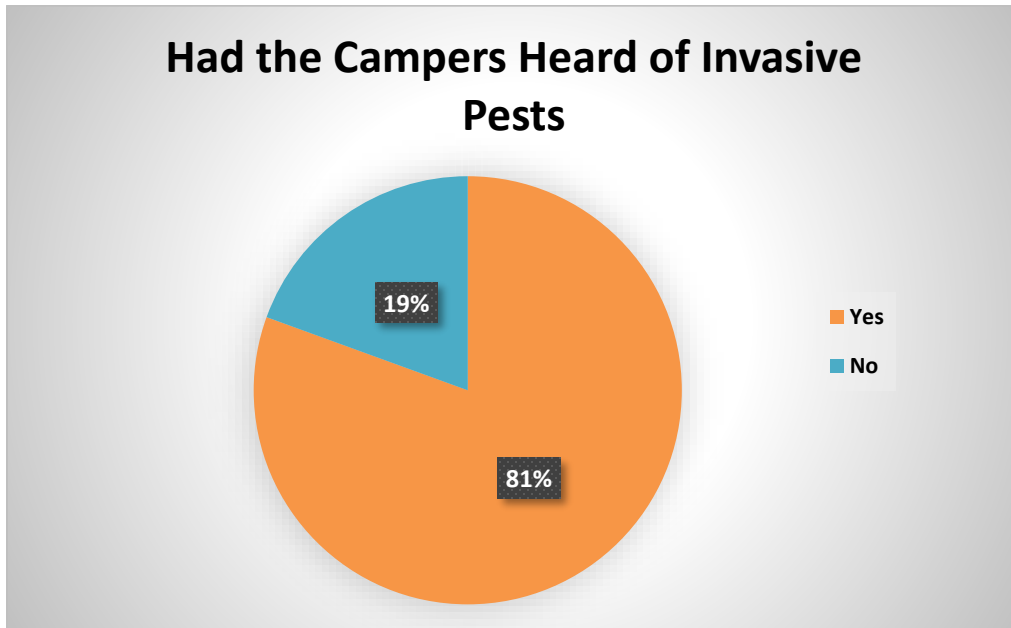
L. What supplies do you typically bring with you?

- Camper/RV is the most brought item then equally lawn furniture and a grill. Firewood was only brought along 10% of the time. Both these items could bring invasive pests.
- Other items brought are horses and jet skis. Both can bring invasive pests.



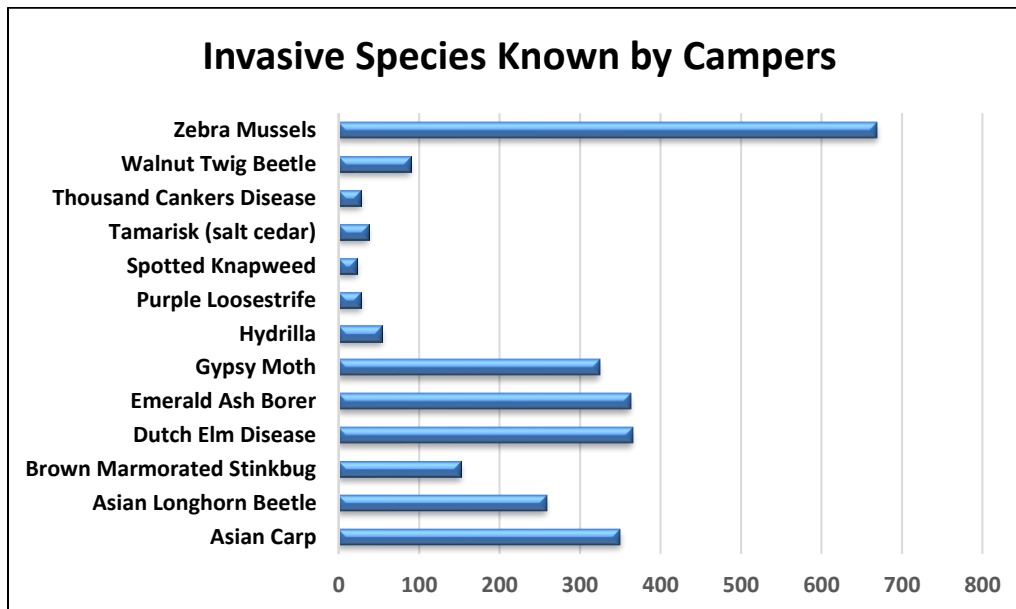
M. Have you heard of invasive pests?

- Most campers have heard of invasive pests



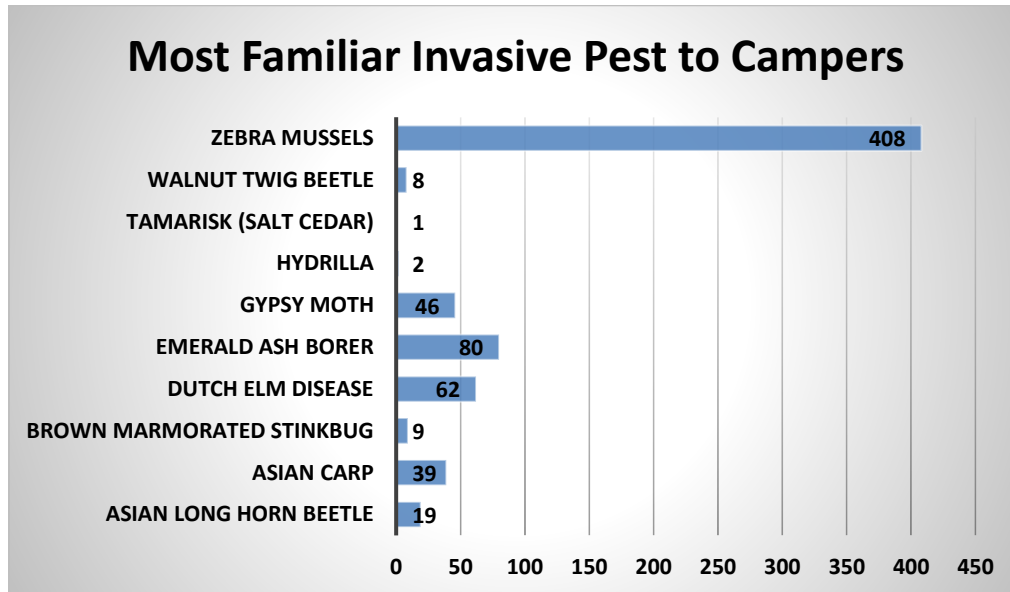
N. Which of the following insects, plants or animals have you heard of?

- Most campers know about zebra mussels. Equal knowledge on gypsy moth, emerald ash borer, Dutch elm disease and Asian carp. More education needs to get to public.



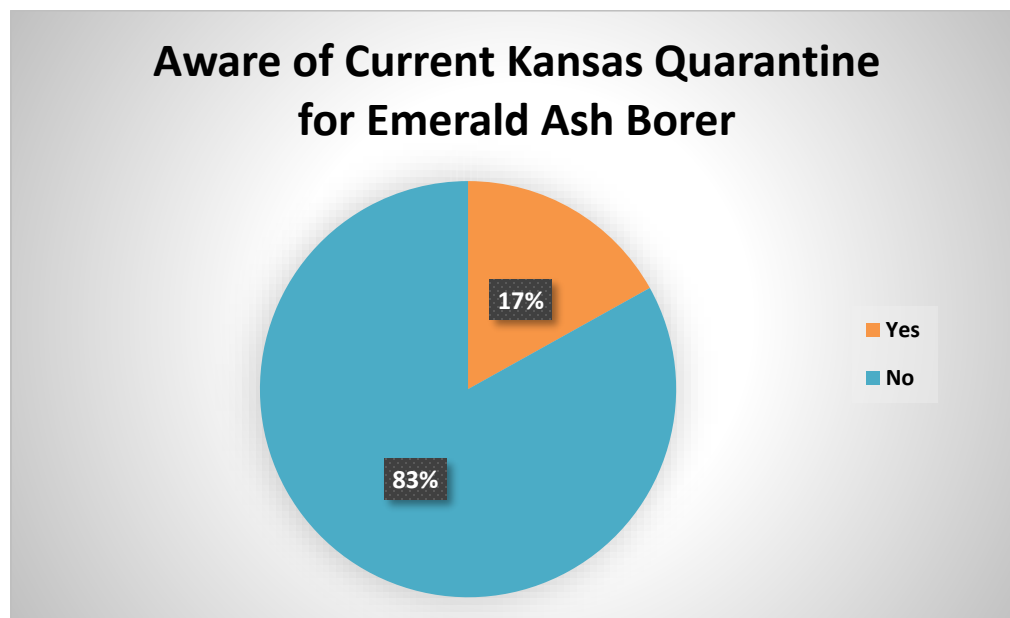
O. Which of the above insects, plants, or animals is most familiar to you?

- Correlates somewhat with the above question. Most familiar to campers are zebra mussels then emerald ash borer and Dutch elm disease. More education on other invasive pests are needed.



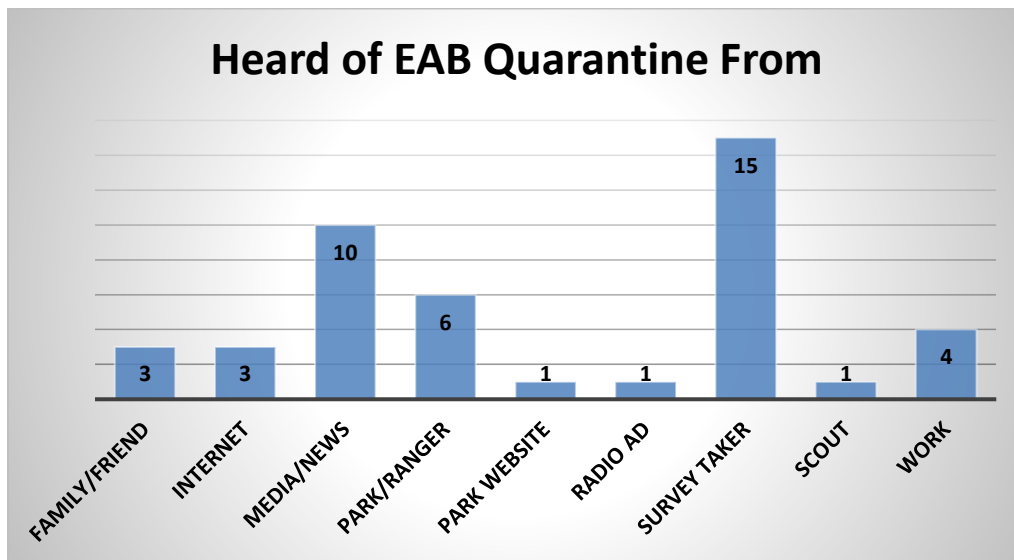
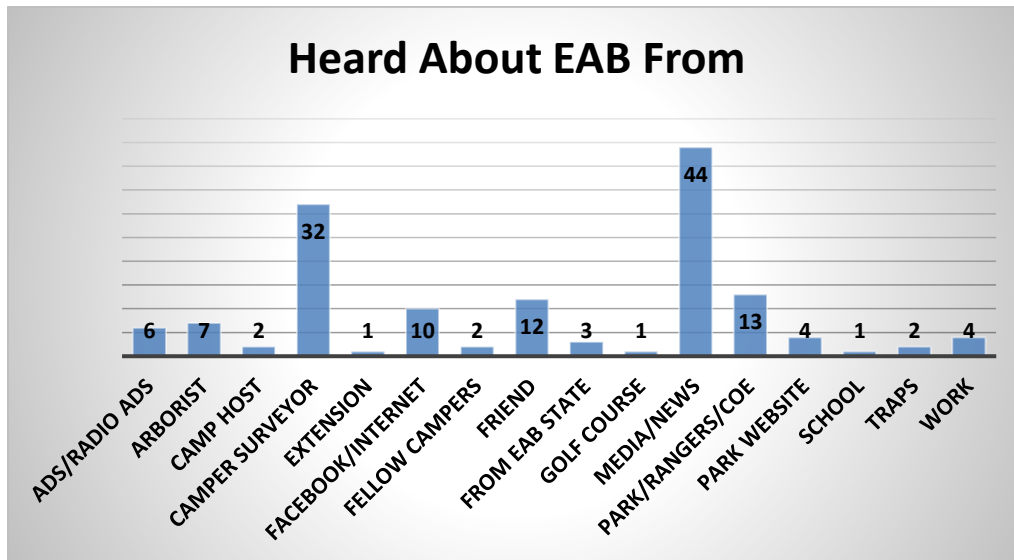
P. Are you aware of the current Kansas quarantine counties for emerald ash borer?

- Most campers are not aware of the current quarantine for emerald ash borer. More information needs to get to public about quarantine.



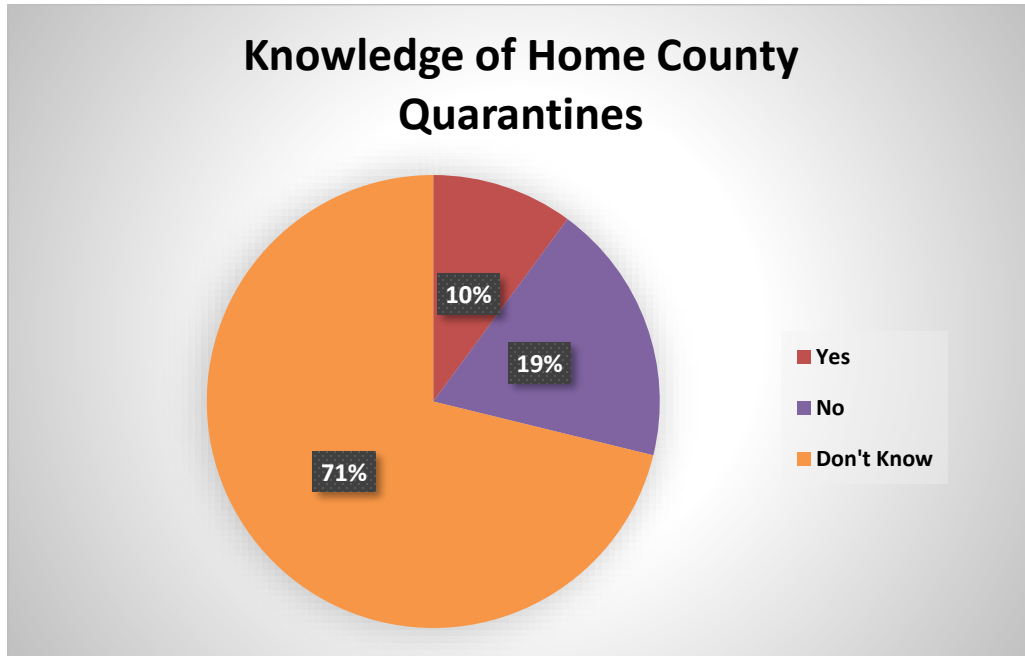
Q. If you have heard about emerald ash borer (EAB) or the quarantine, how did you find out?

- Most campers who know about emerald ash borer heard it through the news or media and then by our survey taker. Most campers heard about the quarantine from our survey taker and then the news or media. More coverage about both in the media needs to be done.



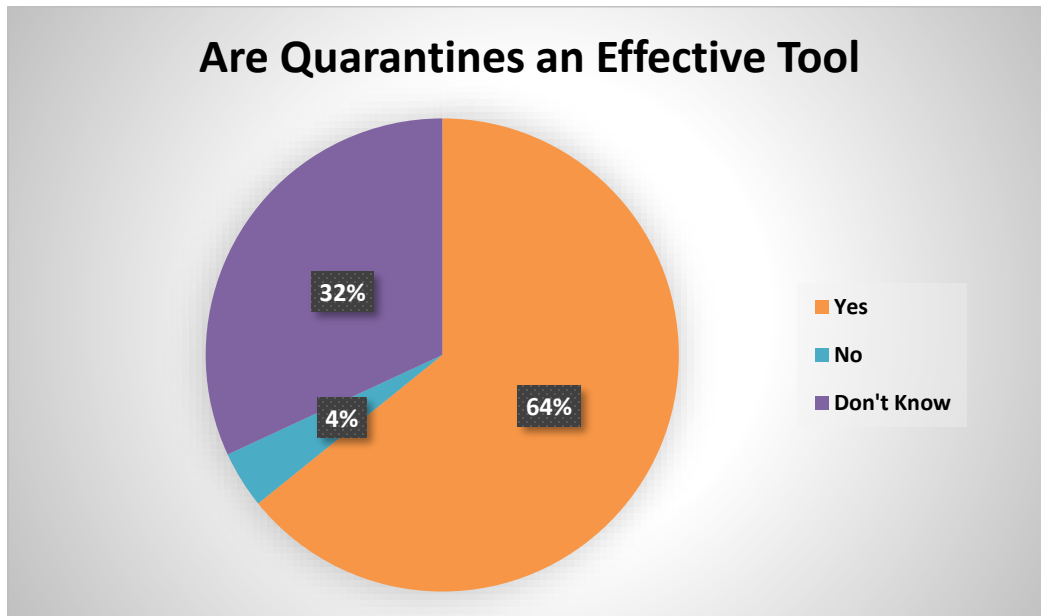
R. Does your home county have an invasive species quarantine in effect?

- Most campers do not know if their home county has a quarantine. More information needs to get to public about quarantines.



S. Do you believe quarantines are an effective tool in managing invasive species?

Most campers believe quarantines are an effective tool.



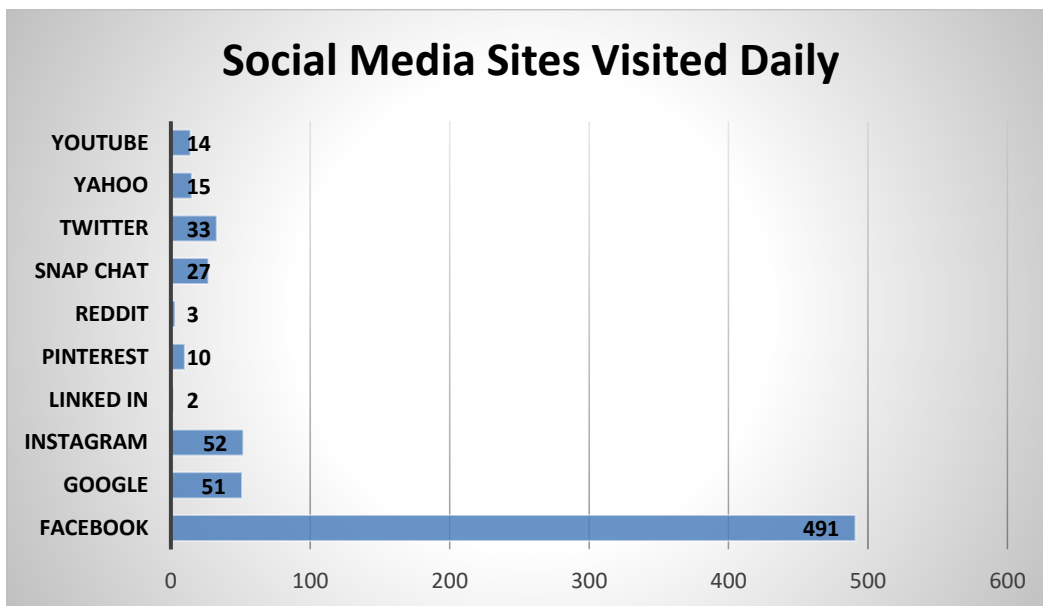
T. Have you changed your firewood behavior because of emerald ash borer or other invasive pest concerns?

- Most people have not changed firewood behavior. More information needs to get to public about invasive pest movement when firewood is transported.



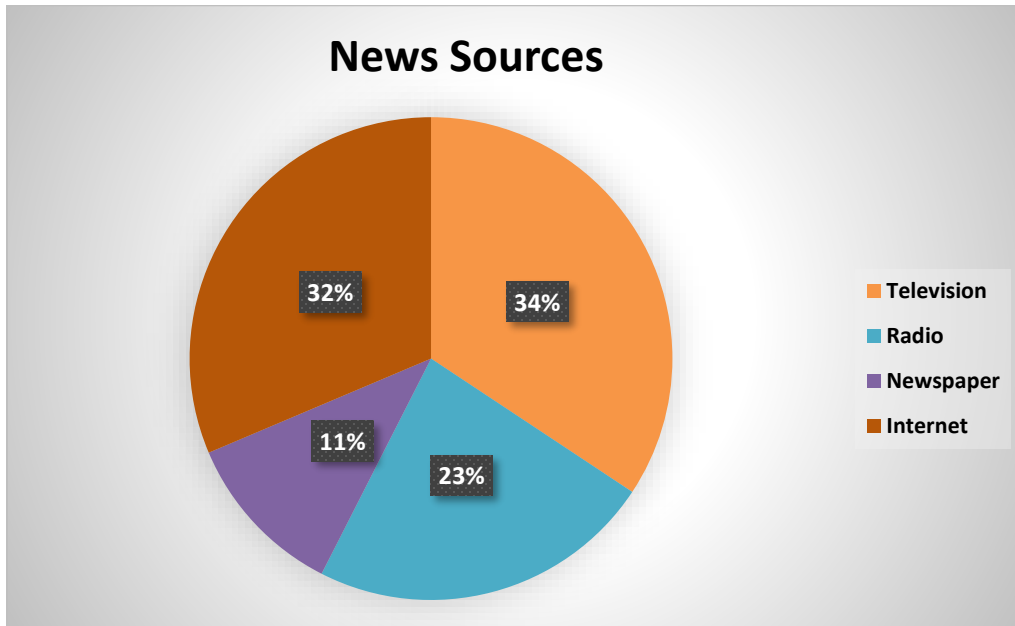
U. What websites do you visit daily for social media?

- Most campers visit Facebook daily. May be a good place to advertise about invasive pests.



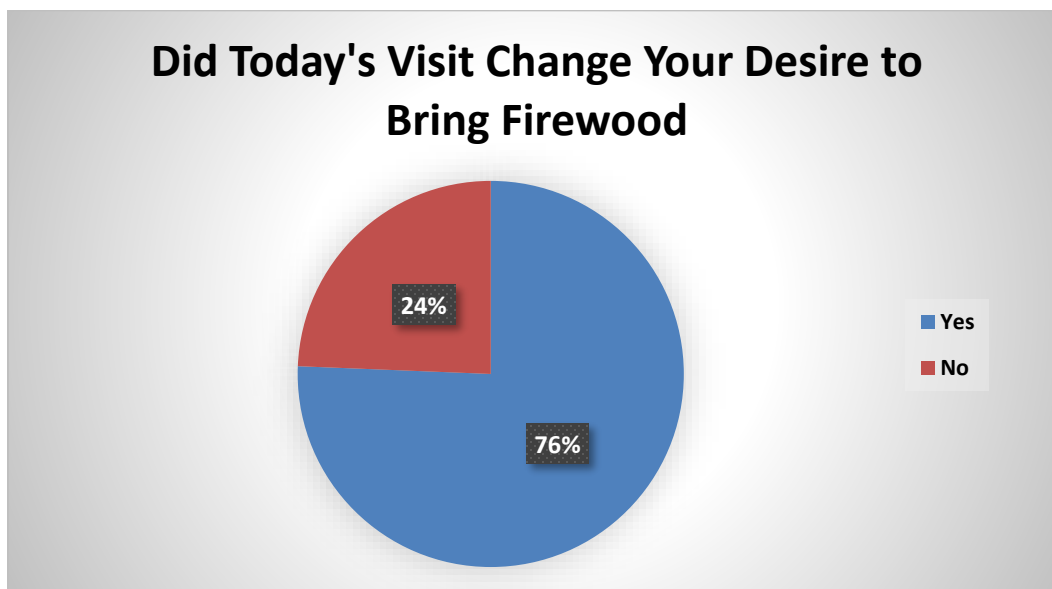
V. Where do you receive your news?

- Most campers get the news from either television or the internet, some from radio. Information needs to be put on internet, tv and radio not in newspapers.



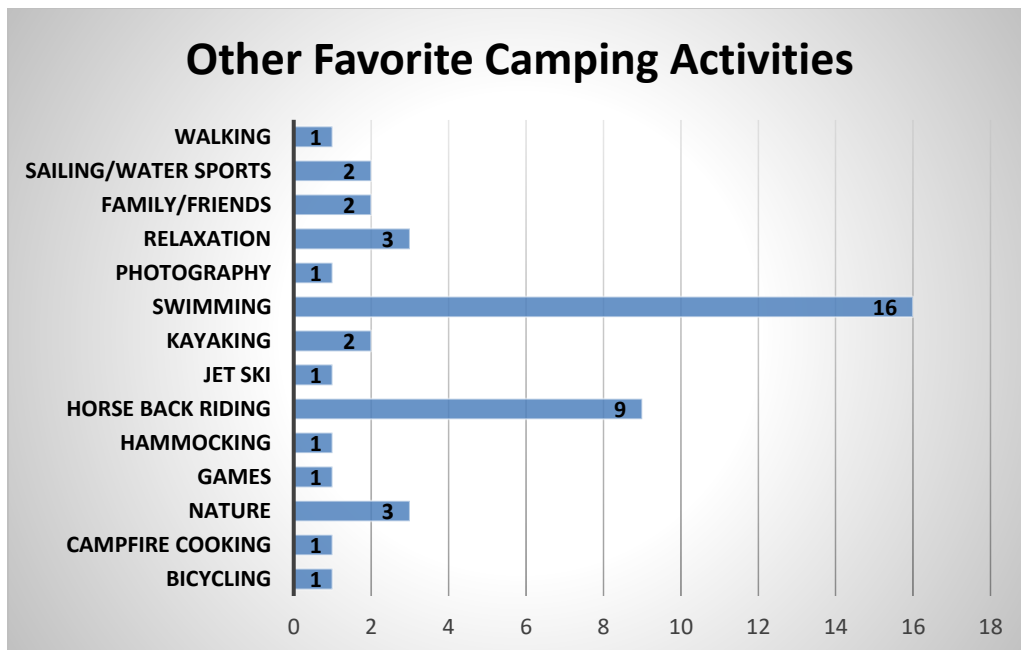
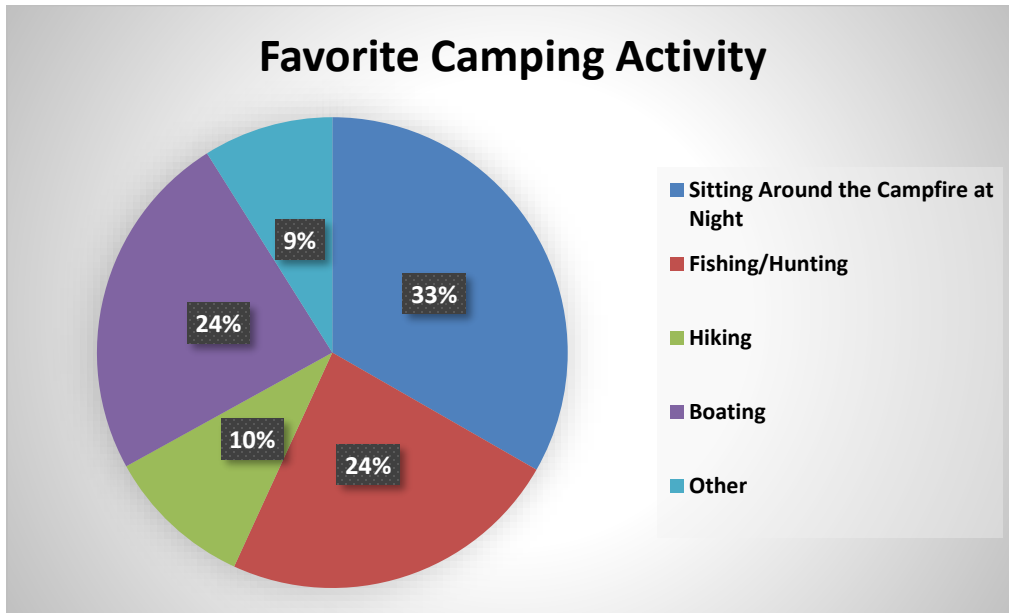
W. Has today's visit, learning about invasive pests, changed your desire to bring firewood with you?

- Most campers are changing their minds about bringing firewood to camp. More personal outreach to public at campgrounds needs to be done.



X. What is your favorite activity while camping?

- Most campers like to sit around the campfire, boat and fish/hunt. Greater potential for firewood movement.



Information Gained from Survey:

a. Camping statistics:

1. Average number of people in a group is 2 and they bring a trailer/camper most of the time
2. It was 5% of the campers first time in Kansas
3. 15.3% of campers live out-of-state
4. Out-of-state campers came from 18 out of 28 states that are quarantined for emerald ash borer
5. People from 7 Kansas emerald ash borer quarantine counties brought firewood to 11 non-quarantine county campgrounds. Osage county had the most firewood brought to it.
6. Campers visit campgrounds 6-10 times and spend 11 or more nights a year in Kansas camping
7. 84% of campers have brought firewood camping. 14% rarely do, 20% sometimes do, 20% often do, 30% always bring firewood camping.
8. 60% of campers did not bring firewood and 39% did bring firewood during the survey
9. Most campers know of zebra mussels, but the knowledge of other invasive pests is lacking.
10. Knowledge about quarantines is lacking
11. Firewood habits have not changed most people bring from home
12. Most utilized social media site is Facebook and most people get the news from the internet or TV.
13. Personal visits to the campsites was useful and more campers will change their firewood habits because of it.

b. Increased potential for transporting invasive species

1. Trailers/Campers are most utilized for camping (gypsy moth egg masses, invasive weeds)
2. Lawn furniture and grills (gypsy moth egg masses, invasive weeds)
3. Horses are brought to horse camping trails (invasive weeds)
4. Out-of-state visitors not checking items that can harbor invasive pests before travelling and during travel (gypsy moth eggs masses, invasive water pests)
5. Quarantine Kansas county residents transporting firewood to non-quarantine counties (invasive tree pests)
6. Forty-five percent of campers typically get firewood from home and 31% getting it from friends (invasive tree pests)
7. Boats and jet skis (invasive water pests)

c. Action items from the results of survey

1. Multi-agency meeting – Kansas Department of Agriculture, Kansas Wildlife, Parks and Tourism, Kansas Forest Service, Corp. of Engineers
2. Develop targeted outreach, especially on social media
3. Develop firewood movement initiatives
4. Develop one on one interaction at campgrounds

4. Database submissions:

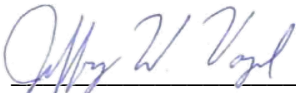
- Not Applicable

B. If appropriate, explain why objectives were not met. *

C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. *

**indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51*

Approved and signed by




Cooperator

Date: 4-30-2019

ADODR

Date: _____

<p>STATE OF KANSAS</p> 	<h1>Camper Survey</h1>	<p>For KDA Use Only: Surveyor: _____</p> <p>Park: _____</p> <p># in group: _____ <input type="checkbox"/> RV <input type="checkbox"/> Tent <input type="checkbox"/> Camper/Trailer</p> <p>Today's Date: _____</p>
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1. Is this your first time in Kansas? ☐ Yes ☐ No
2. What is your zip code? _____
3. Including this visit, how often did you go camping or visit parks/recreational/natural areas in Kansas in the last 12 months? ☐ Never ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 15-20 ☐ 20+
4. How many nights did you spend at a campground in Kansas in the last 12 months?
☐ Zero nights ☐ One night ☐ 2-5 nights ☐ 6-10 nights ☐ More than 10 nights
5. How often do you bring firewood with you when camping in Kansas?
☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always ☐ Don't know
6. Did you bring firewood with you on this trip? ☐ Yes ☐ No
7. Where do you typically get your firewood? (check all that apply)
☐ From my home supply ☐ From a store near the park or campground ☐ From the park/campground
☐ Other (please specify): _____ ☐ Not applicable
8. If you bought firewood, may we ask how much you paid? Amount: _____
per unit: _____
9. If you brought firewood from home, what would make you buy firewood at the campgrounds or local vendors?

10. What supplies do you typically bring with you?
☐ Camper/RV ☐ Tent ☐ Trailer (boat, ATV or utility trailer) ☐ Lawn furniture
☐ Firewood ☐ Grill ☐ Boat/canoe ☐ Other (please specify): _____

11. Have you heard of invasive pests? ☐ Yes ☐ No

12. Which of the following insects, plants or animals have you heard of? (check all that apply)
- ☐ Emerald ash borer ☐ Gypsy moth ☐ Brown marmorated stinkbug ☐ Asian longhorn beetle
- ☐ Walnut twig beetle ☐ Thousand cankers disease ☐ Dutch elm disease ☐ Spotted knapweed
- ☐ Purple loosestrife ☐ Hydrilla ☐ Tamarisk (salt cedar) ☐ Asian carp ☐ Zebra mussels
13. Which of the above insects, plants, or animals is most familiar to you? (choose one)
- _____
14. Are you aware of the current Kansas quarantine counties for emerald ash borer?
- ☐ Yes ☐ No
15. If you have heard about emerald ash borer (EAB) or the quarantine, how did you find out?
- EAB: _____ Quarantine: _____
16. Does your home county have an invasive species quarantine in effect?
- ☐ Yes ☐ No ☐ Don't know
17. Do you believe quarantines are an effective tool in managing invasive species?
- ☐ Yes ☐ No ☐ Don't know
18. Have you changed your firewood behavior because of emerald ash borer or other invasive pest concerns?
- ☐ Yes ☐ No
19. What websites do you visit daily for social media?
1. _____
2. _____
3. _____
20. Where do you receive your news (check all that apply)?
- ☐ Television ☐ Radio ☐ Newspaper ☐ Internet
- Other (please specify): _____
21. Has today's visit, learning about invasive pests, changed your desire to bring firewood with you? ☐ Yes ☐ No
22. What is your favorite activity while camping?
- ☐ Sitting around the campfire at night ☐ Fishing/hunting ☐ Hiking ☐ Boating
- ☐ Other _____

Front:

LABELING REQUIREMENTS

Packaged firewood

Firewood offered for sale in packaged form (quantities less than 1/8 cord or 16 cubic feet) must be labeled with the following:

- Identity of the product (what is for sale)
- Declaration of responsibility (name and address of manufacturer, packer, or distributor; actual corporate name required if incorporated)
- Net contents or weight of the product in terms of (1) liters, to include fractions of liters; or (2) cubic inches, if less than one cubic foot; or (3) cubic feet, if one cubic foot or greater, to include fractions of a cubic foot.

Origin (county, state) labeling is required for firewood originating in quarantined areas and traveling into or through Kansas. It is also recommended on ALL firewood to quickly confirm compliance with regulations.

Sample label:

ABC Firewood, Inc.
123 Oak St, Smalltown, KS
555-555-5555
1.25 cu ft mixed hardwood firewood
Origin: Big County, Kansas

Non-packaged firewood

Non-packaged firewood must have a delivery ticket or sales invoice with the name and address of the vendor, name and address of the purchaser, delivery date, quantity delivered and quantity upon which the price is based, price of the amount delivered, and the identity of the product in the most descriptive terms possible, including any quality representation made in connection with the sale.

For more information about firewood quarantines, regulations, and invasive pests in Kansas, contact:

Kansas Department of Agriculture
Plant Protection and Weed Control
ppwc@kda.ks.gov
(785) 564-6698

For more information about state requirements for labeling, contact:
Kansas Department of Agriculture
Division of Weights and Measures
(785) 564-6700



Back:

Movement of Firewood

State and Federal quarantines restrict the movement of hardwood (non-coniferous) firewood into and through Kansas. Many campgrounds also restrict the use of firewood to local sources.

WHY?

Firewood is a known carrier of insects and disease-causing organisms. These pests move into standing trees while the trees are alive. Then, when trees are harvested after death or decline, pests stay protected in the wood and/or bark until conditions are right for emergence. If the wood is moved, the pests go with it. Even seemingly healthy trees may be infested.

Emerald ash borer, pine wilt, oak wilt, and Dutch elm disease are just a few examples of insects and diseases that have spread as a result of movement of firewood.

QUARANTINES

Interior quarantines prevent the spread of emerald ash borer within Kansas. All hardwood firewood is prohibited from moving out of quarantined counties except as described under "EAB Quarantine." An exterior quarantine prevents the introduction of thousand cankers disease of walnut into Kansas. Walnut firewood is prohibited from movement into Kansas from counties and states where thousand cankers disease is known to occur, except as described under "TCD Quarantine."

Quarantine violations may be subject to criminal prosecution and civil penalties.

For more information:

agriculture.ks.gov/divisions-programs/plant-protect-weed-control

Invasive Pests

Emerald ash borer (EAB) (*Agrius planipennis*)

EAB larvae (pictured) feed under the bark of ash trees. When enough larvae are present, their feeding girdles and kills trees.

EAB has killed millions of ash trees in North America and continues to spread.



EAB Quarantine

Hardwood firewood may only be transported out of the EAB quarantined area if:

- The producer has a compliance agreement with USDA; AND
- The firewood has been treated to USDA standards; AND
- The firewood displays the USDA certification shield on the label.

For the most current EAB quarantine map:

www.emeraldashborer.info



Thousand cankers disease of walnut (TCD) kills walnut trees when fungal cankers (pictured) kill branch and trunk tissue. The fungus is carried by tiny twig beetles.

TCD Quarantine

Movement of walnut firewood into Kansas is regulated under a state quarantine. Walnut firewood may only be transported into Kansas if:

- The walnut wood originated in a county where TCD has NOT been found; OR
- The walnut wood meets the requirements for USDA EAB Certified Firewood.

For the most current TCD distribution map:

www.thousandcankers.com

Additional Concerns



Pine wilt

Pine wilt kills trees when microscopic nematodes (roundworms) interrupt water movement within the tree. Trees die rapidly after infection. Nematodes are carried to new trees by pine sawyer beetles (pictured). Dead pines should be removed and burned, buried, or chipped prior to spring when beetles emerge.



Gypsy moth (*Lymantria dispar*)

Gypsy moth larvae are voracious feeders that devastate forests in the northeastern U.S. and states surrounding the Great Lakes. Egg masses, shown here with an adult female, are easily overlooked on firewood and other plant materials.



Asian longhorned Beetle (ALB)

(*Anoplophora glabripennis*) ALB larvae weaken and kill trees by boring deeply into the heartwood and feeding extensively. The adult beetle (pictured) is

large and recognizable, but larvae easily hide in the wood. Massachusetts, New York, and Ohio currently have quarantines for ALB.

Camping

Contact the campground in advance to determine specific local regulations.

HELP STOP THE MOVEMENT OF INVASIVE PESTS

DON'T MOVE FIREWOOD

Invasive insects and diseases hide in firewood



To protect Kansas trees from insects like the emerald ash borer, gypsy moth and walnut twig beetle. Remember:

- **Burn locally cut firewood (within same county)**
- **If you have already brought firewood with you, BURN IT. Do not leave it. Do not take it with you.**
- **Tell your friends and neighbors not to move firewood.**

CLEAN YOUR BOAT

Stop aquatic hitchhikers

To protect Kansas waterways from aquatic invasive species plants such as hydrilla and purple loosestrife and mollusks like the zebra mussel always Clean, Drain, Dry. Remember:



- **Remove any visible mud, plants, fish or animals before transporting equipment**
- **Drain water from equipment before transporting**
- **Clean and dry anything that comes into contact with water (boats, trailers, equipment, clothing, dog, etc.)**
- **Never release plants, fish or animals into a body of water unless they came from that body of water**

For additional information, checkout www.protectkswaters.org


CHECK YOUR RV AND CAMPER

Stop camping hitchhikers

To protect Kansas campgrounds from insects like fire ants and gypsy moths. Remember, if you come from out of state:



- **Carefully inspect all of your outdoor articles like lawn chairs, grills and outdoor toys before leaving home**
- **Inspect the underside and wheel wells of your RV or camper before leaving home**
- **Remove any gypsy moth egg masses or ants before leaving home**




ASIAN LONGHORNED BEETLE

Identification

- Large, 1 – 1 ½-inch long body
- Shiny black with about 20 white spots
- Antennae are longer than the body

Tree Symptom	Trees Affected
Round, pencil-sized exit holes	<ul style="list-style-type: none"> • Maples (common) • Willow (common) • Horsechestnut • Box Elder • Buckeye • Aspen • Ash • Birch • Oak
Eggs are deposited in small oval depressions in bark	
Sawdust-like material is pushed out of tree by insect	



EMERALD ASH BORER

Identification

- Small, ½-inch long beetle
- Metallic green with a copper-red underside
- 1-inch, flat larvae have bell-shaped segments

Tree Symptom	Trees Affected
½-inch, D-shaped exit holes	<ul style="list-style-type: none"> • North American ash (all)
S-shaped tunnels under splits or cracks in bark	Note: Mountain-ash is not a true ash and is not susceptible to EAB
Thinning and dead branches in upper canopy of tree	
Increase in woodpecker activity and bark stripping	

IT'S GOOD TO BE DIFFERENT!
Plant different trees in your landscape.
Find out why at
KANSASFORESTS.ORG

The Nature Conservancy
Protecting nature. Preserving life.
nature.org

PONTMOVE FIREWOOD.org
Kansas State University Agricultural Experiment Station and Cooperative Extension Service
K State Research and Extension is an equal opportunity provider and employer.
03/2017



TREE DIVERSITY EQUATES TO HEALTHY NEIGHBORHOODS


IDENTIFY GREAT PLAINS FORESTS
And Save Our Forests!

Spotting and Reporting Problems

- Take a photo and note the location
- Find more identifying information

KANSASFORESTS.ORG





PINE WILT

Identification

- Pine sawyer beetles move pinewood nematodes from tree to tree
- Microscopic nematodes multiply rapidly and clog resin canals

Tree Symptom	Trees Affected
In August – October, individual branches turn gray-green to brown, followed by the decline and death of tree.	<ul style="list-style-type: none"> • Scotch pine (most common) • Austrian pine • Mugo pine • Other non-native pines
Dead needles are often held for more than one year.	Note: Native pines may be less susceptible to pine wilt, especially on unstressed trees, but pine wilt may contribute to decline.

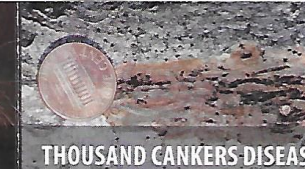


GYPSY MOTH

Identification

- Eggs are buff-colored, velvety masses
- Caterpillars are 1½ – 2½ inch long with dark tufts of hair and blue and red spots

Tree Symptom	Trees Affected
Eggs can be found stuck to outdoor objects	<ul style="list-style-type: none"> • Oak • Sweetgum • Apple • Willow • Alder • Hawthorn • Basswood • Birch • Poplar
Eggs hatch and caterpillars start feeding in April or May	
Caterpillars feed extensively on leaves, defoliating trees	



THOUSAND CANKERS DISEASE

Identification

- Tiny walnut twig beetles spread fungus
- Dead and dying branches have many tiny holes
- Many small brown cankers under bark
- Tree may produce many epicormic shoots on the trunk.

Tree Symptom	Trees Affected
Wilting foliage yellows, then branch die-back occurs	<ul style="list-style-type: none"> • Black Walnut • Walnut hybrids • Butternut
Dead or dying branches occur throughout upper canopy	



OAK WILT

Identification

- Leaves bronze from margins and tip inward
- Brown streaks in sapwood under bark
- Fungal mat under cracks on trunk

Tree Symptom	Trees Affected
Wilting leaves on individual branches in early summer	<p>Severe</p> <ul style="list-style-type: none"> • Black oak • Northern red oak • Pin oak • Shumard oak • Scarlet oak <p>Less Severe</p> <ul style="list-style-type: none"> • Bur oak • Chinkapin oak • White oak • Post oak
Infection occurs March – July; prune when dormant	
Oak wilt can spread via root grafts	

30