

Seasonal Distribution Patterns of Deer

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Final Paper

Abstract

The study that I did was the seasonal distribution patterns of deer. This study is important because by understanding deer movement patterns, researchers can detect changes in deer patterns and possibly come up with a solution to fix it. I recorded visual deer sign. The hypothesis is that deer movement patterns would change as the seasons change. I found that I did not have enough data to support my theory.

Introduction

Ever since I was a little kid growing up my father would always talk about how deer act in certain times of the year with all of his hunting buddies. I had no idea what they were talking about when I was only 5 or 6. As I started to get older he and his buddies kept on talking about deer, like where they like to go when the weather changes, what they eat, when and where they bed down. As I continued to get older and started hunting and my dad would start telling me about what he knew about deer patterns as the seasons change. I started to pick up what he was saying but still was kind of lost and, it started to intrigue me. I started to apply it to deer hunting and it didn't work a lot of the time. I felt that I was missing a lot of information. From then on I wanted to know more about deer patterns. Such as what they eat when there is snow on the ground and all the food is gone. I also wanted to know how they get water when there is ice on the lakes and ponds, where they like to go as the seasons change, how far away they like to be from food or water, their home range. I also wanted to know where deer go when the weather gets cold and windy. Humans when it gets cold and windy we tend to go inside, curl up next to a fire, or turn the heat up. Deer can't do that, they don't have a warm house to go into to get

warm. I wanted to know how and what they do in order to survive the winter. I wanted to know what deer do when the lakes freeze over and deer can't get water out of the lakes. What do they do to get water, do they try and break through the ice or do they use a different method to get water. I also wanted to know where they like to bed down, when and where they like to travel. Another reason that I chose to research this topic is because I have always like animals, ever since we got our first dog I started to like animals. I enjoyed watching my dogs to see what they would do when something happens in a thunderstorm or something like that. It's like studying a new type of life; you want to know what they like what they don't like. You want to be the person that when someone has a question about why they do something, you are the one that wants to answer that question. I think it has to do with the fact that people want to be all knowing. That if we know why animals do what they do when something happens, then we feel that we are the smartest person on the face of the Earth on that subject. I guess I feel the same way about deer. I wanted to see if any of the myths about deer are true. Some hunters say that if you can't find any deer sign look near a fence line, is that really true or is it just some phony statement a person made. Also if deer use their own urine in order to attract a mate. It seems a little weird to think that deer urine is a form of cologne, is it true or just another myth. Now being in Field Research I finally get to get a hands on type of thing to answer some of the questions I have on deer behavioral patterns and maybe be able to find out new information.

There are many reasons why I chose to research seasonal deer distribution patterns. The main reason why I chose this topic is because I wanted to conduct research and plot data on where deer travel, possible changes in feeding spots and bedding areas depending on seasonal changes, as well as movement in the winter opposed to spring. I wanted to help researchers understand movement patterns fully so that possible changes to these patterns could alert researchers to potential problems. This in turn could help solve potential problems in regard to deer population.

The one thing that I wanted to focus on while doing my research is how deer patterns change as the seasons change. I wanted to know if the deer's movements change as the season progresses. Such as; if the places that they used to feed change as the seasons change, if they use different places to get from one place to another, if they prefer to group together or stay by

themselves, if there patterns are shot after the deer season. I also wanted to see if the deer moved more in winter or if they moved more in the summer and fall period.

A deer's habitat must have shelter, a place they can go to either get out of the wind when it is blowing extremely hard or a place to hide from predators, or a place where they can lie down for a good nights rest. A lot of the time a deer's shelter will probably be in a valley with a lot of thick brush. If they are trying to hide from a predator like a human, coyote, or a wolf their color tends to blend in with the surrounding making it hard for predators to find them. They will do this a lot during hunting season, they will bed down in the thick brush and not move from that place. If a hunter comes through the place where they are bedded down they tend to either get up and run as fast as they can to a different place to bed down or wait until the hunter passes and get up slowly and walk quietly to the next place that they can bed down. Also with being in a valley, it is also a good place to get out of the wind if it is blowing hard. Deer will also go there to get out of the cold of winter if they need to. The thick brush will tend to break up the wind so its not blowing hard on the deer. Deer will not always hide in valleys, they might bed down in brush in the open, like on level land on top of a hill. The second essential part that a deer must have in his or her habitat is food. Without food the deer would basically starve to death. The most common foods that you will find in a deer habitat are corn, berries, grass and sometimes buds off of trees. The third essential part to a deer's habitat is water. Deer will typically get there water from a near by stream, pond, or lake. (www.myoan.net)

How far will deer travel in order to get their food and water? A deer will travel up to two to four miles to get food and water. It does however depend on the type of gender that the deer is. A buck will travel farther in order to get food and water. A buck might travel up to four miles to get food and water, where a doe on the other hand might only travel up to two to three miles to get food and water. Now what do deer do when winter comes and the lake freeze over and the plants die off, what do they eat and how do they get water? When winter comes, and causes the food's that the deer eats to die off the deer will become scavengers. Eating foods that people leave out or foods that have fell to the ground and are covered up by the snow, they will also eat the grass that is left over, and sometimes they will eat buds off trees that are still there. Now what do deer do for water when the lakes, ponds, and streams freeze over? Well in order for deer

to get water they will eat snow in order to get water. But, that is not the only thing that deer will do to get water. Sometimes, if the ice is thin enough the deer will try to break through the ice by using their hooves. (John Dunn)

Another general part about deer behavior, is the rut. The rut is basically when the does are capable of getting pregnant and will be receptive towards the male deer. This is the only time of the year that a doe is capable of getting pregnant. The rut typically happens around September, when bucks start to lose the velvet on their antlers. This also happens to be the same time when serum androgen levels increase in the deer population. A lot of the buck begin to spar with other buck to see who is more dominant around this time as well. Sparing is where male bucks get into antler tussles. Typically the match begin by one deer lowering his antlers towards another buck. The second buck usually accepts by engaging the other buck. They push against one another until one of the deer retreats. Near the end of September and in the beginning of October, the male deer will spar a lot less, and start chasing does. The rut typically ends around the end of December or the beginning of January. However, if a doe does not mate during the rut period, she will fall out of the rut and then come back into it later in the year. This affects deer patterns because the deer will be moving around more frequently then before. They move more frequently because they are trying to find a mate. (Wildlife Management Institute)

Now that we have covered the general parts about deer, now we can get into the ways that you can locate deer in the woods. One of the ways to locate a deer and tell what they might have been doing at the time is by looking for deer tracks. Deer tracks can tell you a lot about deer. The one thing that they do well is tell what the deer might have been doing at the time. For example finding a deer track that has parts of chewed up grass, corn, or twigs from a tree, probably means that the deer was eating food at the time. Another thing that deer tracks can tell is where the deer is heading. If the deer tracks point in the direction of a pond or stream, you can bet that they are going to get a drink. Finding tracks that point in the direction of thick brush, it is a pretty good bet that the deer are heading to a place to bed down. Deer track can point out places that they like to eat at or places that they like to use for bedding areas. Another thing that deer tracks can tell is how fast the deer was moving at the time and if something is causing the deer to be spooked. If the deer prints are close together and the depth of the print is not that far

dug in that typically means that the deer was at a steady walk. However finding deer tracks that are closer together and the depth of the print is not that far dug in, that typically means that the deer was walking very cautiously. Meaning, that something in the woods does not seem right to the deer. Come across deer tracks that are dug into the ground pretty well and there is some dirt that was kicked up at the back of the print. That typically means that the deer was at a jog. If you come across a deer track where the print was dug pretty well into the ground and a lot of dirt or ground was kicked up. Then you can probably guess that the deer was at a full run, trying to get away from something. (cincinnati-trackers.org) Another way that you can locate deer is by looking for browse. Browse are where deer have bitten off the ends of twigs, brush, or tall grass. The way that you can find deer browse is by looking for branches or stems that have been bitten off. However there is a certain bit that a deer has that makes it easy to tell if it is a deer browse. The twig, stem, or tall grass or hay must have a flat top where it has been bitten off. If you find a twig that has been bitten off, and the top of the twig where it was bitten off is flat then you know that a deer bit it off. Locating deer is not the only thing that deer browses are good for. Deer browses can also tell us what the deer's diet consists of. Whether they are eating more berries than corn or do they prefer to the buds of trees. Finding deer browse will tell you what the deer are eating at that time. Another way that you can locate deer is by looking for deer scrapes. A buck scrape typically consists of a broken twig or branch that is three to six feet above the ground, with pawed away leaves, grass, or other debris directly beneath the broken branch. Bucks do have an interesting way of making a scrape. What they do is, first they reach up into a tree and grab a branch with its mouth. Then the buck pulls the end of the branch down, breaking it. Then the buck releases the branch allowing it to spring back across its forehead. After he does this, he then brushes away all the debris that is under the branch, then the buck typically urinates on it. There are a few reasons why bucks do this. One reason they do this is to mark their territory. Deer however, are thought not to be territorial, but they do become intolerant of one another during the rut period. Another reason that buck do this is to attract a mate during the rut. If a doe comes across a scrape the scent of the buck will be there and the doe might urinate on the buck scrape and leave a little trail in the direction that she is going. Then when the buck comes back to the scrape, he then could follow the scent of the doe, and locate her. Another way that you can locate deer is by looking for a buck rub. A buck rub is where a buck has striped a shrub or a small tree trunk of its bark. They do this by rubbing their forehead and their antlers against the

shrub or small tree trunk. Buck rubs are very frequent during and shortly after the velvet on their antlers is removed. They will however continue through the rut. Basically in order to locate buck rubs is by walking through the woods looking for trees or shrubs that have been stripped of their bark about two to four feet above the ground. There is one main reason why bucks do this. The reason why they do this is because it is a form of communication between the sexes. The bucks forehead skin contains glands that become very active during the rut period. The glands leave scents on whatever the buck has rubbed its forehead on. Then does sometimes sniff's the object, then she might lick the object or "mark" it. (www.cincinatitrackers.org)

There has been a lot people who have done studies on deer. One person in particular did a tracking study showing how to tell what deer might have been doing just by looking at their tracks. A deer walked up to a bird feeder in his lawn and started to eat the birdseed. Then it ran away when his neighbor let out his dog. After the deer took off he then he went out to where the deer came out of the woods and followed its tracks up to the bird feeder. At first when the deer came out of the woods the deer's tracks where at normal stride length. That means that the deer was at a steady walk. As the deer came closer to the bird feeder the strides started to get shorter, meaning that the deer was walking very slowly because it was a little unsure. When the deer got up to the bird feeder the deer's foot prints were farther into the ground meaning that the deer was standing still for a while. Then when his neighbor let out his dog, the deer's footprints went in at an angle and kicked up a lot of dirt. This meant that the deer quickly changed direction and took off at a full run. The man continued to follow the deer's tracks which were now at a long stride with a lot of dirt kicked up, meaning that the deer was still at a full run. Then the deer ran into the woods. The man learned how to interpret a deer's behavioral pattern just by looking at its tracks. That is very important to researchers because by knowing how to interpret deer tracks we can start to piece together how they act in different environments. www.cincinatitrackers.org)

Methods

There are many methods that you could use to study deer distribution patterns. The quadrat method was the most appropriate. (www.psw.fs.fed.us/) The quadrat method is where you mark off a place or places that you want to look at, and then walk them and look for signs of whatever it is that you happen to be studying. There are many sizes that a quadrat can be, the 1

tenth of a mile by 1 tenth of a mile, about 176 paces, was the most applicable due to convenience. I walked in a square 176, paces on each side. After marking my quadrats, by picked one of the quadrats that was had marked and walked them. By walking in a straight line and counting the number of paces and recording any deer sign that was found. Such as deer tracks, scraps, deer feces, and deer rubs. After finishing walking my transect I paced off a few paces and walked another transect. I continued this until the entire quadrat was walked.

Materials

Some of the materials that I used were flagging tape. I used this in order to mark of my quadrats. I also used a GPS unit to some extent. I found that the GPS unit was inaccurate. It would say that I walked one tenth of a mile, which in fact I had only walked about one half of a tenth of a mile. I also used a field notebook. I used this to record my date that I found in my quadrats. I also used a computer software program called Arcview. This allowed me to scan in an aerial photo and register it. Then I was able to put my data in and show where I found deer signs. I also used a aerial photo in order to chose my quadrats.

Results

The first Quadrat that I studied was the woods quadrat. I collected the data from the middle of November to Christmas break. The most common deer sign that I found was deer tracks, I found deer tracks, scrapes, and deer feces. The second quadrat that I studied was my river quadrat. I collected this data from the beginning of January to the end of January. Here I only found deer tracks, I did not find any other sign. The third quadrat that I studied was my open field quadrat. I collected this data from the first week in February to he second week in February in this quadrat I only found deer tracks. After I had collected my data in all three quadrats, I went back to each of them and collected data for the spring season to see if there was any change. The first quadrat that I studied was my river quadrat. There I found deer tracks, deer feces, and deer brows. The second quadrat that I studied was my open field quadrat. There I found a deer tracks and deer brows. The third quadrat that I studied was my wooded quadrat. There I found deer tracks and deer feces.

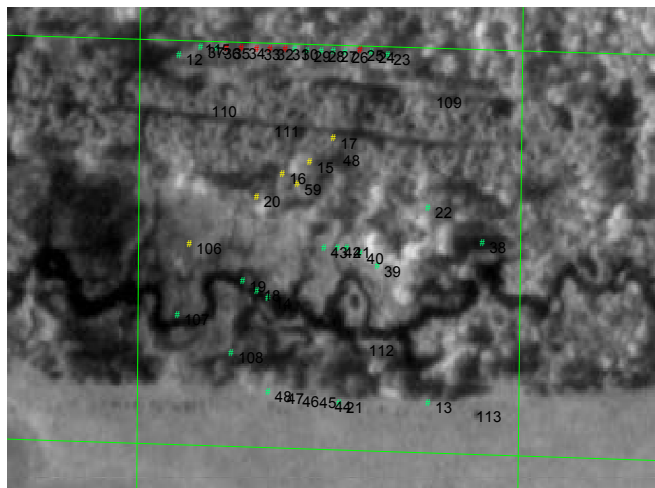


Figure 1. Winter sample sites with data

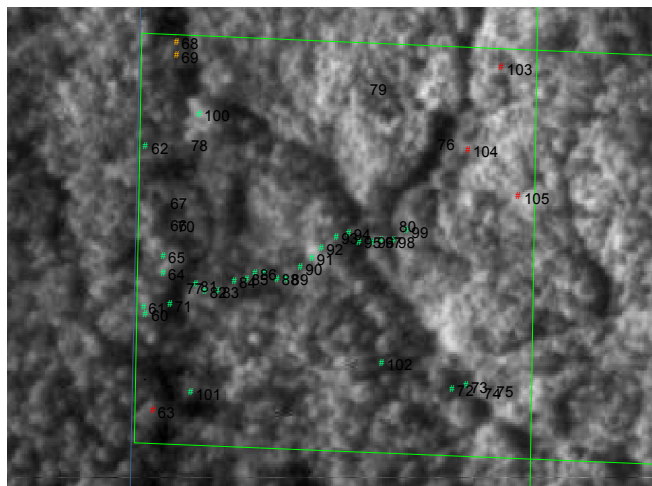


Figure 2. Winter sample sites, woods quadrat.

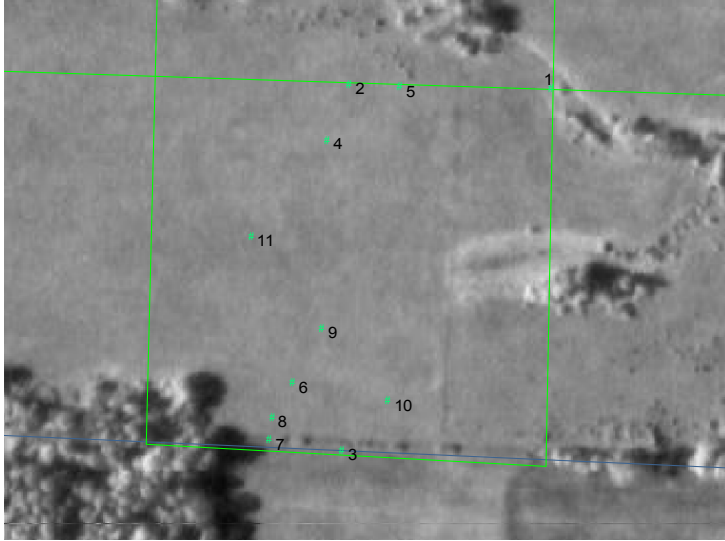


Figure 3. Winter samples, open field quadrat

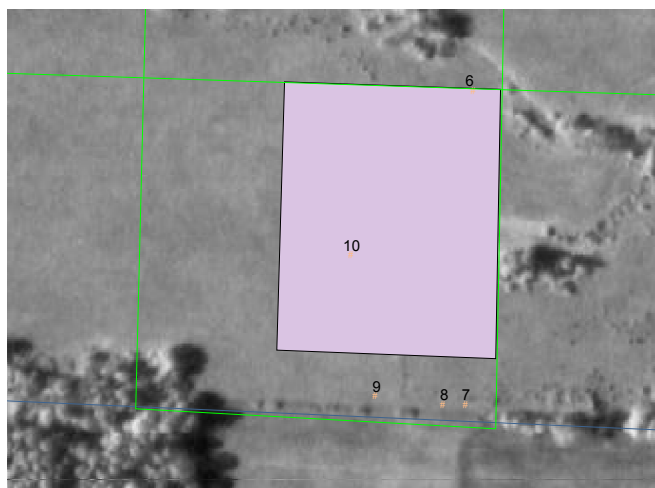


Figure 4. Spring samples, open field quadrat (shaded area shows large feeding area).

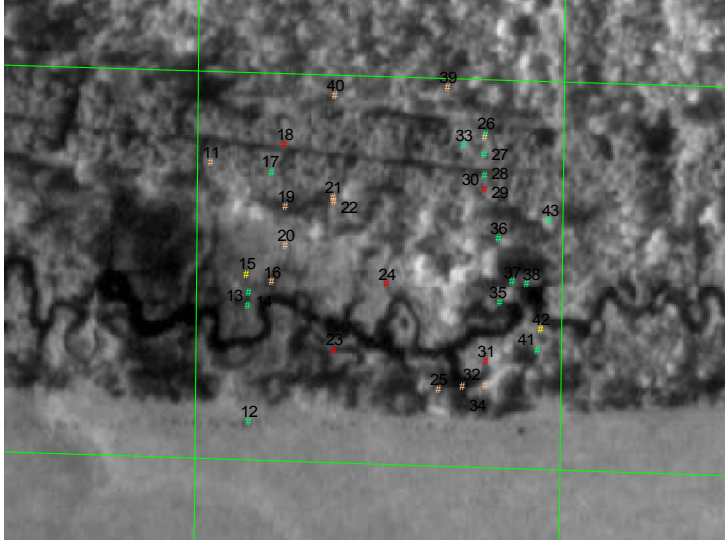


Figure 5. Spring samples, stream quadrat.

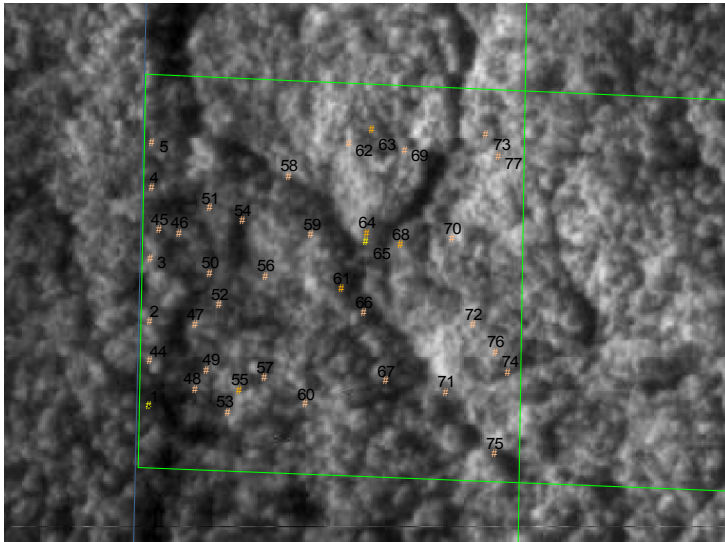


Figure 6. Spring samples, woods quadrat.

Descution

The area that I found the most deer tracks in the winter times was in my woods quadrat. My woods quadrat was also the place that I found the most deer tracks in the spring time. The area that I found the most scrapes in the winter time was my woods quadrat. This was also that area that I found the most scrapes in the spring time. The area that I found the most deer brows in that winter time was in my river quadrat. The area that I found the most deer brows in the spring time was in my open field quadrat. The area that I found the most deer feces in the winter time was in my woods quadrat. This area was also the place that I fond the most deer feces in

the spring time.

Conclusion

In the winter time I think that the deer were using the woods quadrat for transportation, moving from one place to the next. I didn't find any bedding areas in the quadrat. That tells me that they aren't settling down there. The river quadrat I felt that the deer were using that quadrat to find food and water. I found deer tracks by brushy areas and some deer brows there. That tells me that they are looking for food in the winter time. I also think that they were looking for water. I found deer tracks on and by the ice. I found that the deer were walking on the ice. I think that they were doing that because they were looking for an opening in the ice to get a drink. I really don't know what the deer were the open field area for. I really didn't find a lot of data there. In the spring time the deer were still using the woods quadrat for transportation. I still didn't find any sign of the deer hanging around there. In the spring time the deer were using the river quadrat to find food and get water. I found more deer brows than I did in the winter so I think the deer are feeding more heavily now than they were in the winter time. They were also using this area to get water. I found deer tracks right next to the river. In the spring time the deer were using the open field quadrat for a feeding area. Throughout the whole quadrat I could not take one step without finding a deer brow. With all of the data that I collected I feel that I do not have sufficient data to support that deer distribution patterns change as the seasons change.

References

Wildlife management institute: White-tailed Deer Ecology and Management. Harrisberg: PA, 1984

John Dunn. Personal interview. 10 January 2003

Jerry Bargo. 2002. Cincinnati Trackers, Lesson 2. www.cincinnati-trackers.org/lesson2.htm. Online

www.mayon.net/huntingart/deer_habit.html. Online

USDA Forest Service, Pacific Southwest Research Station. Tech. Pub. GTR-150. www.psw.fs.fed.us/Tech_Pub/Documents/gtr-150/chapter_1.html#Differ. Online

Appendix A. Data points for winter samples.

ID	Newfield1
1	t
2	t
3	t
4	t
5	t
6	t
7	t
8	t
9	t
10	t
11	t
12	t
13	t
14	t
15	n
16	n
17	n
18	t
19	t
20	n
21	t
22	t
23	t
24	t
25	f
26	t
27	t
28	t
29	t
30	t
31	f
32	f
33	f
34	f
35	f
36	t

37	t
38	t
39	t
40	t
41	t
42	t
43	t
44	
45	
46	
47	
48	t
48	
59	n
60	t
61	t
62	t
63	f
64	t
65	t
66	
67	
68	s
69	s
70	
71	t
72	t
73	t
74	
75	
76	
77	
78	
79	
80	
81	t
82	t
83	t

84	t
85	t
86	t
87	t
88	t
89	t
90	t
91	t
92	t
93	t
94	t
95	t
96	t
97	t
98	t
99	t
100	t
101	t
102	t
103	f
104	f
105	f
106	t
107	t
108	t

23	b
24	b
25	t
26	n
27	t
28	n
29	n
30	b
31	b
32	t
33	n
34	t
35	n
36	n
37	n
38	n
39	t
40	t
41	n
42	d
43	n
44	t
45	t
46	t
47	t
48	t
49	t
50	t
51	t
52	t
53	t
54	t
55	f
56	t
57	t
58	t
59	t
60	t
61	f
62	t
63	f
64	f
65	d
66	t
67	t
68	f
69	t
70	t
71	t
72	t
73	t
74	t
75	t

Appendix B. Data points for spring samples

Id	Newfield1
1	t
2	t
3	t
4	t
5	t
6	t
7	t
8	t
9	t
10	t
11	t
12	n
13	n
14	n
15	d
16	t
17	n
18	b
19	t
20	t
21	t
22	t

76	t
77	t