Cottontail Use of Brush Piles and Slash Piles

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Background – State and federal agencies are creating early successional habitats to meet and maintain the recovery goals established by Conservation Strategy for the New England Cottontail. The focus of management is the creation of acres of cottontail habitat. Much remains to be learned regarding the importance of specific microhabitat conditions within a habitat patch. It is known that most cottontails die of predation, and thus cover habitat is likely important to population dynamics. One strategy currently being implemented is the creation of brush piles following the job specifications of the Natural Resources Conservation Services. Yet, minimal research quantifies the extent to which cottontails use brush piles. Randomized and spatially replicated studies are needed to assess the effectiveness of brush piles as an action that increases cottontail abundance in habitat patches.

Project Objective – This project determined cottontail presence at constructed brush piles, slash piles from timber harvest, and control areas with no downed wood. This project was limited to one study site and one spring season.

Methods – We placed wildlife cameras adjacent to brush piles, slash piles, and control sites at the Bozrah Rod and Gun Club Property in Lebanon, CT. We randomly selected three constructed brush piles from those available at the site. We found the closest slash piles to each brush pile, and then place a control camera in the opposite direction but at the same distance from the brush pile (Figure 1). Brush piles used in this study followed job sheet specifications of the

Natural Resource Conservation Services. Slash piles did not follow any particular design and consisted of the remaining pole timber left behind at the site after harvest. Control cameras had no downed wood.

Cameras operated continuously from 3 March – 3 June 2016, taking three consecutive photos when triggered with a two-minute lag time between trigger events. We standardized all other settings and placed cameras approximately 1 m off the ground. We checked cameras every two weeks, downloading photos and replacing batteries as needed.   We defined a detection as a single trigger event, in which the count of individuals was recorded. A new detection occurred after 30 minutes passed between trigger events.

Figure 1. Camera locations in Lebanon, CT

Red = Brush Piles

Blue = Slash Piles

Yellow = Control

Green Line = Study Site Boundary

Results – A total of 612 detections occurred during the project (Table 1). The pre green-up average detection rate of 8.4 detections per trap night was greater than the post green-up average detection rate of 3.5 detections per trap night. Ten unique cottontail detections occurred during the project and all detections were before vegetation greened up (Figure 2). Only one cottontail detection was at a brush pile. Prior to green-up, predators were detected at brush piles more than slash piles and control sites.

Detections at brush piles included 4 bobcat, 2 coyote, 1 opossum, 3 skunk, 43 raccoon, 2 weasel and 13 woodchucks. Bobcat were seen on brush piles presumably hunting prey, and raccoons and woodchucks moved in and out of brush piles (see photos). Post green-up detections of all species were low. Bobcat and coyotes occurred at slash piles during post-green up.

Discussion – The low detection rate of cottontails prevented full statistical analysis, yet the count of detections suggests that cottontail may use brush piles less than slash piles or places without downed wood. Only one of the ten cottontail detections was at a brush pile, and this particular brush pile had the lowest number of predator detections. Conversely, predators of cottontails were detected at brush piles more than slash piles or control cameras. Presence of predators and raccoons may prevent cottontail use of brush piles.
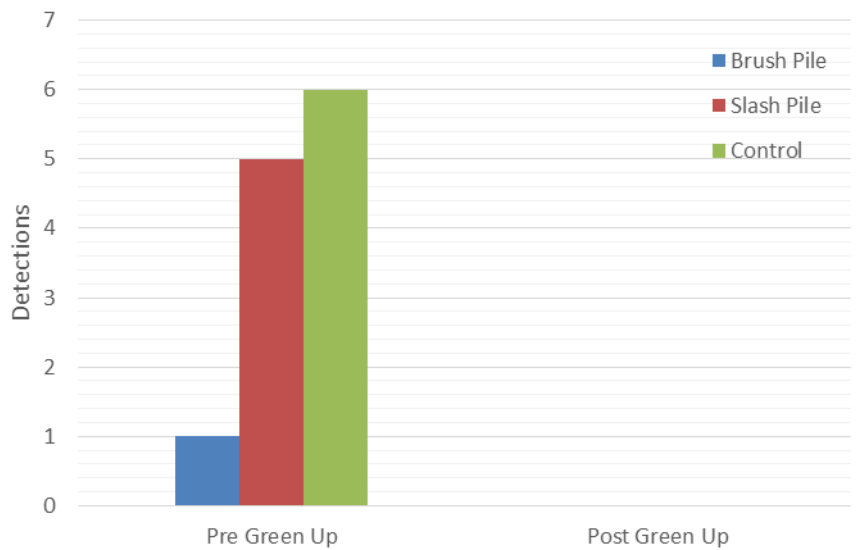

Figure 2. Cottontail detections before green-up (3 March – 14 May) and no detections after green-up (15 May – 3 June).

Table 1. Count of detections before vegetation green-up (3 March - 14 May) and after green-up (15 May - 3 June). Seven species were not detected following green-up.

Species	Brush Pile	Slash Pile	Control	Brush Pile	Slash Pile	Control	Pre Total	Post Total
Bobcat	4	1	1	1	2	1	6	4
Chipmunk	6	0	0	0	0	0	6	0
Coyote	2	4	2	4	6	3	8	13
Deer	29	9	25	23	6	7	63	36
Grey Squirrel	154	9	6	4	0	4	169	8
Opossum	1	0	0	0	0	0	1	0
Rabbit	1	5	6	0	0	0	12	0
Raccoon	43	11	0	0	0	1	54	1
Red Squirrel	2	0	0	0	0	0	2	0
Skunk	3	1	2	0	0	0	6	0
Small Rodent	64	120	6	0	0	0	190	0
Turkey	5	3	7	0	1	2	15	3
Weasel	2	0	0	0	0	0	2	0
Woodchuck	13	0	1	3	1	0	14	4
Total	**329**	**163**	**56**	**35**	**16**	**18**	**548**	**69**

Limitation to Inference – Patterns reported here should be confirmed with a project replicated across multiple habitat patches prior to making management recommendations. The mammalian community composition at a specific patch is known to alter movements and activity levels of the mammalian species within the patch. Furthermore, animal abundances in the surrounding landscape may affect patterns observed within a habitat patch.

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