

# TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE

STATE OF WYOMING

NATURAL RESOURCES CONSERVATION SERVICE

## BIOLOGY TECHNICAL NOTE NO. 1

October 2017

To: All Field and Area Offices

From: State Wildlife Biologist

Subject: Wildlife Brush Piles

### WHAT IS A BRUSH PILE?



The term “brush pile” describes a mound of woody vegetation material constructed to furnish additional wildlife cover. Brush piles can be fashioned in many different ways to meet various cover needs for targeted wildlife species where natural ground cover is limited or difficult to establish.

Loosely formed brush piles can provide nesting habitat, resting areas, concealment, and protection from some predators for birds, rabbits, and other small mammals. Brush piles that are relatively open at ground level, but tightly compacted above can provide good protective cover against harsh weather conditions. Densely packed piles of logs, rocks, or boulders can provide den sites for additional species of wildlife such as reptiles.

Brush piles are typically considered a temporary measure to provide cover until natural cover can become established. Determine landowner’s target wildlife species and needed cover types to specifically design brush piles to meet those needs.

## **BRUSH PILES AS NESTING, RESTING, AND ESCAPE COVER:**

Predators such as owls, hawks, foxes, coyotes, and domestic pets can significantly impact wildlife populations including rabbits and quail when thick, brushy cover is lacking or not well distributed. The well-planned creation and placement of brush piles can often supplement naturally occurring escape cover for these and other wildlife species.

A loosely formed brush pile will encourage plant growth by allowing sunlight penetration. The tangled network of dead branches intertwine with a thin to moderately dense stand of grasses and forbs. The end result is excellent resting and escape cover. Some birds, such as quail, may use these same types of brush piles as nesting sites.

The key to forming this type of habitat is to lightly pile branches in such a fashion so that plenty of sunlight reaches the ground. Sparingly pile the branches in a teepee-type fashion or lay them against an elevated object, such as a tree stump or fallen log.

Use discarded Christmas trees (without the tinsel) or junipers in a similar manner. The resulting combination of overhead woody cover mixed with a grass and forb ground cover provides a secure hiding and resting site.

Another alternative is to elevate a wooden pallet approximately 8 - 12 inches above ground and lightly pile branches on the pallet. Sunlight penetrating through the slats will allow grasses and forbs to grow and provide additional cover.

Seeding desirable plants in and around these types of brush piles will also help enhance their wildlife value.

## **BRUSH PILES FOR HARSH WEATHER COVER:**

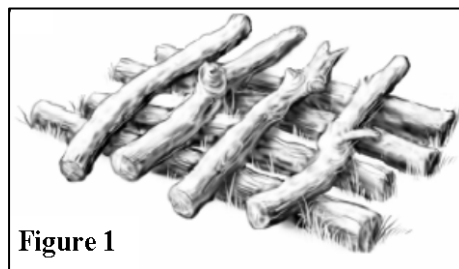
Brush piles can help ground dwelling wildlife escape the effects of harsh weather (cold or hot temperatures), snow, and ice. A well-constructed, properly maintained, brush pile can supplement natural cover for up to 10 - 15 years.

Generally, brush piles of this type should range between 10 - 15 feet in diameter, and 5 - 8 feet in height. Piles using logs is the most common design (arranged in a tic-tac-toe pattern) for the foundation and covered with brush. Start with the largest material on the bottom to provide hiding space under the pile. To provide more space, dig shallow depressions before beginning the brush pile.

### **Foundation**

Use the largest available materials when constructing the foundation. Logs 6 - 10 inches in diameter and 10 - 15 feet in length are best, when available. The larger materials at the bottom keep the smaller limbs off the ground, helping to prevent decay.

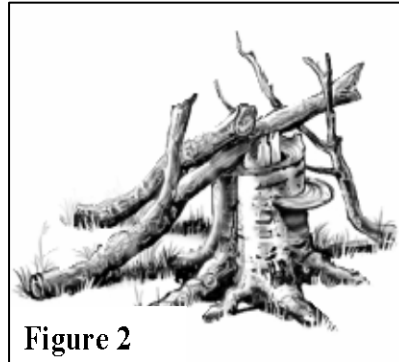
Start construction by laying logs parallel and 6 - 12 inches apart. Next, place a second layer of logs on top of, and perpendicular to, the first layer (again about 6 - 12 inches apart - see Figure 1). If needed, substitute large, flat rocks for the second layer of logs.



**Figure 1**

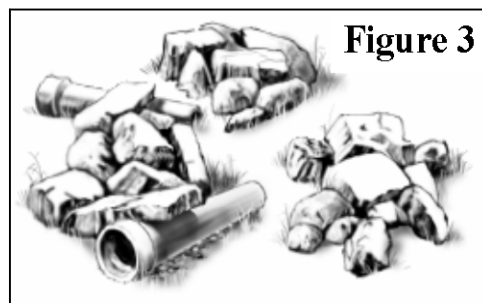
Repeat this process one or two more times to complete the final tiers. The intent is to make a pyramid-type structure that has a hollow core. Note that old and discarded fence posts can also serve this purpose.

Many other options for building brush pile foundations are possible depending upon the materials available: A tree stump that is still in place can create an adequate foundation (see Figure 2). Place several logs (6 - 10 inches in diameter and 5 - 6 feet long) on top of the stump so that the logs are radiating out from the center.



Discarded wooden pallets can also make a suitable base. Pallets should be arranged in 4 - 6 layers (and elevated from the ground using concrete blocks, stones, etc., if available) to form the foundation. Consider utilizing 6 - 8 inch diameter old clay drain tiles to create small wildlife tunnels within the foundation.

If needed, substitute small rock piles as foundation material. Create rock piles approximately 12 inches apart with each pile about 10 inches high and 12 inches across. Stagger the piles so that they are capable of supporting the next layer of limbs (see Figure 3).



### **Brush Covering**

Once completed, cover the foundation with larger branches and limbs, placing the smallest stock on top. The cover can consist of small limbs, saplings, old Christmas trees, stumps, or loose brush. Use leaves or pine boughs as a cap if available.

For best results, cover the foundation with 2 - 4 feet of brush. Larger brush piles provide more security for wildlife and will receive more use than smaller piles. Leave 6 - 12 inch openings in the sides at several places for easy wildlife access. Add to the brush pile as new brushy material is available. The older brush will settle as it decays; add new cover as time passes.

When properly constructed, harsh weather brush piles will contain an easily accessible labyrinth of tunnels and cavities at ground level and at the same time provide good overhead shelter from harsh weather.

### **OTHER CONSTRUCTION OPTIONS:**

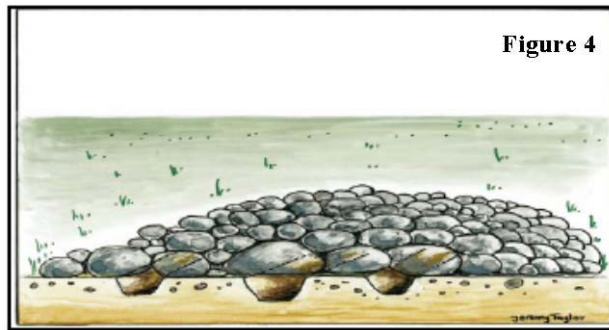
A simple pile of logs, wood slabs, large rocks, or boulders can be very attractive to amphibians, reptiles, and small mammals, especially when located near or within woodland habitats. Piles of rotting logs or wood slabs

not only provide shelter and produce an abundance of food items, but also maintain the moist conditions required by woodland amphibians.

### **Rock Piles**

Amphibians and reptiles such as frogs, lizards, salamanders, and snakes will benefit from rock piles. Besides providing shelter and basking areas, the rocks absorb heat during the day and radiate warmth at night.

Rock piles should start with the largest rocks (or boulders) on the bottom of the stack to create hiding places between rocks. Digging depressions under large flat rocks can create temporary pools for breeding frogs and salamanders (see Figure 4).



### General Recommendations

- Build a mound of rocks and stones of different shapes and sizes, arranging the rock pile in a way that creates openings for shelter.
- Place pieces of clay field drain tile or lengths of pipe at the base for entrances and tunnels.
- Add flat rocks on top for amphibians and reptiles.

### **PLACEMENT:**

Wildlife rarely stray far from good protective cover. This often limits the use of large open spaces that might otherwise serve as important nesting, feeding, or watering areas. By placing brush piles along the edge or strategically throughout large open areas, animals are more likely to utilize all available habitat.

### General Recommendations

- Good locations to place brush piles include:
  - Adjacent to edges of riparian areas, woodlands, and pasture, hay, or cropland
  - Within shrub thickets, fencerows, or shelterbelts
  - In field corners or other odd areas
  - On forest floors that are lacking sufficient natural ground cover
- For edge habitats, such as along field borders, fence rows, or riparian areas, one brush pile every 200 – 300 feet will provide adequate cover and travel lanes between food sources for most species.
- In abandoned fields, harvested or thinned forests, and other early successional habitat where shrub recovery is expected, create 2 piles per acre.
- In intensive agricultural settings with little natural cover, create 3 - 4 brush piles per acre.
- Avoid the bottoms of drainage ways and low spots where standing water or flooding will reduce the usefulness of brush pile for upland wildlife species.

### **PLANNING CONSIDERATIONS:**

- Conduct a habitat assessment to determine if cover is a limiting factor for the targeted species. If natural ground cover is insufficient, brush piles may be appropriate as a short-term solution.
- Whenever possible, brush piles should be a by-product of other land treatments, such as, Forest Stand Improvement (666), Brush Management (314), or Land Clearing (460), rather than a stand-alone practice.

- Consider planning additional practices, such as, Tree & Shrub Establishment (612), Range Planting (550), and Riparian Forest Buffer (391) to accompany brush pile establishment to provide more valuable cover and food resources in the long-term.
- Brush piles are usually most effective when located in habitat edges, such as, along forest roads and edges, agricultural field borders and corners, and along riparian areas.
- Brush piles situated in close proximity to other habitat elements required by the targeted species are more beneficial.
- Several strategically placed medium-size piles (roughly 10' in diameter and 6' high) are better than one large one. Isolated piles are not as beneficial, nor as likely to be used.
- Where wildfire is a concern in woodlands, smaller brush piles should be used (roughly 2-3' high x 6' in diameter). Consider strategically placing piles along natural openings, leeward side of fire threat, rock outcrops, edge of landings, etc., so they do not increase wildfire hazard.
- Brush piles can house smaller predators, such as, raccoons, skunks, and snakes which may have detrimental impacts on other ground dwelling species, so carefully examine the effects of adding this habitat component to the landscape.
- Avoid placing brush piles in grasslands since the addition of vertical structure in these settings can be detrimental to many native grassland birds.
- Keep brush piles away from houses and lawns to avoid problems with nuisance wildlife.
- Brush piles are flammable. Keep them away from buildings.
- Do not use materials that contain toxic substances (i.e. pressure treated lumber/posts, creosote railroad ties, lead painted surfaces, tires, etc.). These substances can cause wildlife mortality either through contact, consumption, or inhalation.

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