NRCS Natural Resources Conservation Service

# Forest Stand Improvement Clearcut Forest Opening – WV Job Sheet Code 666


## Definition

The manipulation of species composition, stand structure and stocking by cutting or killing selected trees and understory vegetation.

## Purpose

Forest stand improvement can be implemented to improve wildlife habitat.

The purpose of this practice is to increase plant diversity and provide habitat for those species of wildlife that benefit from early successional vegetation stages and the insects that these communities attract. Many wildlife species that depend on these types of plant communities are declining nationwide.

## Condition Where Practice Applies

All forest land where improvement of forest resources is needed.

This practice applies to lands that are managed for wildlife. Early successional habitat development/management is normally established concurrently with other practices as part of a wildlife resource management system.

This job sheet pertains to creating various type openings within otherwise contiguous forest settings. Openings in the forest canopy occur naturally due to overstory tree loss from insects, fire, storms, and disease. These gaps are generally occupied by a mixture of tree seedlings, shrubs, grasses, and/or broadleaf plants that contribute to the diversity of the forest and provide valuable habitat for many species of wildlife including reptiles, deer, turkeys, grouse, bats, rabbits, small mammals and songbirds.

## Considerations for Establishment

Most wildlife species benefit from a variety of vegetative conditions other than the climax stage. Forest openings can provide the place for this diversity to occur. This improves habitat for species that utilize and benefit from early successional woody or herbaceous vegetation within forested settings. To achieve the desired habitat, it is essential to understand the daily and seasonal requirements of the wildlife species prior to implementing this practice. Refer to the NRCS conservation practice standard (645) Upland Wildlife Habitat Management for more information regarding the daily and seasonal habitat requirements for various species of wildlife.

Some general criteria apply to creation of all types of openings:

Openings scattered throughout a targeted species' home range can add diversity and benefit a variety of wildlife. The type of forest stands, their age class, and how they are arranged determines the species of wildlife that benefit.

Identify and utilize existing openings. These may include log landings, skid trails, roadsides and utility rights-of-way.

When creating openings, look for areas that are relatively flat and free of rocks such as on benches and ridge tops.

Sites with little slope generally have better soils, less soil erosion problems, and more planting options than steeper sites. When openings are created near drainages, a forested buffer should be maintained. Refer to conservation practice standard (391) Riparian Forest Buffer for more information.

Openings may be constructed by various means including mechanical and chemical methods.

The size of openings varies with the individual species requirements and site characteristics. However, forest openings generally range from one to 10 acres and should follow the contour while being as irregular in shape as possible. **Careful consideration must be given to the effectiveness of openings less than one acre due to shading from the surrounding canopy.**

Isolated woodland tracts less than 40 acres generally do not benefit from forest openings. Caution should be exercised when proposing several forest openings in large contiguous woodland sites. A single large opening or too many small openings may lead to habitat fragmentation.

Southerly facing slopes are preferred, since they tend to receive more hours of direct sunlight per day and remain free from snow for longer periods of time in early spring and fall.

Avoid sites with high quality trees that may have important economic or wildlife values. Areas that have been damaged from insects or severe weather should be considered first, as well as sites where the majority of trees present are in the sapling to pole size range (2" to 10" diameter at breast height (DBH)).

Depending on the opening type, slash, stumps and debris may be left on site, removed, windrowed, harvested or piled adjacent to openings to provide additional habitat.

If an opening is to be actively managed, the site selected must be easily and permanently accessible with necessary equipment.

## Clearcut Forest Openings

This method should be utilized when early successional woody vegetation is desired. Openings may be established in hardwood and coniferous stands. Clear-cut and shelterwood cuts may be used in either hardwood stands or coniferous stands. However, hardwood forest openings are more easily achieved through the use of the clear-cut method; while shelterwood cuts may prove more useful in coniferous settings. For both types of forest openings, refer to the practice standard (666) Forest Stand Improvement for specific information concerning these methods.

### A. Deciduous Hardwood Settings

Areas should be irregular in shape and fit the contour where feasible. Various wildlife species prefer differing shapes and sizes of openings. Size will depend on the requirements of the targeted species and the site characteristics.

All woody vegetation over 4“ DBH or greater than 15’ in height should be removed. In most instances all trees, regardless of size, may be removed for better regeneration and to remove potential predator perches.

Slash may be left on the site or removed. Removal will provide more area for sprouting and regrowth but may be more susceptible to browse.

Where possible, select tree species which rapidly re-sprout from stumps or roots (e.g. aspen, maple, etc).

### B. Coniferous Settings (Shelterwood Cuts)

This procedure applies to conifer stands where the majority of trees and shrubs exceed 20 feet in height; or occur as mature block or plantation stands.

Create openings within coniferous stands by removing 40 – 60% of the basal area from the site. This opens the canopy to allow more sunlight to reach the forest floor and encourages the natural production of coniferous seedlings and shrubs.

Mature trees of good form and good seed production should be selected for initial retention. Remove the mature trees once seedlings have become established.

## Coordinating Forest Openings with a Timber Harvest

Timber harvests may be planned to coincide with the creation of forest openings. The methods described above to construct openings or maintain existing openings in forested areas, may also be utilized where timber production is an objective. A forestry management plan should be developed prior to timber harvest. The WV Division of Forestry should be consulted to coordinate these methods with timber production. **Note: Harvesting activities may be subject to the WV Logging and sediment Control Act.**

## Chemicals

Herbicides may be effectively used to manipulate succession, control noxious or exotic weeds, reduce competition and improve overall diversity.

Careful planning and application are required in the use of herbicides to improve existing habitat. Selection of a product should be based on several factors including: desired effect to the vegetative community, affects to non-target wildlife specie(s), toxicological risks and off-site movement. Chemicals should not be utilized where pollinators are a concern.

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Chemicals must only be applied for the uses listed on the label. All manufacturers' recommendations, precautions and directions must be followed. Consult WV University Extension Service personnel or the WV Division of Forestry for herbicide recommendations. A pesticide applicators license may be required for some herbicides.

## Operation and Maintenance

Early successional communities require frequent disturbance to maintain the desired composition. Maintenance activities should occur outside the primary ground nesting season (March 15 – July 15).

## Specifications

Site-specific requirements are listed on the following pages of this job sheet. Specifications are prepared in accordance with the WV NRCS Field Office Technical Guide.

| | |
|---|---|
| **Client:** | **Farm #:** |
| **Field(s):** | **Tract #:** |
| **Designed By:** | **Date:** |
| **Targeted Wildlife Specie(s):** | |

| **Purpose (check all that apply)** | |
|---|---|
| ☐ Create early successional woody openings or scrub/shrub habitat | ☐ Create wildlife habitat in conjunction with a forestry/timber management plan |
| ☐ Creating habitat for other game and non-game species including threatened or endangered species | ☐ Component of a wildlife management plan developed using the (645) Upland Wildlife Habitat Management standard |

| **Layout** (as applicable) | | |
|---|---|---|
| Home range of the target specie(s): _____acres | Total # of openings: _____ | Total acreage of openings: _____acres |

| Field or Plot No. | Size (ac) | Date Planned | Method of Establishment[1] | Management [2] |
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[1] **Method of Establishment:** Describe how the opening will be constructed. For early successional openings, list how the area is to be established either **Mechanical** (e.g. hand establishment/chainsaw, heavy equipment, etc.) **Chemical** or a **Combination** of both. If available, list any chemicals, precautions, rates and timing in the "Additional Notes and Specifications" section on the following page.

[2] **Management:** Under the appropriate column list management activities (as appropriate).

**NOTE: Timber harvesting activities may be subject to the WV Logging and Sediment Control Act. Contact the WV Division of Forestry for more information.**

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If needed, an aerial view, map or a sketch of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.

**Additional Specifications and Notes:** (i.e. herbicide application, operation and maintenance specifics, coordination with timber harvests, etc.)

**Questions regarding the establishment, operation or maintenance of this practice should be directed to:**

_____ **at** _____