**Natural Resources Management**

**Packet # 11**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Which of your germinated seeds have grown the tallest?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. How tall is their average height?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. According to your research, would these plants be good to seed for wildlife food?

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4. Why or why not?

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5. What other elements might these plants provide? Cover, nesting places, food that draws other species to the area?

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**Natural Resources Management**

**Packet # 12**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Collecting Native Seed**

**U. S. Forest Service, US Department of Agriculture**

For many native species, collecting wildland seed is the first step in a lengthy process of making plant materials available for restoration projects. Successful seed collection involves planning ahead and monitoring for maturity. Suitable donor populations must be located and seeds must be collected at the appropriate time once they are mature. The window for collection is highly variable among species, ranging from only a few days to several weeks or longer. If the window is missed, collection must wait until the next year or growing season, at a minimum.

Forest Service seed collections are made by volunteers, staff, and professional collectors under contract. Regardless of the method, supervisory controls are in place to ensure that collection sites are not located within off-limit areas, such as in Research Natural Areas, sensitive or federally listed plant sites, or other environmentally sensitive areas. Also avoided are collection sites occupied by invasive plant species.

Although hot and challenging at times, wildland seed collection is rewarding work.

For each target species, collection sites are located using guidelines that ensure a representative sample of genetic variation is obtained. The specific number and distribution of collection sites will vary according to size, density, continuity of populations, and biology of the species sampled, as well as the desired quantity of seed to be obtained. A general rule of thumb is to collect from a minimum of five collection sites at least 0.5-1.0 mile apart.

A larger number of collection sites may be needed for inbreeding plant species to adequately sample genetic variation among populations. Within-population genetic variability is sampled by collecting from a large number of widely spaced or unrelated plant parents (30-50 or more plants is optimal).

**Answer these questions about the above article:**

Seeds may not be collected from off limit areas such as:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The specific number and distribution of collection sites will vary according to 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, continuity of 7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and biology of the 8. \_\_\_\_\_\_\_\_\_\_ sampled, as well as the desired 9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of seed to be obtained.

**Natural Resources Management**

**Packet # 13**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. You planted three different species in peat pots that can then be planted directly into the ground. Compare this with spreading seed of plants for wildlife use. Which method might be more effective and why?

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2. Would the best method change if you were planting perennials (which live many years such as trees and shrubs) compared to the annuals (that live only one year) that you planted in your mini greenhouse?

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**Natural Resources Management**

**Packet # 14**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Collecting Native Seed**

**U. S. Forest Service, US Department of Agriculture**

***Collection Methods***

Seed collection methods will vary depending on the species. Grass seed is harvested by stripping or shaking it off the stem, or by clipping the stem with scissors or small scythes just below the spikelet. Shrub seed is picked or lightly beaten or shaken, using a tarp to catch the falling seed. For species that dehisce explosively, the entire inflorescence may be cut prior to maturity and allowed to dry in mesh or paper bags, or under netting.

Ladders may be required for collecting seed from taller shrubs, or plants can be lightly pruned with telescoping pole pruners. For large-scale harvesting, specialty equipment and machines may be necessary. Whatever the method, collections should always be conducted in a manner that does not damage existing vegetation or other resources. Ideally, at least 50 percent of the seed crop at a given site is left intact to allow for natural recruitment and regeneration of the native population.

Close monitoring is required to match the timing of seed collection activities to the distribution of seed maturation. Multiple trips to a site may be required for determining when the seed is mature, and also for collecting. Collecting at multiple times throughout the maturation period can help prevent inadvertent selection against either early or late maturing genotypes.

***Storage***

Seed must be collected and stored in such a way as to ensure its viability. Overheating can kill seeds, and excessive heat and temperature fluctuations should be avoided. High moisture content during storage can also cause seed damage and loss of viability due to molds. A good rule of thumb is the 100 rule of thumb, where the sum of temperature (degrees F) and relative humidity (%) does not exceed 100.

**Answer these questions about the above article:**

1. Seed must be collected and stored in such a way as to ensure its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Seed collection methods vary depending on the \_\_\_\_\_\_\_\_\_\_\_\_

3. Multiple trips to a site may be required for determining when the seed is \_\_\_\_\_\_\_\_\_\_\_\_

Whatever the method, collections should always be conducted in a manner that does not damage existing 4. \_\_\_\_\_\_\_\_\_ or other 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Natural Resources Management**

**Packet # 15**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Weekly Update**

**Name of the seed:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Number of seeds planted: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Germination Percentage: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Average height: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

General health/Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Name of the seed:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Number of seeds planted: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Germination Percentage: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Average height: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

General health/Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Name of the seed:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Number of seeds planted: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Germination Percentage: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Average height: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

General health/Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_