

I. PLANTS

BMP 1

Collections of cuttings and seeds from wildland habitats must be taken from healthy plants during non-rainy weather and, where possible, should be collected at approximately two feet or more above the soil surface.

Rationale: Pathogens can be transmitted on seeds and cuttings taken from diseased plants. They also can be acquired from infested soil that may have splashed up from the ground.

BMP 2

Cuttings and seeds collected from wildland habitats must be placed and stored in clean

BMP 8

Avoid product returns of nursery stock. If unavoidable, isolate the material from other plants for at least six weeks and inspect for disease symptoms. Test a portion of the returned product for ***Phytophthoras*** by pear baiting or other accepted diagnostic method.

Rationale: Avoid possible disease introduction from the returned stock which may have been exposed to pathogens. If disease is found on returned stock, contact your county agricultural commissioner or cooperative extension office.

BMP 9

When delivering to a job site for your own installation, place plants on a suitable barrier (such as plastic sheeting), to protect them from soil substrate contamination.

Rationale: The soil substrate can harbor pathogens and plants returned from the job site can introduce pathogens into the nursery.

BMP 10

Thoroughly inspect all plant material bound for shipping or planting at habitat restoration sites.

Rationale: Visual evaluation of outgoing materials provides a final screening for pathogens. Suspect materials should be held and tested for pathogens.

BMP 11

Dispose of unsalable plant material no longer actively managed.

Rationale: Aged or unsaleable product can serve as a source of inoculum for pathogens and weeds.

II. SOIL

BMP 12

Ensure that growing media is purchased from a reliable source and the components are low risk for containing pathogens.

Rationale: Given that *Phytophthora* and other pathogens can survive in potting media, it is critical for the grower to exclude sources of contamination in components, such as peat, bark and other organic components. Know your supplier and tour their operation to ensure they do not employ potentially risky practices. When growing for restoration or managed wildland installations, to ensure freedom from pathogens, heat treatment or fumigation of potting mix may be necessary.

BMP 13

Ensure growing media is stored in an area known to be free from pathogens or on a surface which can be sanitized and is not exposed to contamination by the soil substrate, surrounding environment or workers' activities.

Rationale: Clean potting media can become contaminated by external sources such as infested leaf debris, contaminated water, or contaminated soils. Install a barrier between the soil substrate and the potting media, such as a pond-liner or a concrete pad.

BMP 14

Avoid re-use of potting media or if used media must be recycled, properly disinfest prior to usage.

Rationale: Used media can harbor pathogens. Heat treatments or other proven methods of disinfestation must be employed. See appendix.

BMP 15

Avoid movement of potentially contaminated soil/mud through the nursery on tires, shoes, and equipment. Employ the use of boot scrubbers, foot and tire baths.

Rationale: Soil borne pathogens are known to be transmitted in mud stuck to tires, shoes etc.

III. WATER

BMP 16

Irrigate in a manner that enables leaves to dry quickly which avoids periods of prolonged leaf wetness. Where possible, reduce plant density to enable better air movement in the plant canopy to promote faster drying of leaves

Rationale: Properly time irrigation events to reduce conditions favorable for disease development. Extended leaf wetness periods due to late afternoon or nighttime irrigations (such as sprinklers, hand watering, or misters) are conducive to infection by pathogens.

BMP 17

Monitor and annually test untreated irrigation water from any source other than a well or municipal water supply to confirm that it is free from pathogens.

Rationale: For growing operations that utilize recycled water or open irrigation water sources, such as ponds, lakes, streams, or well-water blended with surface water, proper water treatment is recommended (ozonation, chlorination or other water disinfection program).

BMP 18

Avoid or minimize accumulation of standing surface water in planting beds and roads.

Rationale: When plants sit in standing water, *Phytophthora* zoospores can swim from pot to pot. The pathogen may potentially enter plants through the roots or by splashing onto leaf surfaces. Standing water puddles in the nursery provide optimum conditions for *Phytophthora* to thrive and to be splashed onto plants. Roads and pathways should be properly graded. Excessively wet roads provide the potential for infested mud or water to splash onto plants.

BMP 19

Insert a barrier (such as gravel layers, or preferably raised benches with drainable bench tops) between native soil and containers to reduce splash and dispersal of pathogens from the potentially infected ground. This can be easily accomplished by using raised benches with drainable bench tops that prohibit lateral movement of water from pots.

Rationale: Soil-borne pathogens such as *Phytophthora*, can inhabit the soil substrate and potentially be a source of contamination.

IV. HORTICULTURAL CONTAINERS AND SUPPLIES : plant stakes, irrigation emitters, plant protectors (Tubex tubes) , etc.

BMP 20

Use new or clean and properly disinfested (ble benchr0 Tc7 (2.77TJ 0.00(s)-1c -0.0.7 (0)Tj 0.003P)1.c -2.503 -i

Rationale:

BMP 39

After every crop rotation, disinfect propagation mist beds, sorting areas, cutting benches and equipment.

Rationale: In order to reduce potential introduction and minimize the spread of pathogens throughout the nursery, basic sanitation practices should be followed using registered products in accordance with label instructions.

BMP 40

All tools and gloves used in the nursery, at landscape installations and at habitat restoration sites must be cleaned between uses at different locations.

Rationale

Display photographs and posters of the disease symptoms caused by soil-borne pathogens in appropriate employee gathering areas. (i.e break areas, lunch and conference room s, etc.)

Rationale: Continual exposure to educational materials and photos of plant disease symptoms is instrumental for employee training.

BMP 46

Educate nursery personnel

		BMP 1
		BMP 2
		BMP 3
		BMP 4
		BMP 5
		BMP 6
		BMP 7
		BMP 8

	IMPLEMENTATION DATE	PROCEDURES FOLLOWED
9	BMP	
10	BMP	
11	BMP	
12	BMP	
13	BMP	
14	BMP	
15	BMP	
16	BMP	

IMPLEMENTATION DATE PROCEDURES FOLLOWED

		BMP 17

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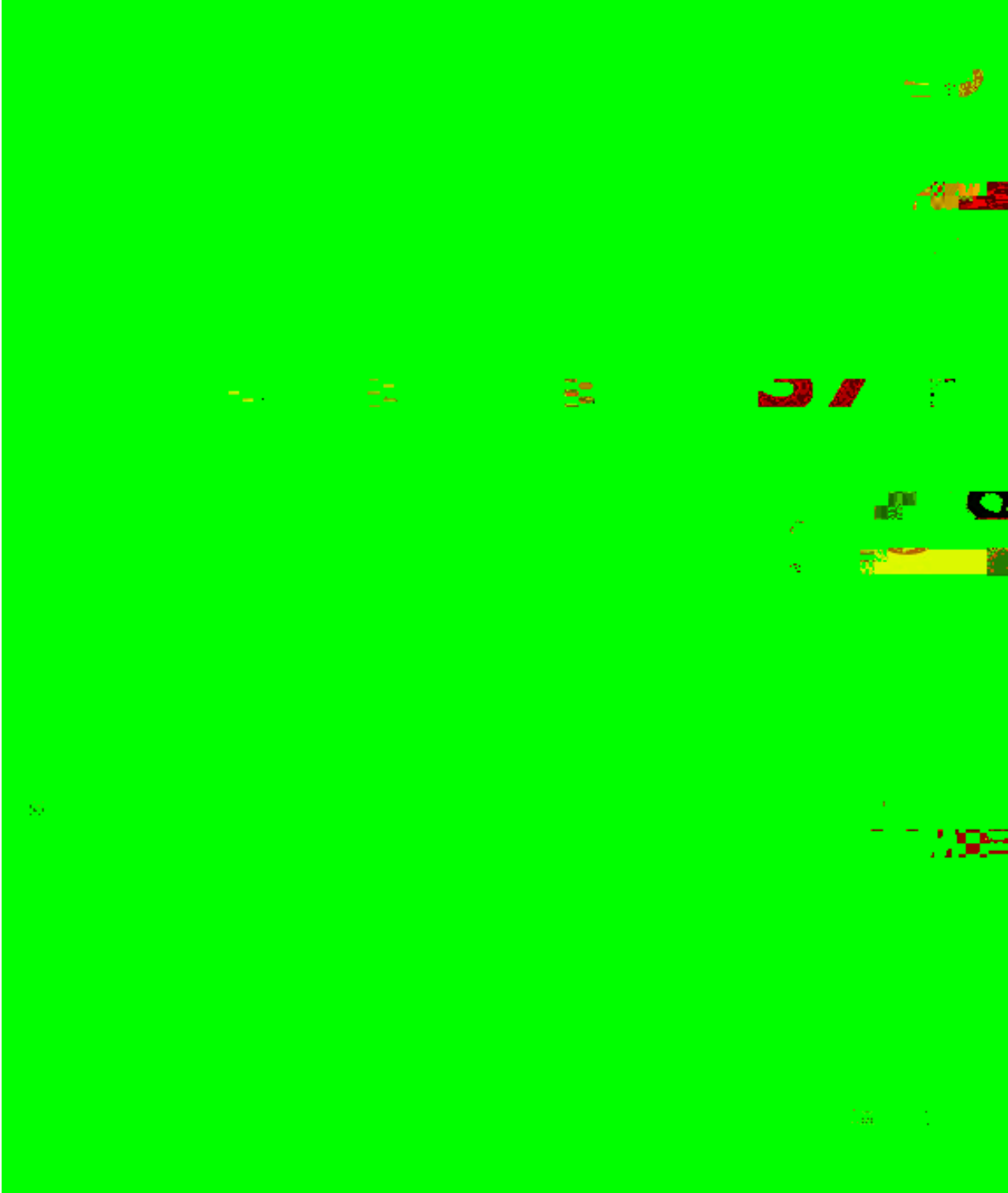
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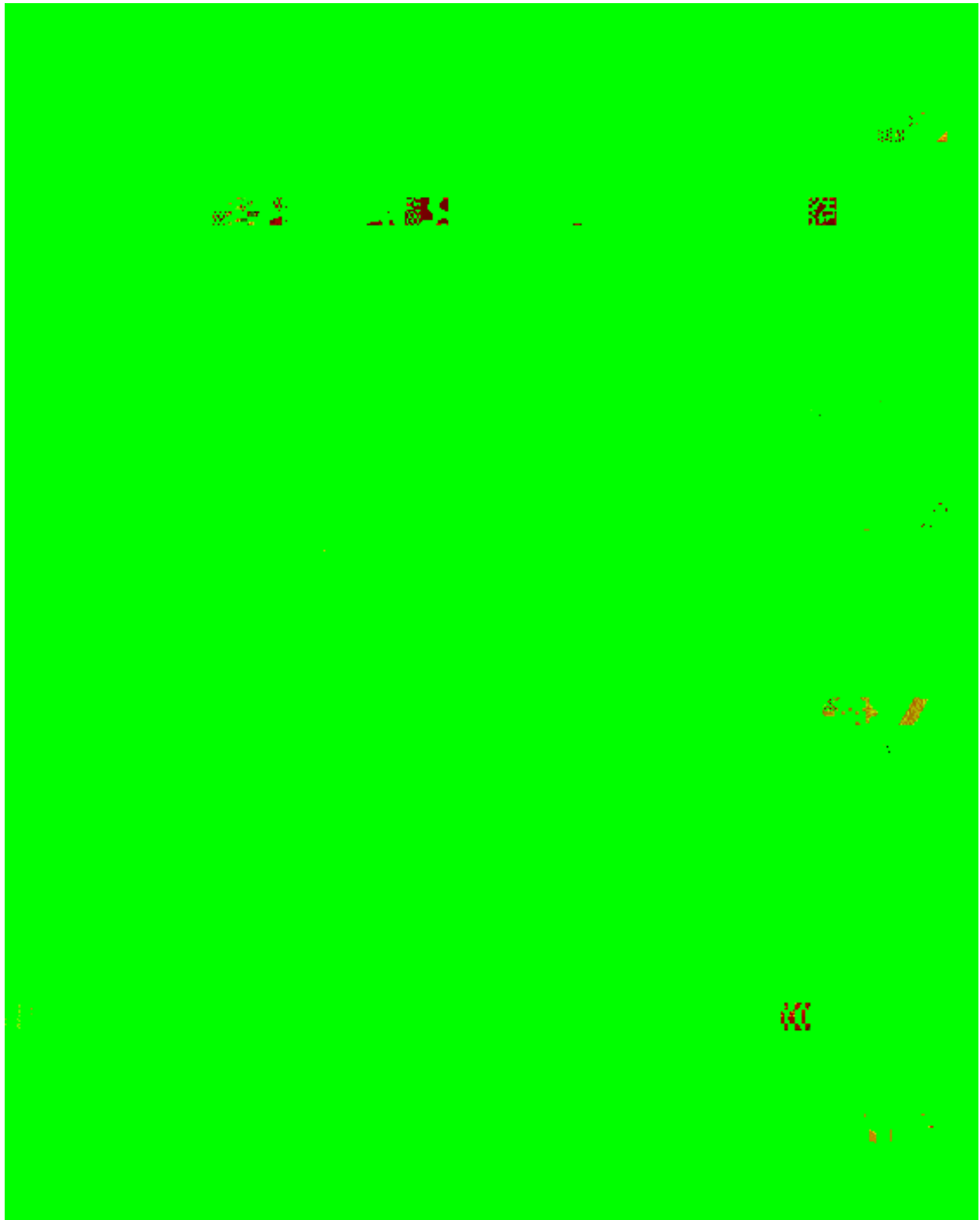
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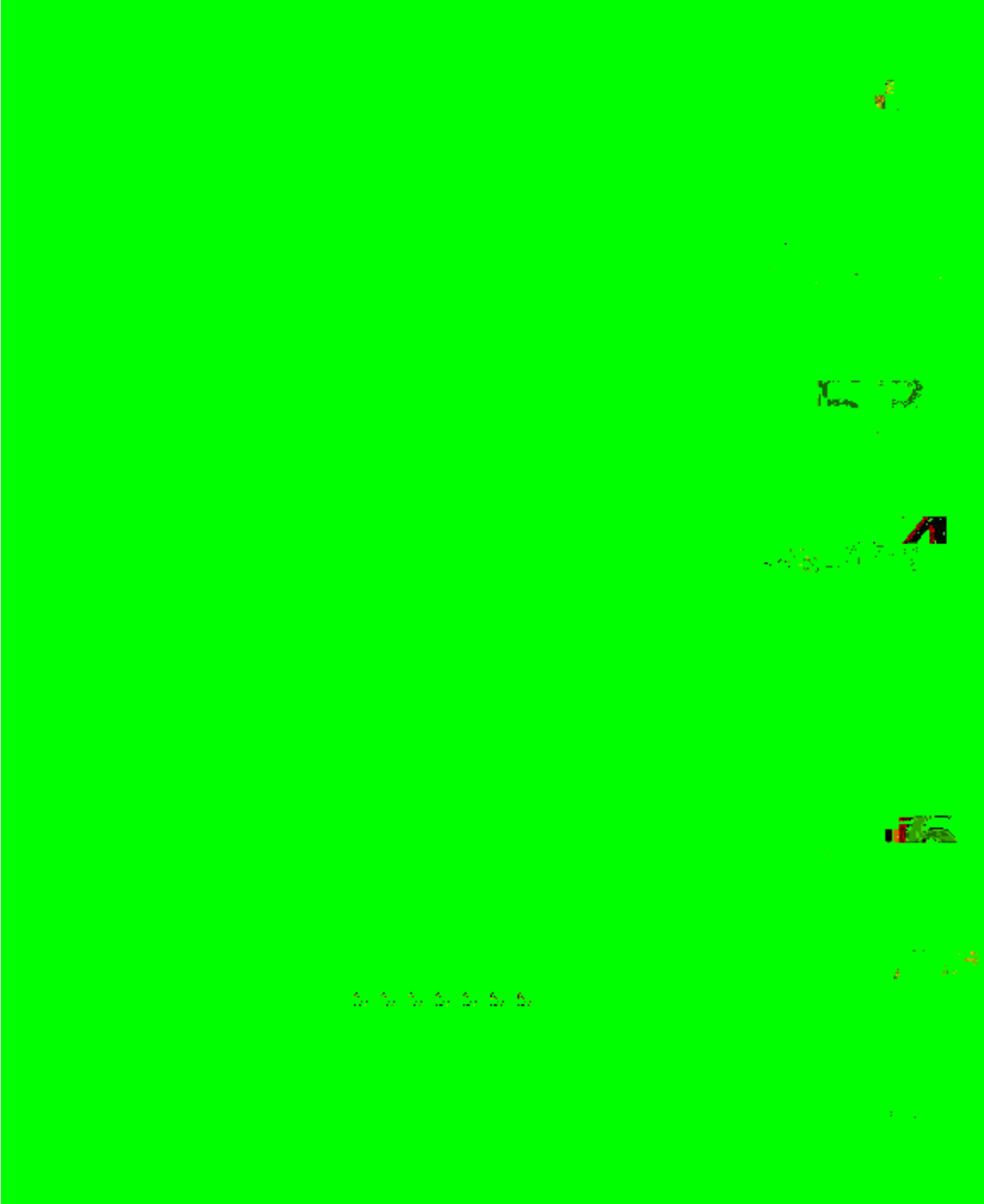
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