

UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
KNOX CITY, TEXAS

NOTICE OF RELEASE OF CUERO GERMPLASM PURPLE PRAIRIE CLOVER  
SELECTED CLASS OF NATURAL GERMPLASM

The U.S. Department of Agriculture, Natural Resources Conservation Service, Knox City Plant Materials Center announces the release of a selected ecotype of purple prairie clover, *Dalea purpurea* Vent.. As a selected release this plant will be referred to as Cuero Germplasm purple prairie clover. It has been assigned the PI number 441 183. Cuero Germplasm is released as a selected class of certified seed (natural track).

This alternative release procedure is justified because there are no local ecotypes of purple prairie clover available for use in Texas.

**Collection Site Information:** Cuero Germplasm was originally collected in 1970 from native plants located in the southern part of DeWitt County approximately 11 miles from the town of Cuero (N. Lat. 29°00', W Long 97° 09'). The collection site is located 200 yards north of the town of Tomaston along the north side of US Highway 87. Elevation at the collection site is approximately 150 feet; the soil at the collection site is classified as Tremona loamy fine sand, 0 to 5 percent slope. Average precipitation for the area is around 34 inches. Other plants growing in association included mesquite, little bluestem, and black brush. The collection site is located in MLRA 83A - Northern Rio Grande Plains.

**Description:** Cuero Germplasm purple prairie clover, *Dalea purpurea*, is a native, warm-season, perennial legume. The plant has one or more stems up to 2.5 ft. long growing from a woody root with a stout taproot. Several branch roots are located near the surface. Leaves are alternate, pinnately compound with 5 leaflets. The flowers appear terminally on erect stems and are rose-purple cylindrical floral spikes about 2 inch in length. The flowers open progressively from the base to the tip of the flower head. Fruit is a 1-2 seeded pod about 1/8 of an inch long. There are approximately 275,000 seeds per pound. Purple prairie clover blooms from April through June. Seed generally matures from mid July to late August.

**Method of Breeding and/or Selection:** Cuero Germplasm was originally evaluated in 1971-72 against 5 other accessions. In 1973 two accessions were dropped and 4 new collections were added to the evaluation. In 1974 three additional accessions were added to the evaluation. From 1974-1976 a total of eleven collections were evaluated looking at stand establishment, vigor, seed production and forage production. In 1976 Cuero Germplasm was selected as the top accession based on survivability, vigor and overall plant performance. Cuero Germplasm meet the selection criteria of finding a native legume suitable for range reseeding and wildlife use. Seed production at the Plant Materials Center averages about 200 pounds/acre each year. An average PLS of 90% can be expected. See attachment 1 (pages 4-5) for Initial Evaluation Summaries.

**Environmental Impact Assessment:** Cuero Germplasm purple prairie clover is a selection of naturally occurring germplasm and has been unaltered from its original collection. Cuero Germplasm did not meet the assessment of a plant that would become invasive based on literature review and the attached "Invasive Species Worksheet" (see attachment 2, pages 6-13).

**Conservation Use:** Cuero Germplasm may be used as a component in seed mixtures for range seeding and pasture plantings. Livestock and wildlife favor Cuero Germplasm as highly nutritious forage. Its forage value is particularly high while young tender growth is present. As with all native legumes it must be managed accordingly to avoid overgrazing. Some livestock producers have experienced bloat problems when animals have consumed large quantities of legumes. Wildlife can utilize the plants and seed for food. The plants provide a good seed food crop for quail. Cuero Germplasm may be utilized in filterstrips, field borders, contour buffer strips, in riparian forest buffers, and for erosion control plantings.

**Anticipated Area of Adaptation:** Cuero Germplasm purple prairie clover is adapted in MLRAs 42, 77C, D, 78B, C, D, 80A, B, 81A, B, C, 82, 83A, 84B, C, 85, and 86A, B in Texas. Purple prairie clover is widely distributed throughout central, south, and west Texas. Purple prairie clover occurs mostly on sandy, sandy loam and other moderately drained soils. Purple prairie clover is adapted to prairies, plains and slopes along hillsides.

**Availability of Plant Materials:** Generation 0 seed (equivalent to Breeder seed) will be maintained by the USDA-NRCS Plant Materials Center at Knox City, Texas. Field production (G1) seed is available through the Texas Foundation Seed Service to interested parties for increase purposes.

**References:**

Correll, S.D., M.C. Johnson, Manual of the vascular plants of Texas. Texas Research Foundation, 1970.

Hatch, S.L., Checklist of the Vascular Plants of Texas, 1990.

Hatch, S.L., Pluhar, J., Texas Range Plants, TAMU Press, 1993.

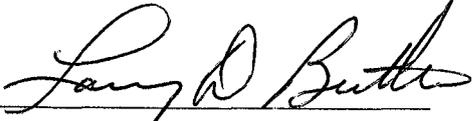
USDA-SCS Planting Guide, Purple Prairie Clover, 1979.

**Prepared by:**

USDA-NRCS, Plant Materials Center, 3776 FM 1292, Knox City, TX 79529, 940-658-3922.

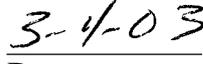
Signatures for release of:

Cuero Germplasm purple prairie clover (*Dalea purpurea*)



Name

Dr. Larry D. Butler, State Conservationist  
United States Department of Agriculture  
Natural Resources Conservation Service  
Temple, Texas



Date



Name

for Director, Ecological Sciences Division  
United States Department of Agriculture  
Natural Resources Conservation Service  
Washington, D.C.



Date

**Attachment 1:** Summary of Initial Evaluation of purple prairie clover, *Dalea purpurea*

(Cuero Germplasm; a.k.a., PMT-2597, PI-441183)

**1971-1972 Initial Evaluation Data**

Purple Prairie Clover Evaluation Data

Accn	Stand		Vigor		Leaf Production	Seed Production	
	1971	1972	1971	1972	1972	1971	1972
1469	7	5	3	3	5	7	9
2226	7	7	1	3	3	3	9
2597	3	5	5	3	3	3	1
2598	5	5	5	3	5	3	1
2422	7	7	5	3	3	3	1
2423	7	7	5	5	7	3	9
Sum	36	36	24	20	26	22	30
Mean	6.00	6.00	4.00	3.33	4.33	3.67	5.00

Rating - 1=excellent, 3=good, 5=fair, 7=poor, 9=none

**1973 Initial Evaluation Data**

Purple Prairie Clover Evaluation Data

Accn	Stand	Vigor	Leaf Production	Seed Production
	1973	1973	1973	1973
1469	5	5	7	7
2226	3	5	3	5
2597	3	5	3	3
2598	3	5	3	3
3010	3	5	3	7
3143	3	5	5	3
3195	3	5	3	5
3235	5	5	3	7
Sum	28	40	30	40
Mean	3.50	5	3.75	5.00

1974-1975 Initial Evaluation Data

Purple Prairie Clover Evaluation Data

Accn	Stand		Vigor		Leaf Production		Seed Production	
	1974	1975	1974	1975	1974	1975	1974	1975
1469	5	3	5	5	7	5	5	3
1469	5	7	5	5	3	5	9	5
2226	3	1	5	1	3	3	5	3
2226	3	1	5	1	3	1	3	1
2597	3	1	5	3	3	3	3	3
2597	3	1	5	3	3	3	3	3
2597	3	1	5	3	3	3	3	3
2597	3	1	3	3	3	3	3	1
2597	3	3	5	5	3	5	1	3
2598	5	1	5	5	3	3	3	3
3010	3	1	5	3	5	3	3	3
3010	5	1	3	3	5	3	7	1
3143	3	3	5	3	5	3	3	1
3143	5	1	3	3	5	3	5	3
3195	3	1	5	5	5	5	3	3
3195	5	1	5	3	5	3	7	1
3235	3	3	5	3	3	5	1	3
3271	3	5	5	5	3	5	5	3
3272	5	1	3	3	5	3	7	1
3273	3	1	3	3	3	3	7	1
Sum	74	38	90	68	78	70	86	48
Mean	3.70	1.90	4.5	3.4	3.90	3.50	4.30	2.40

(1971-1976 Overall Summary)

Purple Prairie Clover Evaluation Data

Accn	Stand	Vigor	Leaf Prod	Seed Prod
1469	5.67	4.83	4.70	6.50
2226	2.83	2.83	2.50	3.17
2597	2.33	3.93	3.20	2.47
2598	4.00	4.67	4.20	2.33
3010	2.50	3.75	3.75	4.25
3143	2.83	3.33	4.00	3.33
3195	2.75	4.25	4.00	3.75
3235	3.67	4.33	3.67	3.67
3271	3.00	5.67	5.00	3.00
3272	3.00	3.00	4.00	4.00
3273	2.33	4.33	3.67	3.67
2422	7.00	4.00	3.00	2.00
2423	7.00	5.00	7.00	6.00
Sum	48.92	53.93	52.68	48.13
Mean	3.76	4.15	4.05	3.70

ATTACHMENT 2:  
Environmental Evaluation of Plant Materials Releases

Name of person scoring: Morris J. Houck Date of scoring: 11-20-2002

Scientific Name: Dalea purpurea Common Name: purple prairie clover

Release Name: Cuero Germplasm

Is the plant native to the US? Yes

Is the plant native to the area of intended use? Yes

Authority used to determine native status: Checklist of the vascular plants of TX

What is the intended area of use for this plant? TX

What is the intended use for this plant? range seeding, wildlife use, CAT,CRP,EQIP

Areas in which the release is known to be invasive or has a high probability of being invasive: none

<u>Summary of Criteria from Section A</u>	<u>Score</u>
Part 1. Impact on Habitats, Ecosystems, and Land Use	<u>0</u>
Part 2. Ease of Management	<u>12</u>
Part 3. Conservation Need and Plant Use	<u>11</u>
Part 4. Biological Characteristics	<u>28</u>

Final Determination of Release Based on the Environmental Evaluation:

- OK to Release
- OK to Release but qualify use and intended area of use\*
- Do Not Release - NPL determines if release is made\*
- Do Not Release - document and destroy materials

I certify that this Environmental Evaluation was conducted with the most accurate and current information possible.

Morningstar GA 11-20-2002  
Signature of Person Scoring Date

Signature of NPL indicating that it is OK to make the release:

Richard J. White 6/20/03  
National Program Leader, PM Date

\* An Environmental Assessment (EA) and/or Environmental Impact Statement (EIS) may be required prior to release. If required, attach the EA and/or EIS to this worksheet and to the release notice.

**Section A. Scoring of Criteria for Impact, Management, Need and Biological Characteristics**

Circle the appropriate number for each of the following criteria. Add up the scores for each part and record at the end of each part. Comments which clarify answers or provide supporting information may be included in the right margin of the worksheet or attached on a separate sheet of paper.

**Part 1: Impact on Habitats, Ecosystems, and Land Use**

*This section assesses the ability of the species or release to adversely affect habitats, ecosystems, and agricultural areas.*

**1) Ability to invade natural systems where the species does not naturally occur**

- a) Species not known to spread into natural areas on its own 0 ✓
- b) Establishes only in areas where major disturbance has occurred in the last 20 years (e.g., natural disasters, highway corridors) 3
- c) Often establishes in mid- to late-successional natural areas where minor disturbances occur (e.g., tree falls, streambank erosion), but no major disturbance in last 20-75 years 6
- d) Often establishes in intact or otherwise healthy natural areas with no major disturbance for at least 75 years 10

**2) Negative impacts on ecosystem processes (e.g., altering fire occurrence, rapid growth may alter hydrology)**

- a) No perceivable negative impacts 0 J
- b) Minor negative impacts to ecosystem processes 2
- c) Known significant negative impacts to ecosystems processes 6
- d) Major, potentially irreversible, alteration or disruption of ecosystem processes 10

**3) Impacts on the composition of plant communities where the species does not naturally occur**

- a) No negative impact; causes no perceivable changes in native populations 0 ✓
- b) Noticeable negative influences on community composition 5
- c) Causes major negative alterations in community composition 10

**4) Allelopathy**

- a) No known allelopathic effects on other plants 0 J
- b) Demonstrates allelopathic effects on seed germination of other plants 3
- c) Demonstrates allelopathic effects to mature stages of other plants 5

- 5) Impact on habitat for wildlife or domestic animals (aquatic and terrestrial), including threatened and endangered species (coordinate with USFWS and state Heritage Programs as appropriate)**
- a) No negative impact on habitat, or this criteria not applicable based on intended use for the plant 0 J
  - b) Minor negative impact on habitat (e.g., decreased palatability; lower wildlife value; decreased value for undesirable animal species) 2
  - c) Significant negative impact on habitat (e.g., foliage toxic to animals; significantly lower value for wildlife; excludes desirable animal species from an area) 5
- 6) Impact on other land use**
- a) No negative impacts on other land uses 0 J
  - b) Minor impacts (plant could invade adjacent areas and decrease its value) 3
  - c) Significant impacts (plant may alter the system or adjacent lands significantly enough to prevent certain uses) 5
- Total Possible Points 45**  
**Total Points for Part 1 0**

**Part 2. Ease of Management**

*This part evaluates the degree of management which might be needed to control the species or release if it becomes a problem, or eradicate the species or release if it is no longer desirable.*

- 1) Level of effort required for control**
- a) Effective control can be achieved with mechanical treatment 0 J
  - b) Can be controlled with one chemical treatment 2
  - c) One or two chemical or mechanical treatments required or biological control is available or practical 5
  - d) Repeated chemical or mechanical control measures required 10
- 2) Effectiveness of community management to potentially control the plant release**
- a) No management is needed, the plant release is short-lived and will significantly decrease or disappear within 5 years under normal conditions without human intervention 0
  - b) Routine management of a community or restoration/preservation practices (e.g., prescribed burning, flooding, controlled disturbance, pasture renovation) effectively controls the release 2 ✓
  - c) Cultural techniques beyond routine management can be used to control the release 4
  - d) The previous options are not effective for managing or controlling the release 10

- 3) Side effects of chemical or mechanical control measures**
- a) Control measures used on release will have little or no effect on other plants 0
  - b) Control measures used on release will cause moderate effects on other plants 3 ✓
  - c) Control measures used on release will cause major effects on other plants 5

\*\*If spreads by seed. or both seed and vegetative means, go to #4

\*\*If spreads by vegetative means only, go to #5

- 4) Seed banks**
- a) Seeds viable in the soil for 1 year or less 0
  - b) Seeds remain viable in the soil for 2-3 years 1
  - c) Seeds remain viable in the soil for 4-5 years 3 J
  - d) Seeds remain viable in the soil for more than 5 years 5
- 5) Vegetative regeneration under natural conditions**
- a) Regeneration from resprouting of cut stumps 1 ✓
  - b) Regeneration from pieces of the root left in the soil 3
  - c) Regeneration from root or stem parts left in the soil 5
- 6) Resprouts after cutting above-ground parts**
- a) Does not resprout or resprouts but the release is sterile and does not produce seed 0
  - b) Resprouts and produces seed in future years 3 J
  - c) Resprouts and produces seed in same year 5
- Total Possible Points 40**
- Total Points for Part 2 12**

**Part 3. Conservation Need and Plant Use**

*This part evaluates the importance of the species or release to meet a conservation need.*

- 1) Potential Use(s) of the Plant Release**
- a) Used for low-priority issues or single use 1
  - b) Has several uses within conservation 2
  - c) Has many uses within conservation as well as outside of conservation 4
  - d) Has high-priority use within conservation 5 J
- 2) Availability of Other Plants to Solve the Same Need**
- a) Many other plants available 1
  - b) Few other plants available 3 J
  - c) No other plants available 5

<b>3) Consequences of <u>Not</u> Releasing This Plant</b>	
a) No impact to conservation practices	0
b) Minor impact on one or more conservation practice	1
c) Serious impact on one conservation practice	3 ✓
d) Serious impact on more than one conservation practices	5
<b>Total Possible Points</b>	<b>15</b>
<b>Total Points for Part 3</b>	<b><u>11</u></b>

#### **Bart 4. Biological Characteristics**

*This part evaluates the biological properties which indicate the natural ability of the species or release to propagate and maintain itself under natural conditions. Note: these criteria relate to the species under natural conditions, as opposed to the species under managed conditions used to increase the species, i.e. seed increase programs, or specific propagation methods which do not normally occur in nature.*

<b>1) Typical mode of reproduction under natural conditions</b>	
a) Plant does not increase by seed or vegetative means ( <u>skip to #11</u> )	0
b) Reproduces almost entirely by vegetative means	1
c) Reproduces only by seeds	3 3
d) Reproduces vegetatively and by seed	5
<b>2) Reproduction (by seed or vegetative) in geographic area of intended use</b>	
a) Reproduces only outside the geographic area of intended use	1
b) Reproduces within the geographic area of intended use	3
c) Reproduces in all areas of the United States where plant can be grown	5 3
<b>3) Time required to reach reproductive maturity by seed or vegetative methods</b>	
a) Requires more than 10 years	1
b) Requires 5-10 years	2
c) Requires 2-5 years	3
d) Requires 1 year	5 3

\*\* If reproduces only by seed, skip to #5

<b>4) Vegetative reproduction (by rhizomes, suckering, or self-layering)</b>	
a) Vegetative reproduction rate maintains population (plant spreads but older parts die out)	1
b) Vegetative reproduction rate results in moderate increase in population size (plant spreads <3' per year)	3
c) Vegetative reproduction rate results in rapid increase in population size (plant spreads >3' per year)	5

\*\* If reproduces only vegetatively, skip to #11

- 5) Ability to complete sexual reproductive cycle in area of intended use**
- a) Not observed to complete sexual reproductive cycle in the geographic area of intended use, but completes sexual reproduction in distant areas of the United States 1
  - b) Not observed to complete sexual reproductive cycle in the geographic area of intended use, but completes sexual reproduction in adjoining geographic areas 3
  - c) Observed to complete the sexual reproductive cycle in the geographic area of intended use 5 ✓
- 6) Frequency of sexual reproduction for mature plant**
- a) Almost never reproduces sexually 0
  - b) Once every five or more years 1
  - c) Every other year 3
  - d) One or more times a year 5 J
- 7) Number of viable seeds per mature plant each reproductive cycle**
- a) None (does not produce viable seed) 0
  - b) Few (1-10) 1
  - c) Moderate (11-1,000) 3 J
  - d) Many-seeded (>1,000) 5
- 8) Dispersal ability**
- a) Limited dispersal (<20') and few plants produced (<100) 1 ✓
  - b) Limited dispersal (<20') and many plants produced (>100) 3
  - c) Greater dispersal (>20') and few plants produced (<100) 7
  - d) Greater dispersal (>20') and many plants produced (>100) 10
- 9) Germination requirements**
- a) Requires open soil and disturbance to germinate 1 ✓
  - b) Can germinate in vegetated areas but in a narrow range or in special conditions 5
  - c) Can germinate in existing vegetation in a wide range of conditions 10
- 10) Hybridization**
- a) Has not been observed to hybridize outside the species 0 ✓
  - b) Hybridizes with other species in the same genera 3
  - c) Hybridizes with other genera 5

### 11) Competitive ability (of established plants)

- |  |     |
|--|-----|
| a) Poor competitor for limiting factors        | 0 J |
| b) Moderately competitive for limiting factors | 5   |
| c) Highly competitive for limiting factors     | 10  |

**Total Possible Points 70**  
**Total Points for Part 4 28**

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#### References

Many of the criteria used in this rating system were adapted from the following sources:

Hiebert, Ron D. and James Stubbendieck. 1993. Handbook for Ranking Exotic Plants for Management and Control. US Department of the Interior, National Park Service, Denver, CO.

Randall, John M., Nancy Benton, Larry E. Morse, and Gwendolyn A. Thornhurst. 1999. Criteria for Ranking Alien Wildland Weeds. The Nature Conservancy, Arlington, VA.

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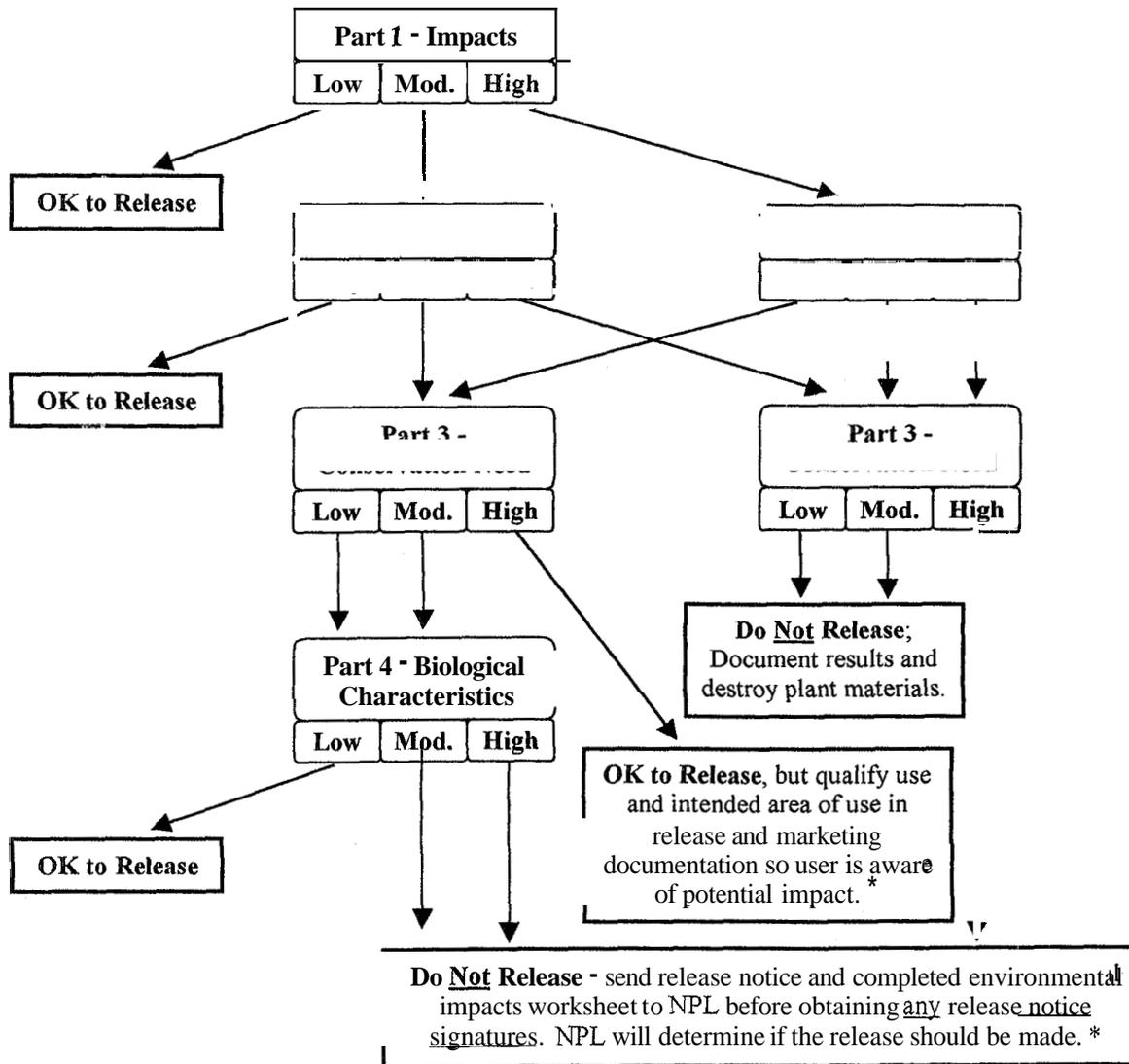
#### Section B. Scoring and Interpretation

Based on the scores from above, circle the points range you scored to determine the appropriate interpretation. The interpretation will be used to determine the course of action for the release.

<u>Part</u>	<u>Points Scored</u>	<u>Interpretation</u>
Part 1. Impacts on Habitats, Ecosystems, and Land Use	0-15 ✓	<b>Low</b> chance plant is going to affect the environment
	16-25	<b>Moderate</b> chance plant is going to affect the environment
	26-45	<b>High</b> chance plant is going to affect the environment
Part 2. Ease of Management	0-20 ✓	<b>Easy</b> to control
	21-30	<b>Moderate</b> to control
	31-40	<b>Difficult</b> to control
Part 3. Conservation Need and Plant Use	0-5	<b>Low</b> need
	6-9	<b>Moderate</b> need
	10-15 ✓	<b>High</b> need
Part 4. Biological Characteristics	0-25	<b>Low</b> chance plant is going to propagate and increase itself
	26-40 ✓	<b>Moderate</b> chance plant is going to propagate and increase itself
	41-70	<b>High</b> chance plant is going to propagate and increase itself

**Section C. Action to Take for Releasing Plants**

Based on the interpretation above, follow the decision tree below. Start with your interpretation rating for Part 1 (Low, Moderate, or High) and follow the appropriate arrow to the next level until you reach a decision box. Once you reach a decision box you may stop and record the decision on the first page of this worksheet.



\* Indicates that an Environmental Assessment or Environmental Impact Statement may need to be prepared prior to release (see NPMM Part 540.73(a)(3)).