U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Dichanthelium* (= *Panicum*) *hirstii*
COMMON NAME: Hirst Brothers' Panic Grass

LEAD REGION: Region 5

INFORMATION CURRENT AS OF: April 22, 2010

STATUS/ACTION:

____Species assessment - determined species did not meet the definition of endangered or threatened under the Act and, therefore, was not elevated to Candidate status
___ New candidate
_X_ Continuing candidate
__ Non-petitioned
_X__ Petitioned - Date petition received: May 11, 2004
__ 90-day positive - FR date:
__ 12-month warranted but precluded - FR date:
__ Did the petition requesting a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:

a. Is listing warranted (if yes, see summary of threats below)? Yes
b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded. Higher priority listing actions, including court-approved settlements, court-ordered and statutory deadlines for petition findings and listing determinations, emergency listing determinations, and responses to litigation, continue to preclude the proposed and final listing rules for the species. We continue to monitor populations and will change its status or implement an emergency listing if necessary. The "Progress on Revising the Lists" section of the current CNOR (*http://endangered.fws.gov/*) provides information on listing actions taken during the last 12 months.

___ Listing priority change
Former LP: ___
New LP: ___

Date when the species first became a Candidate (as currently defined): October 1, 1999

___ Candidate removal: Former LPN: ___

___ A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.
___U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.
___ F – Range is no longer a U.S. territory.
___ I – Insufficient information exists on biological vulnerability and threats to support listing.
___ M – Taxon mistakenly included in past notice of review.
___ N – Taxon does not meet the Act's definition of "species."
___ X – Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering plants, Poaceae (True Grasses)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: New Jersey, Delaware, North Carolina, Georgia

CURRENT STATES/ COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: New Jersey, Delaware, North Carolina

LAND OWNERSHIP: Both North Carolina populations occur on federal lands. The Delaware population occurs on Assawoman Pond, a State-owned Wildlife Management Area. One New Jersey population occurs on land owned by The Nature Conservancy and a second population occurs on State-owned land (Wharton State Forest).

LEAD REGION CONTACT: Martin Miller, (413) 253-8615; martin_miller@fws.gov

LEAD FIELD OFFICE CONTACT: New Jersey Field Office, Annette Scherer, 609-383-3938, ext. 34; annette_scherer@fws.gov

BIOLOGICAL INFORMATION:

Species Description

Dichanthelium hirstii, a perennial grass, produces erect leafy flowering stems from May to October. These stems may develop from over-wintering rosettes or from nodes of stems remaining from the previous year (Schuyler 1998, p. 1). The culms are 55 - 80 centimeters (cm) tall with flat leaf blades that are stiffly erect or narrowly ascending, without hairs, green often tinged with purple, and 4.5 - 11cm long and 3 - 5.5 millimeters (mm) wide. The 1.8 – 2.1 mm-long flowers (spikelets) are produced terminally on a narrowly branched inflorescence (panicle) that is from 4.5 – 9 cm long and about 5 mm wide with branches as much as 2.5 cm long (Swallen 1961, p. 236).

Toward the middle or latter part of the growing season, leafy rosettes develop from the basal parts of existing plants. Also during this time, seeds germinate and produce leafy rosettes

(Shuyler 1998, p. 1). Seeds presumably persist in seed banks (Shuyler 1998, p. 1) similar to those of related species found in seed banking studies by Kirkman and Sharitz (1994, pp. 181-183, 185) and Wisheu and Keddy (1991, pp. 184-185).

Taxonomy

Hirst Brothers' panic grass was described as the distinct species *Panicum hirstii* by Swallen (1961, p. 235) from a specimen collected in 1958 by Frank Hirst, an active amateur botanist in southern New Jersey. Prior to his death in 2009, Frank Hirst requested that the species common name be changed from Hirsts' panic grass to Hirst Brothers' panic grass to recognize his brother Robert who discovered the plant with him (McAvoy pers. comm., 2010). Therefore, the species common name (plural possessive) honors both Frank Hirst and his brother Robert Hirst as co-discoverers. According to a taxonomic review conducted by Schuyler (1996, pp. 95-96), the plant had first been collected in 1900 in Sumter County, Georgia and had been "doubtfully" described by Hitchcock and Chase (1910, p. 197) as *Panicum roanokense* Ashe. Others considered the plant to be a variant of *Panicum neuranthum* Griseb (Kral 1983, p. 76) or conspecific with *Panicum aciculare* Desv. (Gleason and Cronquist 1991, p. 804). In his taxonomic review, Schuyler (1996, pp. 95-96) concurred with the findings of Swallen (1961, p. 235), concluding that *Panicum hirstii* was taxonomically distinct. More recently, systematists have split a group of species from the genus *Panicum* into the genus *Dichanthelium*. In North America, *Dichanthelium* can be recognized easily by the presence of a basal rosette of leaves during the winter and a clear foliar dimorphism. This character is not seen in the Central and South American taxa, which led some taxonomists to treat *Dichanthelium* as a subgenus of *Panicum* (Aliscioni *et al.* 2003, p. 797). There is agreement among botanists working with Hirst Brothers' panic grass that *Dichanthelium hirstii* (Swallen) Kartesz is the appropriate nomenclature for the species (LeBlond pers. comm., 2004; Schuyler pers. comm., 2004; Natural Resources Conservation Service 2004). The U.S. Fish and Wildlife Service (Service) has carefully reviewed the available taxonomic information and has concluded the species is a valid taxon.

Habitat

All known sites of *D. hirstii* are in pine/oak forest and the habitats are variously described as ponds, meadows, or savannas (Schuyler 1998, p. 2). The species requires habitats that are at least intermittently wet, receiving full sun to light shade, and with substrates that are organic but firm (Kral 1983, p. 76; Schuyler 1998, p. 2). The plant occurs in flat-bottomed depressions with substantial water-level fluctuations dependent on rainfall. The species relies on periods of standing water to keep competing species at a minimum (Schuyler 1998, p. 2). The pinelands pond systems in which *D. hirstii* is found frequently burn or are burned over during dry cycles and this may be a factor in suppressing competition from woody vegetation (Kral 1983, p. 76).

Historical Range/Distribution

The species' historic range included seven sites within New Jersey, Delaware, North Carolina, and Georgia (Schuyler 1996, p. 96). *D. hirstii* has not been observed at the known sites in Sumter and Calhoun Counties, Georgia, for over 30 years and may now be extirpated at one of the known Atlantic County, New Jersey sites (NatureServe 2008).

Current Range/Distribution

D. hirstii is considered extant at only two sites in New Jersey, one site in Delaware, and two sites in North Carolina.

Population Estimates/Status

Individual populations can vary dramatically in size from year to year. In some years, plants may not appear (Schuyler 1998. p. 2).

Of two recently known sites in New Jersey (Barkwoods Pond and Labounsky Pond, collectively known as Hirsts' Ponds), population size has fluctuated depending on water levels, with the species being more abundant in dry years. In the late 1950's and early 1960's there were years in which *P. hirstii* covered significant portions of both ponds. Plants were easily found with no or only very little effort. By the 1970's, the species was difficult to find and often absent (Snyder pers. comm., 2010). *P. hirstii* was first discovered at the Barkwoods Pond by Frank and Robert Hirst in 1958. The species has not been seen at Barkwoods Pond since 1992 when only 9 plants were found after a thorough search. No *P. hirstii* was found in Barkwoods Pond during surveys conducted in 2003, 2007, 2008, and 2009 (Gordon pers. comm., 2004; Juelg pers. comm., 2004; Walz and Cartica 2008, p. 1; Noe pers. comm., 2010; Snyder pers. comm., 2010).

The species was first recorded at Labounsky Pond in 1960 by Frank and Robert Hirst. Two "clumps" were observed and photo-documented in 1984. The plant was not found at Labounsky Pond from 1985 to 2001 (Schuyler 1998, p. 3; Schuyler pers. comm., 2001; Cartica 2005, p. 1; Gordon pers. comm., 2008). Thorough surveys of the Hirsts Ponds were conducted in 2001 with negative results (Schuyler pers. comm., 2001). In June 2002, one vegetative plant and six fruiting plants with a total of 34 fruiting culms were found (Snyder pers. comm., 2010) representing the first confirmed sighting of the species at this site in 17 years. In July 2003, five *D. hirstii* culms were found at Labounsky Pond (Gordon pers. comm., 2008). A search for the species at Labounsky Pond in 2007 proved negative, but may be attributed to higher water levels in the pond (Walz and Cartica 2008, p.1; Gordon pers. comm., 2008; Snyder pers. comm., 2010). Searches of the Pond were conducted annually by The Nature Conservancy in 2007 to 2009; no *D. hirstii* plants were found (Noe pers. comm., 2010).

In July 2004, at least 28 fruiting culms of *D. hirstii* were documented at a previously unknown site, the Hampton Central Big Pond (also known as Hampton Furnace Pond), located within Wharton State Forest. The site was revisited in August 2004 and a total of 131 culms with 114 inflorescences in fruit were observed. Several culms had multiple inflorescences with a clustered distribution of one to six plants per cluster. During subsequent surveys of Hampton Central Big

Pond in 2006, approximately 30 fruiting culms were found (Gordon 2006, p. 63; Gordon pers. comm., 2007; Gordon pers. comm., 2008; Snyder pers. comm., 2010). In September 2007, a complete census of all *D. hirstii* plants was conducted and the number of clumps, genets, ramets, culms, inflorescences, and seedlings was recorded. Locations of each plant cluster were mapped using a global positioning system. A total of 14 plants were documented supporting 161 vernal inflorescences and 152 autumnal inflorescences. Only one plant did not produce flowers (Walz and Cartica 2008, p. 1). The duration, timing, and depth of standing water on the pond bottom at known occurrences in New Jersey during the growing season appear to be key factors in the annual presence or absence of the species and may account for dramatic fluctuations in population size (Gordon pers. comm., 2008).

The number of plants counted at the Assawoman Pond site in Delaware has fluctuated over the period for which surveys have been conducted (1984-2009). *D. hirstii* numbers have varied from a low of only 8 plants in 2009 to a maximum of 190 plants counted in 2000. After a low count of only 14 plants in 1990, the species rebounded with 104 plants in 1993 and 190 plants in 2000 (McAvoy pers. comm., 2010). In 2007, a total of 55 individuals were found (McAvoy and Bennett 2007, p. 2). In a June 2009 survey when Assawoman Pond was still flooded, only 3 flowering culms were counted. After an August drawdown, the pond was re-surveyed and only 8 vegetative plants with no autumnal flowering were observed (McAvoy pers. comm., 2010). Survey results have shown that plant numbers are down after wet years (high water throughout most to f the growing season) (McAvoy pers. comm., 2010). Although the number of plants at the site fluctuates, the Delaware population is believed to be relatively stable or increasing (McAvoy pers. comm., 2004; 2005; 2009; McAvoy and Bennett 2000, p.4).

The two sites in North Carolina occur on the Camp Lejeune Marine Corps Base. One site, referred to as Lyman Road Cypress Savanna, consists of plants scattered over an area of approximately 25 x 20 meters (Schuyler 1998, p. 4). Approximately 80-100 *D. hirstii* plants were counted at the Lyman Road Cypress Savanna site in June 1990. The species was confirmed present during surveys conducted in June 1997 and May 2000, but available records do not provide information on the number of plants observed. *D. hirstii* was not seen during surveys conducted by North Carolina Natural Heritage Program and Camp Lejeune biologists at the Lyman Road Cypress Savanna site in June 2005 and June and July 2006. Conditions necessary for production of fruiting culms may not have been present in recent years at this site (North Carolina Natural Heritage Program 2008. There has been no obvious change in habitat, other than yearly fluctuation in site hydrology. Since one of the New Jersey sites showed a decade between *D. hirstii* sightings, the species is still considered extant at the Lyman Road Cypress Savanna site (Buchanan pers. comm., 2010).

The second Camp Lejeune site, referred to as Starretts Meadow, occurs over an area of about 20 x 15 meters (Schuyler 1998, p. 4). Approximately 28-35 basal rosettes and 150-200 fruiting clumps were counted at the Starretts Meadow site in July 1990 and June 1994, respectively. Several fruiting clumps were observed at the site in May 2000 (LeBlond pers. comm., 2004). No plants were found during a survey at Starretts Meadow site in 2005. Cool dry conditions may have affected the phenology of the species at the North Carolina sites in 2005. Only 1 clump with 4 fruiting culms was observed during surveys of the Starretts Meadow site conducted in

2006 (North Carolina Natural Heritage Program 2008). No surveys have been known to occur at this site since 2006 (Buchanan pers. comm., 2010).

THREATS:

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

In New Jersey, *D. hirstii* habitat at Labounsky Pond has been impacted by an illegally constructed ditch. This ditch drains surface water from a construction parking / heavy equipment storage yard into Labounsky Pond. Runoff of oil, fuel, and lubricants from this storage yard poses a threat to water quality within the pond (Eisenhauer pers. comm., 1998; Patt pers. comm., 2000). In the late 1990s at both the Labounsky and Barkwoods ponds in New Jersey, grazing by resident Canada geese (*Branta canadensis*) impacted vegetation in the ponds and fecal matter increased nutrients, contributing to formation of dense algal mats (Schuyler pers. comm., 1998; Patt pers. comm., 2000). At Labounsky Pond, woody vegetation is encroaching into the portion of the pond inhabited by *D. hirstii*. If not removed, shading by woody vegetation will decrease habitat suitability of the pond for *D. hirstii* (Gordon pers. comm., 2008). In 2007, deer browse of much herbaceous vegetation was observed at Barkwoods Pond, but, as no *P hirstii* plants were observed that year, it is uncertain whether deer browse of *P hirstii* had occurred (Snyder pers. comm., 2010).

In Delaware, encroachment of woody vegetation is an ongoing problem that is actively managed by the Delaware Natural Heritage Program staff (McAvoy pers. comm., 2004; 2008; 2010). This woody vegetation includes primarily red maple (*Acer rubrum*), sweet gum (*Liquidambar styraciflua*), and American persimmon (*Diospyros virginiana*) (Bennett pers. comm., 1998; McAvoy pers. comm., 2008). *Carex striata*, a native but invasive sedge, was documented at Assawoman Pond in Delaware in 1995 and was found to be expanding in 2009 (McAvoy pers. comm., 2010). If not controlled, *C. striata* may eliminate suitable habitat for *D. hirstii* within the pond (McAvoy pers. comm., 2007). In 2009, competition with the native, but extremely aggressive species bog button (*Sclerolepis uniflora*) within Assawoman Pond was identified as a serious threat. Dominance of bog button is believed to be displacing *P. hirstii* within the pond (McAvoy pers. comm., 2010).

Tree cutting, establishment of plow lines, and encroachment of pond pine (*Pinus serotina*) are immediate threats at the two North Carolina populations (North Carolina Natural Heritage Program 2008). Both North Carolina sites are within areas zoned for military training exercises. The red-cockaded woodpecker also occurs at one of the sites in North Carolina. The military has protected this zone for the benefit of the red-cockaded woodpecker. However, there is no specific protection for *D. hirstii* (LeBlond pers. comm., 1998). In North Carolina, the species is vulnerable to changes in hydrology, soil disturbance, and canopy clearing. Land management practices such as preparation of plow (fire) lines many also directly affect the species local populations by damaging individuals or indirectly adversely affecting habitat by changing hydrology and altering the fire regime (Buchanan pers. comm., 2010).

B. Overutilization for commercial, recreational, scientific, or educational purposes.

Not a significant threat to the species.

C. Disease or predation.

Not a known threat.

D. The inadequacy of existing regulatory mechanisms.

D. hirstii is included on Delaware's rare plant list. The State of Delaware does not have a state endangered species act. The State has a rare plant conservation program. However, no legal protection is given to plants; any protection is strictly voluntary.

D. hirstii is listed as endangered by the State of New Jersey. However, the New Jersey Endangered Plant List Act does not provide regulatory protection from habitat loss or collection on private lands. It is against State law to collect plant species occurring on state land. The New Jersey Pinelands Protection Act prohibits development within the Pinelands Area unless it is designed to avoid irreversible adverse impacts on habitats that are critical to the survival of any local populations of threatened or endangered species. Protections afforded by the Pinelands Protection Act apply only within the "Pinelands Area," specifically that area encompassed by the Pinelands Comprehensive Management Plan. Both New Jersey *D. hirstii* sites are within the New Jersey Pinelands Area.

D. hirstii is listed as endangered by the State of North Carolina. Any person wishing to collect a listed plant species must have written permission from the property owner as well as a permit from the North Carolina Department of Agriculture's Plant Conservation Program. If species are illegally collected, the penalty is a fine of up to $2,000 per plant collected.

In Georgia, *D. hirstii* is protected by the state under provisions of the Wildflower Preservation Act of 1973. The species can not be removed from public land without authorization; a tag is required to transport protected species; and selling protected species is illegal without permission of the landowner.

E. Other natural or manmade factors affecting its continued existence.

Competition from rhizomatous perennials, particularly *Eleocharis robbinsii*, that dominate the turf covering the pond bottoms, is a threat in Hirst Ponds, New Jersey. Dense growth of *Utricularia fibrosa* and algae may be retarding growth of *D. hirstii* plants at Barkwoods Pond when water is present (Schuyler 1998, p. 4). At Assawoman Pond, *D. hirstii* does not occur in areas dominated by dense carpets of *Sclerolepis uniflora*, a native rhizomatous perennial that is a state-rare plant in Delaware. *S. uniflora* is quite aggressive at Assawoman Pond and may be out-competing *D. hirstii* at the site (McAvoy pers. comm., 2004; McAvoy 2008, p.1). Similar observations were made at the Camp Lejeune sites in North Carolina. At one site in North Carolina, where *Utricularia inflata* and algae in the water were present, plants of *D. hirstii* were much smaller than at the other site in North Carolina, which had deeper and clearer water

(Schuyler 1998, p. 4). Given that populations are small and isolated, the vulnerability of the species to the threats mentioned above is exacerbated.

Persistent standing water during the *D. hirstii* growing season was observed to result in high mortality of established plants at the Assawoman Pond site in 2000. In all, 111 plants died at the site between 2000 and 2001. Persistent standing water may all prevent germination and establishment of seedlings (McAvoy and Bennett 2002, p. 3). The duration, timing, and depth of standing water on the pond bottom at known occurrences in New Jersey during the growing season appear to be key factors in the annual presence or absence of the species and may account for dramatic fluctuations in population size. Changes to hydrology at *D. hirstii* habitats significantly impact persistence of the species (Gordon pers. comm., 2008).

CONSERVATION MEASURES PLANNED OR IMPLEMENTED:

The Delaware Division of Fish and Wildlife and Delaware Natural Heritage Program have conducted periodic removal of encroaching native, but invasive, Walter's sedge (also known as straw-colored sedge) (*C. striata*) and woody vegetation at Assawoman Pond. *C. striata* was effectively managed at the site through 2004 (McAvoy pers. comm., 2004). It is presumed that the Delaware Natural Heritage Program will continue to deal with existing and future threats to the species. However, concerns from encroachment by *Acer rubrum* and *Liquidambar styraciflua* and changes to hydrology of the site remain (McAvoy and Bennett 2000, pp. 5-6). In 2005, a small patch of the native, but aggressive *C. striata* was found in Assawoman Pond and had expanded in 2009. If not controlled, competition by *C. striata* could eliminate habitat for *D. hirstii* (McAvoy pers. comm., 2007; 2010). Control of *C. striata* is planned by the Delaware Natural Heritage Program (McAvoy pers. comm., 2010).

In November 2004, 55 potted plants of *D. hirstii* were planted in Assawoman Pond by the Delaware Division of Fish and Wildlife and Delaware Natural Heritage Program. These plants originated from seed collected from the site, which were germinated and reared by the Mt. Cuba Center for the Study of Piedmont Flora. The plants were randomly placed and planted within sunny open areas of the pond. Each plant was individually marked and GPS point locations were recorded. Of the 55 plants, 42 were observed to have survived the translocation on the day following planting (McAvoy pers. comm., 2007). In 2006, only 4 of the 55 plants were documented to have survived (McAvoy 2007and Bennett, p. 1).

The Marine Corps has cooperated in *D. hirstii* protection efforts in recent years by avoiding activities that would adversely affect the species at the Camp Lejeune, North Carolina sites. One site at Camp Lejeune is within a protected zone maintained for red cockaded woodpecker (LeBlond pers. comm., 1998). However, there are no specific protection measures for *D. hirstii*.

In New Jersey, The Nature Conservancy (TNC) is working with the construction company near Labounsky Pond to eliminate impacts from the illegally constructed ditch. Active management will be necessary to ensure that impacts are eliminated or minimized. Experimental treatments of the pond bottoms at Labounsky and Barkwoods Ponds were initiated in 1999 in an attempt to stimulate any naturally occurring seed bank of *D. hirstii* at these sites (Patt pers. comm., 2000). In summer 2003, a small number of *D. hirstii* plants were found at the Labounsky Pond site

(Gordon pers. comm., 2004; Juelg pers. comm., 2004). In 2005 through 2007 in a joint effort between TNC, New Jersey Department of Parks and Forestry, and New Jersey Geological Survey, hydrologic monitoring equipment (piezometers and data loggers) was installed at Labounsky and Hampton Central Big Ponds to monitor natural groundwater fluctuations in the ponds and surrounding uplands and relate hydrologic fluctuations to population data (Cartica 2006 pp. 1-2; Cartica 2007, pp. 1-2).

Hirst Brothers' panic grass is not included as a species of conservation concern within State Wildlife Action Plans because the species is a plant and the State plans address wildlife only.

SUMMARY OF THREATS INCLUDING REASONS FOR ADDITION TO OR REMOVAL FROM CANDIDACY:

The major threats to *D. hirstii* are habitat degradation that affects the hydrology of the species wetland habitat, competition from rhizomatous perennials, encroachment of woody vegetation, and inadequate regulatory mechanisms to protect this species. Impacts from geese (grazing and nutrient loading) is a minor threat to *D. hirstii*. Given that populations are small and isolated, the vulnerability of the species to the threats mentioned above is exacerbated.

The Service finds that this species is warranted for listing throughout all its range, and, therefore, finds that it is unnecessary to analyze whether it is threatened or endangered in a significant portion of its range.

For species that are being removed from candidate status:

___Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE)?

RECOMMENDED CONSERVATION MEASURES:

- Continue to monitor and manage known *D. hirstii p*opulations.
- Conduct *de novo* surveys within suitable coastal plain habitats throughout the species range.
- Continue hydrologic monitoring at Hirsts' and Hampton Central Big Ponds in New Jersey and Assawoman Pond in Delaware; and initiate hydrologic monitoring at the North Carolina sites to correlate changes in hydrology on species abundance and persistence.
- Conduct research on species life history.
- Manage encroachment of woody vegetation by controlled burning or hand removal.

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	**5***
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude:
While all four extant *D. hirstii* populations are located on public land or privately-owned conservation lands, threats to the species from encroaching vegetation and fluctuations in climatic conditions are significant and may be exacerbated by anthropomorphic factors occurring adjacent to the species' wetland habitat. Given the low numbers of plants found at each site, even small changes in the species' habitat could result in local extirpation. Loss of any known sites would constitute a significant contraction of the species' range. The small number of populations and their small sizes make this species highly vulnerable.

Imminence:
While some threats to the species have previously occurred and / or are currently occurring, the most immediate and severe of these threats (*i.e.*, ditching at Labounsky Pond, encroachment of aggressive vegetative competitors) have been curtailed and / or are being actively managed.

Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed? Yes

Is Emergency Listing Warranted? Based on the best available scientific information, emergency listing is not warranted at this time.

DESCRIPTION OF MONITORING:

Information regarding the status of the species is being monitored through annual coordination with New Jersey, Delaware, and North Carolina Natural Heritage Program staff, species experts, and local professional and amateur botanists.

The last comprehensive status survey for the species was conducted in 1998 and included only sites in New Jersey, Delaware, and North Carolina (Schuyler 1998 p. 1). The historic and rediscovered New Jersey populations are monitored sporadically on a voluntary basis by interested botanists and naturalists. Many of these monitoring efforts go unreported. For example, the Service did not learn until June 2004 that *D. hirstii* had been rediscovered at Labounsky Pond in summer of 2003 by local botanists. The Delaware population is monitored annually by the Delaware Natural Heritage Program. The North Carolina populations are not regularly monitored.

This level of monitoring is not appropriate to provide an adequate update of the species' current status. Given the low numbers of plants found at only four known locations, loss of any known sites would constitute a significant contraction of the species' range.

COORDINATION WITH STATES:

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment: Delaware, New Jersey, and North Carolina.

Indicate which State(s) did not provide any information or comments: Georgia

LITERATURE CITED
(* Indicates unpublished reports, submitted manuscripts, or other grey literature)

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*McAvoy, W.A. and K. Bennett. 2007. Job 2: Research and habitat enhancement of Hirst's panic grass (*Dichanthelium hirstii*). Excerpt from survey and protection of federally listed and candidate plant species in Delaware, 2006-2007 Project Report, Federal Aid Project E-2-22. Delaware Department of Natural Resources and Environmental Control, Natural Heritage Program, Smyrna, Delaware. 2 pp.

*McAvoy, W.A. 2008. Job 2: Research and habitat enhancement of Hirst's panic grass (*Dichanthelium hirstii*). Excerpt from survey and protection of federally listed and candidate plant species in Delaware, 2007-2008 Project Report, Federal Aid Project E-2-23. Delaware Department of Natural Resources and Environmental Control, Natural Heritage Program, Smyrna, Delaware. 2 pp.

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APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve: _____ Date: 5/26/10

Acting Regional Director, U.S. Fish and Wildlife Service

Concur: _____ Date: October 22, 2010

ACTING
Director, Fish and Wildlife Service

Do not concur: _____ _____

Director, Fish and Wildlife Service Date

Director's Remarks:

Date of annual review: April 22, 2010
Conducted by: Annette Scherer, New Jersey Field Office