CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Castilleja aquariensis*

COMMON NAME: Aquarius paintbrush

LEAD REGION: 6

INFORMATION CURRENT AS OF: February 11, 2003

STATUS/ACTION:
___ New candidate
_X_ Continuing candidate
  _X_ Non-petitioned
  ___ Petitioned--Date petition received: _
    ___ 90-day positive--FR date: ___
    ___ 12-month warranted but precluded--FR date: ___
  ___ Listing priority change
    Former LP: _
    New LP: __
Latest date species first became a Candidate: 1975
___ Candidate removal: Former LP: ___
  __ A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.
  __ F - Range is no longer a U.S. territory.
  __ M - Taxon mistakenly included in past notice of review.
  __ N - Taxon may not meet the ESA=s definition of "species."
  __ X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering Plants - *Scrophulariaceae*

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Utah.

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Utah - Garfield and Wayne Counties.

LEAD REGION CONTACT: Chuck Davis, (303) 236-7400, extension 235.

LEAD FIELD OFFICE CONTACT: Larry England, (801) 975-3330, extension 138.

BIOLOGICAL INFORMATION:

Castilleja aquariensis is endemic to the upper elevations of the Aquarius Plateau (including Boulder Mountain) on the boundary between Garfield and Wayne Counties in south central Utah. The species occurs sporadically in an area about 25 miles across in an east-west direction and about 6 miles across in a north-south direction. The species population is estimated at about 45,000 individuals.

THREATS:

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range.

Some populations of *C. aquariensis* are vulnerable to habitat destruction and degradation as a consequence of road construction to support recreational and timber harvesting activities within the species range.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes.

None known.

C. Disease or Predation.

The species is extensively impacted by domestic livestock grazing. It has been virtually eliminated in sheep grazing allotments and has been greatly reduced in both numbers and reproductive vigor in areas of moderate to heavy cattle grazing. Current studies have estimated a total population of about 42,000 individuals in areas of light cattle grazing (over 90 percent of the species total population on about 10 percent of the species potential habitat). The entire Aquarius Plateau is considered by many botanists and range conservationist to be severely overgrazed. Efforts by the Forest Service to reduce grazing and implement grazing systems which would promote enhanced vigor of forage species have been opposed by livestock grazing permittees. Continuation of current grazing patterns and intensities may extirpate the species from much of the species remaining occupied habitat leaving the species to persist only in its more inaccessible relictual habitat. These relictual stands themselves continue to be vulnerable to overgrazing as lack of rangeland forage abundance and quality may force utilization of nontraditional grazing areas.

D. The Inadequacy of Existing Regulatory Mechanisms.

No Federal or State laws or regulations specifically protect *A. equisolensis.* The Forest Service administratively recognizes this species for special management consideration. Intensive livestock management will be necessary for the recovery of the species. As described above, *C. aquariensis* is a sensitive indicator of grazing intensity on the overall plant community. A reduction in range carrying capacity and other alterations of the current domestic livestock grazing practices are necessary for the conservation of the species ecosystem. Protection of *C. aquariensis* is in keeping with the Forest Service's mission to provide for the sustained yield of range forage, one of its trust resources, to improve the grazing system on the Aquarius Plateau. While the conservation of *C. aquariensis* may require intensive management, this management will benefit the entire ecosystem and should be implemented if only as a good management

practice. Proposed grazing systems would increase intensity of grazing use in these areas with vigorous populations of *C. aquariensis* while reducing intensity of grazing use in areas of current heavy use without vigorous *C. aquariensis* populations. Threat to the species is imminent with the current grazing situation, the relative intensity of the threat will change with proposed alternative grazing systems. The Fish and Wildlife Service and Forest Service signed conservation agreement for this species. Due to resistance from local ranchers and county governments this conservation agreement is not yet fully implemented.

E. Other Natural or Manmade Factors Affecting its Continued Existence.

Low population numbers and fragmentation of the species population through extirpation of several of the species smaller historic stands posses a threat to the species genetic potential to adapt to changing environmental conditions.

FOR RECYCLED PETITIONS: N/A.

LAND OWNERSHIP: The species occurs entirely on public lands within the Dixie National Forest.

PRELISTING: The Forest Service is currently studying the biology and ecology of *C. aquariensis* emphasizing the impact of livestock grazing on the species reproductive vigor. In addition, the Forest Service intends to monitor the species population to determine if proposed changes in the grazing system will increase the viability of the population throughout its range on the Aquarius Plateau.

The FWS and Forest Service have entered into a conservation agreement for *C. aquariensis*. The Forest Service has proposed a 40 percent+ reduction in livestock grazing within the range of the *C. aquariensis* to bring forage utilization to the carrying capacity of that range. The grazing permittees have challenged the Forest Service both legally and administratively to prevent the Forest Service's planned reduction. Full implementation of the conservation agreement is contingent upon that planned reduction. The Forest Service expects that the livestock grazers appeals will not be upheld and that the planned grazing capacity reductions will take place within the next 12 months. When and if the Forest Service is able to resolve the overgrazing situation on the Aquarius plateau, FWS will be able to withdraw candidate status of *A. aquariensis*, if not then listing remains appropriate. If considerable progress can be made in the conservation and recovery of the species by removing all threats to this species, then listing under the Endangered Species Act may not be necessary. The FWS will independently evaluate the success of the conservation efforts directed towards *C. aquariensis* and will, if reproductive vigor remains low and populations decline, pursue the possibility of listing. The conservation agreement focuses the attention of both agencies on the conservation of the species and its ecosystem. The Forest Service has the legal ability, funds and personnel to carry out responsibilities foreseen in the proposed conservation agreement.

Given the moderate size of the *C. aquariensis* population, immediate listing under the act is probably not necessary to save the species from extinction. But if the current trend continues it is likely that in the next 5 to 10 years the need to list *C. aquariensis* will become acute and thus

may necessitate listing under the ESA in order to ensure the conservation measures needed by the species (and its ecosystem) are implemented.

REFERENCES:

Holmgren, N.H. 1973. Five new species of *Castilleja (Scrophulariaceae)* from the Intermountain Region. Bull. Torrey Bot. Club 100:83-93.

Hreha, A. 1985. Status Report: *Castilleja aquariensis* N. Holmgren. Unpublished report on file with U.S. Fish and Wildlife Service, Denver, Colorado. 20pp. + maps.

Tuhy, J.S. 1991. *Castilleja aquariensis* N. Holmgren (Aquarius Paintbrush) on the Dixie National Forest. Unpublished report on file with U.S. Forest Service, Cedar City, Utah. 84 + vi pp. + attachments.

Welsh, S.L. 1978. Status Report: *Castilleja aquariensis*. Unpublished Status Report on file with the U.S. Fish and Wildlife Service, Salt Lake City, Utah. 5pp. + attachments.

Whittekiend, D.C. 1992. Effects of Ungulate Grazing on *Castilleja aquariensis* N. Holmgren (*Scrophulariaceae*), A Central Utah Endemic and notes on Pollination of Aquarius Paintbrush *Castilleja aquariensis* N. Holmgren (*Scrophulariaceae*). Unpublished Thesis, Brigham Young University, Provo, Utah. 39pp.

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: The primary threat to this species is overgrazing by domestic livestock and wildlife. Management by the Forest Service is moderating this threat. Population monitoring indicates a population that is small but apparently stable. Short term population is decreasing due primarily to a prolonged drought; Long term population trend is unknown, but anecdotal evidence suggests that the species population is increasing from near extinction to sustainable levels, probably due to improved livestock management.

Imminence: The livestock and wildlife grazing threats are present.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Ralph O. Morgenweck April 1, 2003

Regional Director, Fish and Wildlife Service Date

Concur: _____ _____

Director, Fish and Wildlife Service Date

Do not concur: _____ _____

Director, Fish and Wildlife Service Date

Director's Remarks:

Date of annual review: February 11, 2003

Conducted by: Larry England