

## 1998 Canon Exploration Grants Program

### Locating the Historic Crandall's Hollyhock, *Iliamna crandallii* (Rydberg) Wiggins, Malvaceae

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#### Introduction

Crandall's Hollyhock (*Iliamna crandallii* (Rydberg) Wiggins) is a tall, herbaceous perennial, with large white to pink flowers arranged in racemes. Crandall's Hollyhock was first collected in 1891 by Alice Eastwood, a prominent botanist at the turn of the century. The type collection for this species was made by C.S. Crandall in 1894, and the species was officially described by Rydberg (1906) who differentiated Crandall's Hollyhock from other Hollyhock (*Iliamna*) species by its flower shape, texture, color, and overall size. Three other collections of this species were made from distinct locations, two in 1894 and one in 1937. All collections were made in the general vicinity of Steamboat Springs, Colorado. Although other botanical surveys have been conducted in the vicinity of Steamboat Springs (Kettler and McMullen 1996, Culver and Sanderson 1996), no specimens of Crandall's Hollyhock have been collected since 1937.

The purpose of this study was to: 1) locate one or more of the historically documented occurrences of Crandall's Hollyhock, 2) identify and search potential habitat for new occurrences of Crandall's Hollyhock, 3) expand the knowledge base on this species by recording population and habitat information, as well as documenting evidence of threats to survival and management needs, and 4) collect specimens of Hollyhocks to add to the material needed for taxonomists to more thoroughly study the taxonomic treatment of Crandall's Hollyhock. An additional objective was to document similar information for other rare and imperiled plant species as they were encountered during the field component of our research.

#### Methods

Five specimens of Crandall's Hollyhock have been collected to date. We obtained the information associated with these specimens from the University of Colorado Herbarium. Based on these data, we conducted our fieldwork between July 20-24, 1998 in the vicinity of Steamboat Springs. We began our fieldwork at Fish Creek Falls since this was the most specific location known, and found a Hollyhock species at this site. Based on this habitat, a mixed shrubland, we continued our search in the Steamboat Springs area. The primary areas that we covered included the main routes from Steamboat Springs to Buffalo Pass and Rabbit Ears Pass. At the conclusion of our research we had collected a total

of three Hollyhock specimens from two locations. We sent our specimens for verification to Dr. Paul Fryxell, an expert in Malvaceae at the University of Texas.

We contacted the U.S. Forest Service, The Nature Conservancy, and several Colorado botanists to obtain information and increase awareness of Hollyhocks in the Steamboat Springs area.

We collected information on another rare plant, Rabbit Ears Gilia (*Ipomopsis aggregata* ssp. *weberi*), which was observed while surveying for the Hollyhock.

We incorporated our survey results into the Biological Conservation Datasystem (into the Element Occurrence, Plant Characterization, Element Global Ranking, and Element State Ranking databases) to present a complete picture of the total distribution, apparent habitat requirements, and threats to Crandall's Hollyhock and the other species of concern encountered during our research. Summary information from the Biological Conservation Datasystem on these species is included as appendix to this report. Specimens will be deposited at the University of Colorado and University of Texas herbaria.

## Results

The three Hollyhock specimens that we collected during this research were identified by Dr. Paul Fryxell, expert in Malvaceae with the University of Texas, as the Large-flowered Hollyhock (*Iliamna grandiflora*). The Large-flowered Hollyhock is another globally rare species in the Hollyhock group that has been documented in Colorado, New Mexico, and Arizona. These specimens were collected at two locations in the approximate range that Crandall's Hollyhock had been collected in historically. One of the collection locations, at Fish Creek Falls, is likely very close to where Crandall's Hollyhock was collected in 1901. Dr. William Weber, professor emeritus with the University of Colorado, suggests that because the Fish Creek Falls collections were made at a location so close to the description provided in 1901, that the collections from this location are likely Crandall's Hollyhock.

During our search for Crandall's Hollyhock, we located thousands of individuals of Rabbit Ears Gilia (*Ipomopsis aggregata* ssp. *weberi*). This subspecies is known from a narrowly restricted global range in Colorado, Wyoming and Idaho. The CNHP rank for this species is G5T2 (Master 1991) which indicates that the full species is globally secure, but the subspecies is globally imperiled. Although the subspecies has a very restricted distribution, the high number of individuals we observed this field season has given us the basis to change the rank of this species from T1 to T2. This information has been assimilated into the Biological Conservation Datasystem (please see summary information in appendices).

## Discussion

Further research is necessary to determine the true relationship between the Hollyhocks. There are only six species of Hollyhock recognized in North America (Kartesz 1994); three are reported from Colorado. All three of these Hollyhocks (*Iliamna rivularis*, *I. grandiflora*, and *I. crandallii*) are very

closely related and have been considered to be conspecific by some experts (Harrington 1954). Others separate the three by the relative difference in size of the leaves, flowers, and overall plants, along with a possible geographic distinctness. Crandall's Hollyhock was described as a separate species in 1904 based on five specimens. There is only one additional collection since that treatment. Dr. Fryxell suggests that Crandall's Hollyhock may be an aberrant sort of Large-flowered Hollyhock that did not develop under the same growing conditions (personal communication 1998). According to Weber and Wittmann (1996), there is not enough material or field observations to make a definitive taxonomic decision regarding either the Large-flower Hollyhock or Crandall's Hollyhock.

Since we cannot be certain that we relocated Crandall's Hollyhock, the global imperilment rank of this species will remain GH (Master 1991). To reflect the taxonomic question, the full rank will be GHQ.

The Hollyhock specimens we collected during this research may help to clear up the taxonomic confusion in this genus. The outcome will be important to future conservation efforts in the state of Colorado and for the botanical community in general.

## References

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**Photos, left to right, Hollyhock (*Iliamna*) collected at Fish Creek Falls, Colorado, and Rabbit Ears Gilia (*Ipomopsis agregatta* ssp. *weberi*) from Rabbit Ears Pass, Colorado.**

November 13, 1998

Carol Smeltzer  
The Nature Conservancy  
4245 North Fairfax Drive, Suite 100  
Arlington, VA 22203-1606

Dear Carol,

Enclosed please find our final report on the results of our Canon Exploration Grant-funded research for the GH species, *Iliamna crandalii*. This has been a very interesting project, and we are thankful for the opportunity to focus on one of our highest priorities in Colorado.

We will also be sending thank you notes to Canon for making the grant program possible and will copy you on this correspondence.

Sincerely,

Susan Spackman  
Botanist

Cc: Mary Klein, Director and Kim Fayette, Assistant Botanist