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John Whitehead
Mine file

ACT/015/019

United States Department of Agriculture | Forest Service | Manti-LaSal National Forest | 599 West Price River Drive Price, Utah 84501

Reply to: 2820

Date: September 11, 1987

Lowell Braxton
State of Utah Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RECEIVED
SEP 16 1987
DIVISION OF OIL
GAS & MINING

Dear Lowell:

Enclosed are copies of the studies we completed in Miller Canyon and Grimes Wash to monitor two different populations of Hedysarum occidentale var. canone (HEOC); and a map prepared by Bob Thompson, indicating known populations of HEOC, potential habitat surveyed and other potential habitats. Also enclosed is a description of the plant and current information on file. This information is pursuant to the Mid-Term Review of Utah Power and Light Company's Wilberg/ Cottonwood Mine.

The enclosed map indicates that HEOC is only found in a few locations in Carbon and Emery Counties, with the largest populations being on the south end of East Mountain. The map also indicates that there is much potential habitat in the same area. The extent of the current survey has been limited, not intensive enough for evaluation.

Utah Power and Light must conduct further surveys within areas that could be impacted by mining activities to determine the extent of HEOC. The survey in Miller Canyon must be completed this field season. As these surveys are completed we need to receive a copy to help us keep our records updated. Population trend studies should be read every three to five years. It would also be beneficial if these studies are read during years of extreme growing conditions, wet and dry, or warm and cold.

Hedysarum occidentale var. canone is presently listed as a sensitive plant, candidate category 2 species. This designation means that the Fish and Wildlife Service is in possession of information that proposing to list the species as endangered or threatened species may be appropriate, but for which conclusive data on biological vulnerability and threats are not currently available to support proposed rules.

The endangered Species Act, Section 5, states that the Secretary of Agriculture is directed to "establish and implement a program to conserve fish, wildlife and plants," including Federally listed species. Forest Service objectives for management of sensitive plants are:

1. Develop management practices to ensure that species do not become threatened or endangered.

2. Maintain viable populations of all native and desired non-native wildlife, fish and plant species in habitats throughout their geographical range on National Forest System lands.

3. Develop and implement management objectives for populations and/or habitat of sensitive plants.

It is policy that:

1. As part of the National Environmental Policy Act process, review programs and activities through a biological evaluation to determine their potential effect on sensitive plants.

2. Avoid or minimize impacts to species whose viability has been identified as a concern.

3. If impacts cannot be avoided, analyze the significance of potential adverse impacts on the population or its habitat within the area of concern and on the species as a whole. The decision to proceed with a specific impact must not result in loss of species viability or create significant trends toward Federal listing as a threatened or endangered species.

Please provide this information to Utah Power and Light Company. Utah Power and Light must proceed as soon as possible with location and accurate mapping of existing populations within the permit area.

Sincerely,

W. K. Bailey

for
GEORGE A. MORRIS
Forest Supervisor

Enclosure

July 29, 1987

Hedysarum occidentale var. canone study site Miller Canyon U.P.& L.,
Estableshed a 6' x 33' feet size plot. (see aerial photo for exact location)
Measured the basal area covered in inches by each HEOCC plant with in
the plot area.

Data collected

HEOCC

Diameter of plant bases measured in inches

8, 6, 8, 4, 6, 3, 6, 10, 14, 10, 10, 4, 3, 6, 4, 3, 3, 2, 3, 3, 2, 8, 2, 3, 2, 3.

Seedlings 11

Square inches of cover for each measured (HEOCC) plant

50.3, 28.3, 50.3, 12.6, 28.3, 7.1, 28.3, 78.5, 153.9, 78.5, 78.5, 12.6, 7.1, 28.3, 7.1, 12.6, 7.1, 7.1, 3.1, 7.1, 7.1, 3.1, 50.3, 3.1, 7.1, 3.1, 7.1.

Tolal 767.5 square inches of cover

Other plant species in study plot.

Elymus salina
Oryzopsis hymenoidis
Lepidium montanum
Leptodactylon pungens
Gilia stinothrysa
Gutierrezia sarothrae
Galium multiflorum
Aster glauodes
Cinsium seariosum
Cnyptantha flavoculata

July 29, 1987

Hedysarum occidentale var. canone study is above Wilberg or cottonwood mine U.P.& L.
Established a single 6' x 33' size plot. (see map for location of study)
Measured the basal area covered in inches by each HEOCC plant with in the plot area.

Data collected

Diameter of plant bases measured in inches.

3, 3, 2, 3, 4, 3, 8, 6, 4, 3, 4, 8, 6, 4, 10, 12, 12, 12, 3, 2, 6, 3, 1, 3, 8.

Seedlings 8.

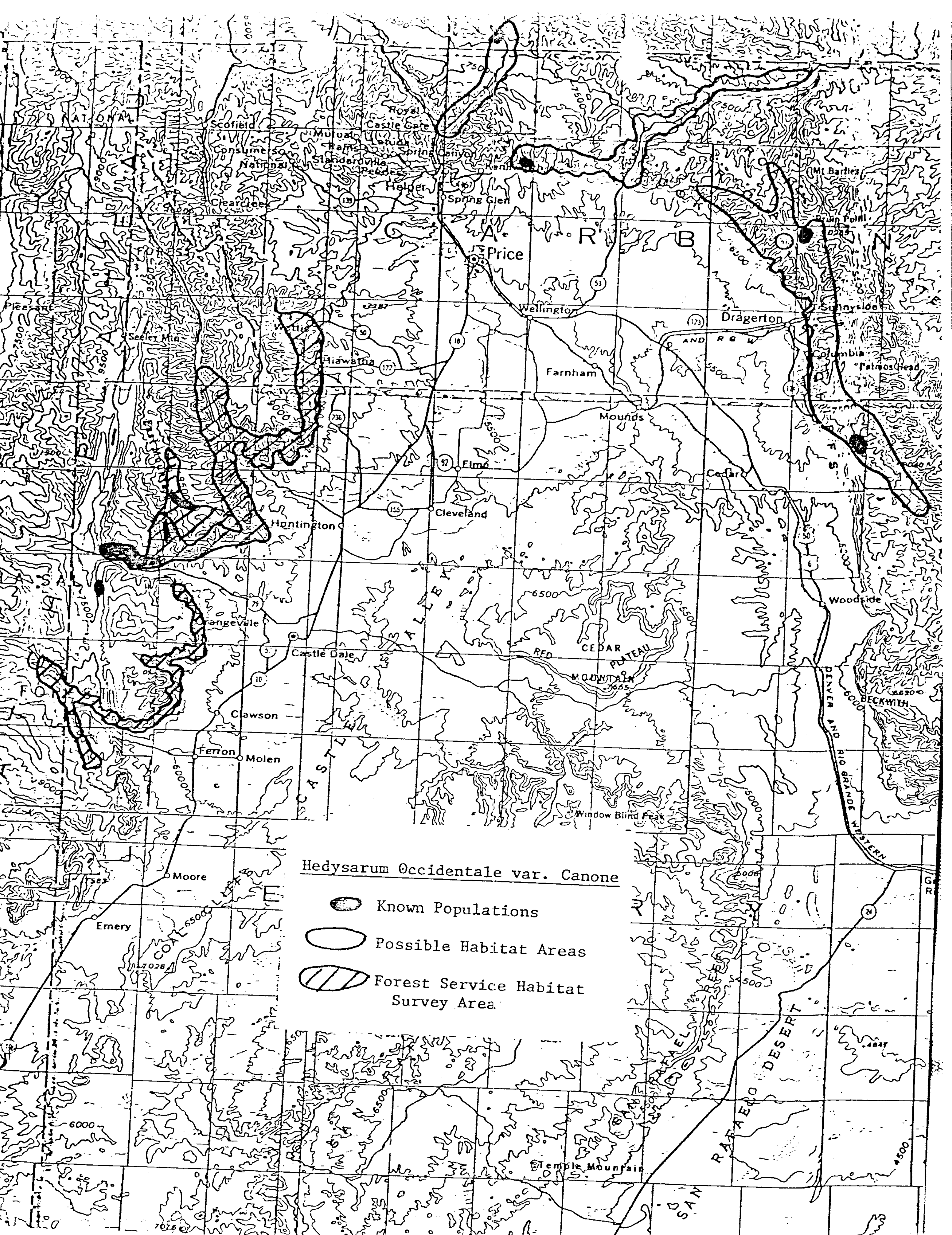
Square inches of cover for each measured HEOCC, plants.

7.1, 7.1, 3.1, 7.1, 12.6, 7.1, 50.3, 28.3, 12.6 7.1,12.6, 50.3, 28.3, 12.6, 78.5 113.1, 113.1, 113.1, 7.1, 3.1, 28.3, 7.1, 0.8, 7.1, 50.3.

Total 709.6 square inches of cover.

Other Plants Species in study plot.

Oryzopsis hymenoidis
Elymus salina
Comandia umbellata
Cinsium utahense
Senico multilobatus
Leptodactylon pungens
Artemisia nova
Holodescus dumosus


Hedysarum Occidentale var. Canone
Known Populations
Possible Habitat Areas
Forest Service Habitat Survey Area
Scofield
Royal
Castle Gate
Mutual
Rains
Spring Canyon
Consumers
National
Standardville
Peerless
Kenilworth
Helper
Spring Glen
Clear Creek
Price
Wellington
Dragerton
Sunnyside
Mt. Bartles
Columbia
Farnham
Mounds
Cedar
Wattis
Hiawatha
Seeley Mtn
Pleasant
Elmo
Cleveland
Huntington
Orangeville
Castle Dale
Clawson
Ferron
Molen
Moore
Emery
Woodside
Beckwith
RED CEDAR PLATEAU
MOUNTAIN
Window Blind Peak
Temple Mountain
SAN RAFAEL DESERT
DENVER AND RIO GRANDE WESTERN
CASTLE VALLEY
COAL CLIFFS

HEDYSARUM OCCIDENTALE var. CANONE

I. Nomenclature:

A. Plant Family. FABACEAE - Pea Family.

B. Species Name: Hedysarum occidentale var. canone welsh.
Citation: Great Basin Naturalist Vol. 38, No. 3. "Fabaceae". PP. 314.
Synonyms: None
Common Name: Western Sweetvetch.

II. Status:

A. Federal:
1. Federal register Vol. 45, No. 242. December 15, 1980, (Category 1). Has been changed to category 2.
2. Region 4, Forest Service Sentive Plant List.

B. State: None

C. Other:
1. Recommended as Threatened by S.L. Welsh, 1978. Great Basin Naturalist.
2. Utah Native Plant Society Rare Plant List.

III. Description:

A. Field Identification: A large upright plant that grows in tight individual bunches. Flowers pink to white, large. Loments stipitate, pendulous, 1-5 segments, winged.

B. Description: Great Basin Naturalist Vol 38, No. 3. Perennial, caulescent 30-90 cm tall, from a branching superficial caudix, pubescence basifixed; stems ascending to erect; stipules leaflets 7-17, 9-29 cm long, 6-17 mm wide, ovate to obovate or broadly elliptic, apiculate to emarginate, glabrous on both sides or strigose only on veins beneath; peduncles 4-15 cm long; racemes 4 to 35 flowered, the flowers spreading to declined at anthesis, the axis 5.5-18 cm long in fruit; bracts 2-8 mm long; bracteoles 2, linear-lanceolate; calyx 3.5-7 mm long, the tube 2.3-4 mm long, campanulate, glabrous, the teeth 0.5-2 cc long, triangular; flowers 16-22 mm long, pale pink; loments stipitate, pendulous, with 1-5 segments, winged.

C. Closely Related Species: Hedysarum occidentale var. occidentale.

D. Taxomic Problems: Differs from var. occidentale only in leaflet features.

IV. Geographical Distribution:

A. Present: To date this plant has only been collected in Carbon and Emery Counties, Utah. The type collection was made by Welsh fourteen miles due Northeast of Helper, Utah, Soldier Creek, elevation 7,400 feet. It now has been located in small populations from Horse Canyon in the west end of the Book Cliffs around Castle Valley to Straight Canyon 12 miles west of Orangeville, Utah.

B. Potential: Toe slopes below ledges and cliffs that encircle Castle Valley, Carbon and Emery County, Utah.

V. Habitat Description:

A. Plant Community and Type: River Birch-Rocky Mountain Junper-Salina wildrye, Douglas Fir-Skunk brush-Salina wildrye types.

B. Associated Species: Betula occidentalis, Juniperus scopulorum, Elymus salina, Rhus tribolata, Eriogomun microtheeum, Carex nebrascensis, Salix exigna.

C. Elevation: 5000 to 8000 feet.

D. Exposure and Slopes: Plants have been found on all exposures and aspects; however most occur on north and west exposures. Slopes vary from 0 to 50%.

E. Edaphic Features: Soil is mostly shallow 5 to 15 inches deep rocky 30 to 50 percent rock fragments, textures range from a sandy clay to fine clay. PH 7.5 to 8.0. Color, gray to dark gray.

F. Geology: Alluvium derived from the northern and Black Hank formations.

G. Other Habitat Features: This species is confined to sites that have underground water source at 2 to 6 feet below the surface. They also occur on sites that have a high trapped water table.

IV. Population Biology:

A. Number of Populations: At present there is a total of 8 population sites known in Castle Valley area of Carbon and Emery Counties.
They are: Horse Canyon, Soldier Canyon, Willow Creek Canyon, Murland-Gentry, Huntington Canyon (Bear Creek), Huntington Canyon (Coop Mine), Huntington Canyon (Crandall Canyon) and Straight Canyon.

B. Estimated Numbers of Individuals in Each Population:
1. Horse Canyon:
2. Soldier Canyon:
3. Morland-Gentry:
4. Huntington Canyon (Bear Creek): 20 to 30 plants.
5. Huntington Canyon (Coop Mine): 800 to 1000 plants.
6. Huntington Canyon (Crandall Canyon): 50 to 100 plants.
7. Willow Creek (East of Helper): 30 to 40 plants.
8. Straight Canyon: 50 to 100 plants.

C. Age and Size Classes: (Population status and trends)
1. Horse Canyon:
2. Soldier Canyon:
3. Morland-Gentry:
4. Huntington Canyon (Bear Creek): All age classes but mostly small individual plants. Trend is static on slightly down due to mine development in area.
5. Huntington Canyon (Coop Mine): This is a large population with many large individual plants. All age classes are present. Trend is static.
6. Huntington Canyon (Crandall Canyon): This is small population with a few scattered plants. Site is poor, not very good habitat. Trend

is static to down.

7. Willow Creek (East of Helper): Small population confined to a wet area that is beginning to slide. If slide continues this population will be lost.

8. Straight Canyon: There are four small population sites located in this canyon, none are larger than one-forth of an acre in size. They contain plants of all age classes, but plants are mostly small in size.

D. Phenology:
Flowering: Plants flower from late June to mid August. Some plants continue to flower until frost.

Fruiting: Seeds are set in 10 to 15 days after flowering and ripe by September 1st.

E. Dispersal mechanisms: Seeds are mostly scattered by wind. Small birds and mammals also can spread the seed.

F. Pollinators:
Numberous bumble bees were observed on and in these plants when they were flowering.

G. Other Biological Factors:

VII. Threats to Survival:

A. Nature of Existing threats: Coal mine development and road construction in Huntington Canyon could destroy or modify the population there.

B. Utilization for commercial sporting, scientific or educational purpose: Not known at this time. However, plants may have value for soil stabilization and land scaping.

C. Disease, Predation, Grazing or Trampling: Most populations are located in areas not suitable for livestock grazing. Those growing on sites suitable for livestock use show no evidence of grazing use.

VIII. Land Ownership:

At present populations have been found growing on lands controlled by the BLM, National Forest, State and Private ownership.

1. Horse Canyon - BLM and Private.
2. Soldier Creek - Private
3. Morland-Gentry - BLM and Private
4. Huntington Canyon (Bear Creek)- BLM and Private
5. Huntington Canyon (Coop Mine) - Forest and Private
6. Huntington Canyon (Crandall Canyon) - Forest Service
7. Willow Creek - State
8. Straight Canyon - Forest Service

IX. Management Needs and Recommendations:

A. Management Action needed to best maintain the species:
1. Retain this species on the sensitive plant list.

2. Develop a cooperative agreement with BLM, Forest Service, State and private owners to prevent the destructing of known populations and potential habitats on their lands.

3. Work with the State Department of Transportation to develop a herbicide spraying program for Huntington Canyon and Straight Canyon to prevent their spraying of existing population in these canyons.

4. Work toward developing long-term management guidelines and protective measures needed to maintain this species on all concerned lands.

X. Potential Value:

A. This plant could be used on wet sites or those with a high under table. Also along new road cuts, to help provide cover and stabilize the site. This plant has an extensive root system and grows rapidly, provides good cover on rather poor sites.

B. Forage Value: At present little or no use by livestock has been observed.

XI. Cultivation Potential:

No known cultivated population exists, because of its size and numberous large flowers. It may have some value as an ornamental or a cover plant.

REFERENCES

Welsh, S.L., 1978 Endangered and Threatened Plants of Utah: A re-evaluation Great Basin Naturalist 38, 1-18.